

NEW JERSEY'S CULTURAL RESOURCES: A.D. 1800-1865

by

Edward McM. Larrabee

Introduction

An important statement was made in the report of the Fort Burgwin Conference on National Archeological Policies (Wendorf 1979) concerning the need and utility for State Plans for Archeology. The report stressed that the professional archeological community has the important responsibility of creating a framework, based on research, for making and documenting judgements about the relative significance of cultural resources, and for recommending which specific resources are eligible for nomination to the National Register of Historic Places. Moreover, the professional community has an on-going responsibility for reevaluating the framework, for which the State Plan is the logical vehicle, as new data prompts new methods, syntheses, and research questions.

At the Fort Burgwin Conference, stress was placed on the changing nature of archeological research priorities and capabilities over time, and on the vital importance of preserving as much of the data base as possible but in a knowledgeable manner. "A research orientation should be employed to structure practical management assessments for determining the significance of cultural resources" (Wendorf 1979:4). It was also clear that those "plans" which were merely inventories or progress reports of the current status of work were inadequate for assessing archeological significance.

The text that follows is an attempt to provide some useful information concerning archeological resources in New Jersey for the first two-thirds of the 19th century, with the above requirements in mind. It should be understood that this is a working text only, and that the State Plan should be subject to constant reevaluation if it is to have any use as a "highly focused state planning program." Such a working text cannot provide easy answers to questions of significance and eligibility, but it can help to focus on some of the questions.

The period between 1800 and 1865 begins with a cultural and demographic situation which would have been recognizable to an individual in the Colonial Province of New Jersey one or two generations earlier. Only the political situation was markedly different. During the period under discussion, New Jersey was altered by the cultural changes brought about by industrialization, massive immigration, revolutions in transportation, and by major changes in many other fields. These changes were affecting the entire nation and other countries that are now referred to as "western, industrial nations," but New Jersey may well be considered as both one of the

first affected and one of the most completely altered areas. So thorough were the changes during the first two-thirds of the 19th century that many aspects of New Jersey at the end of the Civil War would have been unrecognizable to a typical resident of about 1800. The other side of this rapid and massive change is that many parts of New Jersey that were created by industrial and related development as of approximately 1865 are present today, more than a century later. Examination of maps of late 18th century and late 19th century New Jersey show the contrast graphically. In 1800, New Jersey was overwhelmingly rural, with a few towns but not cities, and with an 18th century road system. By 1865, New Jersey already had the major cities present today, and almost all the major railroad lines. Only the 20th century highway network and large portside and air travel facilities were missing.

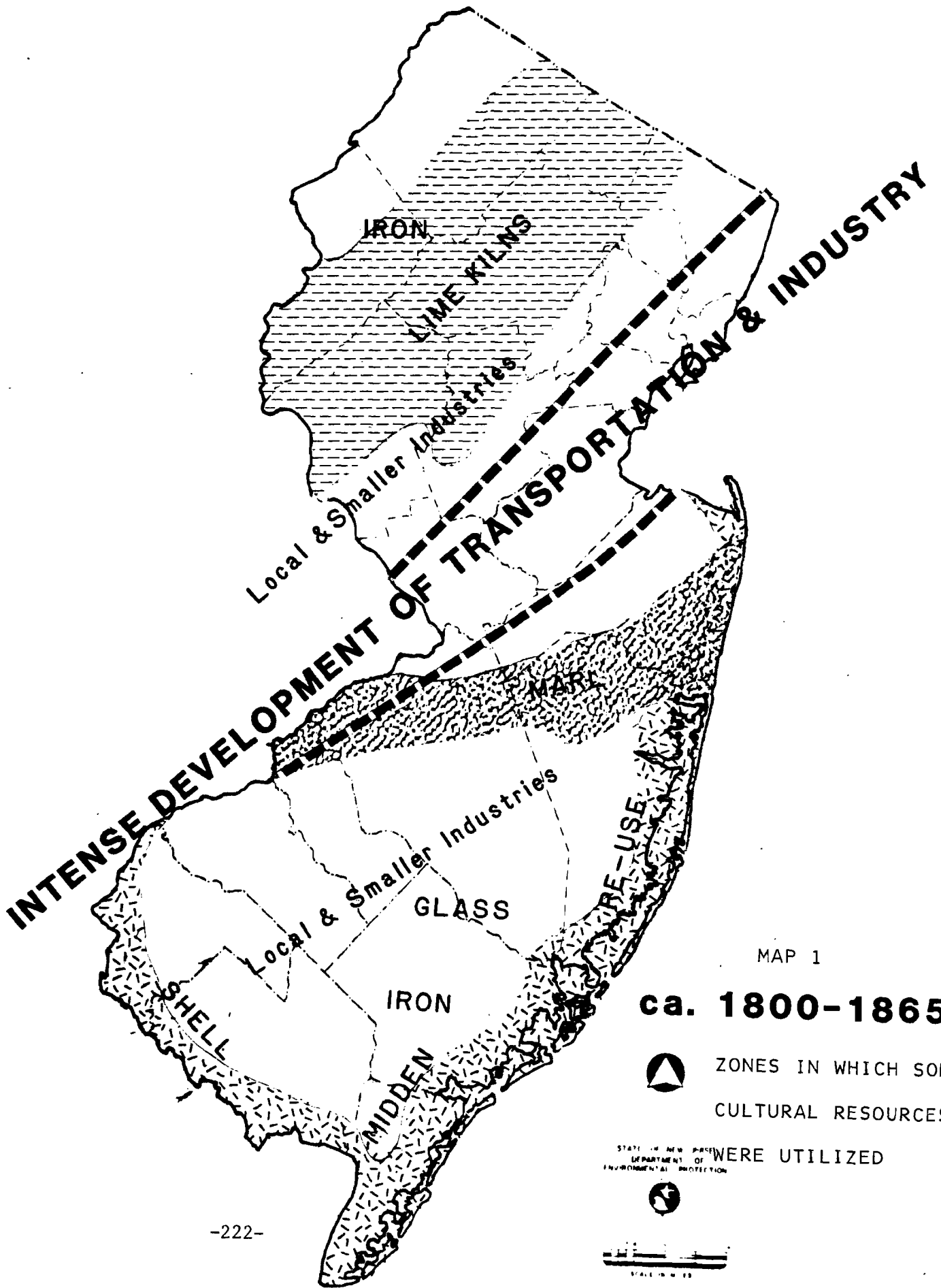
This is not to say that highly important changes have not occurred in the last one hundred and fifteen years. But by 1865, the basic shape of the modern cultural map of New Jersey was formed. The purpose of this text is to examine how that basic cultural map was created between 1800 and 1865, to outline the categories of archeological resources related to it, to suggest the types of locations likely to be preserved in the archeological record, and to suggest questions which are relevant to assessments of significance.

Changes are discussed under the traditional headings of Agriculture, Industry, Transportation, Commerce and Structures (i.e. Architecture and Engineering), Settlement and Living Patterns (i.e. Demography and the Built Environment), Education and Communication, and those aspects of political, economic, religious, and social behavior likely to be reflected in material culture. Then, some strictly archeological questions are introduced.

Agriculture

At the beginning of the 19th century, most agriculture in New Jersey was in the 18th century pattern of considering land expendable, but labor expensive. Farmsteads, except where a New England-like village pattern was established (e.g. Newark), were separated from each other and were located on "fifty Acres to four hundred Acres" in locations favorable for residence such as proximity to water sources, weather shelters, or "farm lanes" to nearby public roads (Schmidt 1973: 101).

Land, especially in northwest Jersey, was worked until it was exhausted, with some use of traditional techniques such as crop rotation or fallow periods (Wacker 1968). However, interest was beginning in "experimental" techniques, partly spurred by economic changes in the region, and by the 1830's, various fertilizers were being tried. Marl had been discovered on the Shark and Manasquan Rivers, and was being dug from the banks and applied liberally.



MAP 1

ca. 1800-1865



ZONES IN WHICH SOME
CULTURAL RESOURCES

STATE OF NEW JERSEY
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

WERE UTILIZED



Eventually, some local rail lines were built especially to carry marl. Archeological manifestations include marl pits, railroad lines, fossil shells, sharks teeth, and other paleontological marine remains scattered on the fertilized fields. This phenomenon occurred in a band across the Inner Coastal Plain (Cook 1866; Salter 1890). Along parts of the coast, modern shells were burned for lime, possibly leading to destruction of aboriginal shell middens for the rich source they provided. Sometimes, shell middens were spread over farmland without burning the shells first (Blackman 1880: 238).

In a section of the Piedmont where limestone outcrops occur, a common mid-19th century pattern involved the construction of lime kilns and the spreading of burnt lime on the fields (Cook 1868). Archeological evidence can be found in the specific kiln locations (some of which include massive structures) and in the form of lime "lumps" in the soil which was cultivated at that time. This can be used as an indicator in land which may have been fallow and reforested for as much as a century now.

The growing interest in making land more productive (as opposed to the earlier practice of finding new land) led to increased communication of ideas among farmers, as well as to the introduction of new plants (such as in the short-lived Mulberry craze of the 1830's and early 1840's when "cocooneries" sprang up for the silk worm culture) and animal breeds (such as the Merino sheep fad between 1810 and 1820) (Cook 1869). At the end of this period, commercial cranberry production was becoming successful (White 1883). The active experimentation in fertilizers of the period can be seen in such efforts as construction of a horseshoe crab processing plant, and in the importation and application of guano (Cook 1857: 99-125). Agricultural fairs were established, and by the end of this period, the Grange movement was well underway. Physical evidence for this cultural agrarian revolution can be expected in the form of relict plantings, introduced crops, remains of various animal breeds, and in new land-use patterns and revised farmstead designs (Kardas and Larrabee 1979b). The fairgrounds themselves (such as Flemington Fair in Hunterdon County which was first used in 1856) and the Grange buildings found throughout the state are representative of the new spirit of farming.

During the middle part of the 19th century, the peak of rural population was reached. In the succeeding period, increased mechanization reduced the needs for farm labor (a process which still continues). Farm areas began to be affected by population loss as the labor force was drawn toward cities. Consequently, this is a critical period in terms of demography and should be accompanied by subtle changes in life style.

Industry

So many industrial changes occurred in New Jersey between 1800 and 1865 that they are difficult to summarize, except in the broadest terms. At the beginning of the period, manufacturing was done in small workshops rarely employing more than a few dozen individuals. By the end of the Civil War, huge factories employing an aggregate work force of many thousands existed in Jersey City, Newark, Paterson, Trenton, and in other less concentrated industrial locations. In 1800, the only power besides that supplied by humans and animals was in watermills, which tied manufacture to streamside locations. By 1865, large stationary steam engines powered the major establishments. Mills at the beginning of the period were predominantly local and were providing grist, flour, and later sawmilled lumber. As specialization and experimentation occurred in agriculture, equivalent specialization was applied to existing mills, or special-purpose mills were built. Such products as cider, snuff, linseed oil, gypsum for plaster, pasteboard, and fulling cloth were produced at mills.

The early forges and furnaces of the 18th century in the highlands were phased out, with the notable exception of places such as Oxford; however, ironworking in the Pinelands continued throughout the period and New Jersey glassworks reached a peak of activity. Shell burning for lime, mentioned above under the section on Agriculture, also serviced the south Jersey iron industry.

Perhaps the most spectacular industrial developments were found in the large factories in major cities. The Roeblings' wire rope plant in Trenton, the Rogers Locomotive works in Paterson, P. Ballantine's & Sons' Brewery in Newark, and the Dixon Crucible Co. and Colgates Soap Works in Jersey City are examples (Atkinson 1878; Winfield 1874; Meeker 1906). In addition, smaller scale factories were built in locations where a suitable labor supply existed, where there was access to rail and/or water transportation, and where the increasing amounts of available speculative capital provided the opportunity for low costs of ground acquisition, plant construction, and operation, then, as now, a major consideration. Some examples include the furniture factory in Glen Gardner, Warren County, and the iron works/machine tool factory at Smithville, Burlington County. Specialized industrial areas developed such as the shoe and leather works in Newark and the nearby Oranges, rubber making in New Brunswick and then Trenton, paper mills along water courses near the Watchung ridges, and silk works in Paterson.

This series of developments was so rapid and important that a separate inventory study is needed. For this purpose, it is sufficient to say that a large number of industrial sites were the locations of highly significant technological developments, and that New Jersey inventors of this period, from Seth Boyden on, provided many important ideas. During the first two-thirds of the 19th

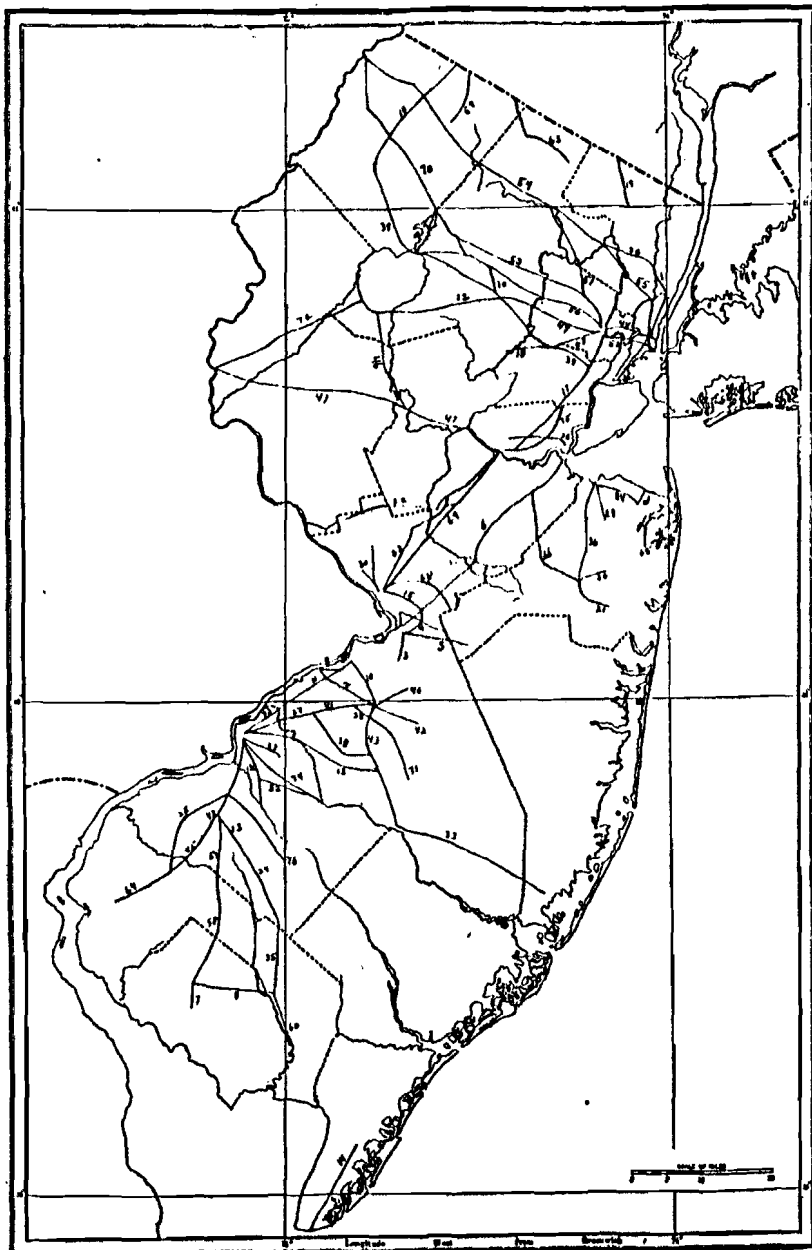
century, New Jersey was a place of tremendous activity and cultural change, where many new ideas were tried. The industrial archeological potential here is enormous. In terms of physiographic zones, this industrial development was most noticeable across the Piedmont, which forms the narrow "waist" of New Jersey, but specialized industries, like glass making, were found on the coastal plain and some smaller industries developed in the mountainous north and northwest.

Transportation

Changes in transportation were as dramatic as those in industrial works. In 1800, New Jersey had an 18th century road system of private lanes or "driftways", slightly larger local roads, public "great roads", and a few major routes inherited from Colonial times. By 1865, all but a few of the major rail lines existed, and settlement of suburbs and resort communities was taking much of its modern shape. The canals had been built and had passed their peak of popularity, and roads which were precursors of the 20th century highway system had been laid out. Major port facilities were already in the general locations where they have expanded subsequently.

The first major development was construction of "turnpike" toll roads in the first quarter of the 19th century, although some efforts persisted until mid-century. These roads cannot all be mentioned in a short essay but are shown on Map 2 (from Lane 1939). In almost all cases, they became the germ of later major routes (e.g. the 1804 "Straight Line" Turnpike from Trenton to New Brunswick is now the alignment of U.S. 1) with the result that the physical roadways, which were lightly constructed at best, have since been obliterated. However, the existence of these routes had major effects on the locations of hundreds of inns and taverns, the growth of market towns, and the direction in which major population centers were developing.

The next major transportation event occurred in the second and third decades of the 19th century and involved the use of steam power which first proved its potential in ferry boats. The struggle to control important ferry lines had far reaching effects on the political, legal, and economic systems of the nation. Major inventions and technological developments were made in places like Hoboken; while in Elizabeth, legal history was made in assuring free access of ferries to interstate waters. Archeological evidence may consist of docking facilities, sunken wrecks of early ferry boats, and areas of construction. Taverns and workers' neighborhoods were associated frequently with such waterside enterprises.



Copyright, 1916, H. Keady Publishing Co., Philadelphia, Pa.

THE PRINCIPAL TURNPIKES AND PLANK ROADS, 1801-1860
Map 2 (From Lane 1939: 148-149)

THE PRINCIPAL TURNPIKES AND PLANK ROADS, 1801-1860

- | | |
|--|--|
| 1 Bergen | 39 Morris |
| 2 Beverly and Mount Holly | 40 Mount Holly and Jobstown |
| 3 Bordentown and Columbus | 41 Mount Holly and Moorestown |
| 4 Bordentown and Crosswicks | 42 Mount Holly and Pemberton South |
| 5 Bordentown and Hornerstown | 43 Mount Holly, Lumberton and Medford |
| 6 Bordentown and South Amboy | 44 Mullica Hill and Camden |
| 7 Bridgeton and Fairfield | 45 Mullica Hill and Woodstown |
| 8 Bridgeton and Millville | 46 New Germantown |
| 9 Burlington and Beverly | 47 New Jersey |
| 10 Burlington and Mount Holly | 48 Newark |
| 11 Burlington and Willingsboro | 49 Newark and Morris |
| 12 Camden and Blackwoodtown | 50 Newark and Mount Pleasant |
| 13 Camden, Ellisburg and Marlton | 51 Newark and Pompton |
| 14 Cape May | 52 Newark Plank Road |
| 15 Crosswicks and Trenton | 53 Parsippany and Rockaway |
| 16 Deckertown and Newton | 54 Paterson and Hamburg |
| 17 Essex and Middlesex | 55 Paterson and New York Plank Road |
| 18 Farmers | 56 Perth Amboy |
| 19 Franklin | 57 Pittstown and Barnsboro |
| 20 Freehold and Colts Neck | 58 Pittstown and Bridgeton |
| 21 Freehold and Howell Plank Road | 59 Pochuck |
| 22 Georgetown and Franklin | 60 Port Elizabeth and Millville |
| 23 Glassboro and Carpenter's Landing | 61 Port Monmouth and Middletown |
| 24 Glassboro and Malaga | 62 Princeton and Kingston Branch |
| 25 Gloucester and Salem | 63 Ringwood and Long Pond |
| 26 Hackensack and Paterson | 64 Salem and Woodstown |
| 27 Haddonfield and Camden | 65 Shrewsbury |
| 28 Hainesport, Lumberton and Vincentown | 66 South River and Freehold Plank Road |
| 29 Holmdell and Keyport | 67 Springfield and Newark |
| 30 Hopewell and Ewing | 68 Trenton and Allentown |
| 31 Jersey City and Bergen Point Plank Road | 69 Trenton and New Brunswick |
| 32 Longaconing and Chews Landing | 70 Union |
| 33 Medford and Tuckerton | 71 Vincentown and Tabernacle |
| 34 Middletown and Keyport | 72 Washington |
| 35 Millville and Malaga | 73 Westfield and Camden |
| 36 Monmouth County Plank Road | 74 White Horse |
| 37 Moorestown and Camden | 75 Woodbridge |
| 38 Moorestown and Mount Laurel | 76 Woodbury and Crosskeys |

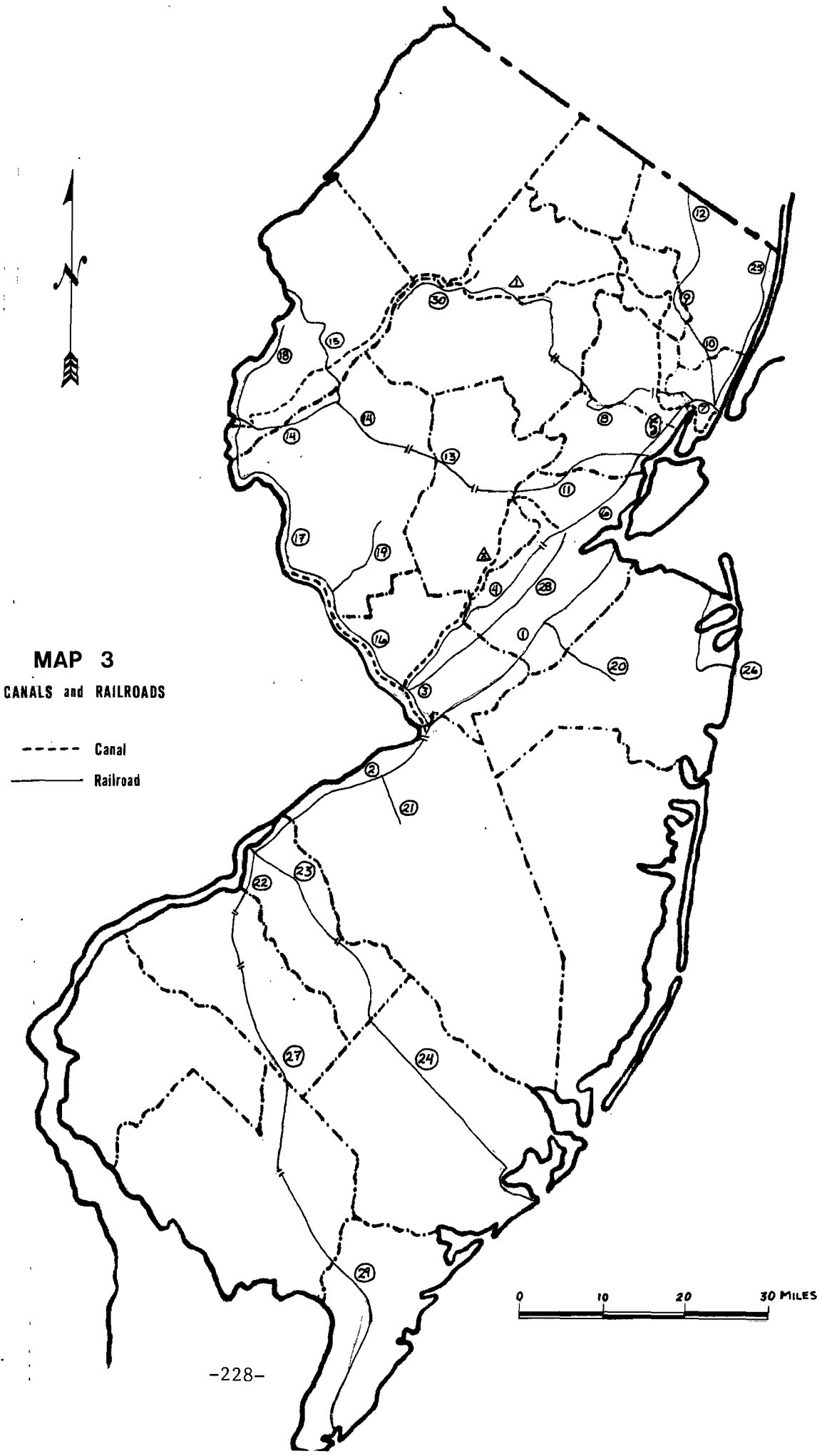
Almost simultaneously, construction of canals and railroads started in the 1820's although the limitations of canals were apparent by the end of this period, while railroads did not reach the peak of their power and physical construction until the 20th century. The short period near 1830 is an important watershed in transportation and in other areas of change. The first of New Jersey's canals was the Morris, which operated from the mid-1820's until World War I, and was dismantled in the 1920's. This route, with its series of inclined planes powered by turbines, was an object of engineering wonder but was only rarely profitable. A majority of the canal bed is still visible but large parts have been destroyed by dense urban-growth areas. A great deal of archeological study is needed because there have been no detailed technical works and little analysis of in-ground physical remains.

The second, and more successful, canal was the Delaware and Raritan (D.&R.), which operated from 1833 through 1933. Like the Morris Canal, the D.&R. Canal carried significant amounts of coal (McKelvey 1975, 1978). Most of this system is still intact and is used as an aqueduct and recreation area. Part of the canal receives protection as a park. However, there has been recent destruction at the eastern end of the canal by state highway construction and by numerous other projects which threaten to alter the integrity of scattered portions, although the alignment will probably be preserved. Particular facilities such as basins, locks, bridges, and attendant structures also have not fared so well. Again, much study is needed. Here, a few limited archeological studies have been made or are in progress (e.g. Bianchi and Rutsch 1979). Although both the Morris and D.&R. Canals are listed on the National Register, serious questions concerning boundary definitions exist, and repeated practical problems arise concerning determinations of effects of particular projects on these nominally protected and extremely important cultural resources.

As with the turnpikes and railroads, the construction of canals had a tremendous impact on the cultural landscape creating small hamlets called "ports" in the middle of agricultural country and doing much to further the growth of burgeoning industrial centers like Trenton, New Brunswick, Newark, and Jersey City. Map 3 shows the routes of the major canals and railroads.

Railroads in the western hemisphere effectively started in New Jersey. Two important innovations (the "T-rail" and wooden cross-ties) were developed on the first line to cross the state, the famous Camden & Amboy. These innovations were also used on the alignment (still in use) between Bordentown and South Amboy via Hightstown, opened in 1832. Again, a listing is impossible; even maps cannot show the overwhelming impact of the railroads.

Of particular importance in this era is the growth of intersection points, where transportation systems met. The numerous railroad "junction" towns (Monmouth Junction, Hampton Junction,



Key to Map 3. Canals and Railroads

Railroads

1	Camden & Amboy, Section 1	1832-'33
2	Camden & Amboy, Section 2	1834
3	Camden & Amboy, Section 3	1838
4	Camden & Amboy, Section 4	1839
5	New Jersey	1835
6	New Jersey	1836
7	New Jersey	1834
8	New Jersey	1838
9	Paterson & Hudson	1832
10	Paterson & Hudson	1833
11	Elizabeth & Sayreville	1840's
12	Paterson & Ramapo	1848
13	Somerville & Easton	1848
14	Somerville & Easton (later, Central Railroad of New Jersey)	1852
15	Warren (later, Delaware, Lackawanna & Western)	1856
16	Belvidere & Delaware (Camden & Amboy)	1851
17	Belvidere & Delaware (Camden & Amboy)	1854
18	Belvidere & Delaware (Camden & Amboy)	1855
19	Flemington	1854
20	Freehold & Jamesburg	1853
21	Burlington & Mt. Holly	1849
22	West Jersey	1857
23	Camden & Atlantic	1853
24	Camden & Atlantic	1854
25	Northern Railroad of New Jersey (later, Erie)	1859
26	Delaware & Raritan Bay	1860
27	Millville & Glassboro	1860
28	Camden & Amboy Double Line (all Camden & Amboy, Pennsylvania Railroad after 1871)	1865
29	Cape May & Millville	1863
30	Morris & Essex	1836

Canals

1	Morris	1829/36
2	Delaware & Raritan	1834

Editor's note: For a comprehensive discussion of railroads and canals in New Jersey as of 1860, consult Canals and Railroads of the Mid-Atlantic States, 1800-1865 by Christopher Baer, published by Regional Economic History Research Center, Eleutherian Mills-Hagley Foundation, Diamond Printing Company, Wilmington, Delaware, c. 1981.

Princeton Junction, etc.) are examples but the same principle applied to rail-canal junctions and harbor-railroad yards, where "sail met rail". Each of these places became a major nexus for industrial and population growth.

The railroads developed a profound influence during this period as exemplified by the well known "Monopoly", which the United Companies (the Camden & Amboy Railroad and the D.&R. Canal combined) enjoyed in New Jersey during the mid-19th century. Railroad pressure and money often influenced both local and state political events (Platt 1973). The railroads also had an overwhelming effect on the countryside, of which there are numerous physical manifestations and tangible archeological evidence. For the first time, "cut and fill" engineering projects were performed on an enormous scale with creation of deep cuts through mountains and ridges, and of huge causeways and made-land areas on marshes and shallow bays. Valleys were spanned with famous bridges (e.g. "Highbridge" in Hunterdon County), and long tunnels were driven. The railroads not only moved huge volumes of rock and soil for their own construction, they also provided a means for moving masses of material for other purposes (e.g. industrial or speculative urban landfill). Moreover, they transported and consumed ever-growing quantities of coal. Both the coal and the by-products of its ubiquitous use (cinders, ash, and clinker) are common in archeological deposits of this period, and form an all-embracing matrix as well as an archeological "horizon" or time marker.

One major but indirect impact of railroad construction, and to a lesser degree canal construction, was that these mid-19th century works often destroyed earlier archeological sites, both prehistoric and historic. New transportation routes often followed watercourses or were located on banks above floodplains, and consequently crossed over previously desirable sites. Special consideration should be given to this effect.

Near the end of the period under discussion, there was a short-lived revival of interest in roads, marked by the "Plank Road" craze. Few of the roads that were built made money or were maintained as plank-paved roads for more than two decades but they indicated new major road alignments, such as the "Paterson Plank Road" to Jersey City, which are still in use. Again, as with the earlier turnpikes, the archeological evidence is likely to be restricted to side-effects and to structures or subsurface deposits resulting from the presence of the route because the actual roadways have been dug out, widened, and given newer material foundations and surfaces since the 1850's and 1860's. It is possible that there may be some sections of one of these gravel-based, plank-covered roads preserved under superimposed paving but such unusual conditions cannot be expected frequently. If one is found, it will be particularly valuable as a cultural resource.

In summary, it is clear that a revolution in transportation occurred between 1800 and 1865 which left no part of New Jersey unaffected. Perhaps because of its favorable topography and its central location in the developing eastern seaboard, New Jersey was changed probably more by this revolution during this time period than any other state with the possible exception of those in southern New England. What is particularly significant for archeological purposes is that, for the first time in human history, major cultural events were taking place within months or years, instead of decades or centuries. The time periods represented may be extremely short but the cultural impact was very important. This creates a problem of archeological interpretation but also provides opportunities for applying different theories of analysis and techniques for obtaining data.

Commerce and Structures

The rapid growth of commerce during this period should be mentioned again. Its physical manifestations were the development of major warehouses, stock-pile areas (e.g. coal yards, lumber yards), and the shops and offices necessary to distribute and manage the growth of businesses. As with the field of transportation, there was a revolution in structural engineering, in architecture, and in what men built, from simple residences to city-scapes. Housing started this period firmly entrenched in either "folk vernacular" or "classical" traditions, and used materials and techniques not changed significantly since mid-Colonial times. By the end of this study period, "Popular" styles dominated both rural and urban housing, and "middle class" residences were the model, if not the actual norm. In addition, such major innovations as mill-cut lumber and the machine-made nail were leading to the "Balloon Frame" structure, quickly built by fewer hands, which became popular in the subsequent period (Glassie 1969, 1975; Peterson 1976). Similarly, significant changes occurred in major commercial and business structures where iron became important both for frame and sheathing. By the 1860's and 1870's, huge brickyards, like the one in Sayreville, were developing to meet an enormous demand which in 1800 had largely been met on a house-by-house basis (Karcher 1948; Sayre and Fisher n.d.).

Construction related to transportation also changed rapidly. Major bridges of stone and iron were built, and steel was coming into use at the end of the period. Even the local roadways, which are often ignored when examining the major new systems, had improved stone and iron bridges. It is during this period that covered bridges had a generation of popularity, imitating the pioneer bridge in Philadelphia. An example would be the covered bridge at Bridgeboro, Burlington County, built in 1838 and removed in 1928 (Kardas and Larrabee 1980).

All these aspects of change in architecture and engineering materials, techniques, functions, and styles have the potential for archeological study of aboveground evidence and of buried data. Again, the evidence of rapid change will be particularly important to document. One significant development was the gradual decline of regional architectural styles which had been so strongly influenced by ethnic backgrounds and migration from other colonies during the previous period. These regional styles were replaced by a stylistic division based more on degree of urban and industrial influences, and on access to current popular literature.

Living Pattern

The typical New Jersey landscape of 1800 consisted of very small towns in a predominantly rural setting with the average family living on a farm separated by fields from the next farm family. By 1865, New Jersey had started to become more urban than rural. The cities of the state were arranged in relative size approximately as they are at present. When this period ends, both suburbs and resort communities had started. The latter were mostly on the coast, and Cape May City is probably the best known of these (Thomas & Doebly 1976). The barrier beach "strip" of communities, which is now nearly continuous, started during this time and developed rapidly in the late 19th and early 20th centuries. Southern Jersey railroads serviced this resort development and helped the growth of the important "mass recreation" movement.

Another residential pattern which grew dramatically during this period is that of large, planned, "country estates," usually built by extremely wealthy families. In the 18th century, there were a few very large, well-to-do farms with "Mansion Houses," as at Morristown, but the landscaped "Estate," based on European precedents, was not widespread in New Jersey until the 19th century. Estate planning became part of a Victorian aesthetic effort related to the landscaping of city parks and cemeteries. Some of the early 19th century estates were located in Hudson County and are now swallowed by urban growth. However, archeological evidence may survive (Lossing 1866; Kardas and Larrabee 1978, 1979a).

The ancestry and origin of the population also changed substantially between 1800 and 1865. At the end of the 18th century, the people of New Jersey were predominantly of Anglo-American stock with large minorities that had Palatine German, Dutch, or Scottish backgrounds (Wacker 1975). Two-thirds of a century later, substantial European immigration was already represented, starting with the Irish in the 1820's through 1840's, and followed by northern Germans, many from cities rather than farms, in the mid-19th century. The nature of population density had shifted from very diffuse to more urban and concentrated. People of African origin were present throughout the period but the few who were slaves early in the 19th

century were free by the end of this period. By the early 1800's, the last officially recognized group of Delaware Indians sold their community at "Brotherton" and moved out of the state, although a few scattered people of aboriginal stock survived throughout the century (Larrabee 1976).

A number of important anthropological matters are represented here. The changed patterns of living and the greater concentrations of people will be reflected in numerous aspects of cultural behavior. One type of behavior which has particular importance for archeological interpretation concerns patterns of disposal of refuse. This was privately handled (latrine pits and small garbage dumps) in 1800 but by 1865, there were sewerage systems and major dumps in some urban centers.

Similar changes are reflected in treatment and placement of the dead. At the end of the Colonial period, family plots were common on farms. Also, there were churchyards in rural centers and in towns. The burial plots were simple; the stone markers were of slate, shale, limestone, or rarely marble, with 18th century religious decorative motifs or mottoes. These motifs changed during the time period under discussion with the introduction of secular patterns such as the "Willow Tree". By mid-Victorian times, there were large, secular, landscaped cemeteries (Deetz 1967). Most of these were located in, or adjacent to, cities. In the countryside, there were more "centrally located" cemeteries and fewer family plots. Churches had a similar set of changes with a tendency for buildings to grow in size (or be replaced by larger churches). Archeological study of burials from this period should include full physical anthropological analysis. Other research should be performed on all aspects of disposal, interments, and religious beliefs.

Education and Communication

In 1800, there were two "colleges" in New Jersey which are now known as Princeton and Rutgers. There were no public schools and very few intermediate institutions. This period saw the introduction of widespread public education; many private "academies" and "finishing schools" were created. The famous "one-room schoolhouse" is a creation of the first two-thirds of the 19th century (some preserved examples can be found in Old Bridge Township, Middlesex County, Harlingen, Montgomery Township, and Branchburg, Branchburg Township, both in Somerset County). Hundreds of such schoolhouses were built in rural areas. They are an important element in the development of American Culture. Larger, consolidated schools and "innovative" urban schools really developed in the subsequent period but the outline of "primary education", including the academic calendar around which so much of American life is structured, is a product of the period from 1800 to 1865. Archeological evidence of considerable interest can be expected at the sites of such schools.

Another aspect of cultural change during this time involves communication. A few hand-pressed newspapers were circulated to a literate minority in 1800. By 1865, telegraph lines crossed the state and made the rapid transmission of news possible. Major city daily newspapers existed, periodical magazines were becoming commonplace, and books were available to a majority of the population. This created a revolution in communication which worked in parallel with that in education. An item which should not be overlooked is the development of the U.S. Postal System, which made it possible for most people to write and receive letters (Kay & Smith 1976). Physical evidence concerning development of the mails, such as construction and location of post offices, is an important cultural resource. These changes in education and communication, like many others of this period, were most noticeable in the central New Jersey Piedmont Zone but occurred to some degree throughout the state.

Concerns of Archeological Method and Interpretation

The period from 1800 to 1865 is one in which a number of critical changes occurred in diagnostic artifacts which are used by archeologists for various kinds of analyses. Some of these changes will be briefly noted here. For the 18th century, ceramics (particularly English earthenware and oriental porcelain) have received a great deal of attention from archeologists (South 1977). However, the enormous mass of 19th century ceramics has not been carefully described and is only now beginning to come into focus (Price 1979). "Whiteware" and "semi-vitrified" (ironstone) ceramics dominate the period but are difficult to use unless a makers mark is found. With regard to stoneware and redware, there is a great need for study of local manufacturers with emphasis on common items, rather than on "show pieces" (Webster 1971). Similarly, more information is needed on imported porcelain (Cushion 1976).

There is also an embarrassment of riches in glass. The introduction of mold-blown bottles and the subsequent use of proprietary markings is known during this period but detailed and comprehensive descriptive lists or catalogs are needed. The interest and literature on the New Jersey glass industry should be of some assistance here (Pepper 1971).

Structural materials are important and equally poorly studied. It is during this time that machine cut nails replaced earlier hand-forged nails (Nelson 1962). A nail slitting factory building still exists at Oxford. Refinement of description of changes in nail manufacture could provide a very sensitive tool for dating both standing structures and buried resources. There are also larger pieces of structural iron such as the cables devised by the Roebings, the cast iron fronts and columns and frames for buildings, etc. Means are needed for identifying corroded fragments of

these pieces, and for analyzing the materials to identify foundries where possible. Furthermore, there is a great need for a compendium of Victorian brickmakers who often put brands on their products (De Noyelles 1974). This data should be available in the wealth of city directories and advertisements which are preserved.

Another industrial problem involves the large size of products (locomotives and steel hulled ships were being built in New Jersey by the end of this time). Artifacts recovered are often big and heavy. Means are needed for handling, processing, preserving, storing, and analyzing huge industrial artifacts. A theoretical framework is also necessary in order to develop the basis for an appropriate philosophy of cultural resource preservation.

Conclusion

This discussion has been concerned with cultural events that occurred in New Jersey between 1800 and 1865, most of which rapidly affected the entire state to a greater or lesser degree but a few of which were more localized. This paper is also concerned with the potential for archeological analysis of these events. Archeology can be considered as a means of "sensing" such cultural behavior from the past through material evidence above and below ground. The State Plan should be sensitive to the need for preserving a data base, to the undoubted changes that will occur through time in the questions that will be asked of such preserved cultural resources, and to the means of analysis for answering those questions. The Plan should help to determine a profitable direction for archeological research and should help to predict geographic locations and subject areas of greatest sensitivity. One important desiderata is that the State Plan should lead to refinement of analytical techniques so that it may be possible to examine closely, and probably modify, some of the commonly held "truths" concerning New Jersey's cultural past. The first two-thirds of the 19th century is a period of primary importance in arriving at such an understanding.

Research Problems and Survey Priorities

The foregoing text consists of a description of many research problems. While it is not necessary to repeat the entire discussion, some of the more important research problems and survey priorities will be mentioned here. It should be emphasized, however, that lists often take on an importance not intended, and may be used as a substitute for careful consideration of issues raised in textual discussion. The following are some examples only.

1. There is a need for research in population demographics and in ethnic backgrounds.

2. More research is needed on industrial development including an analysis of patents, accurate mapping of specific industries, and theoretical studies of the conservation and management of industrial material culture.
3. Among problems in "Transportation" are questions about specific construction techniques such as canal building, making of railyards, etc.
4. Problems which occur in the study of "Commerce and Structures" include the complexity of structures as artifacts, along with the difficulty of obtaining useful cultural generalizations from studies made for architectural purposes.
5. Much research remains to be done concerning "Living Patterns", particularly with reference to disposal attitudes because these frequently affect what archeologists find.
6. "Public Education" should be studied as a pattern. A series of technical questions exist concerning artifacts (see the discussion in the text).

It is not desirable to arrive at research priorities too early in the process of creating a working document. To be effective, survey priorities should evolve out of peer review and consultation among scholars involved in research in a given area. It is the sense of this author that firmly agreed-upon priorities are not yet evident based on the extreme variations in nature and relevance of the comments that were received on the earlier draft of this paper (reviewers included Schuyler, Griefff, Huey, Lefferts, Toothman, and Gimigliano). Consequently, the following should be considered as preliminary, personal suggestions.

There is a major need for careful documentation of manufactured ware (ceramic and glass) used in New Jersey in the 19th century as well as for documentation of those artifacts that were made here. This documentation should include local ware (soft paste ceramics and stoneware) and large scale commercial ware associated with Trenton.

Detailed analysis is needed for nails and other structural hardware, for large structural elements, and for brickmakers (as noted in the text). In addition, detailed distribution maps of different artifacts and assemblages are needed. Finally, whatever study priorities are derived from professional discussions, it is important that effort not be wasted on research which is too broad in scope and of insufficient depth. A few intensive studies will answer more archeological questions than will many shallow collections of data over large areas.

REFERENCES CITED

- Atkinson, Joseph
 1878 The History of Newark, New Jersey, Being a Narrative of Its Rise and Progress.... William B. Guild, Newark, New Jersey.
- Barber, John W. and Henry Howe
 1844 Historical Collections of the State of New Jersey. Benjamin Olds, New Haven, Connecticut.
- Bianchi, Leonard and Edward Rutsch
 1979 Archaeological Monitoring of the Crossing of the Delaware Raritan Canal by the New Brunswick-Parkway Connection, Cultural Resource Survey Report submitted to Middlesex County Sewerage Authority and to the U.S. Environmental Protection Agency, Region II, New York.
- Blackman, Leah
 1880 History of Little Egg Harbor Township, Burlington County, N.J., From Its First Settlement to the Present Time. Originally published by West Jersey Surveyors Association, reprinted 1969 by Great John Mathis Foundation, Inc., Tuckerton, New Jersey.
- Cook, George H.
 1857 Geology of the County of Cape May, State of New Jersey. Trenton, New Jersey.
 1866 Geological Survey of Cretaceous Formations Including the Green-Sand Marl Beds (Map). John C. Smock, Asst., 2 miles=1 inch.
 1868 Geology of New Jersey. Printed at the Daily Advertiser Office, Newark, New Jersey.
 1869 Report on the Geologic and Agricultural Resources of the State of New Jersey. Free American, Trenton, New Jersey.
- Cunningham, John T.
 1976 New Jersey, America's Main Road. (Revised edition, 1st published 1966), Doubleday and Company, Inc., Garden City, New York.
- Cushion, John P.
 1976 Pottery and Porcelain Tablewares. William Morrow and Company, Inc., New York.

- Deetz, James
1967 Invitation to Archaeology. The Natural History Press,
Garden City, New York.
- De Noyelles, Daniel
1974 Brick Brands and Manufacturers of the Hudson River
Valley and the Metropolitan New York Market. Haver-
straw, New York.
- Glassie, Henry
1969 Pattern in the Material Folk Culture of the Eastern
United States. University of Pennsylvania Press,
Philadelphia.
- 1975 Folk Housing in Middle Virginia: A Structural Analysis
of Historic Artifacts. University of Tennessee Press,
Knoxville.
- Gordon, Thomas F.
1834 Gazetteer of the State of New Jersey. (Reprinted
1973), Polyanthos Press, Cottonport.
- Karcher, Joseph T.
1948 History of the Sayre and Fisher Brick Company, 1850-1948.
- Kardas, Susan and Edward McM. Larrabee
- 1978 Cultural Resource Reconnaissance, Jersey City Reach, New
York Harbor Collection and Removal of Drift Project.
Cultural Resource Survey Report submitted to the
U.S. Army Corps of Engineers, New York.
- 1979 New Jersey State Highway Route 31, from I-78 Clinton to
U.S. 46 Buttzville. Cultural Resource Survey Report
submitted to the New Jersey Department of Transporta-
tion, Trenton.
- 1979a Hudson River Route Feasibility and Locational Study,
Environmental Impact Statement Technical Report No. 8:
Cultural Resources. Cultural Resource Survey Report
submitted to the New Jersey Department of Transportation,
Trenton.
- 1979b Cultural Resource Survey, Merrill Creek Reservoir Pro-
ject, Warren County, N.J. Cultural Resource Survey
Report submitted to the Delaware River Basin Commission,
Trenton.
- 1979c Stage 1 Cultural Resource Survey, Eight Collectors Sewer
Collectors Sewer Project, Bridgewater Township, Somer-
set County, New Jersey. Report submitted to the U.S.
Environmental Protection Agency, Region II, New York.

- 1980 Cultural Resource Survey for Route 130, Section 9F, Delran and Willingboro Townships, Burlington County, New Jersey. Cultural Resource Survey Report submitted to the New Jersey Department of Transportation, Trenton.
- Kay, John L. and Chester M. Smith, Jr.
1976 New Jersey Postal History. Quarterman Publications, Inc., Lawrence, Massachusetts.
- Lane, Wheaton J.
1939 From Indian Trail to Iron Horse. Princeton University Press, Princeton, New Jersey.
- Larrabee, Edward McM.
1976 Recurrent Themes and Sequences in North American Indian-European Culture Contact. In Transactions of the American Philosophical Society, New Series 66:7.
- Lossing, Benson J.
1866 The Hudson, From the Wilderness to the Sea. Virtue and Yorston, New York.
- McKelvey, William J.
1975 The Delaware and Raritan Canal: A Pictorial History. Canal Press, Inc., York, Pennsylvania.
1978 Champlain to Chesapeake, A Canal Era Pictorial Cruise. Canal Press, Inc., Exton, Pennsylvania.
- Meeker, Ellis R. (compiler)
1906 New Jersey, A Historical, Commercial and Industrial Review. Commonwealth Publishing Co., Elizabeth, New Jersey.
- Nelson, Lee
1962 Nail Chronology as an Aid to Dating Old Buildings. United States Department of the Interior, Eastern Office, Design and Construction, Philadelphia.
- Pepper, Adeline
1971 The Glass Gaffers of New Jersey. Charles Scribner's Sons, New York.
- Peterson, Charles E. (editor)
1976 Building Early America. Clinton Book Company, Radnor, Pennsylvania.
- Platt, Herman K.
1973 Jersey City and the United Railroad Companies, 1868. A Close Study of Municipal Weakness. In New Jersey History, Vol. X CJ (4) 355:249-265.

- Price, Cynthia R.
1979 Nineteenth Century Ceramics... in the Eastern Ozark Border Region. Monograph Series:1. Center for Archaeological Research, Southwestern Missouri State University, Springfield, Missouri.
- Salter, Edwin
1890 A History of Monmouth and Ocean Counties. E. Gardner and Son Publishers, Bayonne, New Jersey.
- Sayre & Fisher
n.d. Catalogue of Sayre & Fisher Co., Manufacturers of Front Enameled, Building and Fire Brick. New York (privately printed ca. 1895).
- Schmidt, Hubert G.
1973 Agriculture in New Jersey. Rutgers University Press, New Brunswick, New Jersey.
- South, Stanley
1977 Method and Theory in Historical Archaeology. Academic Press, New York.
- Thomas, George E. and Carl Doebly
1976 Cape May, Queen City of the Seaside Resorts. The Art Alliance Press, Philadelphia, Pennsylvania.
- Wacker, Peter O.
1968 The Mustconetcong Valley of New Jersey. Rutgers University Press, New Brunswick, New Jersey.
1975 Land and People. Rutgers University Press, New Brunswick, New Jersey.
- Webster, Donald Blake
1971 Decorated Stoneware Pottery of North America. Charles E. Tuttle Co., Rutland, Vermont.
- Wendorf, Fred
1979 The Fort Burgwin Conference on National Archeological Policies. Society for American Archaeology.
- White, Joseph J.
1885 Cranberry Culture. O. Judd Company, New York (previous ed. 1870).
- Winfield, Charles H.
1874 History of the County of Hudson, New Jersey. Kennard and Hay Stationery Mfg. and Printing Co., New York.