PETTY’S RUN
ARCHAEOLOGICAL SITE
IRON, STEEL, COTTON AND PAPER
IN HISTORIC TRENTON

New Jersey Historic Preservation Office
Natural and Historic Resources Group
Department of Environmental Protection

Division of Property Management and Construction
Department of the Treasury

State Capitol Joint Management Commission

State of New Jersey

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MANAGEMENT SUMMARY

This three-volume compendium describes the progressive discovery, investigation, characterization, preservation and ultimate display of the Petty’s Run Archaeological Site over a period of almost three decades. This exceptional and multi-faceted urban archaeological resource, owned and managed by the State of New Jersey, is located in downtown Trenton in the heart of the New Jersey Capitol Complex in the sliver of parkland that extends south toward the Delaware River between the New Jersey State House to the west and the Thomas Edison State College main campus and the Old Barracks to the east. The site is a contributing property within the State House Historic District, which is listed in the New Jersey and National Registers of Historic Places.

The first inkling of the existence and importance of the Petty’s Run ruins surfaced in the mid-1980s when archaeological testing in connection with utilities installations planned for an expansion of the State House encountered massive building foundations and the long-forgotten Petty’s Run culvert buried beneath the fill of Mahlon Stacy Park. Further excavations in advance of new construction on the Thomas Edison State College campus in the mid-1990s and in connection with security and parking improvements around the State House perimeter in 2005-06 confirmed the archaeological potential of the site. Planning and design work for the as-yet unrealized Capital State Park was accompanied by major archaeological explorations in 2008-09, which enabled the complicated set of remains along Petty’s Run to be properly understood and led to their being incorporated into the park design as a focus of historic interpretation and heritage development. In 2012-13, through an intricate combination of preservation, partial backfilling and new construction, a substantial portion of the excavation site was stabilized and is now open to public view.

The land use history of the Petty’s Run site extends over several centuries and falls into six recognizable phases. A prolonged period of Native American occupation along this section of the bluffs overlooking the Delaware covered at least three or four thousand years and persisted into the late 17th century up until the time of European contact. Beginning in the early 1730s and continuing until shortly after the American Revolution in the mid-1780s, the focus of land use at the site was on the development and exploitation of water power for industrial purposes. In this second phase, Petty’s Run (named for the family of early colonial settlers in the area) powered an iron and steel working complex that was controlled by a series of prominent Trentonians (Isaac Harrow, Benjamin Yard, Stacy Potts) and Philadelphians (Owen Biddle, Timothy Matlack, John Pemberton, John Nancarrow). The two key facilities, a plating mill (a specialized forge) and a steel furnace (the hub of the Trenton Steel Works), both contributed to the American war effort, supplying metal and metalworking services on several occasions to the Continental Army during the Revolution.

After the Revolution, the site experienced a roughly 30-year period of industrial inertia while the seat of state government was established on nearby land on the west side of Petty’s Run. The principal land use alteration during this third phase was the extension of West Front Street through the colonial barracks to the State House lot, which entailed the construction of a bridge over the run, a stone structure that still survives today. In 1813-14, water-powered industry was revived on the site of the iron and steel works with the establishment of a cotton
mill by local cabinet maker Josiah Fithian. This short-lived and unsuccessful operation morphed into a paper mill in the late 1820s, an enterprise known as the Front Street paper mill, which continued in business into the mid-1870s. The principal figure in this second round of water-powered industry (the fourth of the site’s six phases of land use) was Garret D. Wall, a well-connected attorney and politician and future U.S. Senator, who provided the capital for the paper mill and owned most of the land along Petty’s Run between West State and West Front streets.

From the mid-1870s until 1913 the dominant land use on the Petty’s Run site was residential. A series of row houses were erected in place of the paper mill, only to be demolished in the second decade of the 20th century to make way for the “City Beautiful” creation of Mahlon Stacy Park, the major landscaping program that was intended to improve the immediate surroundings of the State House. While the Petty’s Run segment of Mahlon Stacy Park has survived into the 21st century, much of the larger park amenity was removed in the mid-20th century to make way for the highway now known as N.J. Route 29 and for surface parking for state legislators and office workers. The stabilization and display of the Petty’s Run Archaeological Site represents a final wrinkle in the sixth and still ongoing phase of park land use on the east side of the State House.

The archaeological excavations at the Petty’s Run site uncovered ample physical evidence of all six phases of its land use history. Native American artifacts were recovered in some quantity both from later historic contexts and from the few surviving soil horizons pre-dating the colonial era. Deep-buried foundations of the plating mill were documented on the east side of the run, while much better preserved remains of the furnace house and cementation furnace were found (and are now on display) on the west side. These latter features are currently the only archaeologically documented, intact remains of a colonial steel works in North America and for this reason are of national and international historical significance. The West Front Street bridge is the principal surviving feature dating from the period of the original development of the State House lot. Substantial foundations of both the Fithian cotton mill and the Front Street paper mill are testimony to the 19th-century water-powered industrial activity on the site. While the cotton mill remains have been reburied and are no longer visible, the paper mill wheel house, with its immense wheel pit, and much of the main section of the paper mill are dominant elements of the preserved and displayed site. Superimposed over and, in some cases, re-using the paper mill remains are the foundations of the late 19th/early 20th-century row homes that lined West Front Street, again prominent in the preserved and displayed site. Landscaping fill from Mahlon Stacy Park, which encases the excavation site and defines the surrounding modern topography, completes the sequence of land use history along Petty’s Run.

Between 2008 and 2013 the Petty’s Run Archaeological Site gradually took shape as a preserved, stabilized, displayed and interpreted heritage tourism asset. Following completion of the archaeological explorations at the end of July 2009, the most critical remains were covered with tarpaulins but the site remained essentially open while designs were considered for its display and future incorporation into the Capital State Park. In
their most developed form, designs for treatment of the site included multiple retaining walls, two levels of walkways in and around the ruins, and a reconstructed, functional waterwheel in the paper mill wheel pit powered by water piped to the site from the Delaware and Raritan Feeder Canal. However, the bleak economic outlook of 2008-10 led the State of New Jersey to put the entire Capital State Park project on hold and plans were put forward for reburying the site. This led to a public outcry among the local community and historians and archaeologists, which in turn caused the State, assisted by the County of Mercer, to adopt a scaled-down scheme for stabilizing and displaying the remains in the core of the site, principally those relating to the Trenton Steel Works, the Front Street paper mill and the West Front Street row housing. This scheme was constructed in 2012-13 and the site was formally opened to the public on May 14, 2013.
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ACKNOWLEDGMENTS

Over the course of the more than seven years of Hunter Research involvement in the Capital State Park project, and more specifically with the Petty’s Run Archaeological Site, a variety of state government representatives has overseen and shepherded the multi-faceted work of research, excavation, laboratory analysis, historic interpretive planning, design and construction that ultimately led to the stabilization and display of the industrial ruins wedged in between the State House and the Old Barracks. To a lesser degree, representatives of county and city government have also assisted in the administration and oversight of this work, while a vast array of outside organizations, institutions and individuals have provided support, technical, practical and moral, to the task of preserving this important archaeological resource.

The New Jersey Department of Environmental Protection (NJDEP), the owner of the Petty’s Run Archaeological Site and the architect of its stabilization and display, has throughout exercised its stewardship of the resource with great patience, responsibility and foresight, believing in the value of this one-of-a-kind historic asset and always seeking realistic solutions that balanced preservation with interpretation. Alvin Payne and his successor, Edward Mulvan, Administrator, Office of Resource Development, Natural and Historic Resources, have led the NJDEP’s efforts in this regard and both are owed considerable thanks for their commitment to and genuine interest in this archaeological endeavor. One particular NJDEP staff member, Sally Lane, was tireless in her efforts and unwavering support for the Capital State Park project and the Petty’s Run site as NJDEP Project Manager for the design phases of the park development. Her sound advice and extraordinary knowledge, not only of the often arcane workings of government, but also of Trenton history, were of immeasurable benefit.

From the technical standpoint, senior staff within the NJDEP’s New Jersey Historic Preservation Office lent their expertise at critical points during the archaeological excavations and design deliberations, always articulating the importance of the resource and homing in on the most appropriate ways to preserve and interpret its essential character without compromising its integrity. Thanks are offered especially to Dan Saunders, Administrator, and Kate Marcopul, Supervising Historic Preservation Specialist, for their exceptional professional counsel and encouragement.

The Capital State Park project was administered on behalf of the NJDEP by the Division of Property Management and Construction (DPMC) in the Department of the Treasury. Thanks are offered to Richard Flodmand, Deputy Director for Contract Administration; Pasquale (Pat) Papero, who served as the DPMC Project Manager for the design phases of the Capital State Park project, during which the archaeological research was mostly conducted; and to Anthony Mazzella, Jr., who served as the DPMC Project Manager for the stabilization and display of the Petty’s Run site. They kept a complex, continually changing project on track and within budget.

Since the Petty’s Run site is located on the grounds of the New Jersey State House, its exploration and final treatment required the approval of the State of New Jersey Capitol Joint Management Commission (JMC), a bipartisan appointed body whose support was critical to the ongoing development of the Capital State Park. Thanks are extended to the members and staff of this body, and in particular to Kathleen Crotty, Chairman of the
JMC at the time the archaeological work was undertaken. Ms. Crotty’s interest in the Petty’s Run site and determination to see it included as a heritage node within the Capitol Complex were largely instrumental in securing the necessary JMC backing and the support of both the legislative and executive branches of state government within the State House. Thanks are also offered to other key staff in the State House. Steven Pietrzak, State House Complex Building Manager, on countless occasions graciously facilitated access to the State House roof for photography purposes and has now assumed the responsibility of overseeing the maintenance of the Petty’s Run site in its displayed state. Peter Mazzei, Manager, Office of Legislative Services Library Services, kindly made available several useful research materials.

Towards the end of the archaeological activity, as the future of the Petty’s Run site was being hotly debated in political quarters and in the media, the County of Mercer stepped in to assure the future display of the site, providing critical funding support for its stabilization and interpretation. The County gave valuable input into the design process, helping to speed the site’s successful preservation. An immense debt of gratitude is owed to Mercer County Executive Brian Hughes and the Mercer County Board of Chosen Freeholders for committing County resources to the Petty’s Run site, and to County staff members Donna Lewis, Planning Director, and Marisa Mulé Van Horn, Principal Planner, for their involvement in this initiative.

Hunter Research, throughout its archaeological campaign along Petty’s Run, operated as a subcontractor to Wallace, Roberts & Todd, LLC (WRT), the lead firm in the Capital State Park design team. Extended thanks are offered to the many individuals at WRT who tolerated the often painstaking archaeological activities going on in the midst of their design efforts. At times it must have appeared that historical and archaeological considerations were assuming an unwarranted and unholy importance in their world of landscape design, but we trust the inconvenience was worth it in the end, leaving Trenton with an acceptable and unusual design product. Chief among those whose patience was sorely tested was Eric Tamulonis, Principal at WRT, who oversaw the archaeological work from beginning to end. We not only acknowledge his support, good humor and keen inventive mind, but also the unfailing efforts of other WRT staff, notably Hank Bishop, Judith Heintz, Yogesh Saoji, Loren Shaw, Diana Drake, Allen Greer, David Ostrich and Keiko Tsuruta-Cramer.

Working alongside Hunter Research staff as subcontractors on the design team were other key specialists whose expertise informed and guided the archaeological work and eventual stabilization and display of the site. In particular, the sensitive engineering genius of the late Samuel Y. Harris, President of S. Harris Ltd., was vital to the completion of the project and Sam’s capable staff, chiefly Janine Hildebrand, but also Melanie Kasper Rodbart, worked tirelessly to translate his vision for the site into reality. Lahbib Chibani, President of Sadat Associates, Inc., contributed his hydraulic engineering expertise to solving the drainage challenges raised by re-opening the site to the elements.

Merrell & Garaguso, Inc. (M&G) served as the prime contractor for the stabilization and display work. Edward (Buck) Purdy III, Executive Vice President/Senior Project Manager, directed this aspect of the project with the on-site assistance of Mark Glaze, Field Superintendent. The latter’s practical skills and those of Luis Rivera
of MECO Constructors, Inc. (an M&G subcontractor) were much appreciated in the resolution of numerous unanticipated issues that arose during the construction of the retaining walls, reconstruction of historic features and the final grading of the site. The stabilization and reconstruction of the ruins was largely undertaken by Preferred Masonry Restoration, Inc., also working as a subcontractor to M&G. Thanks are extended to Bob Neas of Preferred Masonry and his staff for their fine attention to detail and high level of craftsmanship. The printing of the interpretive signs was undertaken by iZone Imaging under the direction of Cornerstone Spatial Design and Production. Ellen Katz of Cornerstone showed great patience and skill in shepherding the sign production process from final design through production and installation.

Countless individuals and organizations in the Trenton community lent their support to the archaeological excavations and to the preservation of the Petty’s Run site, urging the State of New Jersey to interpret and display the site for the benefit of visitors to the city. The City of Trenton never technically functioned as a client for the Petty’s Run project, but valuable support was nevertheless received from the City administration. Andrew Carten, Planning Director, and Jerome Harcar, Historic Preservation Officer, both maintained a strong interest in the project, speaking up on its behalf at critical moments. Joseph McIntyre, General Superintendent of the City’s sewer utility, assisted in clarifying the history, ownership and access issues pertaining to the Petty’s Run culvert. Marge Caldwell-Wilson, North Ward City Councilwoman, spoke in favor of the project on numerous occasions. The board and staff of the Trenton Downtown Association, in particular Executive Directors Taneshia Nash Laird and Christian Martin, and Board Chairs John Thurber, David Henderson and John Clarke, also frequently lobbied on behalf of Petty’s Run, fully appreciating the potential role of heritage tourism as a driving force for the revitalization of the downtown.

The entire staff of the Old Barracks, from Richard Patterson, Director, on down, followed the progress of the excavations and the stabilization of the site with keen interest, encouraging visitors to the Old Barracks to view the site. Especially appreciated was the enthusiasm of Bob Butera, Fred Minus and the late Wayne Daniels, who all visited the site on a regular basis. Similarly, the other Petty’s Run neighbor, Thomas Edison State College, was always supportive, with its staff observing the archaeological proceedings with interest. John Thurber, Vice President, Public Affairs, and Mary Hack, Director, Administrative Services, are gratefully acknowledged for their assistance in facilitating access to the college rooftop and research materials. The Trenton Historical Society was a persistent and constant advocate for the preservation of the Petty’s Run ruins, arranging for presentations and tours of the site and lobbying legislators, the media and the public when it appeared as if reburial might be its ultimate fate. The Society’s board, and especially Helen Shannon, Karl Flesch and Richard Willinger, expended considerable energy speaking out on the site’s behalf. An extraordinarily effective and devoted promoter of all things Petty’s Run was Tim Stollery, a videographer on the staff of the New Jersey Network (NJN) public TV station, who compiled extensive video footage and pushed for news broadcasts at key points during the work.
ACKNOWLEDGMENTS (CONTINUED)

The archaeological investigations benefited immensely from the assistance of knowledgeable individuals in several state and city agencies and other research institutions. Of particular note in this regard is the staff of the New Jersey State Archives, notably Joseph R. Klett, Executive Director, Ellen R. Callahan, Collection Manager, Bette M. Epstein, Reference Supervisor, Vivian E. Thiele, Archivist for Database Development, Joanne M. Nestor, Principal Photographer, Donald F. Cornelius, Collection Management Archivist, and Catherine Stearns Medich, Reference Archivist. To be on the receiving end of the wide-ranging knowledge and enthusiasm of Wendy Nardi, Curator of the Trentoniana Collection at the Trenton Public Library, was always a pleasure and invariably rewarding. The staffs of the Historical Society of Pennsylvania, the New-York Historical Society and the David Library of the American Revolution all provided invaluable help in ferreting out details of the site’s history. For their assistance in dealing with the final disposition of the artifacts from the site, thanks are extended to the staff of the New Jersey State Museum, in particular to Gregory Lattanzi, Assistant Curator, and Jessie Cohen, Registrar, Bureau of Archaeology & Ethnology.

A number of other individuals deserve specific mention for their contributions and profound interest in the history and archaeology of Petty’s Run. Richard Porter, who conducted the bulk of the initial historical research on the site in the mid- to late 1980s, maintained his interest in succeeding years and kindly fielded questions about his earlier work. Karl Niederer, former New Jersey State Archivist, offered research assistance and valuable comment on numerous occasions over the years. More recently, the interpretation of the steelworks benefited from the input of industrial archaeologists in England, most especially David Cranstone, excavator and scholar of the Derwentcote Furnace, and Paul Belford, former Head of Archaeology and Monuments, Ironbridge Gorge Museum Trust, both of whom shared their superior knowledge of cementation furnaces and pointed to critical sources of information following a presentation of the Trenton Steel Works discoveries at the 300th anniversary “Footprints of Industry” conference at Coalbrookdale in June 2009.

In carrying out the excavations and analysis of the Petty Run site, Hunter Research received vital assistance from several contractors and experts. Robert B. Gordon, Professor Emeritus Geophysics and Applied Mechanics, Department of Geology and Geophysics, Yale University, and anthropology graduate student, Colin Thomas, analyzed and identified the cast-iron grate bars from the steel furnace. John Carr and Andrew Fearon of Milner Carr Conservation, LLC (now Materials Conservation Co., LLC) conserved timber and iron remains retrieved from the paper mill wheel pit. Steve Spaulding, S.L. Spaulding Company, provided expert mechanical excavation services and contributed to the success of the field operations in countless other ways, such as supplying shoring and pumps. Mark Niederer of Niederer Tree Service removed a number of large deciduous trees from the excavation area.

Most members of the Hunter Research staff were involved with the Petty’s Run project at some point or other, in large part because the site was located directly across West State Street from the company’s main offices. Administrative tasks relating to the project were handled by the firm’s two Principals, Richard Hunter and Ian Burrow, and by Business Manager, Patricia Madrigal. Other administrative assistance was received from Principal Investigators James Lee, William Liebeknecht and Joshua Butchko, and Principal
ACKNOWLEDGMENTS (CONTINUED)

Historian/Architectural Historian Patrick Harshbarger. Historical and archival research was undertaken by Richard Hunter, Patrick Harshbarger, Cheryl Hendry, Alison Haley, Charles Ashton and Damon Tvaryanas. Archaeological field investigations were directed by Ian Burrow with supervisory assistance from Joshua Butchko, Seth Gartland, William Liebeknecht and James Lee. Field surveying was largely undertaken by Katie Rettinger. The archaeological field excavation staff comprised numerous committed individuals, foremost amongst whom were Andrew Martin, Glen Keeton, Christopher Connallon, Daniel O’Toole, Adam Heinrich and Dorothy McKee. Others who worked as field assistants on the site were Allison Allshouse, Nicholas Brandimarto, Matthew Douglas, Sarah Eichhorn, Sarah Fall, David Harris, Daniel Kasper, Lindsay Lee, James Martin, Caroline Mills, Ryan Murphy, Keri Sansevere, Emily Suarez and Jason Uebelacker. During the period of construction activity, the burden of archaeological monitoring fell primarily upon Joshua Butchko and James Lee, with occasional assistance being provided by Andrew Martin, Ian Burrow and Richard Hunter. Laboratory processing of artifacts and field data was completed by Sarah Fall, Gail Hellman, Lauren Lembo, Dorothy McKee, Caroline Mills and Ryan Murphy under the guidance of Joshua Butchko and Andrew Martin. The cataloging and analysis of artifacts was mostly undertaken by Joshua Butchko under the overall direction of Ian Burrow and William Liebeknecht.

The reporting of this project was a daunting, complex and long drawn-out affair. Graphics were mostly prepared by Katie Rettinger and Elizabeth Cottrell, with contributions by Marjan Osman, Lindsay Lee, Frank Dunsmore and David Harris, under the direction of Richard Hunter, Ian Burrow and James Lee. All writing tasks were carried out by Richard Hunter and Ian Burrow. Bibliographic referencing was the responsibility of Alison Haley. Editing was largely undertaken by Richard Hunter with assistance from Patrick Harshbarger and James Lee. Report layout and production were completed by Elizabeth Cottrell with assistance from Lauren Lembo and Lindsay Lee, under the direction of James Lee and Richard Hunter. Public outreach and the design of historic interpretive signs were important aspects of the project. During the period of the excavations, Vivian Braubitz fulfilled a critical role as site interpreter, engaging the visiting public with clear and accessible explanations of what was taking place on site. The design of the interpretive signs involved the close collaboration of graphic designer Douglas Scott with James Lee, Patrick Harshbarger and Richard Hunter.

Richard Hunter, Ph.D., RPA, President/Principal Archaeologist
Ian Burrow, Ph.D., RPA, Vice-President/Principal Archaeologist
Chapter 1

INTRODUCTION

A. PROJECT BACKGROUND

This technical report represents the culmination of almost three decades of historical research and archaeological investigation at the Petty’s Run Archaeological Site in the City of Trenton, Mercer County, New Jersey. This archaeological property, recently stabilized and now displayed for public view, is situated in the heart of Trenton’s historic downtown in the narrow sliver of parkland that extends south from West State Street between the New Jersey State House, Thomas Edison State College and the Old Barracks (Figures 1.1 and 1.2; Photographs 1.1-1.4).

The studies reported on here were performed in connection with the re-design and upgrading of the park surrounding the State House, an ongoing project that commenced in earnest in 2005. They build and elaborate on a number of earlier historical and archaeological investigations undertaken for several other public projects, notably the design and construction of the legislative services wing of the State House in 1985-92, the restoration of the Old Barracks in 1995-98 and the expansion of Thomas Edison State College in 1996-98. The ultimate client for all of these projects was the State of New Jersey, with the contracting agency either being the New Jersey Building Authority or the Division of Property Management and Construction (DPMC), Department of the Treasury, acting on behalf of other state-owned and state-operated facilities.

The Petty’s Run Archaeological Site lies within the State House Historic District, which is listed in the New Jersey and National Registers of Historic Places. This designation, originally bestowed in 1975-76, and the related regulations of the New Jersey State Register of Historic Places Act (Chapter 268, Laws of 1970) have been the main impetus for historical and archaeological inquiry at the site. As a direct result of compliance with this legislation and, to a lesser extent, the requirements of New Jersey Executive Order 215, a series of archaeological surveys and excavations has been conducted by Hunter Research, Inc. at various times since 1985. These studies and other relevant historical and archaeological investigations, all of which have been subject to review by the New Jersey Historic Preservation Office (NJHPO), are summarized in the following section of this chapter.

As the succession of archaeological studies progressed between 1985 and 2005, there was a growing recognition of the potential richness of the buried remains ranged alongside the channelized and culverted course of the former natural stream known as Petty’s Run. It gradually became clear that the physical remains of a century and a half’s worth of water-powered industrial history spanning the colonial period, the Revolutionary War and the Industrial Revolution were concentrated in a roughly 150 by 150-foot area straddling the run. On this spot, iron, steel, cotton and paper were all manufactured in a microcosm of endeavor that foreshadowed Trenton’s rise as one of the nation’s leading centers of industrial production in the late 19th and early 20th centuries.

In 2008-09, major exploratory excavations were carried out as part of the design phase of Capital State Park project, confirming the extent of the ruins and highlighting in particular the remains of the Trenton Steel Works and the Front Street Paper Mill. These and other components of the Petty’s Run Archaeological Site were stabilized in 2012-13 and a substantial portion of the ruins are now displayed.
Figure 1.1. Location of the Petty’s Run Archaeological Site.
Figure 1.2. Key Features of the Petty’s Run Archaeological Site.
Photograph 1.1. View looking northeast across the Petty’s Run Archaeological Site towards Thomas Edison State College in the late summer of 2005 (Photographer: Michael Murphy, September 2005) [HRI Neg. #05026/D5:021].
Photograph 1.2. View looking down from the roof of the New Jersey State House and east across the Petty’s Run Archaeological Site in the spring of 2008 just prior to the start of archaeological excavations (Photographer: Richard W. Hunter, May 2008) [HRI Neg. #08022/D1:001].
Photograph 1.3. View looking down from the roof of the New Jersey State House and east across the Petty’s Run Archaeological Site in the summer of 2008 while archaeological excavations were in progress (Photographer: Richard W. Hunter, August 2008) [HRI Neg. #08036/D21:0015].
Photograph 1.4. View looking down from the roof of the New Jersey State House and east across the Petty’s Run Archaeological Site following completion of its stabilization and display in the spring of 2013 (Photographer: Richard W. Hunter, April 2013) [HRI Neg. #11056/D40:001].
and interpreted for the visiting public. This excavation and stabilization work was a project of the New Jersey Department of Environmental Protection (NJDEP) administered by the DPMC, Department of the Treasury (Contract P0990). In this instance, Hunter Research, Inc. operated as a subcontractor to the prime landscape architect and design consultant, Wallace Robert & Todd, LLC (WRT).

The principal focus of this report is on the excavations conducted in 2008-09, although portions of the document are given over to summarizing the results of the extensive historical and archival research that has been carried out over almost 30 years and to the recent development of the site for heritage tourism purposes. A supplementary document on the previously unreported data recovery excavations conducted on the adjoining Thomas Edison State College property in 1996 is also appended, as this work was of specific relevance to the Petty’s Run site.

No formal or specific scopes of work were issued by the State for the archaeological excavations of 2008-09, but all investigative actions were required to be in keeping with the Secretary of the Interior’s Standards and Guidelines for Archaeology and Historic Preservation and with NJHPO archaeological survey and report guidelines. Close coordination was maintained throughout between Hunter Research archaeologists and the DPMC, the NJDEP, the NJHPO and WRT during the course of this work. Senior Hunter Research personnel who were responsible for undertaking these investigations met the federal standards for qualified professional archaeologists as specified in 36 CFR 66.3(b)(2) and 36 CFR 61. All documentation and archaeological materials from this study will be stored at the Hunter Research offices in Trenton, New Jersey until the acceptance of the final report by the appropriate agencies. At this point, these materials and data will be dispatched to the New Jersey State Museum, Trenton, New Jersey.

B. PREVIOUS ARCHAEOLOGICAL RESEARCH

Over the past three decades numerous archaeological investigations have been carried out within the City of Trenton and a great many of these have taken place in the area around the New Jersey Capitol Complex and within the block of land bounded by the New Jersey State House, West State Street, Barrack Street and the former course of the Trenton Water Power. A synthesis of historical archaeological work in the city is included in the recently published Historical Archaeology of the Delaware Valley, 1600-1850, edited by Richard Veit and David Orr (Hunter and Burrow 2014). The following paragraphs provide an overview of those archaeological projects that have taken place in and around the Petty’s Run site and other studies in the city relevant to the 2008-09 excavations.

In the summer of 1983 an archaeological survey was undertaken along the proposed alignment of a series of steam heating pipes which were to be laid as part of a centralized system referred to as the Trenton District Heating Project. This project, upon completion, provided upgraded heating service to several major buildings in downtown Trenton, including structures within the New Jersey State House complex and the Old Barracks. Archaeological excavations aimed to identify and evaluate any significant archaeological resources that lay within the proposed alignment. Two five-foot-square test units, two three-foot-square test units and five soil auger tests were excavated along the proposed alignment which ran from east to west along the paved alley north of the Old Barracks, turning south along a continuation of this roadway (now removed) to a point roughly halfway along the west wing of the Old Barracks, before heading southwest across the Mahlon Stacy Park toward the State House (Figure 1.3). At this time the Old Barracks was not enclosed by the palisaded fence that today defines the historic barracks lot.
Figure 1.3. Locations of Previous Archaeological Investigations in the Vicinity of the Petty’s Run Archaeological Site.
Evidence of intact 18th-century cultural strata were found at depths of between four and six feet below grade in one five-foot-square unit and one three-foot-square unit to the west of the Old Barracks beneath the former alignment of West Front Street (although no clear trace of West Front Street itself was observed). Elsewhere and particularly along the east-west roadway to the north of the Old Barracks, deposits were partially disturbed and produced a range of prehistoric, 18th- and 19th-century artifacts. Between 1983 and 1986, several subsequent phases of archaeological excavation and monitoring were performed prior to and during installation of the steam lines to recover archaeological data along the pipe trench alignment. Broadly similar results were obtained with a mixture of prehistoric and 18th-and 19th-century artifacts again being recovered (Historic Sites Research 1983, 1987).

Following completion of the central heating system in the downtown, the Trenton District Energy Company developed a companion centralized cooling system which, in the State House vicinity, involved laying “chiller lines” along roughly similar alignments to the steam lines, but at a somewhat shallower depth. In August of 1988 a series of twelve trenches were “pre-excavated” by archaeologists along what were at the time anticipated as the future chiller line alignments (Figure 1.3). With the exception of one trench excavated adjacent to the access road close to the northeast corner of the Officers’ Quarters, all of these excavations were placed in the park area to the west of the Old Barracks. The uppermost soils within the trenches were removed by backhoe under archaeological supervision, with archaeologists manually excavating deeper deposits of particular interest. Most of the trenches either encountered mixed deposits or did not penetrate deep enough to reach intact early historic and prehistoric deposits. A few structural remnants of 19th-century buildings were found and prolific quantities of 19th-century cultural materials were recovered, along with smaller amounts of 18th-century and Native American artifacts.

The two westernmost excavations (Trenches 15 and 16) noted a buried A-horizon of probable 18th-century date sloping down from west to east toward Petty’s Run. The top of this deposit was recorded at a depth of almost four feet in Trench 15 adjacent to the Executive Parking Lot along the east side of the State House; to the east, in Trench 16, the top of the same layer was noted at a depth of roughly five-and-a-half feet. Approximately one foot in thickness, this deposit overlaid a B-horizon containing prehistoric cultural materials. The investigators concluded that the “testing has established that there are several isolated areas surrounding the Old Barracks where historic ground surfaces have been deeply buried under later building construction and artificially deposited landfill,” drawing attention also to the difficulty of excavating by hand within the base of deep and narrow backhoe trenches. Although recommendations were made for archaeological data recovery, these were not acted upon, as the chiller lines were redirected to run alongside the previously installed steam lines through ground that was already largely disturbed (Historic Sites Research 1988, 1990).

In the fall of 1985, in the period between the archaeological surveys performed for the steam lines and the chiller lines, a separate campaign of archaeological investigation was conducted by Hunter Research in connection with the construction of the Legislative Services Building (LSB) on the south side of the State House (Hunter Research Associates 1989a). Archaeological work focused on projected utility alignments through the park between the State House and the Old Barracks and on the footprint of the new construction for the LSB which today lies atop the course of the former Trenton Water Power. With the assistance of a backhoe, four large trenches were excavated: two along the Petty’s Run corridor; one
across the Trenton Water Power; and one in the parking area between the State House and the War Memorial (Figure 1.3).

During the course of these excavations a buried manhole giving access into Petty’s Run was uncovered roughly 30 feet west of the present-day southwest corner of the Thomas Edison State College campus at 105-115 West State Street. This manhole was subsequently extended upwards to present grade by the City of Trenton and today still serves as a means of entry into the section of Petty’s Run between West State and West Front Streets. This portion of Petty’s Run, contained within a stone-lined and brick-arched culvert, has functioned for more than a century as part of the City of Trenton’s storm sewer system, although it seldom carries much water except during very heavy rains. The culvert has its origins in a natural stream course from which industrial waterpower was drawn in the 18th and 19th centuries. It is the industrial facilities drawing on this waterpower that are the primary subject of the current report. At the time of the LSB archaeological investigations, the manhole was entered and effort was expended in recording the interior of the Petty’s Run culvert, since its stone and brick masonry, and the enclosed creek bed, displayed several features of potential archaeological interest and relevance to the nearby excavations (Hunter Research Associates 1989a:Chapter 5B). Chapter 5 of the current report provides an updated historical summary and description of the Petty’s Run culvert.

Two of the archaeological trenches excavated for the LSB project were positioned directly over the top of the Petty’s Run culvert. Trench 1, running parallel to and immediately north of West Front Street, was excavated to a maximum depth of 12 feet, but did not reach the top of the culvert. Extensive foundations were exposed at a depth of around four feet, including the footings of row housing erected in the late 1870s and substantial remains of the 19th-century Front Street Paper Mill (Photograph 1.5). Trench 2 was initially opened up some 85 feet upstream of Trench 1 and encountered the buried manhole and the remains of two east-west stone property walls at a depth of about four feet below grade. This trench was subsequently expanded 35 feet northward as Trench 2A, while two east-west extensions, Trenches 2B and 2C, were excavated further to the west (Photograph 1.6). Aside from another segment of an east-west stone property wall exposed in Trench 2C, a length of brick walkway and extensive late 19th- and early 20th-century fill deposits were found. Of particular interest were outcrops of schist bedrock observed at the western end of Trenches 2B and 2C at a depth of 2.5 to three feet. The bedrock in both locations showed a distinct grain that trended from southwest to northeast, matching that observed in the stream bed between the manhole and West State Street (Hunter Research Associates 1989a:5-38 through 5-69).

Trench 3 was dug to obtain a cross-section of the Trenton Water Power immediately to the south of the State House on the site of the proposed LSB. In this location the prism of the Water Power was 70 feet wide at the top, 42 feet wide at the base and seven to eight feet in depth. The northern side of the Water Power was constructed in stone masonry to provide a stable interface with the State House. Trench 4 was excavated in the parking area between the State House and the War Memorial on the site of the former Fish & Green saw and planing mill. Excavations reached a depth of 14 feet in late 19th/early 20th-century fill deposits. No evidence of the mill was found. A series of 16 test pits excavated by a contractor investigating existing utility lines were also monitored by archaeologists. Eleven of these pits were dug to the south of the State House within or close to the Water Power; the remaining five were excavated along the east side of the State House within or alongside Delaware and West Front Streets. One of these pits (Test Pit 14A) encountered the corner foundation of 138 West State Street, a mid-19th-century dwelling that stood in the northeast angle of the intersection of Delaware and
Photograph 1.5. View looking east showing Trench 1 excavated by Heritage Studies, Inc. in the fall of 1985; the west wing of the Old Barracks is at the top of this view; the principal foundation line represents the front walls of late 19th-century row housing and the mid-19th-century Front Street paper mill along the north side of West Front Street; scales in feet (Photographer: Terrence Epperson, October 1985) [HRI Neg. # 88002/2:2].
Photograph 1.6. View looking north showing Trenches 2 and 2A excavated by Heritage Studies, Inc. in the fall of 1985; West State Street is at top of view; the manhole in the foreground was extended upward and is now at grade, giving access into the Petty’s Run culvert; the stone walls extending to the left and right of the manhole mark the rear line of 119 West State Street; the brick walkway extending north toward West State Street lay within the garden of the 119 West State Street property; scales in feet (Photographer: Terrence Epperson, October 1985) [HRI Neg. # 88002/4:4].
West Front Streets. Two other pits encountered cut granite paving blocks representing the former surface of Delaware Street (Hunter Research Associates 1989a:Chapters 5C, 5D and 6).

Several episodes of archaeological investigation were carried out between the late 1980s and the mid-1990s within the limits of the Barracks lot (the historic property within which the Old Barracks is located). The Barracks lot is demarcated today by a wooden palisade and forms a roughly square parcel of land wedged between Barrack Street and Petty’s Run (Figure 1.3). The irregular boundary at the northwest corner of the lot reflects the existence of the iron and steel working facility that straddled Petty’s Run at the time the barracks were built in 1758-59. Four major archaeological campaigns took place at the Old Barracks between 1988 and 1995, with occasional monitoring actions also occurring subsequently (Hunter Research Associates 1989b; Hunter Research, Inc. 1991, 1994, 1996). Archaeological activity accompanied all stages of a lengthy building and landscape restoration process that commenced in the early 1980s, concentrating chiefly on the parade ground enclosed within the building courtyard and on various other ground disturbing actions inside and immediately adjacent to the building itself. During the course of this work valuable information was recovered about the original main entry into the barracks, its basement doorway openings, and the elevation and composition of the parade ground and surrounding terrain. Evidence for the palisade was documented to the south of the building in the form of postholes and post molds, while a single deep trench excavated to the west of the building revealed the topography of the site sloping down sharply to Petty’s Run. The entire barracks lot was further demonstrated to sit atop a terrace-like landform that was intensively occupied by Native Americans (see below, Chapter 2).

Another major public undertaking that was accompanied by extensive archaeological investigation was the restoration and expansion of Thomas Edison State College within the properties defined by 101-115 West State Street and the access road to their rear known as Wilson’s or Hancock’s Alley. Initial surveys hinted at the high archaeological sensitivity of portions of the Thomas Edison State College site (Hunter Research, Inc. 1989; Mounier 1996), but the data recovery work performed by Hunter Research in 1996, following selective demolition and before the onset of construction, found prehistoric and early historic archaeological remains of unanticipated quality and importance. Most notably, two Native American burials were identified, removed and re-interred elsewhere with the assistance of representatives of the descendant Native American community, while substantial remains of the early 19th-century Fithian cotton mill (at the time incorrectly interpreted as the 18th-century Harrow/Yard plating mill) were exposed, documented and preserved in place in the southwest corner of the site (Photograph 1.7). A summary of the archaeological data recovery excavations carried out in 1996 at the Thomas Edison State College site is appended as a supplement to the current report.

Between the early 1990s and 2005, several other small-scale archaeological investigations were undertaken in connection with publicly funded ground-disturbing actions within the upper portion of Mahlon Stacy Park and within the State House vicinity. These mostly entailed limited pre-construction archaeological testing and/or archaeological monitoring during construction, but they helped to fill in and confirm the gradually crystallizing picture of the buried history and prehistory along both the Petty’s Run stream corridor and along the bluff edge along the south side of West State Street. In 1992, in connection with planning for the State House Garage, shovel testing along the West State Street frontage and around the northeast perimeter of the State House found evidence of the office building of the Secretary of State and the Clerk of the
Photograph 1.7. View looking southwest from the roof of the Kelsey Building showing the excavations conducted in 1996 in the southwest corner of the Thomas Edison State College campus prior to new construction; in the far corner of the excavations are the foundations of the Fithian cotton mill; the New Jersey State House is at right; the Delaware River beyond (Photographer: Ian Burrow, August 1996) [HRI Neg. # 96034/14-22].
Supreme Court, originally erected in 1795-96 (Hunter Research, Inc. 1992a). In 1997 testing and monitoring were performed in connection with the restoration of the State House dome. Mostly disturbed deposits were observed, but pockets of intact pre-urban deposits containing early historic and prehistoric cultural materials were recorded in the confined exterior space immediately west of the dome between the original State House and the Lewis Broome-designed western addition to the block fronting on to West State Street (Hunter Research, Inc. 1999). In the summer and fall of 2004, installation of a fiber optic line along the southern margin of West State Street was archaeologically monitored, producing sporadic historic and prehistoric cultural materials just north of the Executive Parking Lot located adjacent to the east side of the State House (Hunter Research, Inc. 2004). Remedial drainage work beneath the sidewalk in front of 107-115 West State Street, part of the Thomas Edison State College campus, was also monitored in the spring of 2005, producing limited evidence relating to the 19th-century occupation of these properties (Hunter Research, Inc. 2005).

Also in the spring of 2005 archaeological testing was performed in connection with proposed, but as yet unimplemented, security improvements to the Executive Parking Lot (also known as Parking Lot D). This work, which involved the excavation of four trenches around the northern and eastern perimeter of the parking lot, produced valuable information about the depth of early historic and prehistoric deposits. Of particular interest was a substantial mortared stone wall found in Trench 1. Through correlation with deeds and historic maps, it was established that this wall followed a property line dating back to the early 1730s when it formed the northwestern boundary of Isaac Harrow’s plating mill tract. The wall was investigated further during the excavations of 2008-09 and is one of the key defining features of the colonial industrial landscape associate with the Petty’s Run Archaeological Site (Hunter Research, Inc. 2007a).

An extensive archaeological data recovery effort evolved out of archaeological monitoring of other security improvements carried out along West State Street immediately in front of the State House. This work, undertaken in the spring of 2006, more thoroughly documented the remains of the office building of the Secretary of State and the Clerk of the Supreme Court, a structure that may legitimately claim to be the State of New Jersey’s first purpose-built office. The foundations of this building, located at the southwest corner of Delaware and West State Streets, along with an associated brick privy lying immediately adjacent to and partially beneath the main portico, have been re-buried and are now the subject of a street-level historic interpretive sign (Hunter Research, Inc. 2007b).

Finally, two other broader-based studies, both completed in 2008 and more historical and historic architectural as opposed to archaeological in nature, are useful in providing a cultural context for the Petty’s Run Archaeological Site. A cultural resources survey was prepared for the New Jersey Department of Transportation as part of this agency’s assessment of the feasibility of replacing the N.J. Route 29 Freeway with an urban boulevard. The resulting technical document summarized the complicated historical character of the urban landscape around the confluence of Assunpink Creek, Petty’s Run and the Delaware River (Hunter Research, Inc. 2008a). More deeply rooted in pure research was the “Trenton in 1775” mapping project which aimed to reconstruct the historic landscape of the city on the eve of the Revolutionary War by plotting out and piecing together deeds and surveys from the late 18th century. This latter endeavor engendered a finely drawn map of late colonial property holdings in the town, a canvas on to which the detailed history of the Petty’s Run site could be projected (Hunter Research, Inc. 2008b).
Chapter 2

NATIVE AMERICAN OCCUPATION AT THE FALLS OF THE DELAWARE

The Middle Delaware Valley has long been recognized as one of the most intensively occupied areas of prehistoric settlement in the entire Middle Atlantic region (Figure 2.1). The best-known and probable primary focus of prehistoric habitation and natural resource exploitation in this area is represented today by the Abbott Farm National Historic Landmark, a cluster of sites in the wetlands, floodplain terraces and adjoining uplands bordering the confluence of the Delaware River and Crosswicks Creek, about three miles downstream from the Petty’s Run Archaeological Site. Land around the confluence of the Delaware River, the Assunpink Creek and Petty’s Run, an area that nowadays lies entirely within the present-day built-up area of the City of Trenton and which includes the Capitol Complex area, comprised another major focus of prehistoric settlement in the Middle Delaware Valley. The various islands within the Delaware River in the Trenton vicinity, as well as floodplain and bluff-top settings on the Pennsylvania side of the river, have also produced prolific evidence of Native American activity. In many instances, it is misleading to distinguish between these prehistoric loci; their physical limits in the landscape are governed as much by underlying geographic and environmental factors (and current land use) as by cultural differences.

Trenton and its environs are situated at the “fall line” of the Delaware River drainage, the geological demarcation between the Coastal Plain and Piedmont physiographic provinces in New Jersey. This boundary, marked by a series of rapids in the Delaware River, also coincides with the approximate head of tide, although the waters just downstream of the fall line remain relatively fresh, except during periods of extreme drought. At this point in the landscape, there is a mica schist and gneiss outcrop in the bed of the Delaware between the “Trenton Makes” and Calhoun Street bridges, where the river is fordable at its furthest downstream point. It is no coincidence, therefore, that the alignments of Indian trails in the region converged upon this critical section of the Middle Delaware Valley where waterborne travel upstream along the river was obstructed by the falls and where the same falls allowed movement on foot or horseback from one riverbank to the other. Furthermore, the Trenton vicinity was an ideal location for prehistoric settlement because of the accessibility of a wide variety of exploitable habitats. From at least the Archaic period onward, the tidal wetlands at the mouth of Crosswicks Creek just south of Trenton offered an extraordinarily rich range of plant and animal resources, while anadromous fish (notably, sturgeon, shad and alewife), ascending the Delaware to spawn, provided a reliable, high volume food source which could be easily harvested from local waters during the early spring. The adjoining uplands provided a dependable source of drinking water as well as supplemental food resources not found in the wetlands and floodplain terraces. Finally, the Pleistocene terrace gravels contain an abundance of cobbles, a reliable source material for the fabrication of lithic tools, while outcrops of other raw materials such as clay (for pottery) and argillite, jasper and chert (used for stone tools) are found nearby along the banks of the Delaware River and its tributaries (Wall et al. 1996; Hunter Research, Inc. 2009).

Many of the factors that made this area attractive to prehistoric populations also made it attractive to early European settlers. Throughout the length of the Atlantic seaboard, head-of-tide and fall line locations
Figure 2.1. Native American Archaeological Sites at the Falls of the Delaware.
along major rivers were the focus of initial European settlement and urbanization, as seen in Mid-Atlantic cities such as New York, New Brunswick, Trenton, Philadelphia, Wilmington and Baltimore. As a result of intense urban development pressures, many fall line prehistoric sites have been destroyed, a circumstance exacerbated by the widespread perception that no important prehistoric sites are preserved within developed urban settings. However, intensive urban land use does not necessarily negate the possibility of archaeological preservation. Excavations conducted in the 1980s, 1990s and early 2000s in Mahlon Stacy Park, at the Old Barracks and the William Trent House, on the sites of the Thomas Edison State College campus and the State House Garage, and along the N.J. Route 29 corridor, as well as periodic archaeological monitoring along the south side of West State Street, all provide a striking reminder that significant archaeological deposits can often be preserved beneath urban fill and in undisturbed ground in amongst standing buildings and infrastructure.

Loci of prehistoric activity on the bluffs to the south of Trenton and around the mouth of Crosswicks Creek first began to be identified in the late 1860s and 1870s by Dr. Charles Conrad Abbott, a local antiquarian (Horan 1992; Kraft 1993; Hunter Research, Inc. 2009). Abbott initially characterized his finds as evidence of “Paleolithic” occupation of the North American continent, comparable in age to Paleolithic sites that were being identified around the same time in northern Europe (Abbott 1872, 1876). A major scholarly debate over the antiquity of man in North America then ensued, lasting more than half a century, in which Abbott’s writings and continuing archaeological explorations in the “Trenton gravels” played a critical role. A number of sites in the Trenton area were subsequently studied in great depth by various archaeologists – notably by Abbott’s protégé, Ernest Volk, who worked extensively in the Lalor Fields area under the sponsorship of Harvard University’s Peabody Museum in the period circa 1890-1910 (Volk 1911), and by Dorothy Cross, who performed a series of wide-ranging excavations on the bluffs and terraces overlooking Watson’s Creek for the New Jersey State Museum’s Indian Site Survey between 1936 and 1941 (Cross 1956). By the 1920s, however, Abbott’s contention that a human presence in the Delaware Valley extended back many tens, perhaps hundreds, of thousands of years into the glacial era had been largely discredited and a general consensus was instead gradually building around a post-glacial human chronology for the eastern United States of some 10,000 to 15,000 years.

In recent decades, largely as a result of Cross’s work, the group of prehistoric sites clustered around the mouth of Crosswicks Creek and ranged along the bluff edge from Riverview Cemetery to Bordentown has become known as the Abbott Farm site or complex, an archaeological entity formally recognized since 1976 as the Abbott Farm National Historic Landmark. This proliferation of Native American occupation ranges in date from the Paleo-Indian through the Contact period and clearly reflects a concentrated exploitation of the rich confluence and tidal headwater environment in this section of the Delaware Valley. Overall, archaeological data show an intensification of activity in this area through the Archaic period and into the Middle Woodland, possibly tailing off slightly in the Late Woodland and Contact periods in response to changes in subsistence habits and shifts in the overall settlement pattern.

The zone of prehistoric occupation around the mouth of the Assunpink Creek and Petty’s Run is less well understood, chiefly because of the obscuring effects of the urban landscape. Not surprisingly, the urban cover has greatly limited the areas available for archaeological examination and far less work has consequently been undertaken. Earlier this century, a local collector, Charles Rau, is reported to have recovered prehistoric artifacts on the south bank of the Assunpink west of South Broad Street and, largely
on the basis of this information, the New Jersey State Museum has registered a site, 28Me12, in this general vicinity. It has only been over the past three decades or so that any rigorous or systematic study of prehistoric (and early historic) archaeological resources has taken place within Trenton’s core, even though primary and secondary sources make reference to Late Woodland/Contact period occupation of the floodplain around the confluence of the Assunpink Creek and the Delaware River (Skinner and Schrabisch 1913:65; Johnson 1925:165-166, 309-310; Cross 1956:186; New Jersey State Museum site maps and files).

Various recent archaeological explorations conducted in the downtown Trenton area in connection with redevelopment and restoration projects have enabled a partial picture to be pieced together showing what appears to have been an intensive and quite widespread Native American presence along the Assunpink Creek extending through the Archaic and Woodland periods up until the arrival of the first Europeans. Similar to the cluster of prehistoric sites at the Crosswicks Creek confluence, the downtown Trenton prehistoric occupation is evident both in the floodplain and on the adjacent upland terraces. In contrast, very little is known about prehistoric settlement further upstream along the Assunpink within the limits of the City of Trenton and neighboring Lawrence and Hamilton Townships.

On the tongue of land between the Assunpink Creek and Petty’s Run, which displays a two-step terrace dropping down to the southwest from present-day West State Street, important prehistoric finds have been made both at the lower elevation on the property of the Old Barracks and at the upper level on the Thomas Edison State College campus. The Old Barracks property was the scene of detailed archaeological investigations over a period of several years from the mid-1980s into the early 1990s and yielded artifacts dating from the Late Archaic through Contact periods, with particular concentrations of Late Woodland material being in evidence [site 28Me125]. Of special note was a single pit feature, radiocarbon-dated to the early Late Woodland period, which was found beneath the footings for the main entry stairway into the west wing of the Old Barracks. This pit contained large amounts of lithic debitage, thermally-altered rock, bone, hickory nut hull fragments and 44 ceramic sherds representing at least three individual vessels (Historic Sites Research 1983, 1987, 1988; Hunter Research Associates 1989b; Historic Sites Research 1990; Hunter Research, Inc. 1991; Martin 1991).

In 1996 an archaeological data recovery project conducted by Hunter Research in conjunction with the expansion and restoration of Thomas Edison State College, less than 200 feet upslope to the north of the Old Barracks, confirmed and elaborated on earlier suggestions of prehistoric occupation in this area [site 28Me262]. Patches of substantive prehistoric cultural stratigraphy from the Archaic and Woodland periods were noted at this site perched within 100 feet of the bluff rim. Most notably, two Native American burials were identified and removed by archaeologists and then re-interred elsewhere by the descendant Native American community (see the supplement to this report summarizing the 1996 data recovery excavations at Thomas Edison State College) (Mounier 1996).

On the west side of Petty’s Run, within Mahlon Stacy Park, on the lower terrace that corresponds to the same landform on the Old Barracks property, intact prehistoric deposits were identified in August of 1988 during archaeological testing along the planned alignment of new “chiller lines” being laid to the New Jersey State House (Historic Sites Research 1988, 1990). Additional evidence of intact prehistoric deposits was found in this same area in 2005 during archaeological investigations carried out in advance of planned improvements to the Executive Parking Lot adjacent to the east side of the State House [site 28Me183] (Hunter Research, Inc. 2007a).
Moving northwest along the bluff rim from Thomas Edison State College along the south side of today’s West State Street through the Capitol Complex, pockets of intact prehistoric archaeological remains have been identified between the various State of New Jersey office buildings and related facilities. One such pocket [site 28Me245] was delineated and investigated in the early 1990s prior to the construction of the underground parking garage between the State House Annex and the New Jersey State Library. Evidence of predominantly Archaic period occupation was recorded in this location, a fragment of what one may reasonably assume was a zone of occupation extending along the bluff north of the Assunpink Creek confluence (Hunter Research, Inc. 1992a, 1993). More recently, archaeological monitoring of the installation of a fiber optic cable along the south side of West State Street recorded a Middle to Late Archaic pit, containing a stone gouge, in front of 225 West State Street (Hunter Research, Inc. 2004).

The evidence on the south side of the Assunpink Creek is similarly piecemeal, but no less convincing of a pervasive Native American presence. Recent test excavations and monitoring conducted in connection with the restoration of the William Trent House indicate that this early 18th-century house sits atop a low knoll-like landform within the floodplain close to both the Delaware and the Assunpink [site 28Me306]. Mixed in with historic cultural materials, and also present in undisturbed strata beneath the historic period deposits, were numerous prehistoric artifacts reflecting Late Archaic period usage of this site (Hunter Research, Inc. 1995, 2003). A quarter mile to the southeast, on the site of the Water’s Edge residential care facility, immediately adjoining the N.J. Route 29 corridor, a limited program of data recovery was undertaken in the early 1990s for Archaic and Woodland period deposits [site 28Me268] identified within the building construction zone (Hunter Research, Inc. 1992b). Archaeological investigations undertaken in the late 1990s in advance of the reconstruction of N.J. Route 29 have resulted in the identification of additional prehistoric resources of basically the same period and type [sites 28Me265 and 28Me273] (Hunter Research, Inc. 2002). The existence of these resources provides clear evidence that the Delaware River frontage in the vicinity of Trenton was a prime area for prehistoric occupation.

Finally, although this brief outline of the prehistory of the Trenton vicinity has focused primarily on the dominant clusters of sites on the New Jersey side of the Delaware River around the mouths of Crosswicks Creek, the Assunpink Creek and Petty’s Run, the full scope of prehistoric activity around the falls of the Delaware stretches beyond and between these areas, on to the islands in the river itself, and over on to the opposite riverbank in Pennsylvania. Collectively, this district or focus of settlement was referred to as “Sankhikan” or “Stankekans” at the time of European contact, named for the native peoples resident around the falls of the Delaware (Johnson 1925:opp.156, 380). As a major regional focus of Native American activity, these sites around the falls served a hinterland that extended throughout much of the Delaware watershed and parts of many adjoining drainages in the Piedmont and Inner Coastal Plain of New Jersey, Pennsylvania and Delaware. Spread throughout this zone of influence was a dense web of villages, camps, stations, trails, navigable streams and resource exploitation loci, all having a physical expression both in the landscape and in archaeological deposits.
Chapter 3

HISTORICAL OVERVIEW OF THE WEST STATE, BARRACK, WEST FRONT AND DELAWARE STREETS BLOCK

This chapter presents a historical summary of the Petty’s Run Archaeological Site and its immediately surrounding area, here considered to be the city block that is defined by West State and Barrack Streets and the no-longer-extant West Front and Delaware Streets. More detailed historical information about the site, focused on the succession of industrial operations that existed within the core of the block in the 18th and 19th centuries, is provided in Chapter 4. Both chapters draw extensively on historical research and narratives developed for earlier archaeological investigations, notably those reported in “Archaeological Investigations at the New Jersey State House” (Hunter Research Associates 1989a:Chapters 4 and 5, Appendices A, B and C), “Archaeological Investigations, Executive State House, Parking Lot D Security Improvements” (Hunter Research, Inc. 2007a) and “Archaeological Monitoring and Data Recovery, West State Street Security Improvements, New Jersey State House” (Hunter Research, Inc. 2007b). The following chapter (Chapter 4) does, however, incorporate for the first time the results of extensive supplementary research into legal and military records concerning the Trenton Steel Works, as well as various additional items pertaining to the Fithian cotton mill and the Front Street paper mill.

A. EARLY EUROPEAN SETTLEMENT AND LAND USE

Property in the area of the New Jersey State House, including the Petty’s Run Archaeological Site and its surrounding city block, was originally part of lands taken up in the late 17th century by Trenton’s founding settler, Mahlon Stacy. Stacy, a moderately wealthy Quaker from Yorkshire in England, emigrated to Burlington in West New Jersey in 1678 and moved upriver to settle at the falls of the Delaware in the following year (Figure 3.1). His landholdings, at their peak, totaled some 3,500 acres and straddled the confluence of the Delaware River with the Assunpink Creek and Petty’s Run, extending north as far as present-day Hermitage Avenue and south almost to Mercer County Waterfront Park. The primary focus of Stacy’s settlement activity, however, lay just below the falls at the head of navigation on the Delaware on the south bank of the Assunpink Creek. Here he established his home, known as “Ballifield” (named for his ancestral home near Sheffield in South Yorkshire, England), and a gristmill.

In 1683 Mahlon Stacy sold off two tracts in the northwestern section of his plantation: a 400-acre parcel that was acquired by Joshua Ely and a 100-acre parcel taken up by Peter Fretwell. The Fretwell tract, the more southerly of these two parcels, adjoined the western margin of the remainder of Stacy’s lands (Figure 3.2). It is difficult to pinpoint the Fretwell/Stacy boundary in relation to Petty’s Run, but it would appear that the entirety of the Petty’s Run Archaeological Site lay on Stacy property and thus continued under Stacy ownership into the early 18th century. During this early period of settlement, land today covered by modern Trenton was part of Burlington County in the Province of West New Jersey. In 1714, the area north of the Assunpink Creek, including the project site in its entirety, was placed within the newly formed Hunterdon County.

Following Mahlon Stacy’s death in 1704, the bulk of his property passed to his son, Mahlon Stacy, Jr., who ten years later sold off the 800-acre core of the family’s plantation on either side of the Assunpink Creek.
Figure 3.1. Dankaerts, Jasper. *Map of the Delaware River from Burlington to Trenton.* Circa 1679. No scale given. Project site circled. This early cartographic depiction copied by Dankaerts from a slightly earlier survey map shows Petty’s Run as “Senniker” and the Assunpink Creek as “Mill River.”
Figure 3.2. *Mahlon Stacy’s Lands at the Falls of the Delaware now Trenton*. Reconstructed in 1912. Scale: 1 inch = 1,000 feet (approximately). Project site circled. Note: this sketch map incorrectly depicts the locations of the State House and the Barracks in relation to Petty’s Run, which in actuality passes between these two buildings (Source: Trenton Historical Society 1929:22-23).
to William Trent (Figure 3.3). Five hundred of the 800 acres were situated on the north side of the Assunpink Creek and 300 acres to the south. Over the next few years Trent, a prominent Philadelphia merchant, built a new mansion (today’s William Trent House) on roughly the same site as the original Stacy homestead, rebuilt and expanded the old Stacy gristmill, and set about developing a formal settlement, Trent’s Town, on the north side of the Assunpink Creek.

By this time, the Fretwell tract, on the western edge of Trent’s Town, had changed hands, being held for several years by the Wilsford family, and now formed the basis of a plantation owned by Nathaniel Pettit. It is from the Pettit family that the creek known as Petty’s Run takes its name. The precise location of the Pettit farmhouse is uncertain, but it is believed to have lain between present-day Capitol Street and Pennington Avenue, to the west of Willow Street. Late in the second decade of the 18th century, therefore, the project site was probably held by the Trent family. Up to this point in the colonial period, the bulk of the project site most likely existed as a wooded bluff edge sloping down to the Delaware River and would have been bisected by a narrow ravine containing a sometimes swift-flowing Petty’s Run.

William Trent’s actual presence in Trent’s Town was brief. It was not until 1721 that he moved to his newly built mansion to live; and then three years later he died. At this juncture his property came under the control of his eldest son and heir-at-law, James Trent, and it was during the latter’s tenure in the later 1720s and 1730s that the town of Trenton truly began to take shape following a flurry of land sales. The new town was established on the north side of the Assunpink adjacent to, and to the west of, what was then referred to locally as the Maidenhead Road. This road (modern Broad Street; formerly Queen Street and Greene Street) was the region’s most important overland route, connecting Trenton to Burlington City and Philadelphia to the south and to New Brunswick and New York City to the north. The town’s freshly imposed colonial street network, with its distinctive triangular underpinning framed by Queen, King and Water Streets, still governs Trenton’s downtown layout today in the form of Broad, Warren and Front Streets respectively. The intersection of Second Street and King Street (modern State and Warren Streets) quickly emerged as the de facto commercial hub and carfax of the growing town (Figure 3.4; Table 3.1).

The block later bounded by West State, Barrack, West Front and Delaware Streets lay astride Petty’s Run at the western edge of the colonial settlement. The road that came to be known as the River Road was laid out around the turn of the 18th century and ran generally northwest from Trenton up the Delaware River Valley. The southern end of this road was formally incorporated within the street pattern of the new town sometime prior to 1732, beginning at the present-day intersection of Warren and Front Streets (West Jersey Deed DD:277). From there the road ran west along Front Street between Warren and Barrack Streets. It then angled to the north running along Barrack Street and Willow Street to what is now West Hanover Street, where it turned again to begin its northwest-erly course up the valley. Present-day State Street was probably extended west to Willow Street around the same time that the River Road was established. Barrack and Willow Streets, referred to as West Street during the colonial period, thus represented the westernmost street within the grid of Trenton’s growing town, while Petty’s Run effectively served as its western boundary (Hunterdon County Deed 24:77; Raum 1871:152; Stryker 1893:4-5; Trenton Historical Society 1929:21-27, 31-32, 44-48, 85-87; Turk 1964:30, 34-40, 54; Snyder 1969; Toothman 1977:119, 129, 149; Hunter Research, Inc. 2008b).
Figure 3.3. *Mahlon Stacey’s Resurvey*, 1714. Scale 1 inch = 1,500 feet (approximately). Project site circled. (Source: *Basse’s Book of Surveys*).
### TABLE 3.1. TRENTON’S COLONIAL ROAD NETWORK.

<table>
<thead>
<tr>
<th>MAIN HISTORIC NAME</th>
<th>OTHER HISTORIC NAMES</th>
<th>CURRENT NAME</th>
<th>DATE ESTABLISHED</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maidenhead Road</td>
<td>York Road; King’s Highway; Trenton and</td>
<td>Brunswick Avenue; U.S. Route 206</td>
<td>Late 17th century</td>
<td>Indian Trail (Assunpink Trail)</td>
</tr>
<tr>
<td>Queen Street</td>
<td>Greene Street; King’s Highway</td>
<td>North Broad Street; South Broad Street; U.S. Route 206</td>
<td>Late 17th century</td>
<td>Indian Trail (Assunpink Trail); East State Street marks the division between North and South Broad Streets; bridge over the Assunpink established by 1688</td>
</tr>
<tr>
<td>Road by the Swamp Lots</td>
<td></td>
<td></td>
<td>Mid-18th century</td>
<td>no longer exists as a road</td>
</tr>
<tr>
<td>Quaker Lane</td>
<td></td>
<td>North Montgomery Street</td>
<td>1730s</td>
<td></td>
</tr>
<tr>
<td>Fourth Street</td>
<td></td>
<td>Academy Street</td>
<td>1720s</td>
<td></td>
</tr>
<tr>
<td>Third Street</td>
<td></td>
<td>East Hanover Street</td>
<td>1720s</td>
<td></td>
</tr>
<tr>
<td>Second Street</td>
<td>State Street</td>
<td>West State Street; East State Street</td>
<td>1720s</td>
<td>West State Street extended west of Pett’s Run in early 1780s; North Warren Street marks the division between West and East State Streets</td>
</tr>
<tr>
<td>Road to Henry’s Mills</td>
<td>State Street</td>
<td>East State Street</td>
<td>1720s</td>
<td></td>
</tr>
<tr>
<td>Front Street</td>
<td>Water Street; Lower Street; High Street</td>
<td>West Front Street; East Front Street</td>
<td>1720s</td>
<td>South Warren Street marks the division between West and East Front Streets</td>
</tr>
<tr>
<td>King Street</td>
<td></td>
<td>North Warren Street; South Warren Street</td>
<td>1720s</td>
<td>West and East State Streets mark the division between North and South Warren Streets</td>
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<td>Lane to Stacy Potts’ Paper Mill</td>
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<td>Peace Street</td>
<td>1770s</td>
<td></td>
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<tr>
<td>Lane between Front and Second Streets</td>
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<td>Chancery Lane</td>
<td>Mid-18th century</td>
<td></td>
</tr>
<tr>
<td>West Street</td>
<td>River Road; South Willow Street</td>
<td>Barrack Street</td>
<td>1720s</td>
<td></td>
</tr>
<tr>
<td>Lane to Ford, Fishery and Landing at the Falls</td>
<td>Hancock Street; Hancock’s Alley; Wilson Alley; Delaware Street</td>
<td></td>
<td>1730s</td>
<td>no longer exists as a road</td>
</tr>
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<td>River Road</td>
<td>Willow Street; Quarry Street</td>
<td>South Willow Street; West Hanover Street</td>
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<td></td>
</tr>
<tr>
<td>DeCou’s Alley</td>
<td>Potts Alley</td>
<td></td>
<td>Mid-18th century</td>
<td>no longer exists as a road</td>
</tr>
<tr>
<td>Hopewell Road</td>
<td>Rd[d]igers Road; Pennington Road; Pennytown Road; Hopewell and Ewing Turnpike</td>
<td>Pennington Avenue; N.J. Route 31</td>
<td>Late 17th century</td>
<td></td>
</tr>
<tr>
<td>Beakes Lane</td>
<td>Princeton and Kingston Branch Turnpike; Princeton Turnpike</td>
<td>Martin Luther King, Jr. Boulevard; Princeton Avenue</td>
<td>Mid-18th century</td>
<td></td>
</tr>
<tr>
<td>Bordentown Road</td>
<td>Burlington Road; King’s Highway; White Horse Road; Crosswicks and Trenton Turnpike</td>
<td>South Broad Street; U.S. Route 206</td>
<td>Late 17th century</td>
<td>Indian Trail (Assunpink Trail)</td>
</tr>
<tr>
<td>Sandtown Road</td>
<td></td>
<td>Hamilton Avenue</td>
<td>18th century</td>
<td></td>
</tr>
<tr>
<td>Road to Trenton Landing</td>
<td>Lamberton Road</td>
<td>Lamberton Street</td>
<td>18th century</td>
<td></td>
</tr>
<tr>
<td>Ferry Street</td>
<td>Ferry Lane</td>
<td>Ferry Street</td>
<td>Late 17th century</td>
<td></td>
</tr>
<tr>
<td>Allee</td>
<td></td>
<td></td>
<td>Late 17th century</td>
<td>no longer exists as a road; tree-lined drive to Trent House (?also Ballifield)</td>
</tr>
<tr>
<td>Market Street</td>
<td></td>
<td>Market Street</td>
<td>Late 17th century</td>
<td></td>
</tr>
<tr>
<td>Road along River Bank</td>
<td></td>
<td></td>
<td>18th century</td>
<td>no longer exists as a road</td>
</tr>
</tbody>
</table>
Trenton’s Colonial Road Network

Stage Route

Surviving Colonial Buildings
1. William Trent House
2. Quaker Meeting House
3. St. Michael’s Church
4. Old Barracks
5. Robert Waln House/Eagle Tavern

(See Table 3.1 for more detail on individual roads)

Figure 3.4. The Street Network of Colonial Trenton.
B. IRON AND STEEL MANUFACTURING

The physical expansion of Trent’s Town west toward Petty’s Run began to take place in the early 1730s and was stimulated chiefly by the potential for development of water-powered industrial activity at the point where the creek dropped sharply over the bluff edge. Just upstream of this, Petty’s Run also supported the establishment of other water-using industries, notably a pair of tanneries (one with an associated bark mill) in the mid-1730s, and still further upstream, a brewery, by the mid-1740s.

Between 1732 and 1734 James Trent sold a series of at least three parcels of land along Petty’s Run to a Trenton blacksmith named Isaac Harrow, including one property that contained roughly the southernmost two-thirds of the block later bounded by West State, Barrack, West Front and Delaware Streets, along with some adjoining land (Figure 3.5). Unfortunately, the original deed for this latter transaction has not been found and the land transfer is surmised from references in later documents. Harrow built a plating mill and a stone dwelling on the parcel in question. The mill was advertising goods for sale by 1734 and was the first in a succession of water-powered industrial operations to be situated along this stretch of Petty’s Run. The position of the plating mill on the east side of the creek is precisely known since its southwest corner is pinpointed in later documents and was also observed during the archaeological excavations of 2008-09 (see below, Chapters 4 and 7). Harrow’s plating mill, in essence a blacksmith shop where waterpower was used to operate a trip-hammer in the forging of plate metal goods, may have been the first industrial facility of its type in New Jersey and was certainly one of the earliest in the Middle Atlantic colonies. The site of Isaac Harrow’s dwelling, again inferred from later documents (see below, Chapter 4), lay in the southeastern angle of the West/Second (Barrack/West State) Street intersection at the present-day location of the State of New Jersey’s main taxation building.

While the location of Petty’s Run and Isaac Harrow’s plating mill and dwelling in the mid-1730s can be fixed with reasonable certainty, it is far more difficult to reconstruct the character of the immediately surrounding landscape around this time. Based on analysis of deeds, West Street (Barrack and South Willow Streets) was certainly in existence and served as the western terminus of Second Street (West State Street). A deed of 1761 indicates that a lane headed west from West Street along the northern edge of the plating mill property and was an established feature of the landscape in 1741 (West Jersey Deed AS:189). It is speculated that this lane was also in existence in the mid-1730s and that it crossed Petty’s Run just upstream of the plating mill, possibly over a mill dam; it then continued on southwestward to the banks of the Delaware where a fishery and landing were in operation and where flat-bottomed boats could unload bar iron made at forges further upstream. Unfortunately, the hydropower configuration of the plating mill is largely unknown, although at least one contemporary deed makes reference to the existence of a mill-pond (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, January 16, 1735, Isaac Harrow to George Ely).

The precise limits of the plating mill property are also difficult to establish since no original documentation has been found to describe them. By piecing together other mid- and late 18th-century land transactions, however, it is clear that a quarter-acre lot acquired by Joseph Reed from James Trent in 1732 was situated immediately north of the plating mill property fronting on to West Street. Later the same year Joseph Reed conveyed the same property to his son, Andrew Reed (West Jersey Deeds DD:277 and E:16). Father and son were both prominent local merchants and Andrew Reed eventually partnered
Figure 3.5. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. Circa 1735.
with Moore Furman to create the well-known trading firm of Reed and Furman. Andrew’s son, also named Joseph, gained fame as George Washington’s military secretary during the Revolutionary War (Trenton Historical Society 1929:136-137). Andrew Reed may have built a house on this West Street lot, but soon after the birth of his son in 1741 he and his family moved to Philadelphia to live. By 1745, the property was in the hands of Josiah Appleton, a cooper; by 1779, when Appleton died, it definitely contained a dwelling (Hunterdon County Deed 24:77; New Jersey Will 1084J [Appendix A.1 - 113 West State Street]).

West of Joseph Reed’s quarter-acre lot the plating mill property was bordered by an 80-acre tract owned by Benjamin Smith which formed the greater part of the former Fretwell/Wilsford/Pettit property (see West Jersey Deed O:344; Hunterdon County Deed 24:77 [Appendix A.1. - 127 and 129 West State Street]). This tract straddled a portion of Petty’s Run and extended north toward today’s Pennington Avenue. The boundary between the plating mill property and Smith’s land apparently followed a distinctive east-west line that ran at an angle across the future block defined by West State, Barrack, West Front and Delaware Streets, crossing over Petty’s Run at the line’s eastern end. This property boundary, which is recognizable in land records and historic maps from the early 1730s through into the 1870s, is of considerable interest as it seems to follow the underlying geological and topographical grain of the landscape and may have some bearing on the hypothesized mill pond and mill dam that serviced the plating mill. The archaeological investigations described in this report found a substantial stone wall following the alignment of this property boundary (see below, Chapter 7).

Subdivision and further development of the Harrow plating mill/dwelling property commenced after the death of Isaac Harrow in 1741. A portion of this property fronting on to the west side of West Street came under the control of William Morris (one of the executors of Harrow’s estate), and later in 1741 he sold this parcel to Joseph Peace. The latter conveyed the same parcel to Isaac Watson, who in turn passed it to his brother William Watson. The Peace family later regained control of this lot in 1751 when William Watson sold it (and several other parcels) to the estate of Joseph Peace (West Jersey Deed AS:189). Harrow’s land lying immediately west of the Peace/Watson lot, including the plating mill, was acquired in 1745 by Benjamin Yard, who, at some point over the next five years, built a steel furnace on the west side of Petty’s Run, just a few feet downstream and across from the plating mill. Yard, like Harrow a local Trenton blacksmith, evidently viewed the industrial site on Petty’s Run as worthy of expanded and diversified production (Klett 1989:137-139). The steel furnace, which made use of the cementation manufacturing process, would have functioned in tandem with the plating mill, providing material for edged tools. It was one of only five such facilities documented in the American colonies in 1750, although at this time it was reported as being “not now in use” (see below, Chapter 4). The quarter-acre lot fronting on to West Street and adjoining the plating mill property to the northeast remained intact throughout this period, passing from Reed to Appleton ownership, although, as noted above, it is unclear if a house had been erected there by this time. In 1750, Benjamin Smith sold the southernmost 38 acres of the 80-acre tract bordering the plating mill property on the northwest to Joseph Brittain (West Jersey Deed AS:414).

Development along this stretch of Petty’s Run continued during the third quarter of the 18th century (Figure 3.6). In 1758 the southern portion of the Peace/Watson lot was purchased to serve as the site of a barracks for the quartering of British troops. This structure, the present-day Old Barracks, was built on the west side of the angle in the River Road (at what is now Front and Barrack Streets) in 1758-59. The northern part of the Peace/Watson lot was sold by the estate of Joseph Peace to Isaac Peace for £96
Figure 3.6. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. Circa 1765.
in 1761 (West Jersey Deed AS:189). The Peace lot was described as being occupied by a tenant named Richard Loyd at the time of this transaction, indicating that a dwelling had been built on the property by this time. North of the Peace lot and Benjamin Yard’s plating mill property, the landscape retained generally the same physical configuration that had been established during the 1730s. The lot bordering West Street and the lane leading down to the Delaware River is thought to have contained a dwelling occupied by Josiah Appleton. The undeveloped land to the northwest passed into the hands of Isaac and Joseph Brittain Jr., the sons of Joseph Brittain, Sr. (Stryker 1885:10-12; Trenton Historical Society 1929:299-305; John G. Waite, Architects PLLC 1998:4-12).

One significant change to occur during this period, however, was the subdivision of Benjamin Yard’s industrial holdings. In 1762 Yard sold the portion of his property containing the steel furnace to Owen Biddle and Timothy Matlack, while retaining control of the former Harrow plating mill. Biddle, a clockmaker by trade, and Matlack, a brewer, both in their late 20s, were members of wealthy Philadelphia Quaker merchant families with deep West Jersey roots. Their purchase of the steel furnace commenced a period of ownership and operation of this facility by several notable Philadelphians, among them John Pemberton, Joseph Fox, Judah Foulke, John Zane, Stephen Sewell, John Nancarrow and White Matlack, whose main interest was the marketing of Trenton-made steel all along the eastern seaboard. Biddle’s involvement in the steel works, however, which continued until 1770, may have been stimulated by more than mere mercantile ambition. He was an active member of the American Philosophical Society with strong scientific interests. His expertise as a maker of clocks, watches and other precision instruments would have required extensive use of steel and he probably had a keen appreciation of the qualities and potential trading value of this material. However, the scientific understanding of steelmaking at this time was limited. The manufacture of good “blister” steel, as it was known, was more a matter of trial and error than a tried and true process (Hunter and Porter 1990; Hunter and Burrow 2010).

C. THE REVOLUTIONARY WAR YEARS

Following the construction of the barracks in the late 1750s and Yard’s sale of the steel furnace in 1762, the overall pattern of land ownership along this section of Petty’s Run remained essentially unchanged over the following two decades, perhaps due in part to the difficult times leading up to and following the outbreak of the American Revolution. Trenton’s critical role in the military events of the Revolutionary War is well documented: two battles within ten days over Christmas and New Year of 1776-77 began to turn the tide of American fortunes. The first (and best known) Battle of Trenton on the morning after Christmas swirled in and around the settlement for several hours, with the Hessian forces belatedly mobilizing from downtown houses to suffer defeat at the hands of American troops approaching Trenton from the north and west. The second battle was a more confined affair, centered on the Queen (modern South Broad) Street crossing of the Assunpink, where American forces thwarted the British in the late afternoon of January 2, 1777, enabling the Continental Army to march overnight to Princeton and launch a successful surprise attack the following day (Fischer 2004:234-307).

In the aftermath of the setbacks at Trenton, the British command held several hearings which resulted in a series of maps of Trenton being produced by Hessian officers showing the principal military positions during the first battle (Stryker 1898:124-128). These maps, all relatively similar and equally sketchy in their characterization of the town, show the settlement clustered around the predecessors of modern Warren, Broad, Front, State and Hanover Streets (Figure 3.7).
Figure 3.7. Lieutenant Fischer's Map of Trenton. 1776. Scale: 1 inch = 1,400 feet (approximately). Project site circled. (Source: Stryker 1898:128).
Petty’s Run is not depicted, but the barracks is clearly visible as a distinctive U-shaped structure west of town. Making sense of the street pattern to the west of modern Warren Street is difficult. One street passes just north of the barracks, with a short spur south to the barracks building; another heading west out of town further to the north is presumably the River Road. Another roughly contemporary and more believable depiction of the Trenton barracks is provided in the background to one of Charles Willson Peale’s portraits of George Washington (Figure 3.8). Painted circa 1779-81 to commemorate Washington’s critical victories over the winter of 1776-77, the barracks is visible on the sloping ground at the western edge of the town, while a gabled structure shown in front may in fact be the upper portion of either the plating mill or the furnace house at the steel works.

The battles tend to be the main focus of historical interest for students and scholars of Trenton’s involvement in the Revolutionary War, but the town participated in and endured the depredations of the conflict for more than five years. A number of houses and farms were damaged during December of 1776 and early January of 1777, when Hessian, British and American forces took over local homes in the lead-up to and aftermath of the Battles of Trenton. Personal belongings and furniture were plundered, animals were slaughtered for food, and fences and wood lots were exploited for firewood. A handful of buildings to the south of town were burned to the ground, notably around Trenton Ferry. Over the next few years many Trenton area properties lay idle as men went to war and Loyalist landowners chose not to return to a town where local sympathies were becoming increasingly patriotic. Ultimately, most Loyalist-owned land was confiscated and sold off to other local residents. With the departure of many of Trenton’s Loyalist elite (e.g., Daniel Coxe, Isaac Allen, John Barnes), there was both a diminution and a redistribution of economic activity in the town.

However, along with its related port settlement of Lamberton, a mile or so downstream, Trenton was a key supply base for the Continental Army in the late 1770s and early 1780s and this would have helped to lessen the negative economic effects of the war. With Trenton merchant Moore Furman serving as Deputy Quartermaster General for New Jersey for part of this time, the army in the Morristown and Middlebrook encampments and other installations in the New Jersey Highlands were largely provisioned with the help of stores and warehousing in Trenton and Lamberton. The barracks also served a commissary purpose and was used as a hospital where smallpox inoculation was carried out. To assist in the distribution of military supplies across New Jersey, numerous route maps were surveyed for the Continental Army by Washington’s cartographers. Relatively accurate in their depiction of roadway alignments in the countryside and valuable for showing roadside landmarks, these maps were more casual in their representation of town streets. For example, Robert Erskine’s map of the road from Pennington to Trenton via the River Road mistakenly shows the barracks as fronting on to an extension of Warren Street rather than on West Street (Figure 3.9).

The status of the plating mill and steel works on Petty’s Run during the Revolution is difficult to discern, although tantalizing references in the documentary record indicate some involvement on the side of the patriot cause. Benjamin Yard’s plating mill was engaged in the manufacture of arms (specifically gun barrels, scabbards and bayonets) for the Continental Army in 1776-77, but the mill building was partially torn down and an associated coal house was demolished in early October of 1777 under orders of the Commissary of the Hospital Department. These actions are believed to have been precipitated by the British advance and eventual capture of Philadelphia. From this point on there is no definitive evidence that the plating mill was ever reactivated, although it is not
Figure 3.8. Peale, Charles Willson. Portrait of George Washington. Circa 1779-1781. The Metropolitan Museum of Art’s version of Charles Willson Peale’s landmark portrait of Washington is the only copy to include the Delaware riverfront of Trenton as its background; in the enlargement at lower right, the Old Barracks is visible with the brick Officers’ Quarters set at a right angle to the stone western wing; the indistinct gabled shape in front of the western wing may represent the roof of the Harrow/Yard plating mill or the Trenton Steel Works furnace house. (Source: Metropolitan Museum of Art).
Figure 3.9. Erskine, Robert. No 87, B. *Road from Pennytown to Slack’s Ferry and from do. to Trenton and Howell’s Ferries.* 1779. Scale 1 inch = 1.1 miles (approximately). Project site circled.
Figure 3.10. Berthier, L. *Camp a Trenton le 1er Septembre, 12 miles & 2 de Princetown.* 1781. No scale given. Project site circled. Map at right (area of inset in left map) gives a more detailed depiction of the ford or “gué” at the Falls of the Delaware. (Source: Rice and Brown 1972, Volume II:70-71).
impossible that it operated intermittently in the 1780s. Benjamin Yard continued as owner of the plating mill property until his death in 1808.

The steel furnace was also producing steel for the Continental Army in March of 1776 and may have continued in limited production in 1776-77. By 1781, however, it had lain dormant for a few years. In the summer of 1781, largely through the efforts of Trenton merchant Stacy Potts, the furnace was revived by the firm of Potts and Downing and became the principal focus of the Trenton Steel Works. Potts and Downing secured a government contract to supply the Continental Army with much-needed steel, making use of surplus stocks of Andover bar iron. However, the firm appears not to have delivered on this contract, preferring to sell its steel on the open market for hard cash, as opposed to more bar iron which was the form of payment negotiated with the U.S. government. The Trenton Steel Works continued to make steel at least through 1783, and possibly into 1784, but in the process Potts and Downing took on considerable debt. In the summer of 1783, with the end of the Revolutionary War imminent and the resumption of British metal imports all but assured, the declining price of steel prompted the steel works’ creditors to institute legal proceedings. Between 1783 and 1788 a dizzying series of court actions spelled the end of the Trenton Steel Works and all but ruined Stacy Potts. The complex history of the final years of the steel works is presented in greater detail in Chapter 4 (Hunter Research Associates 1989a:5-15 thru 5-19; Klett 1989:139; Hunter and Porter 1990; Hunter and Burrow 2010).

A valuable depiction of Trenton during the later years of the Revolution is given in the maps prepared by French military cartographers as French and American forces marched from Newport, Rhode Island to Yorktown, Virginia in the later summer and fall of 1781, returning north roughly a year later (Figure 3.10). Trenton’s characteristic street pattern is again clearly visible, as is the barracks, shown due west of the western end of Front Street. Of particular interest is the lane shown leading in a westerly direction from Warren Street between Front and Second (present-day West State) Streets through the Petty’s Run project site. This lane ran west for several hundred feet before angling to the south to run to the ford across the river. Almost certainly, this lane was the same as the one used to provide access to the plating mill and the steel works. During this period Benjamin Yard was not only owner of the plating mill but also part-owner of the fishery on the river that was focused at the foot of the lane and on the island, known as Fishing Island (later as Yard’s Island), that lay adjacent to the ford (Klett 1989:137-139). Maintenance of the lane would thus have been critical to Yard’s operation of both his plating mill and his fishery.

D. THE STATE HOUSE LOT AND WEST STATE STREET

After the Revolutionary War development soon resumed in the western section of Trenton in the Petty’s Run vicinity. An important catalyst to new construction and a key element in the creation of the New Jersey State House complex in the early 1790s was the extension of Second Street to the west of West Street in 1782 (modern West State Street continued to be known as Second Street until 1847 when it was officially re-named State Street). This new road was laid out to begin in West Street opposite the western end of Second Street, just to the north of the house of Abraham and John Appleton (the heirs of Josiah Appleton). From this point it ran west along the northern line of the Appleton lot, through the property of Joseph Brittain, Jr. (in 1774 he had purchased his brother Isaac’s share of the former Pettit property and the northwestern portion of the block [West Jersey Deed AS:414]). The road then continued on past present-day Calhoun Street to intersect with the River Road at what is now Prospect Street. It was ordered
that “a good stone bridge” was to be built “over the run below the garden of Abraham & John Appleton” (i.e., over Petty’s Run), and that the section of the River Road between today’s Willow and Prospect Streets was to be vacated as unnecessary (Hunterdon County Road Returns 1:114 and 1:117).

The sale of building lots on Second Street to the west of West Street began soon after. Joseph Brittain, Jr. subdivided his holdings along both sides of the new street into house lots, selling several of them during the 1780s and early 1790s. Unfortunately, most deeds from Brittain’s many transactions do not survive, and a copy of the subdivision map that once existed has not been found. To the west of Brittain’s property, in 1784, George Ely, a descendant of Joshua Ely, began purchasing land extending south of Second Street toward the Delaware River. In 1788, when Ely purchased more land extending northward from the same line from James Emerson, the accompanying deed described a “New Road or Street laid out from the west end of Second Street to the old River Road,” a clear reference to the section of Second Street between Willow and Calhoun Streets (West Jersey Deed AV:289) (Hewitt 1916:22; Toothman 1977:141; Hunter Research, Inc. 2005:6-11).

The 1790s witnessed a burst of development along the Second Street corridor as the core of the town of Trenton began to expand west of West Street. It was during this period that the name “Willow” came into use for the latter street, an indication perhaps that the name West Street was not considered appropriate. The main stimulus for development was the construction of the New Jersey State House (Figure 3.11). This new seat of government opened for use in October, 1792 and was finally completed in 1795 on land on the south side of Second Street acquired in January and February of 1792 from Joseph Brittain, George Ely and William Reeder (Figure 3.12). These properties, which formed the basis for the so-called “State House lot,” likely represented the closest available undeveloped land to the center of the town where a riverfront government “campus” could be located. The complicated evolution of the New Jersey State House and the State House lot has been summarized in the technical report completed in connection with the recently implemented West State Street security improvements (Hunter Research, Inc. 2007b). This topic will not be treated in detail here.

The earliest cartographic depiction of the State House and its immediately surrounding area occurs on A Plan and Survey of Sundry Pieces of Land Adjoining the Delaware River and Assanpink Creek Belonging to Jn. Cox 1789 (Figure 3.13). This map shows the State House as being located along Second Street on a lot extending southward down to the banks of the Delaware, just upstream from Stacy Potts’s paper mill at the mouth of the Assunpink Creek. No details are shown of the current project site; neither the barracks, nor Petty’s Run, nor any of the former industrial facilities along Petty’s Run are depicted. Front Street, however, is shown extending west of Willow Street, but stops short of the State House lot, perhaps an indication that the Front Street bridge over Petty’s Run had yet to be built (see below). The exact date of this “plan and survey” of Cox properties remains in question, as the manuscript map bears the date of 1789, yet the bill drawn up to enable the construction of the State House was not signed into law until late November of 1791. Thus either the map actually dates slightly later than the date which appears on it or the image of the State House was added later.

In 1792-93 further changes were made to the road network to the south of Second Street between the barracks and the State House lot and elements of a more regular street grid began to be put in place. In the deed for the easternmost of the several properties purchased for the site of the State House in 1792 it was noted that part of the eastern boundary of the State House lot was formed by a “Road leading from the said River [the Delaware] to Trenton said to be
Figure 3.11. Davis, S. *State House, Trenton*. 1806-1845. View of the New Jersey State House looking south-east. Note the original Trenton-Morrisville bridge in the background. (Source: The Grolier Club, New York [Gift of William Loring Andrews]).
Figure 3.12. Nevius, J.G. Appendix Title to State Capitol Grounds. 1906. No scale given. (Source: Cohan 1969).
Figure 3.13. A Plan and Survey of Sundry Pieces of Land Adjoining the Delaware River and Assunpink Creek Belonging to Jn. Cox. 1789. Scale: 1 inch = 400 feet (approximately). Project site circled.
Laid out chiefly for the benefit and use of a Fishery on the said River” (West Jersey Deed AS:278). This evidently refers to the old lane leading to the plating mill, the steel furnace and the fishery depicted on the French military map noted above (Figure 3.10) (Lee 1895:262; Turk 1964:125-126). In the same year, the first steps were taken to extend Front Street westward to the State House lot. The former barracks had recently been acquired by a group of influential local citizens, and records relating to the renovation of this structure by the new ownership include references which suggest that a portion of its central section was demolished to make way for the street in 1792. On March 20, 1793 an advertisement was published in the New Jersey Gazette offering as available for lease that portion of the barracks building “on the north side of Front-street.” The projection of Front Street through the British-built barracks in the early 1790s was an extraordinarily symbolic act, literally a case of newly republican New Jerseyans throwing off the colonial yoke to improve access to their freshly minted seat of state government.

The exact date of construction of the bridge carrying the westerly extension of Front Street over Petty’s Run is uncertain, but this span appears to have been in place by 1793. The formalization of Front Street between Willow (Barrack) Street and the State House lot was referenced in the Hunterdon County Road Book on May 28, 1793. Set to open by September of the same year, the street is clearly described as running in a westerly direction to the east line of the State House lot and then turning north along the eastern side of the lot to connect with Second Street. The road survey also stipulated that, when the new street was laid out, the old lane that ran along the south side of the Appleton lot and on to the plating mill and the furnace was to be vacated between Willow and the new street, leaving open only that section of the lane that ran south along the east line of the State House lot to the river (Hunterdon County Road Return 1:187). By 1800 the former Brittain property in the northwest corner of the emerging city block had been subdivided into three lots and sold off (Hunterdon County Deed 13:58) (Figure 3.14). The westernmost of these lots was owned by Ezekiel Howell. To the east of this corner lot was a parcel owned by Margaret Baker, with its eastern line being formed by Petty’s Run (in 1808 it was noted that the northeast corner of this lot was sited on the center line of the stone arch bridge carrying Second Street over the run [Hunterdon County Deed 15:204]). The third and smallest lot lay between the run and the Appleton lot and was owned by Joseph Baker. All three of these lots are believed to have been undeveloped at the turn of the century, although it is possible that a dwelling was built on the Joseph Baker lot during the 1790s. Land tenure in the remainder of the block changed very little during the final quarter of the 18th century, with the pattern of ownership in 1800 appearing much the same as it had been during the Revolutionary War period. The Appleton and Peace families owned the same two lots fronting on to Willow Street north of the barracks, while Benjamin Yard continued to control the plating mill property. The ownership of the steel furnace parcel, however, is less clearly understood. Stacy Potts continued to own a half share of the furnace property up until 1787, when he conveyed this to John Nancarrow and White Matlack, who retained their interest until at least 1810. The ownership of the half share during this period remains obscure. Eventually, by 1814, control of the steel furnace property was consolidated under Jonathan Rhea (see below, Chapter 4). Both the steel furnace and plating mill probably lay vacant and ruinous while the State House lot was being developed during the 1790s (Appendix A.1).

A useful contemporary cartographic source for this period is provided by A Plan of Sundry Lots of Land the Property of Daniel W. Coxe, Esq. dated circa 1804 (Figure 3.15). The Coxe map provides the earliest detailed depiction of the street network in the western section of Trenton’s downtown and also shows several
Figure 3.14. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. *Circa* 1800.
Figure 3.15. A Plan of Sundry Lots of Land the Property of Daniel W. Coxe, Esquire, Part of His Bloomsbury Estate. Circa 1804. Scale: 1 inch = 180 feet (approximately). Project site circled.
Figure 3.16. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. *Circa* 1810.
key state government buildings. Second (West State) Street appears as one of the city’s main axial streets, heading west from Warren Street, across Petty’s Run and passing along the northern edge of the State House lot. Front Street runs parallel and to the south, also crossing Petty’s Run, terminating at the street which ran along the eastern edge of the State House lot. This latter street, later known as Delaware Street, was usually referred to during this period as the street leading from Second Street along the east side of the State House to the Delaware River (see Hunterdon County Deed 7:154) or as State Street. The route along Willow Street north of Second Street, across Petty’s Run and then west along Quarry (modern West Hanover) Street probably follows the course of the old River Road, while the short stub of a street that heads northwest to Petty’s Run from Willow Street between Second and Front Streets is likely the remnant of the lane that gave access to the plating mill and steel furnace. Other lesser elements of the street pattern are still intact today in the form of Capitol Street, Chancery Lane and Peace Street.

The principal focus of the Coxe map lay south of the Assunpink, where the bulk of the Coxe family holdings lay at this time. Consequently, few buildings and lots are depicted in the core of the downtown. Nevertheless, the cartographer did choose to show a few key state buildings along Second Street, which are identified in the map’s accompanying key as the “Governor’s House” between Warren and Willow Streets, and the “State House” and the “Clerk of Supreme Court and Secretary’s Office” within the State House lot. The State House is somewhat crudely drawn as a seven-bay structure with a cupola (without its three-sided gable-end projections), but it is broadly accurate in outline.

Despite the paucity of buildings shown on the Coxe map, the early years of the 19th century saw the first wave of dwelling construction in the block defined by the State House lot and Second, Willow and Front Streets, beginning a decades-long trend that eventually resulted in the development of virtually the entire block for residential purposes (Figure 3.16). Houses were completed on each of the three former Brittain lots on Second Street during this period. The westernmost of these dwellings (see below, Figure 3.19) was probably erected around 1804 by Jonathan Rhea, Clerk of the New Jersey Supreme Court, whose office was directly across State Street in the northeast corner of the State House lot (Trenton Historical Society 1929:607-608). On the neighboring lot to the east of the Rhea property, a house is thought to have been built by Elias Howell between 1800 and 1808, at which time the property was acquired by Josiah Fithian, a cabinet maker. An additional structure was built on this lot and served as Fithian’s shop, although in later years this, too, was used as a dwelling. As noted earlier, the easternmost lot on the east side of Petty’s Run, acquired by Fithian in 1810, may have contained a dwelling erected by the previous owner, Joseph Baker (Appendix A.1 – 125 West State Street).

E. TEXTILE AND PAPER MANUFACTURING AND RESIDENTIAL DEVELOPMENT

The abandonment of the plating mill and the steel furnace in the final quarter of the 18th century was eventually followed by reconfiguration and redevelopment of the lots on which these two industrial features once stood, a process that appears to have occurred mostly in the second and third decades of the 19th century (Figure 3.17). Josiah Fithian, borrowing heavily, built what is believed to have been the city’s first cotton factory on Petty’s Run on a portion of the plating mill property that he acquired from Jonathan Rhea in 1813 (Hunterdon County Deed 21:509). This cotton mill was an ill-fated and short-lived affair. As the Trenton historian John Raum reported several decades later, Fithian “had completed the walls, put on the roof, and was about putting in the machinery for a cotton mill,
Figure 3.17. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. *Circa* 1815.
when a heavy rain undermined the foundation, and the mill fell with a terrible crash – a mass of ruins. He rebuilt it, put in machinery and commenced the manufacture of cotton cloth. He continued there, however, but a short time, when he sold out to General Garret D. Wall, who converted it into a paper mill …” (Raum 1871:234-235).

Raum’s statement that Fithian sold the cotton mill to Garret D. Wall is incorrect; in actuality the facility experienced a rather more complicated history before coming under Wall’s control. Following its construction in 1813-14, the mill was soon in dire financial straits, probably a victim of the lifting of the trade embargo and fluctuations in cotton prices after the War of 1812. Ownership of the property, along with its mortgage and debt obligations, was assumed by Fithian’s brother-in-law, Dr. Jacob Scudder of Princeton, following a sheriff’s sale in 1816. Scudder tried unsuccessfully to dispose of the mill, as indicated by a sale advertisement (Trenton Federalist, January 11, 1819) in which it is noted that the premises were “occupied by Mr. Gideon H. Wells,” one of the partners in the Eagle Factory, another nearby cotton mill on the Assunpink Creek. It is unclear if Wells was actually engaged in textile manufacturing on the Petty’s Run site (as opposed to using the mill for storage), although it is certainly a possibility. In any event, Scudder was soon after sued by one of Fithian’s mortgagors, Ellen Burrowes, and ownership of the mill property passed to Burrowes at another sheriff’s sale in 1821 (Hunterdon County Deed 34:595). She also advertised the mill for sale, noting its suitability for residential conversion, and eventually succeeded in selling the property to Garret D. Wall in 1823 (Trenton Federalist, March 1, 1822; Hunterdon County Deed 34:597).

Over the course of the second and third decades of the 19th century Garret D. Wall, a prominent military officer and rising politician, also a protégé and son-in-law of Jonathan Rhea, emerged as the dominant figure in the disposition and use of the land extending down to the river from Second (West State) Street between the State House lot and the Barracks lot. In 1811 he purchased his father-in-law’s house at the corner of Second and State Streets (Hunterdon County Deed 18:347) and in the following year succeeded Rhea as Clerk of the New Jersey Supreme Court (1812-17). In 1814 he took control of the steel furnace lot and the western section of the plating mill lot, combining them with his house lot, to gain ownership of all of the frontage along what now became known as Wall Street between Second and Front Streets (Hunterdon County Deed 23:268; Cottrell 1951:13). In the same year Wall also acquired properties further west along Calhoun Street where he quarried and sold building stone (Hunterdon County Deeds 22:369 and 23:6; Trenton Federalist, February 24, 1815), while in 1820 he purchased additional land lying south and west of the barracks (Hunterdon County Deeds 31:105 and 31:106).

Wall’s acquisition of the cotton mill property from Ellen Burrowes in 1823 paved the way for his reconfiguration of the Petty’s Run waterpower in support of a new paper mill. Known as the Front Street paper mill, this facility was in operation by 1827 and may also have made use of the former cotton mill, although the principal structure was a new building fronting onto West Front Street, straddling and extending east of the run (see below, Figure 3.25). Wall provided the capital for the mill, but left its management in the hands of paper manufacturer John Davisson. In the 1830s, the construction and operation of the Delaware and Raritan Feeder Canal appears to have had a diminishing effect on the water supply in Petty’s Run, such that the paper mill and other water users downstream of the canal’s crossing over the run entered into an agreement with the canal company to ensure the provision of a suitable quantity of water, a portion of which was to be drawn from the canal itself (Mercer County Deed 77:104).
In 1828, soon after the paper mill was established, Garret D. Wall moved out of Trenton to live in Burlington. In the following year, he was elected Governor of New Jersey but declined to take up the office. Nevertheless, over the course of his professional career, he gained considerable prominence in government, politics and the judiciary, serving as the state’s Quartermaster General (1815-37) and as a U.S. District Attorney (1829), being elected to the New Jersey Assembly (1827), representing the state as a Jacksonian Democrat in the U.S. Senate (1835-41) and later becoming a judge in the Court of Error and Appeals (Trenton Historical Society 1929:608).

Despite his departure from Trenton, Wall retained ownership control over much of the block bounded by Second, Willow, Front and Wall (now Delaware) Streets well into the 1830s. Aside from the development of the paper mill enterprise, there were some important changes in the block’s residential make-up during the 1830s and 1840s (Figure 3.18). In 1832 Wall sold the house lot at the corner of Second and Delaware Streets to Stacy G. Potts. Potts, a grandson of Stacy Potts (the former part-owner of the steel furnace and a mayor of Trenton [1806-14]), studied law under Wall and was later appointed a justice of the New Jersey Supreme Court. He lived at the corner of Second and Delaware Streets until his death in 1865, remodeling and expanding the house there in 1840 (Figure 3.19). In 1835, Wall sold off the bulk of the former Appleton tract in the northeast corner of the block, acquired by him in 1821, to Joseph Wood. Wood soon sold off a part of this tract to local industrialist William Hancock, who had earlier acquired the Peace property adjoining to the south. On the remaining parcel, Wood had built for his household, in the late 1830s, the fine brick mansion that still stands today at 107 and 109 West State Street and which has been recently restored and incorporated into the core facility of Thomas Edison State College (Figure 3.20). In 1831 a section of Garret Wall’s land to the south of Front Street and east of Delaware Street was condemned to allow for the construction of the power canal of the Trenton Delaware Falls Company (later known as the Trenton Water Power), which, upon its completion in 1834, supplied the city with valuable additional energy for industrial development (Figure 3.21; Appendix A.1) (Potts 1860:62, 65; Trenton Historical Society 1929:611-612).

A map produced by the U.S. Coast Survey in 1844 shows the progress of development within the block with some accuracy (Figure 3.22). By this time the Second Street frontage between Willow and Delaware Streets was largely built-up and there was a scattering of buildings along Willow and Front Streets. Petty’s Run pursued a straight southerly course through the center of the block powering the paper mill on the north side of Front Street and a second mill, a sawmill, a short distance downstream beside the power canal. On the west side of Delaware Street, a major expansion of the State House, designed by John Notman, was under way, which within a year was to lead to the dismantling of the small building in the northeast corner of the State House lot where the offices of the Secretary of State and the Clerk of the Supreme Court were housed (see below, Photograph 3.1) (Hunter Research, Inc. 2007a).

Over the course of the late 1830s and 1840s increasing property subdivision (notably along State Street, as the former Second Street had been renamed in 1847; see Mercer County Deeds E:498, 70:41 and M:501) began to move the block closer to what became its final internal lot configuration (Figures 3.23 and 3.24). Only the paper mill lot, dominated by the large industrial structure visible in a view of 1851 (Figure 3.25), remained as an obstacle to the regular subdivision of the block. The paper mill property continued under the ownership of Garret Wall until 1841 when it was sold to Henry P. Welling, a Pennington physician. Three years later Welling sold a half share to Trenton merchant Joseph G. Brearley. Again, Welling and Brearley merely owned the mill and contracted
Figure 3.18. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. 
Circa 1835.
Figure 3.19. Residence and Law Office of Stacy G. Potts. Included in Sidney J. Map of the City of Trenton. 1849.
Figure 3.20. Residence of Joseph Wood. Included in Sidney, J. *Map of the City of Trenton*. 1849.
Figure 3.21. Gordon, T. *Map of Trenton and Its Vicinity*. 1836. Scale: 1 inch = 180 feet (approximately). Project site outlined. The map key identifies No. 16. as “Cook & Co. Saw.” [a sawmill] and No. 17. as “Davisson’s Paper.” [a paper mill].
Figure 3.22. United States Coast Survey. Delaware River from Bordentown to Trenton. 1844. Scale: 1 inch = 400 feet (approximately). Project site outlined.
Figure 3.23. Sidney, J. *Map of the City of Trenton, New Jersey*. 1849. Scale: 1 inch = 250 feet (approximately). Project site outlined.
Figure 3.24. Property Ownership along Petty’s Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. *Circa* 1850.
Figure 3.25. Whitefield, Edwin. View of Trenton, N.J. from Morrisville, PA. 1851. Project site indicated by arrow.
its operation to others, chiefly John G. Gummere and Henry M. Lewis (Figure 3.26) (Lee 1895:263; Hewitt 1916:22).

The 1850s brought considerable change to the block and the State Street frontage began to assume a more classic urban residential character. The old Rhea/Wall house at the corner of State and Delaware Streets, remodeled by Stacy G. Potts, anchored the western end of the block (see above, Figure 3.19), while further to the east a pair of new, adjoining dwellings were erected at what is today 113 and 115 West State Street. By 1860, buildings located toward the eastern end of the State Street frontage mostly occupied long narrow lots stretching back to Hancock’s Alley and, with a single exception (a two-story brick store and dwelling structure at the corner of State and Willow Streets replaced in 1911 by the present Kelsey Building), this portion of the block had essentially reached a structural configuration that persisted up until the expansion of Thomas Edison State College in the mid-1990s. Buildings at the western end of the State Street frontage, however, occupied a series of four lots that shared an angled rear property line which reflected the continued use of the former plating mill property boundary. In the southwest section of the block two small dwellings were newly built in what had formerly been the west end of the paper mill lot (now a separate lot owned by Peter D. Vroom; these were the first houses to be built on the north side of Front Street between Willow and Delaware Streets) (Figure 3.27; Appendices A.1 and A.2).

The paper mill property, while reduced in size at its western end, actually expanded to the east during the 1850s. During this period the mill was operated by Henry M. Lewis, who in 1856 acquired the northwestern section of the former barracks and the land on Front Street stretching from the barracks to the mill. He also gained control of the property between the barracks lot and Hancock’s Alley. This large lot remained associated with the paper mill for the remainder of its term of operation. In 1865-66 the mill and the northwestern portion of the former barracks property were acquired from Henry Lewis’s estate by Horatio G. Armstrong. Armstrong continued the papermaking operations, overhauling the mill buildings in the fall of 1865 and shortly afterward installing hydraulic turbines to power the mill’s machinery. He also apparently erected new buildings behind the main section of the mill on the east side of Petty’s Run in place of the former cotton mill. As a result of these changes Armstrong engaged in a protracted round of litigation with his neighbor, the millwright Edmund Craft, with whom he had contracted to upgrade the mill’s hydropower system. The paper mill managed to stay in business into the mid-1870s, focusing for the most part on the manufacture of paper bags (see below, Chapters 7 and 8).

The residential development that transformed the northeastern corner of the block in the second quarter of the 19th century began to spread westward during the 1860s and 1870s. In 1868 Caleb S. Green (who resided in the old Rhea/Wall/Potts house at 127 and 129 West State Street) purchased the former Francis Ewing property and built the two dwellings that came to be known as 123 and 125 West State Street. These two new dwellings combined with the older structures at 127 and 129 (Green’s residence and office), 121 (the brick house that had formerly been associated with the paper mill for many years) and 117 West State (the residence that had been owned by the Stockton family for nearly half a century) and with the structures in the northeastern portion of the block to produce a fully occupied frontage along State Street all the way to the State House lot (Figure 3.28; Photograph 3.1). This row of residential structures is shown in the bird’s eye view of Trenton published in 1874 (Figure 3.29). The Front Street section of the block continued to be dominated by the paper mill and the former barracks structure, but the Vroom double house and the mill office (to the west and east of the mill, respectively) are also visible in this view (Appendices A.1. and A.2).
Figure 3.26. Lamborn, R.  *Map of the City of Trenton*. 1859. Scale: 1 inch = 150 feet (approximately). Project site outlined.
Figure 3.27. Property Ownership along Petty's Run in the Block Bounded by West State, South Willow, West Front and Delaware Streets. Circa 1860.
Figure 3.28. Beers, F.W. *Map of the City of Trenton*. 1870. Scale: 1 inch = 100 feet (approximately). Project site outlined.
Figure 3.29. Fowler and Bailey. *Trenton, N.J. (Bird’s-eye View)*. 1874. No scale given. Project site circled.
Photograph 3.1. Historic photograph of the New Jersey State House looking southwest showing the addition to the front of the building designed by John Notman and erected in 1845. Circa 1870. The Delaware Street intersection with West State Street (today in part beneath the northeast corner of the State House) is in the left foreground. (Source: Trentoniana Collection, Trenton Public Library).
Figure 3.30. Everts and Steward. Second Ward, City of Trenton. Combination Atlas Map of Mercer County. 1875. Scale 1 inch = 250 feet (approximately). Project site outlined.
Although the area around the State House was becoming progressively more developed and residential in the late 1860s and early 1870s, Petty’s Run continued to supply power to the paper mill and still supported other industrial activity both upstream and downstream of the paper mill site (Figure 3.30). Petty’s Run in the 1870s and 1880s became a serious health hazard as numerous residential, as well as industrial, properties along its banks emptied sewage and waste into the stream bed. It was during this period that the run became progressively enclosed in an effort to contain the effluent and reduce the health risks. A citywide study conducted by Philadelphia sanitary engineer Rudolph Hering in the mid-1880s in connection with his design of a comprehensive sewerage system cited Petty’s Run as Trenton’s worst pollution issue. It was not until the early 1890s, when Hering’s system began to be built, that the pollution problems along Petty’s Run were fully corrected (Hering 1885:3-4; Lee 1895:90-91). A more extended discussion of the history of Petty’s Run is provided in Chapter 5 below.

### F. LATE 19TH-CENTURY RESIDENTIAL EXPANSION

In the late 1870s and 1880s the block bounded by West State, Willow, West Front and Delaware Streets achieved what was essentially its fully developed form as the transition to a predominantly residential district was completed (Figures 3.31-3.33). In 1876 the eastern section of the paper mill was purchased by Caleb S. Green from Horatio G. Armstrong. Green and Armstrong then cooperated in the removal of the mill (Armstrong had retained control of its western section) shortly after this transaction. Armstrong built the three brick row houses known as 126, 128 and 130 West Front Street, while Green built the four dwellings known as 118, 120, 122 and 124 West Front. Armstrong also built the three two-story row houses at 112, 114 and 116 West Front Street between the former barracks structure and 118 West Front Street. By 1880 West Front Street was completely residential in nature and all trace of the industrial activities that had formerly taken place here were obscured (Appendix A.2).

It was also during this period that the old dwellings at 117 and 121 West State Street were torn down and replaced by three brick row houses (117, 119 and 121 West State Street), thereby giving the block’s western frontage on West State Street its final structural configuration (Photograph 3.2). In addition, the lots associated with these three new residences and with 123 West State Street achieved the classic urban long lot form through the addition of land acquired from the former paper mill property. In 1889 the former Peter D. Vroom lot with the two frame houses on the corner of West Front and Delaware Streets was acquired by Caleb S. Green. The two houses were torn down and the shared rear line of this lot and 123 and 127 and 129 West State Street was adjusted to produce the block’s final lot configuration (Appendices A.1 and A.2).

There are very few historic photographs from the second half of the 19th century that show the gradual transition of the area between the State House and the Old Barracks from mixed industrial and residential to predominantly residential land use. Most historic imagery of this part of the city focuses on the State House itself and it is only coincidentally that the northwestern corner of the West State/Willow/West Front/Delaware Street block appears in photographs. Several views of the State House looking southwest from West State Street around 1870, 1875 and at the turn of the century show the intersection of West State and Delaware Streets with the latter thoroughfare sloping sharply down to the river (see above, Photograph 3.1). The grade and alignment of Delaware Street appear to have remained much the same over the 30 years or so which these photographs cover, even though the State House itself underwent extensive rebuilding during this period.
Figure 3.31. Haven, C.C. *A New Real Estate and Insurance Map of Trenton*. 1882. Scale: 1 inch = 100 feet (approximately). Project site outlined.
Figure 3.32. Sanborn, D.A. *Insurance Diagrams of Trenton*. 1874, corrected to 1886. Scale: 1 inch = 80 feet (approximately). Project site outlined.
Figure 3.33. Scarlett and Scarlett. *Fire Map of Mercer County.* 1890. Scale: 1 inch = 80 feet (approximately). Project site outlined.
Photograph 3.2. Historic photograph of the south side of West State Street looking southwest. *Circa* 1900. From left to right are the residences at 121, 123, 125 and 127 West State Street (all demolished and their sites now occupied by the northern portion of Mahlon Stacy Park); the New Jersey State House is set back slightly further from the street frontage and the intersection of Delaware Street and West State Street is obscured by 127 West State Street. (Source: Trentoniana Collection, Trenton Public Library).
The composition of the block of land stretching south from West State Street between the State House and the Old Barracks down to the Trenton Water Power changed very little through the end of the first decade of the 20th century (Figure 3.34). The fine brick residences of wealthy professionals and merchants lined the entire southern frontage of West State Street, except for a store that occupied the southwest corner of the West State/Willow Street intersection. Lesser homes of lower and middle class Trentonians lined West Front, Delaware and South Willow Streets. Only along Power Alley were there any vestiges of the area’s industrial past. Buildings along Petty’s Run formerly associated with the bow factory remained and by 1908 were being used variously for storage, as a cooperator’s shop and as a carpet cleaning works (Figure 3.35).

While the first decade of the 20th century saw little in the way of new construction or demolition between the State House and the Old Barracks, the second decade saw this area undergo a radical transformation, resulting in a landscape that in large part still survives today. The transformation began with two substantial construction projects, one involving a new School of Industrial Arts, the other an expansion of the executive wing of the State House. The former project, the brainchild of Secretary of State Henry C. Kelsey, centered on the erection of a new building at the corner of West State and South Willow Streets. Completed in the summer of 1911, this structure was designed by renowned architect Cass Gilbert and today serves as the architectural highlight of the Thomas Edison State College campus. The expansion of the State House, designed by the official State Architect, George Poole, entailed the addition of west and east wings to the West State Street façade of the building, resulting in the structure attaining its present-day appearance. These two additions, constructed in Indiana limestone to match the existing structure, were built by Princeton contractor John P. Gill, with the west wing completed in 1911-12 and the east wing in 1912-13 (State House Commission Minutes; Jan Hird Pokorny Associates 2001; Thomas Edison State College 2006).

G. MAHLON STACY PARK

Construction of the east wing addition to the West State Street façade of the State House in 1912-13 necessitated closing and building over the top of Delaware Street, the roadway that passed along the east side of the State House lot. This action coincided with the implementation of a major “City Beautiful” landscaping project – the creation of Mahlon Stacy Park – that radically altered the surroundings of the State House and nowhere more so than the densely built-up pocket of land between the State House and the Old Barracks. Long in gestation, the origins of this park lie in a series of newspaper articles published in the 1870s that called on the City of Trenton to establish a city park fronting on the Delaware River north of the Assunpink. Ultimately it was the State of New Jersey that fully realized this goal.

In 1891 spoil from the excavation of the cellar for the new Assembly Chamber of the State House was used to fill the flats behind the State House on the south side of the Water Power. This filled area, which extended about 200 feet out into the river, was subsequently landscaped by the State of New Jersey and formed the first section of what later became Mahlon Stacy Park. The State’s completion of this small area of park galvanized support within the government of the City of Trenton for their long-discussed riverfront park project. The acquisition of lands along the river between the State House and the hamlet of Brookville to the north began during the 1890s, and the filling of the lowland between the State House and Calhoun Street began during the first decade of this century. After this initial burst of activity, however, the river-
Figure 3.34. Lathrop, J.M. *Atlas of the City of Trenton and Borough of Princeton*. 1905. Scale: 1 inch = 100 feet (approximately). Project site outlined.
Figure 3.35. Sanborn Map Company. Insurance Maps of Trenton. 1908. Scale: 1 inch = 130 feet (approximately). Project site outlined.
front park project began to founder at the City level (Lee 1895:90; Trenton Historical Society 1929:984-986).

In 1908 Wilbur F. Sadler was appointed to a position on the staff of Governor John F. Fort. Sadler (born in Carlisle, Pennsylvania in 1871; died in Trenton in 1916) had come to Trenton as a street railway engineer in 1898. Over the following decade he was involved in the construction of several of the city’s inter-urban trolley lines and a number of successful real estate ventures. In 1906 he was named President of the Broad Street National Bank. Sadler, with Governor Fort’s support, began to involve the State government in the development of parkland along the river shortly after his appointment to the Governor’s staff. In the fall of 1908 the State House Commission, the body responsible for managing the State’s various real property holdings, took the first steps in what was to become a concerted program of park development in the vicinity of the State House. The Commission first oversaw the State’s purchase of lands held by the George S. Green Estate between the Water Power and the river to the east of the small park area behind the State House. It was proposed that a retaining wall be built along the riverfront and that this property be filled and graded to allow for the extension of the adjacent existing park. At the same time the Commission made known their intention to request that the City of Trenton vacate Delaware Street in the area to be filled (State House Commission Minutes; Trenton Times, November 11, 1916; Donnelly n.d.:8-11).

In 1909 Wilbur Sadler was appointed Adjutant General of the State of New Jersey, but his activities as the leader of the park project at the State level continued despite his increased administrative responsibilities. He received continued support in his efforts from the Governor’s office despite the change in the administration that resulted in the election of Woodrow Wilson in 1910. In that year Sadler and the State House Commission began the series of land purchases that eventually resulted in the establishment of the present park to the east of the State House. In April of 1910 the State acquired from the Estate of Ellen Ewing Green for $32,500 the two houses and lots known as 125 and 127-129 West State Street and the lot referred to as 132-138 West Front Street. Several years earlier the State had contemplated acquiring the former Caleb S. Green House (127-129 West State Street) to serve as a Governor’s Mansion, but this proposal was rejected. In 1910 these properties were of interest not only as potential parkland but also as much-needed office space (the first office assignment in what became known as the Green Building was made in the spring of 1911) (see above, Photograph 3.2). Nevertheless, the State’s expanding involvement in park development stimulated renewed interest at the City level in the dormant riverfront park project (State House Commission Minutes; Trenton Times, November 11, 1916; State Gazette, October 20, 1922; Trenton Historical Society 1929:986-987; Sadler n.d.:14).

In February of 1911 the State House Commission purchased the six houses sited at 16-26 Delaware Street (between West Front Street and the Water Power), giving the State control of all of the frontage along the east side of Delaware Street, which was probably formally vacated at this time. It was also during this period that the Commission began to pursue the development of the State’s riverfront lands as parkland through a series of coordination meetings held with various representatives of the City government and the City’s landscape engineering consultant, the Olmsted Brothers of Brookline, Massachusetts. The City and the State appear to have worked successfully together on this project, with most of the responsibility and authority for activity between the Assunpink and Calhoun Street descending to Sadler and the Commission. In October of 1911 the State awarded contracts for the construction of a 12-foot concrete river wall for this section and for the construction of an extension of the Petty’s Run drain to run from its
terminus to the south of the Water Power to an outlet in the new wall. The Water Power by this time was largely defunct as an industrial energy source and took on a new life as “Sanhican Creek,” a key landscaping component within the park (State House Commission Minutes; Trenton Historical Society 1929:987; Sadler n.d.:14).

Between 1911 and 1913 the state continued to methodically buy up properties and arrange for the razing of buildings in the two blocks east of the State House bounded by West State, South Willow and Delaware Streets and the Water Power. Only the Old Barracks and buildings along the West State Street frontage were spared from the demolition process. Contemporary photographs show the somewhat forlorn and rundown character of this area immediately prior to the demolition (Photographs 3.3-3.8). In November of 1911 The State House Commission purchased the Brennan property, consisting of the three brick row houses (126-130 West Front Street) that had been built on a portion of the former paper mill site. In December the Commission began a program of demolition in this area with the awarding of a contract for the “razing and removal” of the houses on Delaware Street between West Front Street and the Water Power. This demolition process continued during the following spring as the Commission approved the razing of the former Brennan buildings and the removal of the high brick wall that stood on the east side of Delaware Street in the west line of the former Green property. Also in the spring of 1912 Sadler and the Commission commenced a key element in the State’s park development efforts when they authorized the purchase of the portion of the former Barracks on the north side of West Front Street. This section of the Barracks had been divided into four sections (104, 106, 108 and 110 West Front Street) with four separate owners. None of these individuals were interested in selling their holdings, so the State instituted condemnation proceedings. By 1913 the State had gained title to the entire northern half of the Barracks (State House Commission Minutes; Trenton Times, November 11, 1916; Trenton Historical Society 1929:988-989; Sadler n.d.:14).

By 1912 the State’s park development plans had taken on a recognizable form in two separate but related areas. The first of these was the development of a park area to the east of the State House in the section bounded by West State Street, South Willow Street, Delaware Street and the Water Power. The second focus of the State’s activity was the riverfront park area between the Water Power and the river, extending from the Assunpink to Calhoun Street. This second project involved much consultation and cooperation with the City, while the first was essentially the State’s sole responsibility. The Commission pursued both projects during the late fall of 1912. In October the two brick row houses at 112 and 114 West Front Street (the former was attached to the western end of the northern half of the Barracks structure) were purchased, and the contract for their demolition was awarded two weeks later. In November a contractor was selected to handle the large filling and grading project in the lowland area between the Water Power and the new river wall (State House Commission Minutes; Gaskill 1914:12).

Throughout 1913 Sadler and the Commission concentrated their attention on the smaller park area to the east of the State House, while river wall construction and grading and filling were continuing in the riverfront park section. The State’s program of property acquisition and demolition in the smaller park area was accelerated during this year. During the spring and summer of that year 116 and 124 West Front Street (the latter was a dwelling on the former paper mill site that was purchased from the Ellen Ewing Green Estate), 101, 103, 107, 117 and 125 West Front Street (all of the remaining properties on the south side of West Front with the exception of the south half of the Barracks), and 115-125 South Willow Street were all acquired by the State (Photographs...
Photograph 3.3. Historic photograph looking east along West Front Street from Delaware Street. *Circa* 1910. The home in the left foreground is 124 West Front Street; the three-story building in the middle distance is the western end of the north section of the Old Barracks (raised to three stories from its original two in the 19th century). (Source: Trentoniana Collection, Trenton Public Library).
Photograph 3.4. Historic photograph looking west along West Front Street toward the New Jersey State House. *Circa* 1910. South Willow (modern Barrack) Street crosses the view from right to left in the foreground; the Officers’ Quarters of the Old Barracks is at right; the west wing of the Old Barracks, cut through by West Front Street, is just visible on the left side of the street, the fourth building along, with two additional buildings visible beyond in what is now Mahlon Stacy Park; the building in the left foreground is the Masonic Lodge at its original location at the southeast corner of the intersection of West Front and South Willow Streets (it was subsequently moved in 1914 to the northeast corner of the intersection of South Willow and West Lafayette Streets, where it has most recently served as the Trenton Visitors Center). (Source: Old Barracks Association [OBA 1993.001.0020]).
Photograph 3.5. Historic photograph looking northwest along West Front Street from South Willow (Barrack) Street. Circa 1910-11. The Officer’s Quarters of the Old Barracks in the center of the view with the School of Industrial Arts (Kelsey Building) under construction at right; the New Jersey State House is in the distance at left; the two-story brick row homes from the far left are 116, 114 and 112 West Front Street; the three-story stuccoed building behind the telegraph pole is the much-altered northern end of the west wing of the Old Barracks. (Source: Old Barracks Association [OBA 1981.006.0007]).
Photograph 3.6. Historic photograph looking east along West Front Street from Delaware Street. August 27, 1913. The top of the Kelsey Building is visible at far left; the double row home at 120-122 West Front Street still stands on the north side of the street, partly obscured by the tree; by this time all the other row homes along the north side of West Front Street had been demolished; the north wing of the Old Barracks is obscured behind the tree and telephone pole; the brick building at 125 West Front Street in the center of the view was erected in the late 1880s and used for storage; the long, two-story frame building at right was part of a mid- to late 19th-century bow factory and planing mill powered by Petty’s Run. (Source: Old Barracks Association [OBA 1981.006.0018]).
Photograph 3.7. Historic photograph looking northeast at the rear of buildings along the south side of West Front Street. August 27, 1913. The structure in the left foreground is the brick storage building at 125 West Front Street visible in the center of Figure 3.38; at center is a three-story brick residence, 117 West Front Street; in the distance at left is the Kelsey Building; at right in the background is the west wing of the Old Barracks. (Source: Old Barracks Association [OBA 1981.006.0011]).
Photograph 3.8. Historic photograph looking southwest from South Willow (modern Barrack) Street at the Officers’ Quarters and north wing of the Old Barracks prior to restoration. October 1, 1913. In right foreground is the entrance to Wilson Alley. (Source: Old Barracks Association [OBA 1981.006.0003]).
Contracts for the removal of these structures were awarded shortly thereafter, and by the end of the year the southern section of the Barracks was the only structure still standing in the area bounded by South Willow, West Front, and Delaware Streets and the Water Power. 118, 120 and 122 West Front Street (brick row houses standing on the former paper mill site [see above, Photograph 3.3]) were purchased from the Green Estate in November and demolished shortly afterwards, leaving the northern half of the Barracks as the only structure standing on the north side of West Front Street. The restoration of this portion of the Barracks appears to have begun in September of 1913 and work continued here during the following year (State House Commission Minutes).

In May of 1913 the State House Commission hired Charles W. Leavitt, Jr., a “civil and landscape engineer” from New York City, to draw up final landscaping plans. By October Leavitt had completed what was titled “State House Park – Working Plan” for the smaller park to the east of the State House. This section of the new park, which was to have the restored Barracks as its centerpiece, was to include a drive that would run from South Willow Street along the north side of the Water Power to the east side of the State House, and then along the vacated Delaware Street beside the State House. Walkways were to be built along the rear of the restored Barracks and the houses on West State Street. The large expanse between the drive (on the east and south) and the walkway (on the west and north) was to be developed as a central “lawn” area (Sadler Papers; State House Commission Minutes).

In February of 1914 the Commission reported that they had been contacted by the Old Barracks Association of Trenton, a local organization interested in the preservation of the Barracks, and by the owner of the section of the building sited on the south side of West Front Street. The Association, noting the ongoing restoration of the northern section of the structure, proposed to convey the south half to the State to allow for its simultaneous restoration. In return for this conveyance the Association proposed that they be granted the perpetual right to manage the entire property while it remained under State ownership. The Commission agreed to these proposals and completed an implementing agreement with the Association later that same year (Mercer County Deed 366:434). Work on the southern half of the building began immediately, and with the vacating of West Front Street to the west of South Willow Street, the central section of the Barracks, which had been demolished a century earlier, was reconstructed, returning the structure to its original configuration. This reunification appears to have been completed in 1915 (State House Commission Minutes).

In the spring of 1914 Sadler and the Commission authorized the work called for in Leavitt’s plan for the park east of the State House, initially referred to in the minutes as the “State House Park.” Small contracts were awarded for flowers and other plantings and other lesser tasks, but the bulk of the work (described as including “grading, top-soiling, building paths and laying pipes”) was to be completed by the Robert W. Smith Corporation of New York City (under a contract for $9,000). In May the Commission finally adopted a name for the park lands they were developing and it was announced that both the small park to the east of the State House and the larger riverfront park would henceforth be known as “Mahlon Stacy Park” in honor of Trenton’s first settler. The Commission respectfully submitted the suggestion that the City apply the same name to the sections of the riverfront park they were developing north of Calhoun Street (State House Commission Minutes; Sadler n.d.:14).

Work within the two sections of the park was briefly halted under orders issued by the Commission during the late summer and fall of 1914, but in November a return to work was authorized. The small section
of the park adjacent to the State House appears to have been essentially completed by the spring of 1915. In the end this project had involved the purchase of more than 50 lots of land and, inSadler’s own words, “forty buildings – residences, stables and shops – which have all been demolished, the ground filled and made into an attractive Park” (Sadler n.d.:14). Sadler also participated in the relocation and restoration of the old Masonic Lodge Building in 1914-15. This building was moved from the southeastern corner of West Front and South Willow Streets to its present site at the northeastern corner of South Willow and West Lafayette Streets (Photograph 3.9). With the building demolition, relocation and restoration work finished, and much of Petty’s Run newly contained within a concrete culvert, the Water Power was next reconstituted as a scenic waterway, shrubs and specimen trees were installed and a network of new driveways and paths was created to facilitate vehicular and pedestrian access to the State House and Old Barracks (Photographs 3.10 and 3.11). Work within the larger riverfront portion of the park between the Assunpink and Calhoun Street also continued throughout 1915 and appears to have been essentially completed by the time of Sadler’s death in 1916. The City continued their development of other sections of Mahlon Stacy Park for several years after this (State House Commission Minutes; Gaskill 1914:12; Trenton Times, November 11, 1916; Trenton Historical Society 1929:990; Sadler n.d.:14).

By 1917 the State’s office space needs had become acute, and in that year various alternatives seeking to alleviate the problem were being considered. Among these was a plan offered by the noted architectural firm of McKim, Mead and White and Charles W. Leavitt, Jr. that called for the construction of a new office building in the small park to the east of the State House. This plan was not adopted, but the completion (in 1922) of the approved solution to the office space problem, the present State Office Building on West Hanover Street, nevertheless had an effect on the small park. The availability of sufficient (and more efficient) office space in the new building led to the abandonment of the Green Building (125, 127 and 129 West State Street) and several other former dwellings (117, 119 and 121 West State Street) that the State had more recently acquired as temporary office space (Photographs 3.12 and 3.13). In August of 1922 the Commission awarded a contract for the removal of all of these structures. This contract was fulfilled in October. The newly vacant frontage along West State Street was graded and landscaped and incorporated into the section of Mahlon Stacy Park extending between the State House and the Old Barracks (State House Commission Minutes; Newark News, September 17, 1917; State Gazette, October 20, 1922; Trenton Historical Society 1929:991).

From the early 1920s up until the commencement of the Petty’s Run archaeological excavations in 2008, aside from the periodic planting and removal of trees and shrubs, landscape maintenance and episodes of repaving, the area between the State House and the Old Barracks remained largely unaltered (Figures 3.36-3.38; Photograph 3.14). In contrast, the rest of the surroundings of the New Jersey State House have changed dramatically over the past century. The State House Annex and the War Memorial were built respectively in 1928-29 and 1930-32 (Photograph 3.15); the cultural complex, comprising the New Jersey State Library and the New Jersey State Museum with its planetarium and auditorium, was created in 1961-65; a substantial new addition to the State House, the Legislative Services Building, was constructed in the mid-1980s; and an underground garage was inserted between the State House Annex and the State Library in the early 1990s. The main expanse of Mahlon Stacy Park along the Delaware River, including Sanhican Creek, has long since disappeared beneath a sprawling mass of asphalt and concrete roadways and parking lots, built to facilitate access of state government workers and visitors to the plethora of state office buildings. A critical component of this access
Photograph 3.9. Historic photograph looking northwest across Mahlon Stacy Park shortly after its creation and the restoration of the Old Barracks. April 17, 1915. The view shows the Masonic Lodge (the current Trenton Visitor Center) in the process of being moved from the southeast corner of South Willow (modern Barrack) and West Front Streets to the northeast corner of South Willow and West Lafayette Streets (this latter corner is in the center foreground; the recently restored Old Barracks occupies the center of the view with the Kelsey Building behind and the New Jersey State House at left; just visible in the left foreground is the north bank of the Trenton Water Power, incorporated into the new park as “Sanhican Creek.” (Source: Trentoniana Collection, Trenton Public Library).
Photograph 3.10. Historic photograph looking west northwest across the lower portion of Mahlon Stacy Park shortly after its creation. *Circa 1915-17*. In the foreground is the Trenton Water Power, recently landscaped and incorporated into the park as Sanhican Creek; in the background is the New Jersey State House; note at right the eastward extension of the front section of the State House designed by George Poole and built John P. Gill in 1912-13. (Source: Trentoniana Collection, Trenton Public Library).
Photograph 3.11. Historic photograph looking west across Mahlon Stacy Park showing the driveway giving access to the east side of the New Jersey State House. Circa 1915-17. (Source: Farewell Mills and Gatsch Architects LLC corporate archive).
Photograph 3.12. Historic photograph of the south side of West State Street looking southeast. Circa 1920. From right to left are the residences at 127, 125, 123, 121, 119, 117, 115, 113, 109, 107, and 105, the small one-story store at 111, and the School of Industrial Arts at 103 and 101 West State Street; the intersection of Delaware Street and West State Street is in the right foreground with the Old Barracks just visible in the gap beyond; shortly after this photograph was taken, in the mid-1920s, the first six buildings from the right, 127, 125, 123, 121, 119 and 117 West State Street, were demolished. (Source: Trentoniana Collection, Trenton Public Library).
Photograph 3.13. Historic aerial photograph of Mahlon Stacy Park, the New Jersey State House, the Old Barracks and surrounding area. *Circa* 1922. Note that the residences on the south side of West State Street (117, 119, 121, 123, 125 and 127 West State Street) were still standing at the time this photograph was taken. (Source: Farewell Mills and Gatsch Architects LLC corporate archive).
Figure 3.36. Sanborn Map Company. *Insurance Maps of Trenton*. 1927. Scale: 1 inch = 110 feet (approximately). Project site outlined.
Photograph 3.14. Historic aerial photograph of Mahlon Stacy Park, the New Jersey State House, the Old Barracks and surrounding area. 1928. Note that the residences on the south side of West State Street (117, 119, 121, 123, 125 and 127 West State Street) had been taken down by this date (cf. Plate 3.13). (Source: Hagley Museum and Library).
Figure 3.37. Franklin Survey Company. Real Estate Plat-Book of the City of Trenton and Borough of Princeton, Mercer County, New Jersey, 1930. Scale 1 inch = 300 feet approximately. Project site outlined.
Photograph 3.15. Historic aerial photograph of the New Jersey State House and surrounding area. *Circa* 1930. The view is looking south and shows the recently completed State Annex to the right of the State House. Mahlon Stacy Park stretches beyond to the Delaware River. At the upper left are Sanhican Creek (formerly the Trenton Water Power) and the Trenton and Mercer County War Memorial, apparently in the early stages of construction. (Source: Trentoniana Collection, Trenton Public Library).
Figure 3.38. Sanborn Map Company. *Insurance Maps of Trenton*. 1927, revised to 1955. Scale: 1 inch = 110 feet (approximately). Project site outlined.
was the so-called “East-West Highway,” built in the mid-1950s, superseded in the early/mid-1960s by John Fitch Parkway, which today exists as N.J. Route 29 (Hunter Research, Inc. 2008a).

In recent years, there has been increasing sensitivity to the quality of the historic built environment of the New Jersey State House and its surroundings. Several buildings, including portions of the State House and Annex, the War Memorial, the Old Barracks and the State Museum, have undergone extensive renovation. Exceptional in this regard is the expansion of Thomas Edison State College in the mid-1990s, which resulted in the restoration and rehabilitation of the series of buildings fronting on to West State Street between the State House and Barrack Street, including the Cass Gilbert-designed Kelsey Building, originally erected in 1909-11, and the mid-19th-century Wood mansion at 107 and 109 West State Street (Thomas Edison State College 2006). Growing in part out of this aesthetic, plans have been developed for the Capital State Park, effectively a “rebirth” of the Mahlon Stacy Park, within which the exploration, stabilization and display of the Petty’s Run Archaeological Site have taken shape (Wallace Roberts & Todd, LLC 2008).
Chapter 4
THE INDUSTRIAL SITE HISTORIES

This chapter provides a detailed history of the four principal and successive industrial facilities that operated within the limits of the Petty’s Run Archaeological Site between the early 1730s and the mid-1870s: the Harrow/Yard plating mill; the Trenton Steel Works; the Fithian cotton mill; and the Front Street paper mill. For the broader land use history of the immediately surrounding properties and the block as a whole, readers are referred to Chapter 3 (which also contains most of the historic maps and photographs that pertain to the site). An overview history and description of the Petty’s Run stream corridor are presented in Chapter 5.

A. THE HARROW/YARD PLATING MILL

1. The Plating Mill under Harrow Family Ownership, circa 1733-45

Much of Trenton’s development as both a town and a center of industrial activity traces back to the Trent family. In addition to maintaining and expanding the Stacy gristmill on Assunpink Creek at the Broad Street crossing, the Trents promoted various other industrial ventures along the Assunpink and on Petty’s Run in the vicinity of their new town. The plating mill established on Petty’s Run by Isaac Harrow on former Trent property in the early 1730s, the principal subject of the first section of this chapter, in fact was preceded by a forge on the Assunpink dating from the mid-1720s. The relationship of these two early water-powered ironworking facilities is poorly understood, but it is thought that they worked together cooperatively rather than in competition with one another, and that they both received financial backing from the influential Trent and Morris families. While the forge processed pig iron into wrought iron bars, the plating mill functioned more as a specialized blacksmith shop converting bar iron into finished plate metal goods.

The forge on the Assunpink was established soon after 1723 by William Trent in partnership with two of his neighbors, John Porterfield and Thomas Lambert. Trent was the dominant partner in this venture, and upon his death in 1724 his half share in the forge property passed to his son and heir, James. In 1729 James Trent sold a part of his share to Anthony Morris of Philadelphia, and by 1730 the latter’s brother, William Morris of Trenton, had also joined in the partnership. The forge was badly damaged by a spring freshet in February of 1733, but may still have been operational in the late 1730s since its existence is referenced in contemporary property transactions. The precise location and ultimate fate of this forge remain uncertain, although it appears to have been situated upstream of the Trent gristmill, probably close to the present-day Chestnut Avenue crossing of the Assunpink (Nelson 1911:2, 7-9; Godfrey 1915; Trenton Historical Society 1929:524; Boyer 1931:227-228; Turk 1964:31, 49-51; Toothman 1977:129, 250).

Isaac Harrow established his plating mill, the first ironworking facility of its type in New Jersey, on Petty’s Run around the time that the forge on the Assunpink was damaged by flooding. It was definitely in existence by 1734 as an advertisement published in the Philadelphia newspaper, the American Weekly Mercury, in September of that year (Figure 4.1) describes the mill as being “Lately set up,” which would imply that it had been built within the preceding year or two. Unfortunately, the original deed referencing Isaac Harrow’s purchase of the
Figure 4.1. Advertisement for Isaac Harrow’s Plating Mill in 1734. Source: American Weekly Mercury, September 12, 1734.

| Dripping Pans, | Garden Spades, | Garden Shears, |
| Frying Pans,   | Common Shovels,| Glovers Shears, |
| Chafing Dishes,| Peel Shovels,  | Sheep Shears,  |
| Broad Axes,    | Coopers Axes,  | Scythes,       |
| Felling Axes,  | Smoothing Irons,| Mill Saws,    |
| Carpenters Tools, | Cow Bells, | Cross-cut Saws, |
| Coopers Tools, | Bark Shaves,   | Hand Saws,    |
| Tanners Knives,| Pot Ladles,    | Coffee Rousers,|
| Carriers Knives,| Melting Ladles,| Hay Knives,    |
| Skinners Knives,| Fireshovel Pans,| Fodder Knives,|
| Ditching Shovels,| Clouthiers Shears,| Tobacco Knives.|

As also sundry other sorts of goods not herein mentioned: Likewise all sorts of iron plates fit for bell-making, or any other use. All persons that have occasion for any of the above-named goods, may be supplied by George Howell, Lath-Maker in Chestnut-Street, Philadelphia, or by the maker at Trenton aforesaid, at as reasonable rates as any that come from England.
land on which the plating mill was built has not been found and the date of the mill’s construction cannot be pinned down with any greater accuracy (Table 4.1).

Two other surviving deeds show Isaac Harrow acquiring land along Petty’s Run from James Trent in the early 1730s, although neither of these documents makes specific reference to the plating mill. In 1732 Trent sold Harrow, described as a “blacksmith” of Trenton, an acre of wooded land for £16 (West Jersey Deed EF:445). From the description of the property it is clear that the parcel straddled Petty’s Run and lay to the east of “the Kings Road” (thought here to mean King [modern North Warren] Street). This places the property almost 1,500 feet upstream from the plating mill site. A second transaction, dated April 16, 1734, in which Harrow acquired a 3¼-acre tract from Trent, again involved property straddling Petty’s Run, just downstream of the one-acre lot he purchased two years earlier (West Jersey Deed EF:446). From the surrounding properties referenced in this second deed it is possible to place the 3¼-acre tract between the River Road (modern North Willow Street) and King (North Warren) Street and north of Second (West State) Street, i.e., still upstream from the plating mill site.

Less than a year later, on January 16, 1735, Harrow sold off a small piece of the 3¼-acre parcel on the north side of Petty’s Run to George Ely, a cordwainer (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, Isaac Harrow to George Ely, January 16, 1735). On the following day, Ely sold a half share in the ownership of this small lot to Joseph DeCou, yeoman of Trenton (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, George Ely to Joseph DeCou, January 17, 1735). This property, covering a quarter acre and six perches, was situated immediately upstream of the River Road crossing of Petty’s Run and became the site of a tanyard and bark mill, operated through the rest of the colonial period by the DeCou family.

The text of the Harrow/Ely transfer is revealing in that Ely was guaranteed “free liberty to turn or Carrie the Course or Streams of water into or through any part of ye S’d Granted lott of Land, So that it be not obstructed from entering again into S’d Harrows Mill Pond.” Harrow, likewise, “Shall have free Liberty to raise Such a Pond or head of water as is Sufficient for the use of Said Harrows Mill Standing [upon] S’d Stream without any hindrance or Interruption of the S’d George Ely his heirs or assigns.” From these two statements may be deduced both the existence of a millpond immediately downstream of the River Road crossing of Petty’s Run, which powered Isaac Harrow’s plating mill, and the imminent development of the newly carved-out tanyard lot. Clearly, by 1734-35, Harrow controlled, and had modified for hydropower purposes, a critical segment of Petty’s Run extending from Queen (North Broad) Street to the point where it descended the bluff into the Delaware River floodplain, where his plating mill was positioned.

As noted above, original documentation showing Isaac Harrow’s acquisition of the property on which the plating mill stood has not been found. It is not until the break-up of his estate following his death in 1741 that the earlier land ownership comes into clearer focus (New Jersey Will 145J). Analysis of later documents and some educated guesswork suggest that Harrow purchased additional land in the early 1730s lying south and west of the River Road, probably from James Trent. This property must have included the site of the plating mill and presumably also the land extending northward, immediately upstream of the mill, containing the millpond. It also extended eastward to West (Barrack) Street, as referenced in a later deed of 1761 (West Jersey Deed AS:189) (Table 4.1).

Aside from his involvement in Trenton-area land purchases and the establishment of the plating mill on Petty’s Run, remarkably little is known about Isaac
### TABLE 4.1. HARROW/YARD PLATING MILL - SEQUENCE OF OWNERSHIP.

<table>
<thead>
<tr>
<th>Begin Date</th>
<th>End Date</th>
<th>Owner</th>
<th>Acquisition Reference</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1704</td>
<td></td>
<td>Mahlon Stacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1704</td>
<td>1714</td>
<td>Mahlon Stacy, Jr.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1714</td>
<td>1724</td>
<td>William Trent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1724</td>
<td>1732-34?</td>
<td>James Trent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1732-34?</td>
<td>1741</td>
<td>Isaac Harrow</td>
<td></td>
<td>Plating mill built by Isaac Harrow circa 1734</td>
</tr>
<tr>
<td>1741</td>
<td>1745</td>
<td>Estate of Isaac Harrow</td>
<td>NJ Will 145J</td>
<td></td>
</tr>
<tr>
<td>1745</td>
<td>1745</td>
<td>Joseph Higbee</td>
<td>(WJ Deed S 261)</td>
<td></td>
</tr>
<tr>
<td>1745</td>
<td>1745</td>
<td>Anthony Morris</td>
<td>(WJ Deed S 261)</td>
<td></td>
</tr>
<tr>
<td>1745</td>
<td>1808</td>
<td>Benjamin Yard</td>
<td>(WJ Deed S 261)</td>
<td>Plating mill damaged in 1777 and probably ceased operation</td>
</tr>
<tr>
<td>1808</td>
<td>1809</td>
<td>Estate of Benjamin Yard</td>
<td>NJ Will 2347J</td>
<td></td>
</tr>
<tr>
<td>1809</td>
<td>1813</td>
<td>Jonathan Rhea</td>
<td>Hunt. Co. Deed 16 97</td>
<td>0.5 acre approx.</td>
</tr>
</tbody>
</table>

For subsequent ownership, see Tables 4.3 and 4.4 and Appendix A.1
Harrow. His parents and place of birth are unknown, although he may be the Isaac Harrow, son of James Harrow, christened on August 7, 1678 in Wandsworth, Surrey, England (Surrey, England, Extracted Parish Records 2001). It is not known when or where he or his parents emigrated to the American colonies, although it seems reasonable to posit that he/they landed in Philadelphia or some other Delaware Valley port of entry. A Philadelphia or West Jersey immigrant connection is strengthened by the fact that by the mid-1730s Isaac Harrow is in evidence as a leader of the local Quaker community. In April 1734, Quakers in Trenton, headed by Harrow, were permitted to hold meetings in the town for a trial period of six months (Trenton Historical Society 1929:391). In November of 1737, Harrow and William Morris, on behalf of the Friends at Trenton, requested the permission of the older-established Chesterfield monthly meeting “to build a meeting house there [i.e., in Trenton], to which the meeting agreed to” (Moon 1898:188). At some juncture in his life, Isaac Harrow married Temperance (maiden name unknown), who bore him at least one child, a son named James. This effectively constitutes the sum total of what is currently known about Isaac Harrow and his family.

The whereabouts of the Harrow home in Trenton may be inferred from a provision in the will of Robert Pearson of Nottingham Township, drawn up on September 13, 1751, and proved on June 22, 1753. Pearson, in dividing up his assets amongst his heirs, left to his daughter, Ann Yard, “a house and lot in Trenton, where she lives, which I bought of the Executors of Isaac Harrow” (Burlington County Will 5301C). Ann Yard was the wife of Benjamin Yard (of whom much more, shortly) and, from later archival references it is clear that the pair made their home at the southeast corner of the West (Barrack) Street/Second (West State) Street intersection on the site of the later Stacy-Trent Hotel and today’s State of New Jersey principal taxation building. This latter property is therefore also viewed as an integral part of Isaac Harrow’s landholdings in the early 1730s and the site of his homestead.

The American Weekly Mercury advertisement of 1734 noted above gives a good indication of the production capability of Harrow’s “Planing and Blade Mill” (Figure 4.1). Offered for sale at the works in Trenton or through a mercantile house in Philadelphia were a variety of sheet iron goods, a range of tools, along with iron plate and other unnamed products. Harrow also seems to have been keenly aware of his strongest competitors, the English metalworkers, as he described himself as “an English Smith” (presumably meaning that he had been trained to the best English standards) and noted that his products would be sold at rates as reasonable as those demanded for the products of the English iron industry.

Isaac Harrow retained control of his plating mill up until the time of his death in early 1741. His will, drawn up on September 28, 1738 and proved on April 6, 1741, named his “friends Anthony Morris & William Morris my onely Executors” and gave them the authority to sell off portions of his real property for the benefit of his heirs (New Jersey Will 145J) (Table 4.1). The appointment of the Morris brothers as Harrow’s executors provides further testimony of the close relationship between the two families, which appears to have extended across a shared Quaker faith and both business and personal dealings.

An inventory of Harrow’s property, compiled on January 24, 1741 shortly after his death, supplies much useful information on his landholdings and on the physical composition of both his house and the plating mill facility as they existed at that time (Appendix B.1). With an estate valued at £440.17s.2d, Harrow was certainly one of Trenton’s wealthier citizens. His real property, accounting for £280 of this assessment, comprised a quarter-acre lot with his house, the half-acre plating mill lot with
buildings, and four acres “Cross the Street;” his personal belongings and the tools and goods of his trade were valued at £160.17s.2d. The four-acre parcel is thought to refer to the property across (west of) West Street and the River Road where the millpond was situated.

The quarter-acre house lot, situated at the southeast corner of Second (West State) and West (Barrack) streets, contained a dwelling and probably also the shop. Reading between the lines of the inventory, the dwelling most likely consisted of a two-story main living section with a cellar and an adjoining one-story kitchen wing. The main section of the house had a “front-Roome” and “Bed-Chamber” on the first floor and four rooms, including at least two bedrooms, on the second floor. The downstairs front room, with an eight-day clock, two maps, three tables, six upholstered chairs and a “Settle Bedsteed,” appears to have served as both a parlor and a bedroom. Bellows, a pair of tongs, a shovel and pot hangers indicate that this room had a fireplace. Perhaps this was where Isaac Harrow spent his final days. The “kitchen and cellars” are notable for having the goods of greatest value in the house (amounting to £38.3s; more than twice the value of all the items in the rest of the building). A considerable range of iron, copper, brass, bell metal, pewter, ceramic and wooden household objects are referenced, along with 34 bars of iron, weighing about 13 hundredweight, which were presumably being stored in the cellar awaiting use in the plating mill.

Isaac Harrow’s “shop” was inventoried separately from the plating mill and the listing of its contents immediately follows the enumeration of items in the dwelling, implying that the two buildings were close to one another, perhaps on the same lot. The shop contained a variety of metal goods and tools, several of which match the product types identified in the American Weekly Mercury advertisement of 1734. It is thought that the shop was where Harrow served his customers, taking in new orders and articles for repair, sending out finished work and selling other metal goods. Of particular note are “two barrs Steel” and “a parcel of Steel & Old Brass,” an indication that higher quality metals were available in town and being handled by Harrow.

The manner in which the plating mill and its related facilities were enumerated is especially interesting. The “Plating Mills,” “Work Shop,” “Blade Mill,” “Lott” and “Coal House” are described in succession. It seems reasonable to suggest that the plating mill, workshop and blade mill were in close proximity to one another, possibly in connected buildings, or even under one roof in a single elongated building. The coal house appears to have been a separate structure.

The blade mill is the only facility that is specifically identified as having a “water Engine” (evidently running four grindstones for sharpening tools), but the plating mill is also presumed to have been making use of a water-powered trip-hammer, since a sale advertisement of 1745 makes reference to such equipment (see below) and because the plating process typically required that level of power application. In this instance, a trip-hammer would have been used for flattening bar iron into plate metal, alternately lifting and dropping the hammer through the rotation of a camshaft. If both a water-powered trip-hammer and water-powered grindstones were being used at the site, it is likely that one or possibly two waterwheels were operating at the western end of the building with power being taken off the main shaft[s] at multiple locations. The plating mill is noted as containing “a pair of Bellows & working Tools,” valued at £3 (a similar value was assigned to the five scythes, water engine and four grindstones in the blade mill). The term “working tools” may perhaps refer to the trip-hammer and a related anvil and forge.

Waterpower may also have been used in the operation of the bellows in the plating mill, an energy application that was commonly made in the larger, more
advanced forges and furnaces in the American colonies. It is notable that not only was a pair of bellows recorded in the plating mill, but “a Parcell of working tools one pair bellows Two Anvils and a Vice,” valued at £10, were to be found in the workshop. If water-power was being harnessed for running a trip-hammer and multiple grindstones and bellows, the Harrow plating mill clearly must have been making use of a relatively sophisticated hydrosystem.

Again, there are revealing references to steel (“about four pounds Steel” and “Steel ab' thirty pound”) in the enumeration of the plating mill. The assumption here is that steel was being used in the finishing of tools: hammered and welded on to the blades of tools such as knives, scythes and saws in the plating mill and workshop, and then ground to a fine, sharp edge in the blade mill.

The coal house, the final itemized building in the inventory, contained “900 Bushels Coals,” valued at £9. Roughly corresponding to 1,000 cubic feet of wood charcoal, this represents a substantial quantity of fuel stockpiled for use in the various hearths at the mill complex. The coal house was likely positioned close to the plating mill and workshop, perhaps within easy reach of the lane that led west to the mill yard from West Street.

After Isaac Harrow’s death, the Petty’s Run ironworks was likely operated for a few years by his son, James, as the property was later referred to as the “Plating Mill (late James Harrows)” (West Jersey Deed AS:189). In April of 1745, however, the plating mill property was advertised as being for sale. It was described as the “Lot and House, lately built, the Mansion of the Relict of Isaac Harrow, of Trenton, deceased,” and included “a Smith’s Shop and Forge, with Conveniences for working the Hammer by Force of Water, perfected.” It was stated that interested parties could inquire of the widow, residing on the premises (presumably Temperance Harrow still living in the Harrow family dwelling), or of the executors of the estate, William Morris of Trenton or Anthony Morris of Philadelphia (The Pennsylvania Gazette, April 4, 1745).

In August of the same year a second advertisement was published by the Morris brothers, perhaps indicating increasing interest on their part in selling the former Harrow property (and possibly to recover money invested in the works through mortgages or other loans). They stated that the property was to be sold at a public auction to be held in early September. Their description of the complex again noted its principal industrial components, including “The Iron Plaiting Works, Smith’s Shop, and all the Tools and Molds, for making Frying-pans. Dripping-pans, etc. said Works being now fit for Use.” They went on to note that the property also included “a good new Dwelling-house, Lot and Out-houses.” No mention was made of Harrow’s widow in this advertisement (The Pennsylvania Gazette, August 15, 1745).

The Morris brothers may have had difficulty in dealing with the Harrow estate. In 1745 they conveyed Harrow’s property to Joseph Higby of Trenton, and Higby immediately transferred control of the title to Anthony Morris. From this it appears that the public auction had not been successful, leading the Morris brothers to orchestrate a transaction with Higby in order to give Anthony Morris full control of the property. Later in 1745 Anthony Morris finally succeeded in selling the “Plating Mill” lot to Benjamin Yard, the same individual mentioned in the inventory of Isaac Harrow’s estate (Appendix B.1; West Jersey Deed S:261). Yard’s acquisition of the property began a tenure of ownership at the plating mill that lasted more than 60 years and led to a significant expansion of industrial activity along this section of Petty’s Run (Table 4.1). Over this same period Benjamin Yard and his family lived in the former Harrow dwelling locat-
ed just a short distance away at the southeast corner of West (Barrack) Street and Second (West State) Street (Nelson 1911:12; Godfrey 1915; Boyer 1931:229).

2. The Plating Mill under Benjamin Yard’s Ownership, 1745-1808

Benjamin Yard, the sixth of seven known children of William and Mary Tindall Yard, was born in Trenton on July 23, 1718. His father William, the son of Joseph Yard, a prominent mason and merchant, was born around 1675 in Philadelphia. Also trained as a mason, William Yard moved to Trenton around 1710 and shortly thereafter built a stone dwelling on East Front Street that served as his home, the town’s first inn and the site of Hunterdon County’s first court sessions. The large family of which William Yard was the progenitor flourished in Trenton throughout the colonial period, being involved in numerous trades, including construction, tavern-keeping, baking, brewing, hat-making and metalworking. The Yards also played a leading role in the establishment of Trenton’s first school, its library company, the local Presbyterian congregation and the British colonial military barracks.

Benjamin proved to be one of the most active and productive members of the Yard family. Over the course of his long life he became a major landholder in the town, contributed materially to the patriot cause during the Revolution and served as a local magistrate. In July of 1744 he married Ann Pearson, the daughter of Robert and Elizabeth Tindall Pearson, who bore him ten children. Ann Pearson Yard died in 1772, and in 1786 Benjamin married Jean West (who died childless in 1795). His particular livelihood was metalworking, a trade in which he likely apprenticed in Trenton in the late 1730s, perhaps even under Isaac Harrow (as perhaps implied by Harrow’s loaning him “a hand hammer, a Sledge & Vice” in 1741 [Appendix B.1]). Yard was certainly working as an independent blacksmith in Trenton by 1741 as shown by a bill of June 16 of that year, and a related receipt acknowledging payment of £2.8s some seven months later, for miscellaneous blacksmithing services rendered to Governor Lewis Morris, then resident in the town (Robert Hunter Morris Papers, Benjamin Yard to Lewis Morris, June 16, 1741 and January 25, 1742). Yard’s purchase of the plating mill on Petty’s Run in 1745 may have been spurred in part by his recent marriage and a desire to settle down, but the death of his father, William Yard, in December of the preceding year may also have been a factor. Indeed, Benjamin’s share of his father’s estate may well have helped finance the transaction with Anthony Morris that resulted in his taking over the Harrow dwelling and plating mill (Lee 1910:1208; Trenton Historical Society 1929:324; McCracken 1957:3-5, 10-12, 26-28; Klett 1989).

From the mid-1740s up until the Revolutionary War, Benjamin Yard’s main focus and chief source of revenue was the plating mill property. Early on, perhaps in 1746-48, and certainly before 1750, he expanded the metalworking capabilities of the site by adding a steel furnace and throughout the third quarter of the 18th century the Petty’s Run archaeological site is best viewed as an iron and steel working complex composed of several integrated components (plating mill, steel furnace, at least one and possibly two smith’s shops, coal house, waterpower system). Up until 1762 Benjamin Yard was in sole control of this entire operation; from 1762 onwards the steel furnace, located on the opposite (west) side of the run, followed a different trajectory driven chiefly by a succession of Philadelphia owners. From this point the narrative thread diverges, concentrating on the history of the plating mill through to the death of Benjamin Yard in 1808, while the history of the steel works is dealt with separately in the following section of this chapter. Nevertheless, it is important to emphasize that throughout the period of their overlapping operation (from the mid-1740s until the fall of 1777) the steel
works and plating mill, regardless of their ownership, remained intimately connected, likely exchanging raw materials, tools and finished and semi-finished products, sharing water and probably on some occasions swapping technological know-how and labor.

In 1750, by Act of Parliament, the British government sought to limit the colonial iron industry to the production of pig and bar iron in an effort to protect English metalworkers engaged in the fabrication of final stage iron and steel goods which were sold back at considerable profit in the emerging colonial markets. The colonial governors were ordered to inventory all secondary metalworking facilities, such as slitting, rolling, or plating mills and steel furnaces, which were currently in existence under their authority. These facilities would be permitted to remain in operation, but Parliament decreed that no new processing operations of this type were to be built. Benjamin Yard’s plating mill and steel furnace in Trenton were both enumerated as a result of inventories conducted under the Iron Act of 1750 (Lee 1907:209; Nelson 1911:12-14; Godfrey 1915; Nelson 1916:239; Trenton Historical Society 1929:524; Boyer 1931:229; Bining 1933).

Sheriff John Allen of Hunterdon County, who was charged with compiling the inventory of secondary iron processing and steel production operations within his jurisdiction, reported in the fall of 1750 that there was “one Plateing Mill Situate in Trenton … said to belong to Benjamin Yard” that was “in Use.” New Jersey’s Governor, Jonathan Belcher, then assembled his report to Parliament, stating that there was “One plateing Forge which works with a Tilt Hammer Situate on a Small Brook at the West End of Trenton … the property of Benjamin Yard … which is now used” (Whitehead 1883:558-560). Yard’s plating mill was one of only 14 such facilities reported under the 1750 Iron Act and the only example in New Jersey (Bining 1933:14, 16-17, 19, 23, 73, 89).

Benjamin Yard continued to operate the plating mill up until the early years of the Revolutionary War, making a reasonable living as a blacksmith and skilled metalworker and residing with his growing family at their nearby house on Second (West State) Street. There are sporadic references in contemporary letters and deeds indicating Yard’s ongoing metalworking activity, although, in contrast to the steel furnace which advertised extensively under its Philadelphia owners, his services were not the subject of notices in the newspapers (West Jersey Deed E:404; Toothman 1977:251). Among the more notable of Yard’s other business interests during this period was his involvement in a fishery that was based on the island known as Yard’s or Fishing Island at the mouth of Assunpink Creek. Yard owned a half share in the island, while the fishery also made use of the landing on the Delaware riverbank reached by the lane that passed through the iron and steel working complex on Petty’s Run. In the mid-1760s Yard published advertisements notifying the public that he had sturgeon for sale “cured in the Baltic Manner, at Trenton Falls.” In 1769 his “fishing Company’s Lott” was referred to in a deed for an adjacent parcel of property (West Jersey Deed AB:91) (Nelson 1911:14; Godfrey 1915; Trenton Historical Society 1929:524; Boyer 1931:229; McCracken 1956:27; Klett 1989:138).

With the onset of the Revolutionary War, Yard focused much of his energy on repairing and making small arms for the Continental Army. This line of work had its roots in a committee of the Second Continental Congress in Philadelphia that was appointed on March 8, 1776 to supply “the army in Canada with provisions & necessaries.” An order was drawn on the treasury the same day “for making muskets & bayonets for the sum of 10,000 dollars” (Papers of the Continental Congress, Transcript Journals, 1775-1779, September 5, 1775-May 14, 1776 [Vol. 3]:340). On the following day, Robert Treat Paine, a Massachusetts representative to Congress and a member of a companion
committee responsible for the encouragement of the manufacture of cannon and other implements of war, wrote to Benjamin Yard in Trenton:

Sir there is a Committee appointed by Congress to Contract for the making musketts & bayonetts, & as they have been informed that you are capable of making the barrells, they desire you would immediately inform them whether you will undertake in this business, & whether you can procure bayonetts to be made & all the other parts except the locks, & what your terms are, that a contract may be made if agreeable, if you should let us see you it would be serviceable your humble servant RTP per order (Robert Treat Paine Papers 18:32).

In a second letter, written on the same day, Paine requested the assistance of Yard’s brother-in-law, local Trenton merchant Abraham Hunt, in contracting with another Trenton blacksmith, Ebenezer Cowell, for the manufacture of the gunlocks mentioned in the communication with Yard. Hunt was essentially asked to function as a middleman, receiving the gunlocks once they were made, and then paying Cowell for the completed work. In this manner two Trenton smiths, Yard and Cowell, were being solicited by Congress to work as independent contractors producing much-needed weapons for the Continental Army (Robert Treat Paine Papers 18:32; Trenton Historical Society 1929:603). Unfortunately, no record has so far been found to confirm that either Yard or Cowell actually produced these items, although there is no reason to suspect that they did not.

That Benjamin Yard was actively engaged in small arms manufacture for the Revolutionary cause is more clearly documented in a number of receipts from 1776 and 1777 which show him making weapons for the Hunterdon County Militia. For example, a receipt of Abraham Hunt, one of the Commissioners for Hunterdon County, records payments to Yard of £51 for 12 muskets on July 4, 1776, £55.13s.6d for 14 muskets on August 19, 1776, £24.7s.6d for 13 muskets on August 21, 1776, and £1.14s on July 15, 1777 for 17 scabbards “delivered last summer” (Lee 1907:209; Klett 1989:139). On December 7, 1776, the day before the main British army entered Trenton in pursuit of Washington’s forces, another receipt shows Yard receiving a payment of £180 for supplying 36 guns to Alexander Chambers, Barrack Master at Trenton and Commissioner for the Purchasing of Arms and Military Stores and Paying the Militia (Department of Defense Papers). It is noteworthy that those involved in these transactions were all close neighbors. Abraham Hunt and Alexander Chambers both lived and operated stores on the same block of Second (West State) Street, directly across from the Yard home and within a few yards of the plating mill.

From the above evidence it would appear that the plating mill was busy supporting the American war effort for much of 1776, almost up until the time of the Battles of Trenton. Interestingly, no documentation has so far been found for production continuing into 1777 and one wonders if the military actions of late December 1776 and early January 1777 caused the plating mill (and perhaps also the steel furnace) to cease operation. On the other hand, events later in 1777 tend to suggest that the plating mill was at least partially functional in the summer of that year. At some point in September 1777 American troops deliberately damaged Yard’s plating mill property, apparently rendering it unusable, as is indicated by a letter of October 6, 1777 from Major Benjamin Van Cleve to the Governor of New Jersey, William Livingston:
Broke open by force of Arms by Lewis Nicola Col’ of Invalids (New Jersey State Archives, Revolutionary War Documents, Manuscript #55).

Livingston, writing separately to both James and Nicola from Princeton two days later, demanded an explanation for “so injurious a violation of private Property,” but unfortunately no replies have been found from those so accused. The slaughterhouse incident was also independently reported to Livingston by Alexander Chambers on September 9 and it is reasonable to suppose that both of these instances of damage to Yard’s property by American forces occurred around this time. The likely explanation for these actions against the property of a patriot such as Benjamin Yard lies in the British advance on Philadelphia, which was rapidly gathering momentum in the Lower Delaware Valley. On September 5, 1777 the British dislodged American troops from Cooch’s Bridge near Newark, Delaware, and a few days later on September 11, they won a decisive victory at the Battle of Brandywine. By September 25, 1777 the American troops in Trenton wished to prevent two potentially useful facilities, a smith shop with a coalhouse and a slaughterhouse, from falling into enemy hands (Smith 1970:5; Prince and Ryan 1980:87-88).

It is notable that the documents describing the events of September 1777 refer only to a “smith shop” and “coalhouse” and make no mention of the plating mill. The significance of this is unclear. Earlier documents from the mid-1740s note a “Smith’s Shop and Forge” and “Iron Plaiting Works, Smith’s Shop,” perhaps implying the existence of separate buildings, but it is equally possible that these were different work areas within a single building. The coalhouse could also have existed as an addition to the shop/forge/mill rather than a separate building. Finally, the term “plating mill” may also have been falling out of common usage by the 1770s. On balance, whatever it was called, it is thought that the principal building on the Yard plating mill property would most likely have suffered damage in September 1777 and that this would have been the structure immediately adjacent to and powered by Petty’s Run.

On October 22, 1782 Benjamin Yard filed a claim against the American government for various losses and damages “sustained by the Continental Army in ye Year 1776 & since” (Appendix B.2). Among the items listed are Yard’s “Plate Mill,” valued at £100 (five times higher than any other of his lost or damaged assets), his “Coal House at the Plateing Mill” and “1500 feet Boards round my Slaughter Houses.” The appearance of the plating mill and coal house in these claims may perhaps in itself suggest that these structures were never rebuilt.

Yard’s claim for compensation is helpful in providing a detailed description of a substantial portion of his property as it existed during the war. Aside from the damage to his industrial holdings and slaughterhouse, presumably casualties of American nervousness in the late summer and early fall of 1777, several other losses were incurred, some of which may have taken place in December 1776 around the time of the Battles of Trenton. His fishery operation suffered, with two fishing boats and a large canoe being either stolen or destroyed (along with six barrels of herring). Two “Fish Houses on the Island” (the island in the Delaware opposite the mouth of the Assunpink) were also torn down, along with a third sited elsewhere. In addition, his dwelling and domestic property were affected, as shown by the looting of household goods (pewter, china, and brass candlesticks), the destruction of a stable and the dismantling of numerous fences for use as firewood. Despite the devastation, Yard’s property continued to have some military relevance in the later years of the war. For example, the narrow lane leading from the River Road to the fishery gave
access to the ford across the Delaware River to the north of the Fishing Island. The lane and the ford are both depicted on maps produced for the French army in their march through New Jersey in 1781 and 1782 (Figure 3.10) (Woodward and Hageman 1883:733; Stryker 1893:17).

Approaching 60 years of age at the time his property was exposed to the ravages of the war Benjamin Yard may not have been up to the challenge of reviving the plating mill while the Revolution was still ongoing. In fact, no evidence has been found to indicate that the plating mill or smith’s shop resumed operation after the damage inflicted on the property in September of 1777. While the “Plating Mill Lot” is referred to in subsequent deeds (e.g., Hunterdon County Deed 1:222 in 1877), there is no hint that the ironworking facility was actually in use. The mill is not enumerated in tax records of the late 1770s and 1780s. In 1779, for instance, Yard was listed in the tax ratables for Trenton Township as the owner of eight acres of improved land, 18 acres of unimproved land, a house and a small quantity of livestock (Trenton Township Tax Ratables 1779). His enumeration within the tax list for the township in 1786 noted his ownership of 20 improved acres of land, a house, a small livestock holding and a single slave (Trenton Township Tax Ratables 1786).

In the later war years Yard served as a commissioner responsible for recruiting men from the Hunterdon County Militia for nine-month terms of service in the Continental Line. He was appointed to this position pursuant to the provisions of the Act of April 14, 1778 and signed the commission minutes recorded in Pennington and Scotts Tavern in April and May of that year. Yard also served as a Justice of the Peace in Hunterdon County in the late 1770s and 1780s and was one of a group of Trenton magistrates that petitioned George Washington on January 2, 1778 asking that the cavalry no longer be kept in Trenton as it was feared their presence would encourage the enemy to attack the town. Besides, as the magistrates noted, Trenton had insufficient forage and was still struggling to recover from the depredations of the past year or so (Klett 1989:139).

After the war, Yard settled into the role of a respected town elder. As one of a group of 52 local inhabitants he lobbied the State Legislature on February 24, 1786 for Trenton to be incorporated as a city, a status not formally achieved until six years later. In 1789, in welcoming George Washington to Trenton en route from Virginia to New York City for his inauguration as President, he oversaw the construction of a triumphal arch on the Greene (South Broad) Street bridge over Assunpink Creek (Klett 1989:139-140). How active Yard may have been in pursuing his local business interests during this period is unclear. The fishery on the riverfront and the island at the mouth of the Assunpink likely continued in operation as the names “Fishing Island” and “Yards Island” show up on contemporary maps (Figures 3.13 and 3.15). In 1792 Joseph Brittain, the owner of lands lying west of the Yard property, deeded a portion of his holdings to the State of New Jersey to serve as the site of the new State House. This deed described a portion of the eastern line of this lot as being sited upon the “Road leading from the said [Delaware] River To Trenton said to be Laid out chiefly for the benefit and use of a Fishery on the said River” (Department of State Papers).

Benjamin Yard’s will, made out on September 24, 1801, indicates that he was then still living in the house inherited by his late wife Ann, the old Harrow dwelling at the corner of Second (West State) Street and Willow (Barrack) Street (New Jersey Will 2347J). Under the provisions of the will, Benjamin’s half share of “the fishing Island” was to descend to his son Samuel Yard and the plating mill property was to be sold off by his executors for the benefit of his heirs (Table 4.1). The will makes specific reference to “the Lott wharon the plating mill Stands,” which implies
that the mill building still had some tangible physical expression in the landscape even at this late date, but was perhaps ruinous. Benjamin Yard lived for several more years, surviving six of his ten children. He died in Trenton on October 3, 1808 at the age of 90 years. A brief obituary appeared in the True American of October 10:

In this city, on Monday last, BENJAMIN YARD, esq., aged upwards of 90. Mr. Yard was also one of the early and inflexible revolutionary patriots, who never wavered in his principles nor varied in his conduct.

B. THE TRENTON STEEL WORKS

1. Benjamin Yard’s Steel Furnace, 1745-62

Sometime between 1745 and 1750 Benjamin Yard constructed a steel furnace on the west side of Petty’s Run immediately downstream from the plating mill. This was the first steel furnace to be established in New Jersey and was among the earliest built in North America (Figure 4.2). The enumeration of colonial iron and steel working facilities compiled in compliance with the Iron Act of 1750, discussed earlier with reference to the plating mill, provides the first mention of Benjamin Yard’s steel furnace in Trenton. The sheriff of Hunterdon County reported in the fall of that year, directly following his listing of the plating mill, that there was “Also one Furnis for making Steel belonging to the above sd. Yard,” although this facility was “not now in use.” Governor Jonathan Belcher, in his subsequent report to Parliament, drawing on the information provided by the county sheriffs, likewise noted that there was “one Furnace for the making of Steel Situate in Trenton … the property of the aforesaid Benjamin Yard which is not now used” (Whitehead 1883:558-560). The Trenton steel furnace was one of only five such facilities reported in the American colonies, although there are indications that some colonial iron and steel working operations went unreported (Bining 1933:14, 16-17, 19, 23, 79, 89).

Steel production in the mid-18th century was dominated by several European countries, chiefly England, Germany, Sweden and Russia. Steel, an iron alloy containing between 0.5% and 1.5% carbon, was valued for its strength and flexibility, and for its ability to be formed into a durable cutting edge. The most common method of making steel in England during this period was by way of the cementation process, wherein bars of wrought iron were interbedded with charcoal and heated within a furnace not unlike a blast furnace (Figure 4.3). The wrought iron was thus converted or “cemented” into steel through the absorption of carbon. The product was commonly referred to as blister steel, because of the blistered surface appearance of the newly produced bars of steel. Typically, the furnace was contained within a simple one-story masonry structure, referred to as a “furnace house,” which was distinguished by a furnace stack protruding through the roof (Figure 4.4). So far as is known, the American colonial steel industry – very small in comparison with its British counterpart – exclusively adopted the cementation process of steel manufacture. The greater Philadelphia area emerged as the principal center of blister steel production in the years leading up to the American Revolution (Bining 1933; Bining 1938; Schubert 1957; Aitcheson 1960; Wertime 1962; Fisher 1963; Barraclough 1984; Hunter and Porter 1990; Cranstone 1997).

One of the primary uses of steel during the 18th century was as a raw material for making tools, and in particular, edge tools. Yard’s motivation for constructing the steel furnace may have grown out of a desire for a nearby source of steel that could supply the plating mill and support an expansion of his edge tool production. The construction of a steel furnace and furnace, however, was a substantial undertaking, likely requiring capital and technical skill that Yard on his own
Figure 4.2. Map of Steelmaking Sites in the British North American Colonies.
may not have possessed. Bearing in mind the close industrial and commercial links between Philadelphia and Trenton, seen earlier in the involvement of the Trent and Morris families in the establishment of both the forge on the Assunpink and the Harrow plating mill, it seems plausible that Yard would have sought Philadelphian financial backing and technological expertise when he constructed his furnace. In this instance, the Trents or Morrises may again have supplied funding support, although no proof of this has been found. The source of knowledge for how to build a cementation furnace and make steel is also unknown, although certainly such operations were in existence by the mid-1740s in Philadelphia and the Schuylkill Valley and would have been known to the Yard family. Ultimately, the steel-making technical know-how most likely originated from Britain, the cradle of the cementation process, probably from the Derwent Valley in County Durham or from the Birmingham or Sheffield areas (Barraclough 1984; Cranstone 1997; Berg and Berg 2001:37-38, 175, 181, 252, 258-272).

The growing town of Trenton offered certain natural advantages to prospective iron and steel manufacturers in the colonial period. It was located just above the head of navigation on the Delaware River and was situated on the fall line where the main overland route between the cities of Philadelphia and New York forded the river. The Delaware also served as the principal riverine link between raw material sources (pig and bar iron; lumber and charcoal), upstream in northern New Jersey and northeastern Pennsylvania, and the cities and towns lying downstream in the Lower Delaware Valley. Locally, the downstream sections of both Petty’s Run and Assunpink Creek were readily adaptable as sources of waterpower, a situation that did not apply to the much larger and stronger flowing Delaware River, which was not effectively harnessed for its waterpower potential at Trenton until the early years of the 19th century. For this reason, the Assunpink Creek/Petty’s Run area remained the primary focus of industrial activity in Trenton until the 1830s when the power canal of the Trenton Delaware Falls Company (later known as the Trenton Water Power) and the Delaware and Raritan Canal were constructed. These latter two water systems gave Trenton a much improved and expanded hydropower infrastructure and ushered in an entirely new era of industrialization in the city (Turk 1964:59, 102, 144, 204; Toothman 1977:181, 216).

By the mid-18th century Benjamin Yard’s property on Petty’s Run was thus a complex site with well-established industrial, residential and transportational elements (Figure 3.6). The plating mill was located on the east side of the run just west of the River Road. The steel furnace, encased within a furnace house, was located on the opposite side of the run just to the south and immediately downstream of the plating mill. Other industrial features within the iron and steel working complex included several secondary structures, such as workshops, a coal house and sheds. Yard’s house, the former Harrow dwelling, with related outbuildings, lay a short distance to the northeast at the southeast corner of Second Street and the River Road. All of the principal buildings (the plating mill, steel furnace and furnace house, and the house) are believed to have been constructed of stone. Indeed Yard, whose father and grandfather were both masons, may well have erected the steel furnace and furnace house himself. The stone was certainly quarried locally, possibly in the immediate vicinity of Petty’s Run (see The Pennsylvania Gazette, April 19, 1744 for a reference to a “good Stone Quarry” nearby). The same quarry may also have been the source of most of the stone used in the construction of the barracks (Toothman 1977:189, 208, 256).

Waterpower was integral to the operation of the iron and steel working site. Petty’s Run appears to have been dammed just upstream of the plating mill with a millpond extending upstream to the River Road crossing of the creek. While the plating mill used the
energy of the run for its trip hammer, and possibly also for a bellows, the cementation furnace itself is not thought to have been water-powered. However, the proximity of the furnace house to the run and later references to a forge on the steel furnace property (after it was separated from the plating mill) suggest that waterpower was probably being drawn upon for secondary working of the steel being produced at the site, possibly within the furnace house building.

The iron and steel working complex as a whole was connected to the regional transportation network by a lane, likely established during the Harrow tenure, and a landing on the Delaware River. The lane ran west from the River Road, passing through the complex (possibly over the mill dam) before angling south along the western property line. This riverfront facility allowed for direct handling of raw materials shipped in from upstream, while the lane to the River Road gave access to the broader road network, to the town of Trenton, and also to deepwater landings immediately south of the falls of the Delaware. The latter provided for the handling of products bound for the Philadelphia market.

2. The Trenton Steel Works under Philadelphian Ownership, 1762-76

On September 17, 1762 Benjamin Yard, described as a “Blacksmith,” sold the portion of his property “on Which...a Steel Furnace was Erected” to Owen Biddle, a “Watchmaker,” and Timothy Matlack, a merchant, both of Philadelphia, for £155. It was noted in the deed that the northeast corner of this lot was located on the west side of Petty’s Run 28 links (18.5 feet) southwest of the southwest corner of Yard’s plating mill (Figure 3.6). The title granted to Biddle and Matlack for this property included the “buildings and Walls and all the right ... to Continue ... the said Furnace” (West Jersey Deed S:261) (Nelson 1911:14; Godfrey 1915; Trenton Historical Society 1929:524; Boyer 1931:229; McCracken 1956:27).

The acquisition of the steel furnace by Owen Biddle and Timothy Matlack ushered in a period of two decades when ownership of the steel works property was vested in a series of prominent and wealthy Philadelphia merchants (Table 4.2). For most of this period it is unclear who exactly was making the steel, although it is assumed that it was probably not the merchant owners themselves. To begin with, the steel master may actually have been Benjamin Yard, who, as a blacksmith, had probably acquired the necessary manufacturing expertise around the time he built the original furnace in the mid- to late 1740s. By the early 1770s, John Zane, brother of the well-known Philadelphia ironmaster Isaac Zane and brother-in-law to John Pemberton, then a half-share owner of the furnace property, was the principal steelmaker at the site, a role that was later assumed by another Philadelphian, John Nancarrow, certainly in the early 1780s and possibly also in the mid- to late 1770s. The involvement of Zane and Nancarrow in the operation of the steel works is discussed at greater length in the following pages within the broader context of the site’s ownership and output.

Biddle and Matlack, the new owners of the steel furnace in 1762, were both members of well-established and well-respected Philadelphia Quaker families that had originally settled in Burlington County in West Jersey. Timothy Matlack (1730-1829), perhaps best known for engrossing the copy of the Declaration of Independence now held in the National Archives, later emerged as one of the more influential merchants and statesmen in Philadelphia during the Revolutionary period (Figure 4.5). An ardent patriot, who served as a delegate for Pennsylvania at the Second Continental Congress in 1780, he was also a skilled surveyor and architect (Stackhouse 1910). Matlack’s involvement with the steel works seems to have been short-lived;
<table>
<thead>
<tr>
<th>Begin Date</th>
<th>End Date</th>
<th>Owner</th>
<th>Acquisition Reference</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1745</td>
<td>1762</td>
<td>Benjamin Yard</td>
<td>(WJ Deed S 261)</td>
<td>Original steel furnace built by Benjamin Yard</td>
</tr>
<tr>
<td>1762</td>
<td>?</td>
<td>Owen Biddle &amp; Timothy Matlack</td>
<td>WJ Deed S 261</td>
<td></td>
</tr>
<tr>
<td>1763</td>
<td>1763</td>
<td>Owen Biddle, Joseph Fox &amp; ?</td>
<td>(WJ Deed U 118)</td>
<td>Biddle &amp; Fox each own 1/4 share</td>
</tr>
<tr>
<td>1763</td>
<td>1770</td>
<td>Owen Biddle, Joseph Fox, Judah Foulke &amp; ?</td>
<td>WJ Deed U 118</td>
<td>Biddle 1/4 share; Fox &amp; Foulke each 1/8 share</td>
</tr>
<tr>
<td>1770</td>
<td>1776</td>
<td>John Pemberton</td>
<td>(TPL unrecorded deed)</td>
<td></td>
</tr>
<tr>
<td>1776</td>
<td>1782</td>
<td>John Pemberton &amp; Stephen Sewell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1782</td>
<td>1787</td>
<td>Stacy Potts &amp; ?Stephen Sewell</td>
<td>TPL unrecorded deed</td>
<td>Steel works ceases operation circa 1783-84</td>
</tr>
<tr>
<td>1787</td>
<td>1810+</td>
<td>John Nancarrow, White Matlack &amp; ?Stephen Sewell</td>
<td>TPL bond; TPL Nancarrow/Potts correspondence</td>
<td></td>
</tr>
</tbody>
</table>

For earlier ownership, see Table 4.1. For subsequent ownership, see Tables 4.3 and 4.4 and Appendix A.1
PETTY’S RUN ARCHAEOLOGICAL SITE

no other connection to the steel furnace site has been made beyond his initial acquisition of a half share in its ownership in 1762. It is not known how long he retained this ownership stake, or how he came to part with it.

Owen Biddle (1737-1799) has a more intriguing and substantial involvement with the steel furnace, which hinges primarily on his activity as a merchant, but may also have been rooted in his training as a clock and watchmaker and in his scientific interests. Owen was the son of John Biddle, a grandson of William Biddle II, and a great grandson of William Biddle I, one of the West Jersey proprietors who settled originally in Mount Hope near Burlington, across the Delaware River from Philadelphia. He was the elder brother of Clement Biddle (1740-1814), also a leading Philadelphia merchant, while his son, Owen Biddle, Jr., was the author of a widely used early 19th-century carpenter’s guide. Also related to other well-known members of the Biddle family (such as Nicholas Biddle, the financier), Owen Biddle has tended to be overshadowed by his more illustrious relatives. Except for a few brief biographical studies, which have concentrated on his American Philosophical Society and Revolutionary War activities, he has received little attention from historians (Biddle 1892:299-300, 328; Stackhouse 1910; Jordan 1911:172-173; Radbill 1978; Hunter and Porter 1990:91).

Biddle’s interest in owning the steel furnace in Trenton was largely mercantile. Steel was a much sought-after metal, expensive to import from Europe, and a valuable material made at only a very few locations in the American Colonies. Its manufacture in Trenton for sale in the Philadelphia and New York markets likely appeared as a potential winning investment. However, Biddle’s fortunes as a merchant followed a somewhat erratic pattern and were inextricably tied to his active patriotism in the period leading up to and during the Revolutionary War. As a local Philadelphia businessman he signed the Non-Importation Resolutions of 1765 and apparently remained a fairly successful merchant through into the mid-1770s, importing various goods (notably cloth, metal manufactures, and clocks and watches) from merchants in London for sale in and around Philadelphia. His importing business suffered during the war, however, and at least three of his ships were destroyed during the hostilities. He voluntarily bound over much of his personal estate to the American cause during the war years. Ultimately, most of the wealth he had accumulated in the pre-war era was lost, and he spent the last two decades of his life in somewhat reduced circumstances (Hunter and Porter 1990:92).

During the war, Biddle put his organizational and marketing expertise to good use, serving as a provincial delegate in 1775, a member of the Committee of Safety in 1775-76, a member of the Pennsylvania Constitutional Convention in 1776, a member of the Council of Safety in 1776-77 and a member of the Board of War in 1777. Perhaps his greatest contribution to the war effort was as Deputy Commissary General of Forage from 1777 onwards, in which position, with the rank of Colonel, he was responsible for procuring provisions for the horses, mules and other livestock of the Continental Army. For his active involvement in the war, Biddle and many other Quakers, including Timothy Matlack, were disowned by the Society of Friends. Biddle later repented his military activism, and in 1783 was readmitted to the Friends. He devoted much of the remainder of his life to establishing a boarding school, Westtown School, in Chester County outside Philadelphia (Hunter and Porter 1990:92).

Prior to his purchase of a half share in the steel furnace in Trenton, Owen Biddle had established himself in Philadelphia as a clock and watchmaker, and his pursuit of this profession likely stimulated his lifelong interest in scientific observation and experiment. In the mid- to late 1760s he was a leading member of the
“Junto” that morphed into the American Philosophical Society (APS) in 1768-69. He remained active in the APS for the rest of his life, serving as a curator from 1770 to 1772, secretary from 1773 to 1782, and a councilor from 1782 until his death. He was elected a Fellow of the American Academy of Arts and Sciences in 1782. Among his more notable APS contributions were his participation in the observations of the Transit of Venus on June 3, 1769, his involvement in efforts to promote sericulture in Pennsylvania, and his completion of various detailed surveying exercises. In 1781, he delivered the annual oration before the APS, an honor bestowed in earlier years on two of his closest colleagues, Timothy Matlack and David Rittenhouse.

Biddle’s interest in the steel furnace at Trenton may have been predominantly mercantile, but he would also have had a fine appreciation of the qualities of steel and the use of this exceptional material in clock and watch making and in the fabrication of precision instruments. It is not impossible that his involvement with the Trenton site was spurred in part by his craft working expertise and perhaps also by his own intellectual curiosity. In later years, after he had sold his share in the steel furnace and ceased working as a clock and watchmaker, Biddle maintained an interest in steel and in the production of specialized tools. In 1771, for example, he published a brief paper on “a Machine for cutting Files,” notably “very fine small files for Watchmakers,” that used steel parts. In the same year, Biddle, as a curator of the APS, accepted on behalf of the society a model of a mowing machine which had a steel cutter (Transactions of the American Philosophical Society 1771:300-302) (Biddle 1892:300, 302-305, 315-316, 328; Jordan 1911:172-173; Stretch 1932:227).

The sequence of ownership of the steel works property in the years immediately following the Biddle/Matlack purchase of the site from Benjamin Yard in 1762 is difficult to unravel, but a plausible succession can be pieced together from the archival record (Table 4.2). On November 7, 1763, Joseph Fox sold an eighth share in the steel furnace to Judah Foulke for £56 (West Jersey Deed U:118). The deed for this transaction references the earlier sale to Biddle and Matlack, and further documents that Biddle had sold Joseph Fox a quarter share in the property on September 22, 1763. Since Biddle, in 1765, advertised that he still had a half share in the furnace available for sale (see below), the implication is that at some point between September 17, 1762 (the date of the Biddle/Matlack purchase) and September 22, 1763, he came to control all or part of Matlack’s half share. It may be relevant that Matlack, during the mid-1760s, fell into serious financial difficulties and was thrown into debtors’ prison, leading in 1765 to his being disowned by the Society of Friends for failure to pay his debts (Kashatus 1990:21). Quite possibly, Matlack’s economic circumstances caused Biddle to assume full control of the steel works, also prompting him to seek additional investors.

Joseph Fox and Judah Foulke, like Biddle and Matlack, were wealthy Philadelphia Quaker merchants. Fox (1710-1779) apprenticed as a carpenter, became a member of the Carpenters’ Company, and rose to the position of “master” or President of this influential guild-like organization in 1763. He was also the barracks master for the Philadelphia barracks from 1758 until 1776, a superintendent of the Pennsylvania State House in the late 1750s and 1760s, and served in the Assembly of the Province of Pennsylvania from 1750 until 1772, twice being elected to the post of Speaker. Over the course of the 1760s and 1770s, Fox gradually gravitated to the Revolutionary cause, becoming a strong opponent of the Stamp Act and a signer of the Non-Importation Resolutions. When the Revolution got under way, he became a member first of the Committee of Correspondence and then of the Committee of Safety. However, despite taking an oath of loyalty to the Commonwealth of Pennsylvania and renouncing allegiance to the King in July of 1777,
Fox was still suspected of Tory sympathies and was arrested shortly before the British took Philadelphia in the fall of the same year. He lived out the final two years of his life on North Third Street in Philadelphia, as the city struggled for a semblance of normality under first British and then American control (Cresson 1908; Karsch 1999-2009).

Foulke (1722-1776) did not attain quite the political prominence of Joseph Fox, but he still held a number of important positions in city and county government. From 1745 to 1750 he was Collector of Excise for Philadelphia, a position he appears to have left because of debts owing to the government, which may also have led to his being disowned by the Society of Friends. His fortunes were evidently soon repaired for he served as Sheriff of the City and County of Philadelphia from 1770 until 1772. In 1773 he was appointed Keeper of the Standards of Brass for Weights and Measures for the county and later held the posts of Clerk of the Market and Collector of the Rents of the Stalls, positions in which he accrued commissions. Since he died early in 1776, it is difficult to establish where his sympathies lay during the drive toward independence (Foulke Reunion Memorial Volume 1898).

Fox and Foulke, each with their eighth shares in the steel works, seem to have been minor investors, behind-the-scenes backers in an enterprise where Owen Biddle was the dominant force. The hypothesized ownership arrangement, with Biddle holding his original half share plus one half of Matlack’s (and Fox and Foulke splitting the other half), is thought to have persisted from the fall of 1763 up until 1770. Certainly, between 1762 and 1770, Biddle is the person most clearly identified with the steel works in the archival record. For example, in 1764 it was noted in a letter of August 31 from Abraham Hunt to Joseph Reed that Biddle had built a steel furnace on the lot acquired from Yard two years earlier (Joseph Reed Papers). This may indicate that Yard’s original furnace had fallen into disrepair by 1762, perhaps due to infrequent use (or overuse) and consequent production difficulties. Reading between the lines, one suspects that Biddle may have had to substantially rebuild the furnace before it could be put into blast.

A second letter, from Charles Pettit to Joseph Reed, written on November 3, 1764, reported that Biddle had activated the furnace and was producing two-ton batches of steel every two weeks. This material was claimed to be “equal to any imported from England and can be afforded lower” (Joseph Reed Papers). Less than two weeks later, on November 15, 1764, an advertisement was published in The Pennsylvania Gazette by Owen Biddle, “Clock and Watch Maker.” He announced that, in addition to selling and repairing clocks and watches, he was also offering for sale at his shop in Philadelphia “Trenton blistered Steel, warranted to be of the best Quality.”

Within a year, however, there were signs that Biddle’s steelmaking venture was not proving to be the investment he had hoped. In the summer of 1765 he announced his intention to sell his half share of “the Steel Works at Trenton” in a public sale (Figure 4.6). The advertisement publicizing this sale is especially informative about the steel works site. It noted that “the House which contains the Furnace is built with Stone, and almost new, large and commodious, being 30 by 34 Feet square.” The furnace and “a Smith’s Shop, which hath one Fire-place” stood on a lot that included a half acre of land. Use of the term “almost new” implies that the furnace house (and probably also the furnace) had been rebuilt and was not of mid-to late 1740s Yard vintage. The existence of a smith’s shop on the furnace property is also of interest, indicating that the steel works may have been involved in the late-stage fabrication of metal goods and not been restricted solely to the manufacture of steel bars. Unfortunately it is unclear where exactly the smith’s shop was located and whether or not it made use of waterpower.
To be sold by publick Vendue, at the London Coffee house, at Six o’Clock in the Evening, on Saturday, the 14th of September, One Half Part of the Steel Works at Trenton, with a Lot of Land belonging thereto, containing nearly Half an Acre, with a Smith’s Shop, which hath one Fire-place; the House which contains the Furnace is built with Stone, and almost new, large and commodious, being 30 by 34 Feet square.

The Situation of the above Works gives it an Advantage over any in the Colonies, being in a County where Wood may be had cheap in great Plenty, and at the Head of the Tide Water, where they can receive Iron from a Number of Iron-works which are Situate above it on Delaware; they can likewise transport by Water the Steel to Philadelphia, or any other Part, at a moderate Expense. An Inventory of Moveables, &c. belonging to the Works, will be exhibited on the Day of Sale. For further Information, apply to Owen Biddle.

Figure 4.6. Sale Advertisement for the Trenton Steel Works in 1765. Source: The Pennsylvania Gazette, August 29, 1765.
Biddle’s advertisement went on to describe the favorable location of the steel works (better than “any in the Colonies”), noting that cheap timber was readily available in Hunterdon County. The situation of the works on the river allowed it to “receive Iron from a Number of Iron-works which are situate above it on Delaware; they can likewise transport by Water the Steel to Philadelphia, or any other Part, at a moderate Expence.” It was also noted that a variety “of Movable, etc. belonging to the Works” could also be offered for sale (The Pennsylvania Gazette, August 29, 1765) (Godfrey 1915; Boyer 1931:229-230).

No acceptable offers apparently resulted from Biddle’s efforts at selling a half share in the steel works. Whether the property proved to be unsellable, or the steel works’ fortunes took a turn for the better and Biddle ceased to look for buyers, is not clear. The non-importation agreements entered into by many colonial merchants, including Biddle and several of his Philadelphia Quaker ilk, beginning in 1766, may have been a factor in the ownership remaining unchanged for the rest of the decade. Certainly, Biddle’s continuing ownership and involvement with the steel works would have been compatible with the American colonial response to Britain’s tightening of the mercantilist reins. Non-importation of British steel would have improved the market for domestic blister steel, such as that being made at facilities like the Trenton Steel Works.

It was not until 1770 that Owen Biddle finally detached himself from the steel works (Table 4.2). Based on a brief and somewhat obtuse statement included in a later deed of 1782, it appears that the steel works was acquired in the former year by John Pemberton. The deed makes reference to “the Steel Furnace erected and standing on the said Lot or piece of Ground (which premises Owen Biddle and Sarah his wife Joseph Fox and Elizabeth his wife, and Judah Foulke and Mary his wife according to their respective shares and interests therein by Indenture Quadripartite dated the twenty fourth day of August 1770 granted unto the said John Pemberton in fee).” Unfortunately, the original four-party deed of 1770 has so far not been located, but it is believed that this transaction relates to the steel furnace property in its entirety (as opposed to only one half of it).

John Pemberton (1727-1795) was another successful Quaker merchant from Philadelphia, although considerably more conservative and Loyalist-leaning than Owen Biddle. He was the son of Israel Pemberton (1684-1754) and the younger brother of Israel, Jr. (1715-1779) and James Pemberton (1723-1809). The Pemberton family during the colonial era may be characterized as mainstream Quakers, firmly pacifist and focused primarily on mercantile pursuits. By the time of the American Revolution, all three of the Pemberton brothers had amassed immense wealth by trading widely within the British mercantile system, benefiting especially from the import and sale of manufactured and high-end goods from Europe. Their support of the non-importation agreements in the late 1760s and early 1770s was, at most, lukewarm and they had little appetite for the rebellious activism that erupted into military conflict in the mid-1770s. John Pemberton, in contrast to his brothers, devoted much of his time to religious work, traveling to Europe in 1750, 1782 and 1794 to spread the Quaker faith. In January of 1776, in conscientious objector mode, he was instrumental in publishing the Ancient Testimony and Principles of the People called Quakers, renewed, with respect to the King and government; and touching the commotions now prevailing in these and other parts of AMERICA, addressed to the people in general, a broadside that did little to endear him to the patriot cause and probably hastened his “exile” from Philadelphia to Virginia in the following year (Scharf and Westcott 1884:1251; Thayer 1943).
Like the other earlier Philadelphia Quaker owners of the Trenton Steel Works, John Pemberton undoubtedly viewed the steel furnace operation as an investment opportunity and again he had no particular skill in or knowledge of steelmaking. For manufacturing expertise he turned to his brother-in-law, John Zane, a member of yet another Philadelphia Quaker merchant family, albeit one with some practical experience of ironworking. The Pemberton family was closely associated with the Zane family for much of the colonial period. John Zane (1741-1808) was the son of Isaac Zane (1710-1794), a prominent and well-to-do Philadelphia Quaker carpenter/builder, and the elder brother of Isaac Zane, Jr. (1743-1795). The latter was an associate of Owen Biddle and was also active in the founding of the APS in 1768; in later years, he was the proprietor of a successful ironworks in Virginia. In 1766 John Pemberton married Hannah Zane, the sister of John and Isaac Zane, Jr., thereby helping to cement the relationship between these two influential Quaker families. Quite possibly the ironworking expertise of the Zanes and their links with Owen Biddle helped persuade Pemberton that ownership of the Trenton Steel Works was a speculative venture worth pursuing (Jordan 1911:286, 292; Zane 1984:5; Moss n.d.: 292-296).

The Pemberton/Zane operation of the Trenton Steel Works seems to have functioned adequately at the outset. Pemberton was advertising bar iron and cast-iron goods for sale in Philadelphia in the months immediately prior to his purchase of the steel works (The Pennsylvania Gazette, April 5, 1770) and by late 1771 the bar iron had been replaced by “AMERICAN STEEL” in these sale notices (The Pennsylvania Gazette, November 14 and December 12, 1771). These items were being sold from Pemberton’s store on High Street between Fifth and Sixth Streets.

In the early spring of 1772 more expansive advertisements appeared in both The Pennsylvania Journal; and The General Advertiser and The Pennsylvania Gazette offering “A large quantity of STEEL, Either in the blister of neatly faggotted” that had been “Lately manufactured by JOHN ZANE, at Trenton” that was “to be sold by JOHN PEMBERTON.” It was noted that this steel was “Good in quality, being made of the most approved iron,” and that “It has been tried by many, and approved of, and its credit increases.” Trenton steel had a variety of applications as it could be “drawn into small flat bars for springs to carriages, also for mill and crosscut saws, and if required may be drawn for Scythes and sickles.” Assurances were given that “if any bar thereof should not prove on trial, equal to expectation, if sent back, will be received and the money returned.” Pemberton also offered “neat iron kettles, chambers for pumps, cart, wagon and chaise boxes, iron mortars and pestles” for sale, an indication perhaps that the smith’s shop at the steel works was also being used for the manufacture of iron products (The Pennsylvania Journal; and The General Advertiser, March 12, 1772; The Pennsylvania Gazette, April 9, 1772) (Godfrey 1915; Boyer 1931:230).

However, before long, the Pemberton/Zane venture was beset by difficulties, some of them due to the actions of Zane, others apparently due to the questionable quality of the steel being produced. As 1772 progressed Zane fell heavily into debt and responded by attempting to sell steel locally in Trenton without Pemberton’s knowledge. At the same time, markets for Trenton steel were sought further afield. In June of 1772, for example, a mercantile house in New York City offered “American Steel, Manufactured by John Zane, at Trentown” for sale “in half faggots, or blister’d, by the Ct. wt.” It was claimed that this steel was equal or better in quality to that imported from England and, once again, the purchaser would be able to have their money returned “If on tryal any bar proves faulty” (The New-York Gazette, or the Weekly Mercury, June 29, 1772).
Additional problems appear to have resulted from the production of low quality steel during Zane’s period of involvement with the furnace. In the fall of 1772 Pemberton announced that he had both iron and steel that had been manufactured by Zane in Trenton for sale at his store in Philadelphia. It was stated in this advertisement that this batch of steel was “supposed to exceed former Parcels in Goodness,” an admission perhaps that earlier batches were less than perfect (The Pennsylvania Gazette, September 9, 1772). Shortly after the publication of this notice John Zane left the area, leaving Pemberton to deal both with his brother-in-law’s debts and with what appears to have been a struggling steel works. Following the intervention of Stacy Potts, a leading Quaker merchant in Trenton (who later figures prominently in the Trenton Steel Works story), Pemberton agreed to meet his brother-in-law’s Trenton obligations and continued to support the manufacture of steel at the furnace. John Zane is not heard from again until 1774, when he resurfaces in St. Eustatius in the Caribbean, a penniless carpenter requesting assistance from his wealthy brother-in-law (Pemberton Papers, Letters from Stacy Potts et al. to John Pemberton, Vol. 24:64, 73, 102 and 163; Vol. 25:185; Vol. 26:4 and 57) (Godfrey 1915; Boyer 1931:230).

Following Zane’s departure, it is unknown who assumed the responsibility of operating the steel furnace. The identities of the furnace hands and smiths working at the site have not been found in the contemporary written record. Some secondary sources have suggested that Stacy Potts, noted above as Pemberton’s business representative in 1773, was active in the operation of the steel furnace during the 1770s, but this claim cannot presently be substantiated. Indeed, from Potts’s later involvement with the steel works in the 1780s, it is clear that he himself was not knowledgeable in the art of steelmaking. Many of the same sources also claim that Potts may have been joined at the steel works by John Fitch, the pair of them being engaged in various types of tool making. Fitch (1743-1798), who in later years was a leader in the early development of steamboat technology, came to Trenton in 1769. He worked as a button maker, a clock and watchmaker, and a toolmaker before establishing himself as a successful silversmith in the early 1770s. While Fitch is a reasonable candidate for working at the steel furnace during the mid-1770s, more so certainly than Potts, no proof of this has been found. Benjamin Yard, by this time in his late 50s, remains another potential operator of the steel furnace; he, at least, had some practical know-how of steel manufacture and lived close by. Finally, John Nancarrow, who was active making steel in Philadelphia as early as 1775 and who, six years later, was closely involved with the Trenton furnace, is another viable candidate as Pemberton’s steel master after Zane’s ignominious leaving (Stryker 1893:18-19; Trenton Historical Society 1929:108, 135, 230-232; Boyer 1931:231; Prager 1976:50-61, 103, 163-164; Toothman 1977:252).

During this period the steel product was mostly sold locally (one presumes that the nearby Yard plating mill was a customer) and in Philadelphia, but there were also attempts, largely unsuccessful, to try and expand into the New England market. Advertisements continued to appear in the Philadelphia newspapers with some regularity. In the early spring of 1773, for example, the public was notified that “STEEL manufactured at Trenton, EITHER in the blister, or neatly drawn and fagotted; also in thin plates for springs and mill-saws” was “TO BE SOLD, BY JOHN PEMBERTON, in PHILADELPHIA.” Iron production also continued as “A quantity of bar iron, part of which is drawn in long thin bars, suitable for tire to carriages, or may be easily slit for nailsmiths use” and “cart and wagon boxes, and iron chambers for pumps” were also available for purchase (The Pennsylvania Packet, March 15, 1773). Several other advertisements appeared offering a similar range of goods through into early 1775 (The Pennsylvania Gazette,
October 27, 1773; April 20, 1774; June 8, 1774; 

At the same time as selling Trenton Steel Works products in the Delaware Valley, Pemberton was also soliciting marketing assistance from Quaker merchants much further afield. The Pemberton Papers held by the Historical Society of Pennsylvania contain a number of letters to John Pemberton from a Salem, Massachusetts, merchant named Jeremiah Hacker. Hacker’s communications for the period 1772 through 1775 concern a number of matters, notably Quaker affairs and a mutual interest in books, but it is also clear that Pemberton was prevailing on him to try and sell steel shipped to him from Trenton. Hacker repeatedly comments that he has the steel in hand, has tried to sell it locally, but was having very little success.

Perhaps the most revealing of Hacker’s responses was one of March, 1773, when he related that “The prospect for selling Steel Don’t seem so feavorable Now as when I Rote Last to thee for one in Perticular that was Like to want Considerable Declines takeing any more he allows that some of it is Very good yet that there is Different Qualiteys in one Bar which makes it uncertain so that they are not able to Temper it Rite …” (Pemberton Papers, Letters from Jeremiah Hacker to John Pemberton, Vol. 24:135). Hacker would appear to be breaking the news to Pemberton, as politely as possible, that the Trenton steel simply wasn’t good enough. One wonders if Hacker had perhaps ended up with part of an early batch of steel made during Zane’s brief and ill-fated period of production.

Throughout the mid-1770s, concurrent with his efforts at marketing the products of the Trenton Steel Works, Pemberton was also trying to sell off a half share in the steel furnace. While this likely reflects a desire on Pemberton’s part to spread the burden of his investment, it may also have been prompted by his recent difficulties with his brother-in-law. The first indication of Pemberton’s interest in selling a share of the furnace occurs in late July and August of 1773, just a few months after Zane’s departure, when an advertisement appeared in two Philadelphia newspapers in which Pemberton offered “FOR SALE, ONE moiety of the Steel Furnace at Trenton.” He noted that the furnace was “built of stone, and in good repair,” and that there was also available “a frame building, not yet finished” situated on “a lot of ground nearly adjoining.” Based on a later deed of 1782 (see below), the latter structure is hypothesized to be the partially built and abandoned dwelling of John Zane. Those interested in purchasing part of the steel furnace property and nearby lot were directed to contact Pemberton in Philadelphia or Stacy Potts in Trenton (*The Pennsylvania Journal; and The Weekly Advertiser*, July 28, 1773; *The Pennsylvania Gazette*, August 11, 1773).
Pemberton evidently did not receive any suitable responses to this initial sale notice for his Trenton properties and, over the next few years, he continued to seek potential buyers. In October of 1774 he again offered “One half of the steel furnace at Trenton, built of stone, and in good order” and the adjoining “frame building” (now apparently completed) for sale (The Pennsylvania Gazette, October 19, 1774). In January of 1775 he offered some new products (“tanners shav- ing knives” and “cogs for wheat fans”) along with the more familiar items, while still seeking to attract interest in a share of the “substantial stone” furnace (Dunlap’s Pennsylvania Packet, January 2, 1775). In February Pemberton again advertised one half of the steel furnace for sale (The Pennsylvania Gazette, February 8, 1775), but it seems likely that the uncertain financial atmosphere of the mid-1770s continued to deter prospective purchasers (Boyer 1931:230).

Production may also have been limited during this period of reduced business activity, for the above advertisement of January 2, 1775 appears to be the last to offer Trenton steel products for sale in Philadelphia. Pemberton’s attempts to sell the property continued, however, and in March of 1776 he once more offered “one half of a steel furnace at Trenton built of stone and in good order” as available for purchase, subject to a lease that provided for its operation that had nine months to run (The Pennsylvania Journal, March 15, 1776). No documents have been found to throw light on the identity of the leaseholder, but this time around Pemberton’s efforts to sell seem to have finally borne fruit (Table 4.2). At some point between March and November of 1776 Stephen Sewell, another Philadelphia merchant, apparently became a part-owner of the steel furnace, for on November 27, with the lease nearly expired, an advertisement appeared in The Pennsylvania Journal and Weekly Advertiser in which Pemberton and Sewell, both of Philadelphia, together offered the “STEEL-FURNACE at Trentown, being a substantial stone building” for sale or lease. The posting of this particular advertisement was almost certainly dictated by the mounting tension of the Revolutionary War. The chaos brought by impending military conflict had by this time reached the Delaware Valley and Trenton was within days of being occupied by British and Hessian forces. For Pemberton and Sewell this advertisement likely represented a last-ditch attempt on their part to dispose of an industrial property that was almost certain to be a target of military interest both to patriots and Loyalists.

3. The Trenton Steel Works during and after the Revolutionary War, 1776-89

The history of the Trenton Steel Works during and immediately following the American Revolution is obscure and exceedingly difficult to disentangle. Early on, in the spring of 1776, the furnace was in operation, producing steel for the Continental Army, despite the fact that the ownership at the time was in the hands of John Pemberton, an avowed Quaker and pacifist who was later “exiled” to Virginia in September, 1777, for his perceived Loyalist sympathies. From late 1776 until 1781, there is no clear indication that the steel works was ever functional. Stacy Potts, writing to John Pemberton in the spring of the latter year, expressed concern “that the Steel Furnace should continue so long useless,” implying that it had lain dormant for an extended period. At this point, the steel works re-emerges in the historical record with Potts as the central figure in its brief and ill-fated revival as a facility seeking to take on U.S. government military contracts. Stacy Potts and his firm Potts & Downing operated the steel furnace with no small amount of difficulty from mid-1781 through at least late 1783, and possibly into 1784, before the bottom fell out of the post-war market for domestic steel. The steel works and Potts & Downing then collapsed beneath the cumulative weight of mounting debts and lawsuits, which ultimately brought Stacy Potts to the brink of personal ruin in the late 1780s.
The war involvement of the Trenton Steel Works roughly paralleled that of the nearby Yard plating mill in the late winter and early spring of 1776. On February 10, 1776 Major General Philip Schuyler, commanding officer of the Northern Department of the Continental Army in Albany, wrote to John Hancock, President of the Continental Congress in Philadelphia, expressing the following concern: “We are greatly at a loss for steel; not an ounce is to be had here” (Force 1837-53:4th Series, Volume 4:990). Schuyler’s letter was read before Congress on February 21 and referred to a committee, which reported to Congress a week later and led to the following Congressional resolution on February 28 directing the New Jersey delegates to supply steel to the army in Albany:

The committee to whom the letters from general Schuyler dated 10th & 13 of this instant February and the papers therein mentioned were referred brought in their report which was taken into consideration thereupon – Resolved, that a sufficient quantity of steel be sent to general Schuyler or the commanding officer at Albany, for the armourers and the blacksmith, who is appointed to go & work for the indians; and that the delegates for New Jersey be desired to produce and forward the same [Papers of Continental Congress, Transcript Journals, 1775-79, September 5, 1775-May 14, 1776 [Vol. 3]:326-327].

That the Trenton Steel Works satisfied this order is witnessed in a cover letter sent a few days later from Governor William Livingston in Philadelphia to Schuyler in Albany:

Phil. 9 March 1776

Sir,

This will accompany 1000 pounds of Steel from Trenton which you desired Congress to order to you as the Commander in Chief at New York for the use of the Blacksmith & Armourers who are to go into the Indian Country. I am Sir your most obedient Servant

WIL: LIVINGSTON (Prince 1979:42)

Subsequent correspondence, later in March, between Livingston and Brigadier General Lord Stirling, and between Stirling and Schuyler, may relate to the same batch of steel dispatched from Trenton to Albany (or to a different batch altogether). Evidently, on March 19, 1776, Stirling received a shipment of steel from Livingston, presumably from Trenton; on the following day, Stirling wrote to Schuyler telling him that the steel would be sent on to him by ship, presumably up the Hudson River (Prince 1979:42, note 2).

The production of steel by the Trenton Steel Works for the Continental Army in March of 1776 raises some interesting questions. To what extent was John Pemberton, as the owner of the furnace, Quaker pacifist and Loyalist sympathizer, knowledgeable and supportive of this action? Again, who exactly was making the steel at the site at this time? Was Benjamin Yard involved, or John Fitch, or was someone else still unknown to us putting the furnace into blast? Who received compensation for producing the steel? These all remain open questions. It is worthy of note that the March 9 shipment amounted to 1,000 pounds, or half a ton, which represented a quarter of what was being produced every two weeks in the mid-1760s. This might imply that other shipments were also being delivered to the American forces or being sold on the open market. The exact route by which the steel was shipped out of Trenton is unclear. The fact that it seems to have been transported to Albany with Lord Stirling’s help suggests that it was hauled overland through central New Jersey to New Brunswick, or Perth Amboy, or some location on the Lower Hudson, from whence it was moved upriver.

No further mention of Trenton-made steel has been found in the archival record later in 1776, or in 1777. As noted earlier, the neighboring plating mill of Benjamin Yard was engaged in the manufacture of small arms during the spring, summer and fall of 1776, and the steel works may have played a supporting role in this activity. However, the fate of the steel
works in the days leading up to and during the Battles of Trenton on December 26, 1776 and January 2, 1777 remains unclear, although it seems unlikely that any type of normal production would have taken place during this period. Pemberton and Sewell’s attempt to sell the furnace property in late November of 1776 may perhaps be taken as an indication that the facility lay dormant at this time of intense uncertainty in the immediate Trenton area.

Similarly, in 1777, no evidence has been found for the steel furnace being in operation. There is no mention of the steel works in the correspondence of September of this year that shows the plating mill being disabled by American forces. This perhaps implies that the furnace was idle and out of use. Pemberton and Sewell retained their ownership of the site during this time, having failed to find any buyers, while in Pemberton’s case he had his mind on other more pressing matters.

By September 9, 1777, as reported in The Pennsylvania Gazette, John Pemberton, along with other suspected Loyalist sympathizers, including his brother James, had been apprehended in Philadelphia at the behest of Congress by the Supreme Executive Council of the Commonwealth of Pennsylvania. This group of prominent Philadelphia Quakers was characterized as:

… persons who have uniformly manifested by their general conduct and conversation a disposition highly inimical to the cause of America, [and were] imprisoned in the Free Mason Lodge in this city, they refusing to confine themselves to their several dwellings, and thereby making the restraint of their persons, in another manner, necessary, and having refused to promise to refrain from corresponding with the enemy, and also declined giving any assurance of allegiance to this State, as of right they ought, do thereby renounce all the priviledges of citizenship, and that it appears they consider themselves as subjects of the King of Great Britain, the enemy of this and the United States of America, and that they ought to be proceeded with accordingly (The Pennsylvania Gazette, September 9, 1777).

The Council, for which Timothy Matlack served as Secretary, further resolved that the imprisoned Loyalist sympathizers “be without further delay removed to Staunton in Virginia, there to be treated according to their character and stations, as far as may be consistent with the securing of their persons.” The Pemberton brothers, and several other conservative Philadelphia Quakers, including members of the Zane family, were thus forcibly transported to the Shenandoah Valley shortly before the British capture of Philadelphia. For almost eight months John Pemberton was confined in Winchester, Virginia until he was released on April 21, 1778 and thereupon returned to what was by then British-held Philadelphia. Within a couple of months, however, on June 18, Philadelphia was abandoned by the British and the city fell again within the orbit of the American Revolutionary cause. Little is known about Pemberton’s activities following his return to Philadelphia, but one assumes he attempted to settle back in to his earlier life as a merchant/entrepreneur and leader of the Quaker community (Prince and Ryan 1980:62-63, note 2; 404, note 5; 568).

In March of 1781, John Pemberton began a protracted correspondence with Stacy Potts concerning the steel furnace in Trenton. For the five preceding years, there are no clues in the documentary record as to the fate of the steel works. In the absence of information demonstrating that the facility was in production, it is thought that it probably lay idle for most, if not all, of this period, thus causing Potts to remark in his letter of March 16, 1781 to Pemberton that the furnace had continued “so long useless” (Pemberton Papers, Letter from Stacy Potts et al. to John Pemberton, Vol. 35:103).

In the timeline of the Trenton Steel Works, the early spring of 1781 brings to the fore the fascinating figure of Stacy Potts. Born in 1731 at White Hill (later Fieldsboro) in Mansfield Township, Burlington County, Stacy was the eldest child of Thomas and Sarah Beakes Potts. His father and the Beakes fam-
ily were both active in the colonial leather industry, and as a young man Stacy Potts was trained in this business in a Trenton tanyard owned by the Beakeses. He eventually purchased this tannery and built a second one nearby (both were located along Petty’s Run upstream of the plating mill/steel furnace site), and these enabled him to establish himself as one of Trenton’s pre-eminent entrepreneurs by the 1770s. Potts resided on King (North Warren) Street in the center of town in a large, two-story frame house that still stood in a somewhat dilapidated condition in the later 19th century (Photograph 4.1). Colonel Johann Rall used this dwelling as his headquarters during the Hessian occupation of Trenton in December of 1776. It was here that Rall died from wounds suffered in the Battle of Trenton (Figure 4.7). In 1778 Potts expanded his industrial enterprises in Trenton by partnering with Philadelphia papermaker John Reynolds in the construction of a paper mill at the mouth of Assunpink Creek. This facility, the first of its type in Trenton, continued in operation into the late 1780s and was notable for supplying paper to the well-known printer and editor, Isaac Collins, publisher of New Jersey’s first newspaper, the New Jersey Gazette.

At the age of 50, Stacy Potts was an established and respected member of Trenton society, a successful Quaker businessman and merchant who had up to this point managed to weather the exigencies of the American Revolution without undue loss of property and wealth. With regard to his wartime inclinations, he was not obviously partisan: although he is generally held to have been sympathetic to the movement toward independence, he was also fined £100 on October 31, 1777 for refusing to take the oath of allegiance to the American cause. Potts appears to have occupied that awkward zone of Quaker ambivalence somewhere between the active patriotism of Timothy Matlack and Owen Biddle and the conscientious objection and Loyalist-leaning pacifism of John Pemberton. By 1781 he was more clearly aligned with the American side, but his involvement with the steel works in the final stages of the Revolutionary War and the financially unstable early years of the republic almost proved his undoing (Potts 1860:4-6; Stryker 1893:9; Potts 1901:146, 160; Trenton Historical Society 1929:139; Rockefeller 1953:24-31; Hixson 1968; Stracke 1980:86-88).

In the early months of 1781 Stacy Potts began to take a strong interest in the steel furnace property and to seriously contemplate its purchase. This interest probably stemmed in part from his owning a pair of tanneries on Petty’s Run upstream of the steel works as well as the paper mill that was situated downstream at the confluence of Petty’s Run and Assunpink Creek. Acquiring the steel furnace property would help him consolidate his control over a critical stretch of the Petty’s Run stream corridor and its future industrial development. Initially, it seems that Potts had no particular intention of reviving the dormant steel works, but this may always have been in the back of his mind. For Potts the businessman, the steel works likely represented a tantalizing investment opportunity, although the market for steel, especially in the private sector, was quite limited. On the other hand, the U.S. government, with a war still in progress and gradually turning in its favor, was becoming increasingly well organized in its management of weapons production and had a growing need for steel. In 1780-81, the War Department, or more specifically the military stores bureaucracy under the leadership of the Assistant Commissary General of Military Stores, Samuel Hodgdon, established a system of arsenals and workshops in the Middle Atlantic and New England states which drew extensively on private manufacturers for their supplies of iron and steel (Smith 2008). It was the prospect of manufacturing and marketing steel for this budding military industrial complex that ultimately lured Stacy Potts into reactivating the Trenton Steel Works.
Figure 4.7. The Death of Colonel Johann Rall at Stacy Potts’ House on King Street (modern North Warren Street) following the First Battle of Trenton on December 26, 1776. This engraving copied “a picture by Flagg, in the possession of Joseph C. Potts, Esq. of Trenton. On the right [original text has ‘left’] is seen Generals Washington and Greene; in the center is Mrs. Potts, and near her stands her husband. On the left Colonel Rall reclines upon a couch, and behind him, supporting his pillow, is his servant.” Source: Lossing 1850.
Photograph 4.1. Stacy Potts’ House on King Street (modern North Warren Street) in the mid-19th century. The house was demolished in 1857. Source: Trentoniana Collection, Trenton Public Library; Podmore 1964.
However, satisfying the American military’s growing need for both iron and steel was a challenging task and the Trenton Steel Works entered in 1781 into a realm of economic and industrial activity beset with pitfalls and risk. Uneven supply of raw and semi-processed materials, a small number of operating manufactories, and, in the case of steel, limited technological know-how all combined with the threat of armed conflict, an uncertain market and some awkward business relationships between the military bureaucrats, merchants and iron and steel masters to create an atmosphere of considerable confusion.

In the Middle Atlantic states, the abundant, low-phosphorus magnetite ores of northern New Jersey were the preferred source of iron for iron and steelmaking. The premier supplier of pig iron cast from this material was the Andover furnace in the remote upper reaches of the Pequest River in Sussex County. Andover pig metal lay at the heart of the American iron and steel industry throughout the Revolutionary War years, but its production was initially problematic. At the outset of the war, the Andover mines and furnace were held by the ardent Loyalists William Allen and Joseph Turner, who refused to produce pig iron for the patriot cause. The state authorities closed the works, but by early 1778 the military’s need for the iron was so great that Congress directed Colonel Benjamin Flower, the Commissary General of Military Stores, to take over the site and put the furnace back into blast. Flower retained Colonel Thomas Maybury and James Morgan to operate the furnace, and for much of 1778 and 1779 the site churned out substantial quantities of pig iron that were then shipped out to forges in the region for further processing into bar iron and steel, or to secondary furnaces and shops for casting into shot and shell and other military items. Much of the bar iron production took place locally, notably at water-powered forges along the Musconetcong River and other tributaries of the Delaware, while bars (and occasionally even pigs) were shipped further afield to the far less numerous and more widely dispersed steel furnaces (Boyer 1931:28-30; Smith 2008:194-195).

The American military’s conversion of Andover pig metal to bar iron (a necessary step before steel could be fashioned through the cementation process) was undertaken by a handful of private contractors whose production was orchestrated by the Military Stores Department. By 1780, two northern New Jersey iron masters in particular were engaged in this business for the government. One was George Ross at Bloomsbury forge (also known as Johnston’s forge) on the Musconetcong, who, for example, contracted with Benjamin Flower on May 31, 1780 to convert 50 tons of pig metal into bar iron at the rate of four tons of pig to one ton of bar. The other individual, soon to become a key figure in the Trenton Steel Works story, was Colonel Mark Thom[p]son, the owner of Changewater forge, also located on the Musconetcong a few miles upstream from Bloomsbury and closer to Andover (Miscellaneous Numbered Records, MS 28626:8; Boyer 1931:52-54, 104).

Thomson, sometime prior to May 1780, contracted with the U.S. government to convert 17.5 tons of Andover pig iron to five tons of bar iron (at the slightly “higher” rate of 3.5 tons of pig to one ton of bar). This contract appears to have been linked to the supply of bar iron to the Philadelphia steelmaker Whitehead Humphreys, with Humphreys also possibly playing a role in the initial pig metal production at Andover. Correspondence from Samuel Hodgdon, the Assistant Commissary General of Military Stores (by this time Hodgdon had assumed most of Benjamin Flower’s responsibilities) concerning Thomson’s contract highlights the difficulties the government was having in delivering the necessary raw materials and, most especially, receiving the finished product. Reading between the lines of Hodgdon’s several letters between May of 1780 and February of 1781, one can sense his growing frustration at Thomson’s
non-performance and the paucity of reliable information about the quantities and location of the various batches of pig iron and bar iron. One also suspects that Thomson may have been selling on the open market bar iron that was supposedly being made for U.S. military consumption. In Thomson’s defense, he was being paid by Hodgdon for the most part with more pig iron, hardly the most enticing form of compensation if cash payment could be found elsewhere (Numbered Record Books, Supply Records, LSH Officer in CGMSD 110:10, 56-58, 177-178; 92:21-22).

So far as filling the American military’s steel requirements were concerned, two main private manufacturers appear to have been active in the 1780-81 period before Stacy Potts appeared on the scene with his Trenton venture. The aforementioned Whitehead Humphreys in Philadelphia was a well-known steelmaker who had established a furnace in 1762 on 7th Street between Market and Chestnut Streets. In the early 1770s he received the backing of the Provincial Assembly in the form of a £100 appropriation and a lottery, specifically to support his manufacturing operations. The fate of his furnace during the British occupation of Philadelphia in 1777-78 is unclear, but not long after Humphreys was actively producing steel for the American cause. On April 13, 1780, for example, the Military Stores Department released six tons of Andover bar iron to Humphreys for conversion into steel. A receipt of June 3, 1780 further documents Humphreys receiving another 267 bars of Andover iron for the same purpose. At least some, if not most, of this bar iron was probably made either by George Ross at Bloomsbury forge or by Mark Thomson at Changewater forge. Humphreys served in the Pennsylvania Assembly during the war years and was considered a political conservative, a reputation reinforced by his engaging in a public fistfight with the activist Free Quaker Timothy Matlack on New Year’s Day, 1781. He continued in the business of steel manufacture after the war and was granted a loan by the Pennsylvania Assembly for that purpose in 1786 (Numbered Record Books, Supply Records, Military Stores Received and Delivered at Philadelphia, Journal of Military Stores, March 1780-March 1781, 133:47; Miscellaneous Numbered Records MS 20828; Swank 1884:382; Bining 1938:55, 103, 158, 180).

The second steelmaker under contract to the U.S. government in 1780-81 was arguably even better known than Humphreys. This was Thomas Potts (probably related, although not closely, to Stacy Potts), a leading member in the extended and prolific Potts family that was so instrumental in making the Schuylkill Valley a center of iron and steel production in the later colonial period. Thomas Potts (1735-85) was the son of John and Ruth Potts and a grandson of Thomas Potts, Jr., one of the founders of the Colebrookdale Furnace in Berks County and several other Schuylkill Valley ironworking sites. The younger Thomas Potts was born at Colebrookdale but for most of his life was closely identified with the ironworks at Coventry on French Creek in Chester County, as well as maintaining a residence in Philadelphia and living part of the time at Pottsgrove. He was a committed patriot, raised a battalion for the Continental Army in Berks and Chester Counties, and attained the rank of Colonel. He also served in the Pennsylvania Assembly, was a member of the American Philosophical Society and is claimed to have been the first person to discover coal in Pennsylvania, an event that occurred in the Tuscarora Mountains in 1783-84 (James 1874:122-149).

A steel furnace was first erected at the Coventry ironworks in 1732 by Samuel Nutt, Sr. This facility appears to have been superseded on or close to the same site by the Vincent forge and steel furnace, established by Thomas Potts and Company in 1762. Much like the Philadelphia owners of the Trenton Steel Works, Potts advertised his steel as “cheaper than English steel” and gave the purchasers the option to try it out before buying it. This steel works continued in operation through the Revolutionary
War and figures prominently in contracts with the Military Stores Department, beginning in the spring of 1780. On April 5, 1780 Thomas Potts contracted with Benjamin Flower to convert six tons of pig iron into one ton of steel at his forge and furnace in Coventry, with Flower retaining an option to buy an additional two tons of steel at the high rate of £4,500 a ton (reflecting both high wartime inflation and the high demand for this scarce prized material). This initial transaction was presumably successful, since, between April and mid-December 1780, Thomas Potts received 31 more shipments of Andover pig iron totaling 62 tons and 12 cwt, all for conversion into blister steel at the 6:1 ratio by weight.

Delivery of steel to the government was slow, however, and on March 27, 1782, Samuel Hodgdon wrote to Potts expressing surprise at having received so little steel and asking for at least one ton immediately, along with a report on the status of his account. Ultimately, between May 22, 1780 and May 20, 1785, Potts only turned over seven shipments of steel totaling 3 tons, 4 cwt, 2 qtrs and 16 lbs, and according to a post-war accounting of his wartime steel production completed by Hodgdon in March 1788 in connection with the settlement of the Thomas Potts’s estate, it appears that Potts never fully delivered on his obligations to the government. In this latter reckoning, taking into account the 7 tons 4 cwt and 2½ lbs of steel still owed (at a value of £73.15s.4d per ton) plus seven years and two months of interest, Hodgdon calculated that the Potts estate owed the government a sum of £759.12s (Miscellaneous Numbered Records MS 20467, MS 21467, MS 26761; Bining 1938:158, 187-188; Smith 2008:248-250).

As was the case with Mark Thomson’s bar iron production, Thomas Potts’s non-delivery on his military steel contract can almost certainly be linked to the government’s preference for paying for goods and services with materials rather than with cash. Again, one suspects that Potts may actually have manufactured more steel from the government-supplied Andover iron than was turned over to Hodgdon’s department and that this was instead sold on the open market. Alternatively, Potts may have used the pig metal in fulfilling some of his other government contracts, such as those involving the casting of shot and shell, or he may have converted it to bar iron that was then sold or put to other use. Finally, another important factor to be considered here is the selling price of steel which reached a peak in 1780-81 when the U.S. military was experiencing an acute shortage of this material at a time when it was trying to build up its stocks of war materiel. Under these circumstances, the few steelmakers in operation were able to command exceptionally high prices for their product. Following the British surrender at Yorktown in the fall of 1781 and the subsequent easing of armament production, the price of steel dropped precipitously and steel manufacturers had little incentive to fulfill their military contracts (Smith 2008:103-106, 248-254).

Returning to Stacy Potts and his interaction with John Pemberton over the Trenton Steel Works property in the late winter and early spring of 1781: based on what was happening elsewhere in the Delaware Valley, it would seem that Potts was coming into the steelmaking game a little late. Both Whitehead Humphreys and Thomas Potts were already established players in this high-risk business and one wonders how viable the reactivation of the Trenton Steel Works really was. For instance, the Trenton site would need to re-establish old or develop new relationships with suppliers of bar iron, a line of manufacturing that, judging by Mark Thomson’s experience, had its own set of problems. On the other hand, the military’s need for both bar iron and steel was extreme and there was a considerable surplus of pig metal at the Andover furnace; all that was required were reliable forges and steel furnaces to do the processing. It was this glimmer of opportunity upon which Stacy Potts sought to capitalize.
And so it was that Potts in, March of 1781, wrote to Pemberton making the case for his purchase of “the Steel Furnace” and a “small House near it” (the frame dwelling on an adjoining lot referred to in sale advertisements of 1773-74):

Esteemed Friend

It is something strange that John Livesey should pretend to purchase the Steel Furnace or the small house near it, as he is not a Person likely to pay either purchase Money or Rent, altho’ it was kind enough in him to inform thee of James Graham’s Death.

Joseph Britton is a sober Orderly Man, and I think might be depended on, altho’ I believe it would be difficult for him to procure the Money that would answer thy purpose at this time.

I have often been concerned on thy Account, that the Steel Furnace should continue so long useless, and think, that if it be not likely to be Occupied for that purpose, it would be better converted to some other, and in that case, there might be no inconvenience in selling the small House separate; but if there is any prospect of parting with it to any person who will carry on the Steel Making Business, I do conceive it would be a disadvantage to part them.

As I am on the spot, and consequently could make us of it to greater Advantage than thou can, at that distance, were it not for the great difficulty of procuring hard cash at this time, I should be induced to propose purchasing myself, tho’ the extraordinary sum given for the Lott, in consideration of the foundation for the Steel Furnace, which is not of any advantage for my purpose, is a discouragement, however, there can be no inconvenience in knowing thy Terms, therefore if thou will inform me what thou art willing to take, I will consider whether it would answer to convert it into a dwelling house, which would not very inconvenient for the People who work at my Paper Mill, and James Graham’s widow removes out of it, I would willingly Rent it of thee for one of my workmen.

With sincere Respect, I am thy Affectionate friend

Stacy Potts

Trenton 3d Mo. 16th. 1781

(Pemberton Papers, Letter from Stacy Potts to John Pemberton, Vol. 35:103)

At this time, it does not appear that Potts had any particular interest in reviving the steel works. It is notable that he and the other prospective buyers he mentions (both Trentonians) were all laboring under a shortage of “hard cash,” yet Potts clearly considered himself to be better equipped financially than the other prospective buyers to take over the site. He seems mostly intent on getting Pemberton to reduce the asking price for the property, chiefly on the grounds that it would not be “of any advantage for my purpose” of refitting the furnace house for residential use. The recently deceased James Graham, incidentally, who had been living in the nearby frame dwelling, may well have once worked at the steel works.

Less than two months later, Potts’s tune had changed. He wrote to Pemberton on May 2, and again on May 15, reiterating his interest in the buying the furnace property, but by this time he had changed his plans and decided he was interested in using the site for steelmaking rather than as housing for his paper mill workers. In the second of these two communications he admitted to Pemberton that he was not “acquainted with making Steel” and asked that he be permitted to make a trial blast prior to concluding his purchase of the property. If this test was unsatisfactory Potts indicated that he would still be interested in renting the premises, and he reported that he had already concluded a rental agreement with Stephen Sewell, Pemberton’s partner. Pemberton wrote back informing Potts that he had no interest in any form of rental agreement, and that he was committed to the sale of his share of the property. He noted that he had gained little profit from the furnace over the last few years, and he suggested that if Potts continued to delay, he would start advertizing again for potential buyers (Pemberton Papers, Letters from Stacy Potts to John Pemberton, Vol. 35:124 and 131).
Potts replied on June 5, 1781:

Esteemed Friend

Trenton 6th. Mo. 5th. 1781

I acknowledge that I knew very well that thou wanted to dispose of thy Interest in this Town, having advertised it several years past, and that it had not been in a situation to yield thee any profit since, and perhaps might not for as many years to come; I saw with regret and concern the Estate of one whom I much esteem’d lay wast and useless, yet as I had rather too many Engagements on my hands already, could not think of entering with others of which I was but little acquainted, but when thou wrote for my Opinion concerning the application of John Livesey, I gave it freely, and thought it might be better to convert the old Furnace into a Dwelling House than let it remain in that ruinous condition, but when I received thy Answer with the price, I thought more seriously of the Steel Making Business than I had done before, and concluded that if I could procure some knowledge of the practical part of the Art, it might suit me to carry it on, being on the spot, better than either of the Owners who were at such a distance, and as I concluded thou was not likely to leave this country very suddenly, there could be no injury in making the experiment, and from the opinion I had ever entertained of thee, could not imagine thou had the most distant desire to remove a useless Burthen from thy own shoulders on mine, and if it would answer my purpose, would not be either useless or Burthensome.

I have made some preparations for carrying it on, and have yet no reason to doubt but it may turn out agreeable to my expectations, and therefore could have desire of giving up the bargain, but if thou art of Opinion, that thou can dispose of them to more Advantage by Advertising, I have no objections, for I may assure thee, that the desire of serving thee was as much the Motive which induced me to engage in this Business as any expectation of Advantage I had for myself and therefore I hope, on further reflection, thou will not disapprove of the part I have taken, but believe me sincerely thy friend

Stacy Potts

(Pemberton Papers, Letter from Stacy Potts to John Pemberton, Vol. 35:142)

Thus, between mid-March and mid-May of 1781, Stacy Potts took the first critical steps toward getting involved in steelmaking and by early June was on the brink of putting the furnace back into blast on an experimental basis. From later correspondence between Potts and Pemberton it is possible to infer that around this same time the two of them reached agreement on a sale price for Pemberton’s half share of the property, although a deed of transfer was not concluded until much later (see below). Pemberton allowed Potts to take possession of the property and begin making steel and he agreed to sell his half share of the furnace lot (with the small house) to Potts for £190, with payment to be made in installments.

Within a matter of weeks, probably during June, the trial blast went ahead and successfully produced steel. By mid-July a newly created partnership, Potts & Downing, had secured what must have appeared to be a potentially lucrative contract with the government to make steel for the Military Stores Department. These must have been heady days for Stacy Potts. One can only imagine the flurry of activity that occurred at the steel works site in May, June and July of 1781. The furnace must have been entirely re-lined or perhaps even rebuilt at this time; sufficient quantities of bar iron, charcoal and wood fuel must have been brought in to the site; expert assistance must have been retained in putting the furnace into blast and making blister steel using the cementation process; and Potts himself must have been extraordinarily busy, negotiating with Pemberton, laying the groundwork for the creation of the firm of Potts & Downing, and locking in the contract with Samuel Hodgdon to produce steel for the military …. and all this was apparently achieved with little or no money changing hands. What was it that caused Potts to change his mind about the furnace property and embark upon the risky business of steelmaking? It seems that it was a combination of the high sale price of steel on the open market (around £100 a ton) and the prospect of large orders from the U.S. government, probably helped
along by Potts interacting with merchant, metalworking and military colleagues in Philadelphia and seeing a business opportunity too good to be missed.

Contracting with the military certainly played an important, if not the principal, role in Stacy Potts’s revival of the steel works. On July 12, 1781 Potts & Downing signed an agreement with Assistant Commissary General of Military Stores Samuel Hodgdon to make the “best kind of American Blistered Steel” from the surplus stocks of Andover pig metal stored in Easton and other locations upstream in the Delaware Valley (Appendix B.3). The rate of conversion was stipulated as being one ton of steel for seven tons of pig metal. The agreement acknowledged that Potts & Downing in Trenton have recently “completed Furnaces at that place, for the purpose of converting Iron into Steel” and envisaged that the pigs would be “Transported at the expense of the United States to the Forges where they are to be drawn, & the Bars of Iron when drawn [will be transported] to the landing near the works at Trenton” where they will be converted to steel. Potts & Downing were to bear the cost of transporting the finished product to the Military Stores Department in Philadelphia, but if the steel was to be shipped elsewhere from Trenton by order of the government, then the government or other recipient contractors would pay the transportation costs.

Included as an addendum to this agreement was a requirement that “all the Iron drawn by Colonel Mark Thomson for the public and now in his possession, shall be converted into Steel, at the said Trenton Furnaces, under the same regulations as the former Contract, at the rate of two Tons of Bar Iron for one ton of Blistered Steel.” This condition presumably has its roots in the orders for bar iron that Hodgdon had placed with Thomson more than a year previously and was having such difficulty getting delivered. The singling out of Thomson as a separate bar iron supplier at the end of the agreement may be taken as an indication that other forges downstream of Easton (but not Thomson’s Changewater forge) were viewed by Hodgdon as the subject of the pig metal-to-bar iron conversion mentioned in the main body of the document. Among these latter forges, one was almost certain to have been Durham; others may have been the facilities at the downstream end of the Musconetcong Valley, namely Chelsea, Greenwich and Bloomsbury forges, the first and last of which had involvement with George Ross, who like Thomson had been under contract to Hodgdon as a bar iron supplier since the previous year.

From the conversion rates quoted in the agreement, it is clear that seven tons of pig iron processed in the upriver forges were expected to produce two tons of bar iron (i.e., a rate of 3.5 tons of pig metal to one ton of bar iron), which in turn were expected to produce one ton of steel. It is interesting to note here that, by this date, Hodgdon was quite specific about wanting the pig metal to be processed into bar iron at the upriver forges, close to the Andover source location. This is in contrast to the previous year when he was prepared to ship large quantities of pig metal from the Andover area to Thomas Potts’s Coventry works in the Schuylkill Valley where both bar iron and steel were being produced. Evidently Hodgdon was gaining a keener appreciation over the course of 1780-81 of the cost and difficulty of transporting bulk metals. In Trenton’s case, there were in fact no suitable forges where pigs could be converted into bars, Benjamin Yard’s facility by this time having been abandoned.

With regard to compensation, Hodgdon’s contract states that “Potts & Dow[n]ing for themselves & Owners of the Works agrees to receive that quantity [seven tons of pig metal] as a full compensation for each ton of Steel manufactured by them.” Presumably, to get the ball rolling, the government advanced Potts & Downing the initial consignment of pig iron from their stockpile in Easton, dispatched this to upriver forges for conversion to bar iron and then sent this on to Trenton, and the delivery of steel to
Philadelphia was intended stimulate further supplies of pig metal/bar iron. Since no actual money changed hands under this agreement Potts & Downing must have been banking on making enough other steel for cash sale on the open market to stay in business, or perhaps thought they could improve on the 2:1 bar iron:steel production ratio to provide some surplus steel they could sell privately. As time would soon tell, however, the agreement proved unworkable and the Trenton Steel Works was in a constant state of struggling to stay afloat.

On the same day that Samuel Hodgdon entered into the agreement with Potts & Downing for the production of steel in Trenton (July 12, 1781), he wrote to Colonel Jacob Weiss, Deputy Quartermaster General, based in Easton, explaining the details of the Potts & Downing contract and asking him to expedite the shipment of pig iron to the nearby forges for processing into bar iron. He also asked Weiss to then assist in forwarding the bar iron to Trenton, and to have processed into bar iron and delivered to Trenton any pig metal “the property of the Public” that might still be in the hands of Mark Thomson at Changewater forge. Hodgdon further requested that Weiss “accurately determine the weight of every load of metal sent to the forges, as your account of delivery will be receiv’d and admitted by all parties, upon final settlement. also the weight of Iron you forward from Col’ Thompsons forge for the same purpose.” Finally, again on the same day, Hodgdon dispatched a curt note to Thomson: “You will please to deliver, all the Iron you have on hand drawn from the Andover Pigs, belonging to the United States to Col’ Weiss DQMGen³ to be by him forwarded to Trentown. & his Receipt shall be a sufficient Voucher for the Quantity deliver’d upon final settlement of the account between you & the Public” (Numbered Record Books, Supply Records, LSH Officer in CGMSD 92:88-89). From these communications, it is clear that stocks of steel were running low in the Military Stores Department in Philadelphia, that Hodgdon was looking to contain the expense of replenishing them, and that he was looking to terminate any involvement he had with Thomson and hoped for better success with Potts & Downing.

It is not known exactly when the Potts & Downing partnership was established, but this probably took place sometime between mid-May and early July 1781. The Potts & Downing entity was set up to own and operate the steel works; it did not own the furnace property, which at this time still remained in the hands of John Pemberton and Stephen Sewell. Potts & Downing are believed to have made use of the steel furnace lot and the adjoining house lot through some form of lease arrangement with the landowners, pending Potts’s purchase of Pemberton’s, and perhaps also Sewell’s, share in the property (although no document has so far been found to confirm this).

Stacy Potts was certainly the dominant figure in the firm of Potts & Downing. Samuel Downing was another, much less prominent merchant in Trenton, a friend and colleague of Potts. In the Trenton Township tax ratable assessments for August and September of 1779, for example, Downing is recorded as a merchant and single man with a horse who owned a quarter acre of improved land. Potts, in contrast, was a householder who owned 20 acres of improved land, 20 acres of unimproved land, a tanyard, two horses, five horned cattle and a riding chair (he also had £3,000 “money at interest” and was the third highest taxed individual in the township after Charles Pettit and Abraham Hunt). Downing appears infrequently in the documentary record, mostly in the 1780s as a party to minor real estate transactions, as an advertiser in the New Jersey Gazette, and as a plaintiff or defendant in court cases, several of which concerned Potts & Downing. In 1785, he advertised his services as a tailor working out of his house. He seems to have taken no active part in the actual manufacture of steel and his involvement was probably mostly as an inves-
tor, perhaps extending also into the marketing of the steel works’ products (Trenton Township Tax Ratable Assessments 1779; Wilson 1988:47-48, 78).

In the initial formation of Potts & Downing the two principals each contributed £150 to capitalize the firm. Some, if not most, of these funds probably went toward rebuilding the furnace, procuring supplies and perhaps paying for steelmaking expertise. However, Stacy Potts and Samuel Downing had insufficient financial means to properly support the early growth of the business. At some point, probably in the late spring or summer of 1781, the firm forged a connection with John Nancarrow, a Philadelphia steel master, and took him in as a business partner, apparently with the expectation that he would contribute £300 to the venture. In fact, Nancarrow, for other reasons, was almost certainly an important factor in setting up the Potts & Downing operation in the spring of 1781: he was likely the source of the steelmaking expertise necessary in establishing the business.

John Nancarrow (circa 1734-1801) is a fascinating and somewhat contrary character whose behavior in 1781-82 proved to have a profound effect on the fortunes of the steel works in Trenton. Born in St. Agnes, Cornwall, England, he was the son of John Nancarrow, Sr., a well-known mechanic and engine builder who was a contemporary and colleague of Thomas Newcomen. The elder Nancarrow and Newcomen were both instrumental in the early development of steam engines which they used successfully for pumping water from mine shafts. John Nancarrow, Jr. emigrated from Marazion, Cornwall to Philadelphia in 1774 and by the fall of the following year, as revealed in a contemporary newspaper advertisement, he had established himself as a steelmaker: “AMERICAN STEEL, To be had at the House of JEREMIAH WARDER, and SONS, EQUAL in Quality to the best English steel, made by J. Nancarrow, Steel maker from England. N.B. They have also for Sale, T. Crowley Steel, No. 3” (The Pennsylvania Gazette, October 4, 1775) (Cornwall Record Office ST/66, ST/67; Rolt and Allen 1977; Jeffery 1985).

Which furnace John Nancarrow was working at in Philadelphia is not entirely certain, but it was most likely the steel works located at the corner of 8th and Walnut Streets, a facility originally founded in 1747 by Stephen Paschall. As indicated by an advertisement in The Pennsylvania Gazette on March 24, 1779, Nancarrow was later connected with this manufacturing site and it is reasonable to assume he had a longstanding relationship there (Scharf and Westcott 1884:218, 2250-2251). The reference to “T. Crowley Steel, No. 3” in the advertisement of 1775 is noteworthy as it appears to reflect the importing of blister steel into Philadelphia from the Crowley works in the Derwent Valley in northeastern England, an internationally known hub of steel production using the cementation process. “T. Crowley” refers to Theodosia Crowley, widow of John Crowley, who controlled the Crowley industrial empire from the time of her husband’s death in 1728 until their elder son came of age in 1739, and then again from her youngest son’s death in 1755 until her own death in 1782 (David Cranstone, personal communication, August 29, 2012). Where Nancarrow acquired his steelmaking skills (in England before he emigrated, or in Philadelphia), and whether he was connected in some fashion with the Crowley works, remain tantalizing questions yet to be answered.

During the Revolutionary War, John Nancarrow appears to have remained in Philadelphia. While not a Loyalist, he was a Quaker non-combatant who stayed in the city during the British occupation. It is not known if he practiced his steelmaking craft under British aegis, but he was active after the Americans resumed control in the summer of 1778, as indicated by the above-noted advertisement of March 24, 1779 in The Pennsylvania Gazette. In August of 1780 he reluctantly gave up possession of the air furnace at
the iron and steel works site on Walnut Street (which he apparently then owned), allowing the Board of War to use the facility for casting shot and shell. The air furnace was returned to him in early December with a promise from the government that the rent still owed would be paid. A few months later his involvement with Stacy Potts and the revival of the Trenton Steel Works commenced, a relationship that continued and intensified until February of 1782 (Numbered Record Books, Supply Records, LSH Officer in CGMSD 110:111-112, 172-173; Pennsylvania Archives, Minutes of the Supreme Executive Council, Vol. XII:435; The Pennsylvania Gazette, April 27, 1779; Scharf and Westcott 1884:365).

From July through December of 1781 it is presumed that the Trenton Steel Works was periodically in blast, but the Potts & Downing finances remained shaky. In early December Pemberton wrote to Potts seeking payment as per their agreement, but Potts replied apologizing that he could not pay at this time “without injuring my Business, as I should not have been able to furnish the Necessary supplys of Iron Wood etc. to carry on the Steel Furnace, had I taken that Money to pay thee, having met with disappointments in my expectation of Money, not only from those to whom we sold, but also from those connected in the Business with me.” The latter phrase was evidently a veiled reference to Nancarrow and his failure to meet his partnership obligations. Potts assured Pemberton that a quantity of steel worth £206 had recently been sold to George Mathews in Baltimore, that payment was forthcoming and would be forwarded soon to the Philadelphia merchants John Brown & Son, and that this money would be applied toward the amount owed on the purchase agreement (Pemberton Papers, Letter from Stacy Potts to John Pemberton, Vol. 36:33; Maryland Journal, October 2, 1781).

Later in December it emerged that Pemberton was entertaining other offers on the Trenton furnace, specifically one from John Nancarrow. Potts responded a trifle testily that he could have built a new and better furnace for less money than he was proposing to pay Pemberton for his half share of the property and went on to more explicitly blame Nancarrow as the reason for his own inability to meet his financial responsibilities. As justification, Potts noted that “had John Nancarrow advanced his proportion of Money, to procure Iron Wood etc. to carry on the Steel making Business, agreeable to his repeated Promises, thou would have been paid in pretty good season, but for want of his quota of Stock to keep the Furnace going, I was induced to lay out that money for the use of the partnership, but rather than let the Furnace & Hands lay Idle, and thus I am requited for it!” (Pemberton Papers, Letter from Stacy Potts to John Pemberton, Vol. 36:42).

Tensions between Pemberton, Potts and Nancarrow continued to rise over Christmas and into the New Year. On Christmas Eve, Nancarrow, who was then in Trenton operating the furnace, wrote to Pemberton informing him that he had shipped a ton and a half of steel on Captain Douglas’s boat to Jones & Foulke in Philadelphia. This, he intended, should stand as security on an agreement that he had apparently negotiated with Pemberton to buy the latter’s half share of the steel works property for £150. Nancarrow further encouraged Pemberton to have Jones & Foulke sell the steel for £100 a ton, if suitable buyers came forward. He concluded by saying that he expected to be down in Philadelphia in a few days time with another “parcel” of steel (Pemberton Papers, Letter from John Nancarrow to John Pemberton, Vol. 36:48).

By mid-February, the whole situation had changed. Potts wrote to Pemberton to tell him that Nancarrow was now no longer in the steelmaking business in Trenton and had released to him (Potts) all claim to the steel furnace. Potts regarded the £150 previously paid by Nancarrow to Pemberton as partial settlement of Nancarrow’s own account with him (Potts) and that this sum should be credited toward what he (Potts)
originally owed Pemberton under the purchase agreement arranged back in the summer of 1781. Potts also indicated that if Pemberton would inform him of the balance still owing, then he would pay that and take a conveyance for a half share in the steel furnace property along with the adjoining house and lot (Pemberton Papers, Letter from Stacy Potts to John Pemberton, Vol. 36:72).

The long and involved story of what took place between Pemberton, Potts and Nancarrow between May of 1781 and February of 1782 (or at least Stacy Potts’s version of it) finally takes on a clearer shape in a long, exculpatory, self-justifying letter that Potts sent to Pemberton on March 6, 1782 (the full text of the letter is transcribed in Appendix B.4). This letter was sent in reply to a letter of February 20 from Pemberton to Potts in which Pemberton evidently maintained that Potts was still responsible for the full original £190 amount they had agreed upon as the purchase price for the house and lot and the half share in the furnace property. Pemberton apparently considered the £150 that Nancarrow had provided him through his sale of steel to be a completely separate transaction.

Unsurprisingly, Stacy Potts, in his response of March 6, demurred. As justification for his position, he reviewed much of the background to how he had set about reviving the steel works and in the course of doing this explained what Nancarrow’s role had been. Potts began by saying that he took possession of the premises with the consent of all parties concerned. Stephen Sewell would not sell or carry on steelmaking, but he was prepared to rent and also pay for half the cost of fencing the yard and doing repairs. Pemberton agreed to Potts buying his half of the steel furnace, and also the nearby house and lot, in their current condition, for £190. Potts then stated firmly that he was now offering Pemberton the original amount plus 7% interest which he calculated as £203.6s.0d at the end of the year. After deducting Nancarrow’s payment Potts therefore now owed Pemberton £53.6s. It appears that Nancarrow had agreed to a higher purchase price which Pemberton now wanted Potts to pay; however Potts, while acknowledging that he had failed to honor the original contract with Pemberton, still believed his current offer to be fair. He added that, if Pemberton preferred, he could revert to a rental arrangement like he had with Sewell, but he would want the expense of repairs and improvements, and the sale of any part of Nancarrow’s ton and a half of steel, taken into account (and the rest of the steel returned). Potts then ventured that, if Pemberton thought the property was undervalued last summer, he would gladly pay for advertising in the New Jersey Gazette to see if he could get a better price.

At this point in his letter Stacy Potts, with not a little vehemence, proceeded to wash his hands of John Nancarrow. He wanted to be “free from his Arrogant, Imperious, Overbearing and Avaricious disposition ... [and] shall gladly dispense with his Judgement and Experience in any branch of Business whatsoever.” He explained that when the partnership was established he and Downing had each put in £150, but Nancarrow failed to deliver on his share (believed to be £300), so that they (Potts and Downing) had had to spend their own money on iron. Nancarrow only ever produced £12.4s.10d in cash, an alarm clock used in the furnace (presumably for timing the blast and/or the fueling process) valued at £4.5s.0d, and nearly a ton of Durham bar iron valued at £35, for a total of £51.9s.10d. Potts and Downing had to pay out £40 for firebrick, none of which had been used yet.

According to Potts, as soon as Nancarrow made his separate agreement with Pemberton, he (Nancarrow) behaved as if the steel furnace was his own. He took all the steel on hand and sent it on to Pemberton as security for his purchase of Pemberton’s share of the furnace, and then could not procure any more bar iron, which caused the steel works to lay idle for a month. Potts and Downing then obtained four tons of iron and another batch of steel was made, but
the day after it was drawn Nancarrow would not let Potts and Downing into the furnace house. Potts & Downing sold some of this steel but were unable to deliver it because Nancarrow refused to give up the key to give them access to the furnace. An unpleasant public dispute ensued outside Abraham Hunt’s house with fervid name calling on both sides. Eventually Potts and Downing broke into the furnace house and took the steel. Later the same day, perhaps somewhat surprisingly, but with true Quaker civility, Potts and Nancarrow settled their differences, ultimately leading to Nancarrow’s departure from the Trenton steelmaking scene. John Nancarrow does re-enter the picture a few years later but this particular thread in the narrative will be temporarily set aside.

The contretemps at the furnace house appears to have taken place in late January or early February of 1782. Judging from their correspondence of February 20 and March 6 it appears that Potts and Pemberton lost little time in resuming their negotiation over the sale of the steel furnace half share and the nearby house lot. Finally, on May 1, an indenture was drawn up and Pemberton signed over these two properties to Potts for the sum of £225, somewhat more than Potts had been hoping for, but one presumes that Pemberton did at least accept Nancarrow’s £150’s worth of steel as being part of the deal (Table 4.2). A copy of this unrecorded deed is fortunately archived in the Trentoniana Collection of the Trenton Public Library and is especially helpful in tracing the ownership of the steel works following the Biddle and Matlack purchase of 1762 (see above). It also relates how Pemberton came by the ¼-acre house lot: John and Sarah Zane, probably in financial difficulty at the time, released this property to Pemberton in October 1772, having only acquired it themselves in May of the same year from Nathaniel Pettit (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, John and Hannah Pemberton to Stacey Potts, May 1, 1782).

Even as Pemberton and Potts were approaching closure on their long drawn-out efforts at transferring a half share in the ownership of the steel furnace property, new and threatening clouds were building on the horizon. On March 22, 1782 Samuel Hodgdon wrote to Potts & Downing from the Military Stores Department in Philadelphia:

Gentlemen

Having been sometime absent from my command in this City on business of the publick, I have not been able to call upon you & excite your attention to the Contract that subsists between us but finding it violated in the most flagrant manner, longer silence would be a crime. I must therefore request that you would immediately inform me the reasons that actuate your conduct that I may decide means to obtain justice for the States whom, in this instance I have the honor to represent

(Numbered Record Books, Supply Records, LSH Officer in CGMSD 92:166)

Two days later Hodgdon wrote to Colonel Jacob Weiss in Easton asking for an account of the bar iron and pig iron that had been delivered to Potts & Downing. He informed Weiss that Potts & Downing were in violation of their contract with the government and told him to suspend further deliveries of “Metal and Barr Iron” to them until a proper accounting had taken place. Hodgdon complained that he could not tell what had been delivered to Potts & Downing via Weiss or what had been sent to them from Mark Thomson. He wanted to know whether the 6¼ tons of bar iron at Thomson’s had ever been delivered, either to Weiss or to Potts & Downing, and he also wanted to know how much pig iron had been produced from this. In short, Hodgdon demanded settlement of all of these accounts and he made clear that his department was again desperately in need of steel. It was just three days after this that Hodgdon also turned his attention to that other errant steel producer, Thomas Potts, asking why he received
so little steel from the Coventry ironworks (Numbered Record Books, Supply Records, LSH Officer in CGMSD 92:170, 203-204).

Potts & Downing evidently replied to Hodgdon on April 2, but to little effect. Hodgdon lambasted them again in a letter of April 9:

…. am sorry to say that greater evidence of your having not acted right relative to the Contract …. is needless, you confess that soon after the Contract was signed you received 2 [tons] 18 [cwt] 3 [quarters] 26 [lbs] Barr Iron, which it seems you are disposed to Account for, by Carting done since the Iron was delivered you, for shame; do you recollect that you was immediately after the receipt of any Iron to proceed in its conversion, and send me the first batch, was their any thing due for Carting when you should have done this; but I forbear, I expect shortly to see one of you at my store, and to hear further on the subject, tis surprising you could not have called before this having been repeatedly in the City. I have not a barr of steel on hand, while I am informed you are selling in every part of the Country (Numbered Record Books, Supply Records, LSH Officer in CGMSD 92:180)

At the end of the day, Potts & Downing had failed to deliver on their contract with Hodgdon; moreover, they had apparently converted government-supplied bar iron into steel that was then sold for cash on the open market, with Hodgdon all the while remaining desperate for steel. This exchange of letters seems to have spelled the end of Potts & Downing’s career as a provider of steel to the U.S. military. No evidence has been found for further communication between the two parties to the contract of July 12, 1781.

Interestingly, Potts & Downing do not appear to have been deterred by the unraveling of the Military Stores Department contract. Indeed, within four days of Hodgdon’s final letter, Potts & Downing entered into an agreement with Mark Thomson of Changewater forge to receive as much bar iron “fit for steel” as Thomson could make from Andover pigs that he had on hand. The agreement required that Potts & Downing accept delivery of all the bar iron that Thomson could deliver and that the partnership would provide in part payment to Thomson one ton of steel for every ten tons of bar iron plus £60 for every ton of bar iron received (half this sum to be paid at the time of delivery, the other half three months later). Steel at this time was still valued at £100 a ton, as it had been for at least the past year (Hunterdon County Court of Common Pleas, Miscellaneous Record 1022; New Jersey Supreme Court, Record 30940). Potts & Downing’s signing of this agreement would seem to indicate that the owners of the Trenton Steel Works foresaw a healthy continuation of their business over the coming year or so. With the war winding down after the British surrender at Yorktown and serious peace talks a few months away, Potts & Downing’s forging of a separate arrangement with Thomson, independent of the U.S. military, likely reflects their betting on the growth of a strong peacetime domestic market for steel.

The steel works is thought to have remained in operation throughout the spring, summer and fall of 1782, but the market for steel may not have lived up to Potts & Downing’s expectations. In November, a hint of things to come may be seen in Stacy Potts and Samuel Downing signing a promissory note, payable on demand with interest, to Jabez Bacon for £345.16s.2d (New Jersey Supreme Court, Record 4458). Bacon (1731-1806) was a prominent and wealthy merchant in Woodbury, Connecticut, who was well-known for loaning money to other entrepreneurs. On April 5 of the following year, Stacy Potts and Samuel Downing assumed a much more substantial obligation, a bond of £4,713.18s.3d to Mark Thomson, which presumably was intended to ensure a continuing supply of bar iron from Changewater forge to the steel works in Trenton. The conditions of this obligation required Potts and Downing to pay back half of the amount
within three months, or else the full amount of the loan was to remain in effect with interest until it was paid (New Jersey Supreme Court, Record 41269).

The ongoing operation of the steel works through the spring and summer of 1783 is demonstrated by a series of weekly advertisements in the *New Jersey Gazette* that ran from May 28 through July 9. These offered for sale “scythes manufactured at the factory of Potts & Downing” (e.g., Wilson 1988:48). The fact that the steel works was turning out end products for the agricultural market, probably in addition to steel bars, shows the re-orientation of the business toward the domestic market and away from the military. This also indicates that there was a functioning forge at the site in addition to the cementation furnace.

Potts & Downing’s focus on the domestic civilian market is further demonstrated in the spring and summer of 1783 by Stacy Potts’ petitioning of the federal government for formal endorsement and support of their manufacturing operations. On May 2, he penned a letter to Elias Boudinot, President of Congress (a fellow New Jerseyan whom he knew reasonably well):

> Respected Friend,
> The freedom and Independence of the United States of America being now happily established, it remains necessary for the Citizens of those States, to encourage and improve all such useful Manufactories as may aid the Arts of Agriculture and Commerce to supply our necessary consumption at home ....
> Interested as I am in the Manufacture of Trenton Steel, desire to say no more in its’ favor than may be necessary to recommend it to tryal and Proof, confident that on due examination, it will be found to answer well wherever it may be used, having truly obtained the best Character in general for Edge Tools of any even before made in America, some of which have been pronounced by good Judges from experience to be equal in fineness, and superior in strength to either English or German Steel.
> Desirous that the Ingenuity and Industry of every Citizen of the United States, may be exerted in promoting the public interest by every encouragement, I wish not for any excessive Privilidge, or Prohibitory restrictions, all which are inconsistent with our freedom and Independence, neither for Premium or Bounty, which is equally repugnant to the state of our Finances at present; But as a means of reducing the price of every kind of manufacture, is to enlarge the quantity manufactured and sold, and the knowledge of the quality of this Steel has been confined by an expensive Land carriage to a small circle, the advantages of Water carriage being now open, The Encouragement I presume to ask from the Members of Congress is that they may in such way as they think proper inquire into the quality and usefulness of the Steel in question, and when satisfied, may be pleased to give it that general recommendation to the Merchants & Traders within the different States, as it may (on proper examination) be found to deserve, whereby I hope such quantities may be vended, as may reduce the price as low as low as it can be imported for from any other place, and probably when the price of Iron and Labour are returned to their former state, this Steel may become a profitable article of Exportation ....

(Papers of the Continental Congress, Committee of the States 1784:475-476)

Potts was clearly trying to position his firm for what he thought would be an expanding domestic market, where domestic steel could be mass produced and now more easily transported by water, such that it could compete successfully with steel imported from Europe.

An endorsement from Congress would enable Potts & Downing to market their steel and steel manufactures much more effectively up and down the east coast, well beyond the range of the Philadelphia/New York area where most of their business had so far been concentrated.

A day after Potts wrote to Boudinot, William Churchill Houston, a Trenton lawyer and neighbor of Potts, also a delegate to the Continental Congress, followed up with a letter of support for Potts’ application to Congress, again addressed to Boudinot. In his letter, Houston suggested that a committee be formed to con-
sider Potts’ application and he also stressed the export potential of American-made steel. A committee was duly formed, headed by Abraham Clark, another member of the New Jersey Congressional delegation and a signer of the Declaration of Independence. On June 28, Stacy Potts wrote to Clark, enclosing several certificates from area blacksmiths vouching for the quality of Potts & Downing’s Trenton steel and its suitability for making edge tools such as axes, chisels, drawing knives and scythes. It would appear that in May and June, Potts and Downing did the rounds of the local blacksmith shops and prevailed on their owners to each sign a certificate of support. The blacksmiths involved – John and Nahor Yard, James Yard, William Watson, Samuel Taylor, Joseph Gillingham, Hezekiah Howell, Paul Dakin, Whitson Canby, Robert Quigley, Daniel King and Peter Welsh – for the most part can be linked to the immediate Trenton area (Papers of the Continental Congress, Committee of the States 1784:483-501).

Congress ultimately declined to give Stacy Potts the endorsement that he sought, preferring not to favor one manufacturing business over any other. Abraham Clark’s committee report did go so far as to acknowledge that Trenton steel “is at least equal to the best British Steel,” but rather than specifically recommend Potts & Downing’s operations, noted “that it be recommended to the Legislatures of the Several States to countenance and encourage the establishment of useful manufactures either by Premiums or by such other means as they may find most effectual which are consistent with the Confederation and the Treaties subsisting between US and foreign Powers” (Papers of the Continental Congress, Applications of Individuals 5:211-212).

Nevertheless, over the course of 1783 and 1784, two years during which Trenton made a serious bid to become the federal capital and was even the seat of Congress for a couple of months, Stacy Potts was rubbing shoulders with many of the most influential political figures in the new nation’s evolving government. With the signing of the Treaty of Paris on September 3, 1783, Potts in many ways must have personified at the local level the spirit of optimism that pervaded the newly independent United States. Within the more confined and provincial realm of Trenton society, Potts was without doubt one of the main pillars of the community, operating tanneries and the paper mill in addition to the steel works, and owning several properties across the town. In June 1783 he served on a three-man committee appointed by the citizens of Trenton that reported to Congress on the extent of available accommodations in the town in anticipation of Congress meeting there in the following year. The committee estimated that 60 persons “or upwards” could be accommodated (Papers of the Continental Congress, Locating the Seat of Government:87).

Later that year, in an October 13 letter to Congress, he more formally placed his dwelling house at the disposal of Congress for accommodating delegates toward the end of the following year, describing the premises as follows: “Stacy Potts his dwelling house 42 by 33 feet, two stories, ten Rooms, 6 with Fireplaces – a kitchen – and stabling for 6 horses” (Papers of the Continental Congress, Miscellaneous Letters to Congress 22:283-286) (Photograph 4.1). When the delegates did finally meet in Trenton in November and December of 1784, the Potts dwelling was occupied by the Virginia delegate Richard Henry Lee, who was elected President of Congress on November 30. Some sense of the caliber of the Potts accommodations may be obtained from the finely made highboy that probably stood in one of the downstairs rooms and which is now held in the collections of the Boston Museum of Fine Arts (Photograph 4.2).

In mid-November 1784, while Congress was meeting in Trenton and probably while his house was being occupied by Richard Henry Lee, Stacy Potts petitioned Congress to appoint him registrar for one of the new states envisioned in the Western Territory where
Photograph 4.2. Stacy Potts’ Highboy. This chest of drawers was made in Philadelphia \textit{circa} 1760-70 and owned by Potts. It stands 7 feet 1¾ inches tall and is made of yellow poplar and yellow pine, veneered in mahogany. Source: Boston Museum of Fine Arts.
settlement was growing apace. In Potts’ own words, he asked “that the Congress of the United States may be pleased to appoint him Register for that State on the River Ohio, which begins at the falls [modern Louisville, Kentucky] and extends up the said River to the Western boundary of State Washington [most of modern Ohio], opposite the mouth of great Kenahwa [Point Pleasant, West Virginia], if purchased from the Indian Nations.” Appended to the application were letters of recommendation from numerous Trenton-area notables, among them David Brearley, Chief Justice of the New Jersey Supreme Court, William Churchill Houston, Isaac Collins and Moore Furman (Papers of the Continental Congress, Petitions Addressed to Congress, 1775-89, Volume 6:298-303). New Jersey’s Governor, William Livingston, later added his own note of support, as did Elias Boudinot, the outgoing President of Congress.

Potts followed up his petition with a proposition to Congress, submitted on Christmas Eve, 1784, suggesting that the government gather timber at the falls of the Ohio from all the land clearance in the surrounding area, float it downstream, and sell it off for shipbuilding and other construction. The proceeds, he said, could be used to help offset the national debt. With this proposition Potts would appear to have been trying to impress upon Congress his suitability for the position of registrar, since he specifically drew attention to his petition of a few weeks earlier, which had so far not been considered (Papers of the Continental Congress, Committee of the States 1784:583-585). It was not until February 28, 1785 that Potts’ petition was read before Congress, by which time the seat of the federal government had moved on from Trenton to New York City.

Ultimately, Potts was unsuccessful in gaining the registrar position that he sought. The task of organizing the land for settlement in the Western Territory mostly fell to General Rufus Putnam, an energetic New Engander who boasted a distinguished military record in the recently concluded war. Potts, however, did pursue active commercial interests in the Ohio Valley around this time, including an ownership stake in a store at Fort Pitt (Papers of the Continental Congress, Miscellaneous Letters to Congress 1782-86:423; Linklater 2002). While he was certainly well connected and pulled several influential strings in his efforts at obtaining a high-level government position in the Western Territory, his absence of a war record may have worked against him. But beyond this, there was perhaps another, more compelling reason his petition fell on stony ground – this was Potts & Downing’s rapidly deteriorating financial and legal situation, which must have been clear for all to see, both in Trenton and in Congress.

Back on May 30, 1783, less than two months after they had bound themselves to Mark Thomson in the amount of £4,713.18s.3d, Stacy Potts and Samuel Downing were issued a writ by the Hunterdon County Court of Common Pleas commanding them to appear in court in early August to answer Thomson’s “plea of covenant broken, to his damage two thousand pounds lawful money of New Jersey.” This complaint derived not from the recently assumed bond of April 5, 1783, but from the earlier agreement between Thomson and Potts & Downing of April 13, 1782 (New Jersey Supreme Court, Record 30940; Hunterdon County Court of Common Pleas, Miscellaneous Record 1022). Evidently something untoward must have happened at some point in April or May of 1783 that made Thomson institute these legal proceedings. At this juncture, the reasons behind Thomson’s action are unclear – was there a precipitous drop in the price of bar iron or steel, or a sharp change in currency value, or did Thomson find out something he did not like about Potts & Downing’s financial condition. So far as one can discern, the steel works was still operational around this time, since Potts & Downing were advertizing steel scythes for sale from late May through into July.
Mark Thomson’s suit against Potts & Downing was initially heard in August of 1783 in both the Hunterdon and Sussex County Courts of Common Pleas. His attorney, Abraham Cottnam of Trenton, summarized the arrangement of April 13, 1782 and claimed that Potts & Downing “hath not performed any thing contained in the Article of Agreement.” More specifically, Potts & Downing “hath hitherto altogether refused and still doth refuse to receive what Barr Iron he [Thomson] made fit for Steel out of the Andover pigs, he the said Mark Thompson had on hand, at the time of Entering into the Agreement…” (Hunterdon County Court of Common Pleas, Minute Books, Volume 13:148 and Miscellaneous Record 1022; New Jersey Supreme Court, Record 30940). From this statement, it sounds very much as if Potts & Downing were refusing to take delivery of the bar iron that Samuel Hodgdon of the Military Stores Department had been so anxious to see shipped down to Trenton from Thomson’s Changewater forge (see above). Possibly there was some question about the provenance or steel-making suitability of Thomson’s bar iron, or perhaps Potts & Downing did not want an oversupply of bar iron, if they had already received quantities of this material from other forges in the region.

Thomson’s case against Potts & Downing in the Hunterdon County Court of Common Pleas lingered for several months, but in November the pressure intensified when Thomson filed suit against Potts & Downing in the New Jersey Supreme Court for repayment of the April 5, 1783 bond of £4,713.18s.3d plus £20 damages and legal costs of £6.12s.4d (New Jersey Supreme Court, Record 41269). While these two court actions brought by Thomson against Potts & Downing ran on parallel tracks over the next few months and years, Stacy Potts also saw fit, on November 17, 1783, to file suit against the Hunterdon County tax assessors in the New Jersey Supreme Court disputing the legality of assessing tax on the steel furnace under an enabling act passed by the State of New Jersey on June 22, 1782 (New Jersey Supreme Court, Record 29062). Representing Stacy Potts and Samuel Downing in all of these cases was none other than William Churchill Houston, Esq., their Trenton neighbor and New Jersey delegate to the Continental Congress.

The outcome of Potts’ case against the Hunterdon County tax assessors is not known, but one suspects it was unsuccessful. On April 6, 1784, the three tax assessors involved provided a certification to the New Jersey Supreme Court concerning their efforts at taxing Stacy Potts’ real and personal estate. Charles Axford, the lead assessor, called on Potts around August 1, 1783 to establish “an Account of his Estate made Ratable” but Potts refused to allow his steel furnace to be considered as a ratable asset. Axford later met with the other two assessors and they concluded that the steel furnace should be taxable at the rate of £3. They also levied another £3 penalty on Potts for his refusing to pay in the first place. Houston, representing Potts, offered five reasons why the steel furnace should not be taxed, the fifth of which was perhaps the most potent: “it would discourage a useful manufacture, not yet established, and thus be publicly injurious, which is not to be presumed unless the act of legislature is plain, certain and express for that purpose” (New Jersey Supreme Court, Record 29062).

The fact that Stacy Potts was still disputing the taxability of the steel furnace property in the spring of 1784 may be an indication that the steel works was still in operation at the time, but in actuality the last unequivocal sign that Potts & Downing was still in business occurs in the latter part of 1783. A curious and somewhat confusing letter survives, dated December 10, 1783, from Potts & Downing to King & Lowry (believed to be a Philadelphia merchant firm), concerning a shipment of Trenton steel that had been sent to London earlier that year.
Potts & Downing had evidently sent a sample ton of steel to John Warder, an expatriate Philadelphia Quaker in London, “for tryal in Edge Tools, hoping that on examination it would be found (on that side of the Atlantick) to be much stronger for those purposes than the best London Steel (as well as it is on this side) and therefore had reason to expect that it might be considered as a raw material, to be exchanged for the same Material Manufactured into Hard or Cutlery ware, or any other good Article of British Manufacture, and consequently could not entertain the least Idea of any Duty which at that time it could be subject to.” Potts & Downing had asked that the steel be advertized in the London newspapers, but that apparently had not occurred, so they requested again that King & Lowry ensure this happen and also stated that they would be pleased if some of the steel could also be tried out in the two steel manufacturing centers of Sheffield and Birmingham. Potts & Downing go on to note that if the steel “be still subject to those Duties & Imposts notwithstanding the suspension of all Barrs to the American Trade, we have no particular mode to recommend but that our friend John Warder take such measures as appear to him most proper either by Shipping it to any other part of Europe or returning it to Philadelphia.” A postscript to the letter adds the comment: “As the Commercial Treaty between Great Britton and America is not finally Adjusted we could wish the Steel may not be sent away from London too hastily as the incouragement of its Manufacture in this Country is now under the consideration of the Continental Congress it is possible they may wish to give some directions respecting it next spring” (Trenton Public Library, Trentoniana Collection, Letter, Potts & Downing to King & Lowry, December 10, 1783).

From this letter one may deduce that Potts & Downing shipped their sample of steel across the Atlantic sometime during the fall of 1783, probably not long after Stacy Potts’ petition seeking government endorsement for Trenton steel had received its lukewarm reception from Congress. Potts & Downing’s motive in dispatching this sample clearly lay in their interest in testing the international market for steel as early as possible after the conclusion of the Revolutionary War. The letter betrays a certain nervousness about the legality of what they were doing and also considerable uncertainty about how best to proceed. The ultimate fate of this ton of steel remains unknown, but we can be sure that Potts & Downing did not develop a whole new market for American steel in England. To the contrary, the conclusion of the war and re-opening of trade between Britain and the United States had the effect instead of reintroducing cheaper, better quality English steel into the American market, a phenomenon that may well have helped drive the final nail into Potts & Downing’s coffin. The importing of cheaper English steel had the effect of forcing down the sale price of American-made steel (Mulholland 1981:143-162). It is worth noting here that, although Stacy Potts seems to have maintained strong business links within the Delaware Valley and Mid-Atlantic region, and was something of a big fish in a small pool, in the broader context of the re-emerging global steel trade he was not well connected and at a considerable disadvantage, being vulnerable to falling prices in iron and steel and fast-changing exchange rates.

In the spring of 1784, if the Trenton Steel Works was still in operation, it was very much on its last legs. Beginning in May and continuing for more than four years, there was a steady stream of legal actions, adverse judgments and sheriffs’ sales that left Stacy Potts in considerably reduced circumstances and ultimately prompted his removal from Trenton for several years. Samuel Downing, it seems, had much less to lose, but also must have seen a substantial diminution in his assets. Thus, at the very time that Congress was meeting in Trenton in November and December of 1784, Stacy Potts and Samuel Downing were knee-deep defending themselves against their principal creditor, Mark Thomson.
In the May 1784 term the New Jersey Supreme Court decided in favor of Mark Thomson concerning the debt of bond of £4,713.18s.3d, which led to Chief Justice David Brearley ordering the Sheriff of Hunterdon County, John Anderson, to seize the assets of Stacy Potts and Samuel Downing and sell off as much as necessary to satisfy the amount of the bond plus £6.12s.4d damages (New Jersey Supreme Court, Record 41269). In the same May term, in the Hunterdon County Court of Common Pleas, Thomson and Potts & Downing agreed to submit their dispute over the plea of covenant broken stemming from their April 13, 1782 agreement to a final determination by three referees. The referees, Lambert Cadwalader, Moore Furman and Joshua Corshon, prepared a report on the case, submitted on July 2, 1784, which concluded that Potts & Downing owed Thomson £1,295.8s.1d plus costs for breaching the agreement. Potts & Downing then filed a motion with the court for more time to respond to the report of the referees (Hunterdon County Court of Common Pleas, Minute Books, Volume 13:315-316 and 361; New Jersey Supreme Court, Record 30940).

The Sheriff of Hunterdon County reported back to the New Jersey Supreme Court in the September term that, with regard to the debt of bond, he had seized and levied on the following assets of Stacy Potts and Samuel Downing: “ten feather Beds and Bedding, four Tables, twenty three Chairs, two looking Glasses, Clock, some Kitchen Furniture, eight House and Lott and Paper Mill about Seven Acres of Land adjoining said Mill, about twenty Acres of Land in Lotts adjoining Trenton one Tan Yard with the Appurtenances, about Seven Tons of Iron value five Pounds” (New Jersey Supreme Court, Record 41269). Interestingly, there is no mention of the steel furnace property in this list of assets confiscated by the sheriff and it was several months before the real estate was put up for sale. Stacy Potts was saved from any further embarrassment relating to his legal problems during the period that Congress was in session in Trenton at the end of 1784 in large part because neither the Hunterdon County Court of Common Pleas nor the New Jersey Supreme Court convened during this period. The next move in the ongoing battle between Mark Thomson and Potts & Downing occurred in February of the following year, when Thomson, now represented by William Paterson (at that time New Jersey’s Attorney General, and a future governor), filed a motion with the Hunterdon County Court of Common Pleas asking for the referees report on the April 13, 1782 agreement to be confirmed and for the court to enter a judgment in his favor. The court obliged. In response, later that month, Potts & Downing filed suit against Mark Thomson in the New Jersey Supreme Court seeking to overturn the verdict of the lower court. The case was subsequently heard by the Supreme Court in its April term (Hunterdon County Court of Common Pleas, Minute Books, Volume 13:396; New Jersey Supreme Court, Record 30940).

However, Potts may have begun to see the writing on the wall, and perhaps his aspirations for attaining a position of influence in the Western Territory truly looked promising, for in April of 1785 he published an advertisements in New York and New Jersey newspapers announcing his intention of moving to the Ohio Valley and offering up most of his Trenton-area real estate for sale (Figure 4.8). The timing and contents of this advertisement are revealing. Potts may well have been trying to pre-empt the imminent sheriff’s sales, figuring he could get a better price for his properties by selling them on his own ahead of time and by stressing Trenton’s supposed future role as the federal capital (still considered a serious possibility at this time). As the advertisement shows, Potts’ landed wealth, on paper at least, was still considerable. He listed his many properties in roughly descending order of value, beginning with his house on Warren Street (now rented out to Peter Howell), his paper mill (still
Figure 4.8. Sale Advertisement for Stacy Potts' Properties in 1785.
Source: New-York Packet, April 21, 1785.
a going concern) and his tanyard (the original source of his family’s wealth), each commanding an annual rent of £100. Significantly, his “one undivided half part of the steel furnace” is listed third from last, with no value assigned to it, likely a sure sign that the facility was no longer operational. Where Stacy Potts was actually living at this time is unclear – perhaps with one of his children, or possibly in a part of the house he was renting to Peter Howell, which by this time appears to have been serving as an inn.

Potts’ efforts at selling off his real estate were not successful and before long the net of debt began to tighten further. On May 21, 1785 Jabez Bacon filed suit in the New Jersey Supreme Court concerning Stacy Potts and Samuel Downing’s non-payment on the promissory note for £345.16s.2d they had signed back on November 11, 1782 (New Jersey Supreme Court, Record 4458). Also in May, the Sheriff of Hunterdon County reported on the amounts levied on various additional Potts and Downing assets seized against their debts. The minutes of the court for the May term, however, show that Potts & Downing were also attempting to fight back: William Churchill Houston had recently presented a writ of error in the New Jersey Supreme Court on their behalf concerning the recent judgment of the Court of Common Pleas that they had breached the April 13, 1782 agreement with Thomson (Hunterdon County Court of Common Pleas, Minute Books, Volume 13:412, 431).

Even so, in June of 1785, two separate sheriff’s sales were held. On June 9, pursuant to the Hunterdon County Court of Common Pleas judgment against Potts & Downing for their breach of the April 13, 1782 agreement, Potts’ half of an 8.75-acre tanyard property was sold to Nathan Beakes for £160 (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, September 9, 1788). This tanyard lay just upstream of the original Potts tannery property. Less than a week later, on June 15, a second sheriff’s sale, pursuant to the Supreme Court judgment against Potts & Downing’s debt of bond to Mark Thomson, resulted in Thomson acquiring for £2,200 Potts’ half-acre lot with his main house on King (Warren) Street and also the nearby original Potts family tanyard lot of 2.33 acres (Hunterdon County Deed 1:58).

By September Mark Thomson was offering the former Potts tanyard for rent, noting that it could tan 1,500 hides a year, and instructing anyone interested to contact either Isaac DeCou, another leading tanner in Trenton, or himself in Changewater (New Jersey Gazette, September 19, 1785). In December Stacy Potts leased out the paper mill to John Bowers and Fredrick Long, a pair of Trenton paper makers (Trenton Public Library, Trentoniana Collection, Lease, December 15, 1785). On the legal front, in the New Jersey Supreme Court’s September term, William Churchill Houston filed an assignment of errors on behalf of Potts & Downing in their suit against Mark Thomson, while the court also heard Jabez Bacon’s case against Stacy Potts and Samuel Downing, formally acknowledging a declaration of debt with regard to the promissory note signed almost three years earlier. Potts and Downing finally filed a plea in this latter case on October 24, 1785 (New Jersey Supreme Court, Records 4458 and 30940).

The final phase in the legal dispute between Potts & Downing and Mark Thomson was ultimately played out in the highest court in the state in 1786-87. On January 17-18, 1786, Stacy Potts and Samuel Downing filed suit against Mark Thomson in the Court of Chancery seeking to overturn the judgment of the Hunterdon County Court of Common Pleas concerning Potts & Downing’s breach of the April 13, 1782 agreement with Thomson. It was not until September 1, 1786 that Thomson filed a plea in response. Arguments in the Court of Chancery were initially heard on November 2, but soon after the court ruled that the case had been argued incorrectly and would have to be heard again in the February, 1787 term. Arguments were heard anew on February 14,
1787. These arguments were heard before William Livingston, who in his capacity as Governor, served as the Chancellor of the Court of Chancery and the sole judge of all its cases. Unfortunately, the original parchment documents relating to the case are virtually illegible and the identities and arguments of the attorneys representing the plaintiffs and defendant are uncertain. Most likely, Potts & Downing were represented by William Churchill Houston, now in his early 40s and suffering from tuberculosis, while William Paterson probably acted on behalf of Mark Thomson (Chancery Court Records, Case Files, Box 69).

The case of Potts & Downing vs. Mark Thomson in the Court of Chancery was an important proceeding that tested the Governor’s judicial skill and he even went so far as to informally seek an outside opinion. On March 9, Livingston wrote to Chief Justice David Brearley, who had prior experience in handling the long-running dispute between Potts & Downing and Thomson, asking him what he thought of the merits of Potts & Downing’s case. A few days later, on March 15, Brearley replied, saying that he did not hear all of the arguments or hear the bill read, but he offered the comment that the plaintiffs brought the case for three reasons: 1) there was a penalty in the article of agreement beyond which the arbitrator could not go; 2) Thomson sold some of the iron to persons other than Potts & Downing; and 3) Thomson made bar iron from pig iron other than that originating from Andover. In Brearley’s opinion only the first point was a proper question for a court of law; the other two points he considered to be “naked surmise” and “mere subterfuge to avoid an award fairly made.” He thought the case should be dismissed and that Potts & Downing should pay the litigation costs (Prince et al. 1988:284-285). The second and third points offered by Brearley, whether truthful or not, are of interest, however, in that they highlight the difficult relationship between makers of bar iron and makers of steel and the uncertainty over where the iron was coming from and to whom it went.

Governor Livingston followed Chief Justice Brearley’s advice and on April 24, 1787 he dismissed Potts & Downing’s case against Mark Thomson, ordering them to pay costs (Chancery Court Records, Case Files, Box 69). While this effectively put an end to Potts & Downing’s efforts at rebuffing Mark Thomson’s legal actions against them, they continued to feel the repercussions of the various court decisions for more than a year afterwards, and they also came out the losers in the case brought against them by Jabez Bacon. On May 11, 1787, a referees report prepared by Moore Furman and Abraham Hunt was filed with the New Jersey Supreme Court and found in Bacon’s favor, establishing Potts & Downing’s debt at £454.14s.8d plus costs of £11.19s.10d. Four days later, the court ordered the seizure of Stacy Potts’ and Samuel Downing’s assets to satisfy this judgment. In September, the Sheriff of Hunterdon County was ordered to present Potts and Downing before the court at a November 2 hearing to consider the amount still owing on their debt to Bacon (New Jersey Supreme Court, Record 4458).

The legal wrangling dragged on into the spring of 1788. In May a writ was issued by the New Jersey Supreme Court summoning Mark Thomson to appear yet again, in September, this time to answer a charge of trespass by Potts and Downing and also a bill claiming breach of covenant and damages of £2,000, all presumably stemming from the dispute over the steel furnace. The fate of this action is unclear, but since no other court records have been found it may have been dismissed or withdrawn. William Churchill Houston, representing Potts and Downing, died on August 12, before the hearing could take place (New Jersey Supreme Court, Record 30940).

In the meantime, three sheriff’s sales over a two day period in June disposed of a substantial part of Stacy Potts’ Trenton real estate to satisfy some of the judgments against Potts & Downing. On June 12, 1788 an eight-acre property on the Pennington Road was
sold to Nathan Beakes for £231 to offset in part the debt of bond to Mark Thomson of £4,713.18s.3d plus £6.12s.4d in damages (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, September 9, 1794). The next day, a tract of 30+ acres, including the paper mill site, was sold to Mark Thomson for £746 in partial satisfaction of the same debt of bond (Hunterdon County Deed 16:5). The paper mill may no longer have been in operation by this time. On the same day, another three lots belonging to Stacy Potts on the north side of Second (West State) Street were sold to Nathan Beakes for £95, a sum applied against the Potts & Downing debt to Jabez Bacon of £454.16s.8d plus £11.19s.6d in damages (Trenton Public Library, Trentoniana Collection, Unrecorded Deed, December 8, 1794). Interestingly, the dollar amounts recovered through the various sheriff’s sales and asset seizures that have so far been traced in the archival record come nowhere close to totaling the payments required by the court judgments. Possibly Mark Thomson and Jabez Bacon were made whole through the capture of other unrecorded asset transfers, or perhaps some cash payments were made.

It is notable throughout the legal imbroglio of the mid- to late 1780s that no record exists of the steel furnace property being sold off to meet the Potts & Downing debts. The fact that Stacy Potts only held title to half of the property and the other owner (believed to be Stephen Sewell) was not a named defendant most likely protected it from the sheriff’s sales. Eventually, in early April of 1787, just a few weeks before the Chancery Court judgment was handed down in favor of Mark Thomson and against Potts & Downing, it seems that Stacy Potts did finally part with his half share ownership in the steel furnace lot (Table 4.2). Although no formal deed was recorded, a bond of White Matlack to Stacy Potts dated April 4, 1787 and correspondence between Potts and Susanna Nancarrow, widow of John Nancarrow, on January 8 and 9, 1810 provide the proof that Potts did indeed give up his share in the steel furnace property. These latter documents merit some further elaboration and serve as a basis for providing a few additional words about White Matlack, John Nancarrow and their steel-making and other endeavors.

White Matlack bound himself to Stacy Potts in the sum of £260 on condition that one half of this amount plus interest be paid within two years (Trenton Public Library, Trentoniana Collection, Bond, April 4, 1787). The true significance of this bond and its connection to the steel furnace are revealed in Susanna Nancarrow’s letter to Potts and his reply. Almost 23 years later, the widow Nancarrow wrote from her Philadelphia home at 113 Walnut Street:

I have been applied to by White Matlack for a deed by which thy right in the Steel Furnace at Trenton is conveyed to him, as I do not know why the deed was deposited with my Husband, or whether it was intended for his, or thy security in any way, did not feel easy to give it up without sending thee this information. If thou art satisfied that the deed shall be delivered to White Matlack as his right, let me receive an order from under thy hand for my indemnification (Trenton Public Library, Trentoniana Collection, Letter [Susanna Nancarrow to Stacy Potts], January 8, 1810).

Stacy Potts, at this time living in the old Officers’ Quarters at the Trenton Barracks, replied by return of post:

When I sold my part of the Steel Furnace to White Matlack and thy Husband, I received a Bond from White Matlack for the sum which remained due and was to have a mortgage to secure the payment thereof, which I find among my papers, but by some means or other it was neglected to be executed, and therefore I have no other security for the money but his bond, and I understand that he has become Bankrupt, and therefore, I must earnestly desire thou will not give up the Deed until the just Demand I have against it be paid, or in some way secured, which will much oblige thy friend (Trenton Public Library, Trentoniana Collection, Letter [Stacy Potts to Susanna Nancarrow], January 9, 1810).
Thus, around the time that White Matlack bound himself to Stacy Potts in the amount of $260 in early April of 1787, he and John Nancarrow evidently bought Potts’s share of the steel furnace property. The sale price is unclear, but Nancarrow and Matlack appear to have made a partial down payment, while Matlack borrowed from Potts the remaining balance of £130. John Nancarrow and White Matlack, at this particular time, were jointly engaged in a steelmaking venture in Philadelphia that for a few years at least seems to have enjoyed a limited measure of success. Their reasons for wanting to acquire the Trenton Steel Works are unclear. Were they looking to expand their operations and put the Trenton furnace back into blast? Or was their interest in owning the site driven more by a desire to stifle potential competition? No evidence has been found, incidentally, for Nancarrow and Matlack ever engaging in steel manufacture in Trenton.

The career paths followed by both John Nancarrow and White Matlack from the mid-1780s onward bear some mention, not least because their entrepreneurial fortunes fluctuated wildly, much like those of Stacy Potts. Nancarrow, after his ill-fated involvement with Potts & Downing and the Trenton Steel Works in 1781-82, fell briefly on hard times. In October of 1783 he advertised all his real estate for sale “for the use and benefit of his creditors” and called on all his creditors to satisfy their debts (*The Pennsylvania Gazette*, October 1, 1783). By April of 1784, however, he was offering goods recently imported from Britain for sale in Philadelphia (*Pennsylvania Packet*, April 29, 1784) and by early December of 1785 he was in partnership with White Matlack in the firm of Nancarrow & Matlack offering “American Blistered Steel” for sale that was “Warranted equal in quality to the best Steel imported from England, To be Sold for the very low price of Fifty Pounds per Ton” (*Independent Gazetteer*, December 3, 1785). This latter advertisement, which appeared in several Philadelphia area newspapers throughout 1786 and into the spring of 1787, went on to refer to the “large quantities of steel he [Nancarrow] has made at Philadelphia and Trenton, previous to, and during the war.” It is worthy of note that the “very low” sale price of £50 a ton was half of what was being charged by Potts & Downing some three years earlier.

The Nancarrow & Matlack partnership continued to manufacture steel at their furnace at the corner of 8th and Walnut Streets until the fall of 1790, at which point the firm was dissolved by mutual consent. The steel furnace house and lot were put up for sale with the note that “The Buildings are in good repair, and the Furnace in compleat order, and will make twenty-two tons at a blast.” Nancarrow also announced that he would be moving to 7th Street (possibly to Whitehead Humphrey’s furnace) and would continue making steel there (*General Advertiser*, October 28, 1790).

The true fate of the Nancarrow & Matlack steel works, however, is uncertain. One suspects that the business fell victim to the vicissitudes of the post-war iron and steel market and the influx of cheaper British steel. Even so, the firm of Nancarrow & Matlack does seem to have enjoyed a period of some success in the mid- to late 1780s and Nancarrow himself was held in high regard by some. In 1786, for example, John Fitch referred to him as “the greatest Engineer in America” (Prager 1976:167), while on August 4, 1787 the Nancarrow & Matlack steel works received a visit from General Washington and was pronounced “the largest and best constructed furnace in America, being charged with fourteen tons of iron at that time, converting into steel; and his Excellency was pleased to express his approbation of it” (*Worcester Magazine* 1787 III:278).

Just as Nancarrow’s star may have risen in the mid-1780s, it soon fell again in the early 1790s. There is no indication that he ever actually resumed steelmaking operations at the 7th Street location. In 1789 he opened a malting business and brewery in Petersburg,
Kentucky on the Ohio River. This venture evidently failed and either because of this, or because of debts relating to his steelmaking endeavors, he was detained under arrest in New York for an extended period in the fall of 1791, which led in July of the following year to his being disowned by the Philadelphia Monthly Meeting. He rebounded again in 1793, advertising his expertise in conveyancing (Federal Gazette, December 6, 1793), and appears to have spent most of his later years in Philadelphia and in the Cincinnati area in the Ohio Valley. Throughout all of these difficult times, he managed to maintain his reputation as a respected engineer and mechanic, playing a leading role in the Pennsylvania Society for Mechanical Improvements and Philosophical Inquiries (Freeman’s Journal, January 19, 1791) and was eventually accepted into the exclusive ranks of the American Philosophical Society (Independent Gazettier, April 30, 1794). Nancarrow’s multifaceted and colorful life came to an end in Pottstown where he died at the age of 67 on March 13, 1801 (Philadelphia Gazette, April 13, 1801) (Scharf and Westcott 1884:2250; Jeffery 1985).

White Matlack’s career followed a similar pattern of boom and bust. Born in 1745 in Haddonfield, New Jersey and a younger brother of Timothy Matlack, he is best known as a Free Quaker and abolitionist, spending most of his life in New York City. From the late 1760s up until the Revolutionary War, he worked as a clock and watchmaker in New York, leaving the city just prior to its capture by the British and relocating in Philadelphia (Pennsylvania Evening Post, January 21, 1777). Matlack continued to work as a clock and watchmaker in Philadelphia at least through mid-1780 (The Pennsylvania Packet, July 1, 1780) and in this capacity he must certainly have rubbed shoulders with his fellow Quakers Owen Biddle and John Nancarrow, maintaining a keen appreciation of the value and uses of steel. Toward the end of the war and continuing through the 1780s White Matlack appears to have engaged increasingly in mercantile activities, both in Philadelphia and then also in New York, and in this vein he entered into the partnership of Nancarrow & Matlack.

Upon the dissolution of this steelmaking venture in 1790, like Nancarrow, he moved into the brewing business, becoming a partner in the New York City brewing firm of Appleby & Matlack. This firm was active from 1789 into the early 1790s and during this same period Matlack was also involved in the sale of dry goods, but beginning in May of 1792 he met with his creditors on a series of occasions, presumably because he was in financial difficulty (Diary, May 22, 1792). His fortunes are hard to trace in the archival record through the late 1790s into the early 19th century. He probably continued in business as a New York City merchant, perhaps allied with his namesake son, who between 1803 and 1816 appears often in newspaper notices as a ship’s master commanding vessels trading predominantly with Liverpool, England (e.g., New-York Gazette, December 19, 1804). However, on April 20, 1803, the elder White Matlack was declared bankrupt (Daily Advertiser, April 25, 1803). He received a certificate of discharge a couple of months later, but in succeeding years was forced to sell off his assets and collect on debts outstanding to him. It was within this context that he sought, apparently without success, to extract the deed for the half share in the Trenton Steel Works from John Nancarrow’s widow in 1810. White Matlack lived on for several years, perhaps in reduced circumstances. He died on January 6, 1824 in Bayside, Long Island, tagged as “one of the most firm and decided Whigs of the Revolution” (National Advocate, January 7, 1824).

Stacy Potts’s life trajectory in some respects resembled that of John Nancarrow and White Matlack in that his entrepreneurial ventures were not always successful, but he proved to be markedly more adept at re-inventing himself and eventually went on to become one of New Jersey’s and Pennsylvania’s most revered elder statesmen. In the mid- to late 1780s he certainly suf-
fered a substantial diminution in wealth and stature as a result of the court actions stemming from the failure of the steel works. Even so, he does not appear to have been reduced to total penury. During this period and into the 1790s Potts was involved in numerous property transactions and he also occasionally loaned some moderately large sums of money to business associates (e.g., Trenton Public Library, Trentoniana Collection, Bonds, January 17, 1783, December 10, 1786; Unrecorded Deeds, April 24, 1784).

By 1789 Stacy Potts had left Trenton and moved to Harrisburg, Pennsylvania, where he established himself as a tanner and a merchant, soon becoming one of this new town’s leading citizens. Harrisburg was incorporated in 1791 and became the state capital in October 1812. Potts served in the Pennsylvania Legislature as a representative for Dauphin County in 1791-92 and again in 1799-1803 (Harrisburg being the county seat). Sometime around 1805 he returned to Trenton, where he remained until his death in 1816. Potts served as the Mayor of Trenton from 1806 until 1814, renting and living in the portion of the former Barracks building later known as 104 West Front Street (now referred to as the Officers’ Quarters). During this period, in the fall of 1811, he nurtured an extraordinary pumpkin crop in his garden, producing from a single seed an astounding 11 pumpkins weighing a total of 1,259 pounds (Alexandria Gazette, November 11, 1811). In 1815 Potts purchased an adjoining section of the Barracks, 106-110 West Front Street, just to the east of the steel works site, and it was here, in the following year, that he died at the age of 85. This portion of the Old Barracks remained in the Potts family until 1856, when it was sold to Henry M. Lewis, the proprietor of the nearby paper mill located on the site of the steel works (see below) (Hunterdon County Deeds 25:38 and 33:510; Mercer County Deed 37:99; New Jersey Will 2828J; Potts 1860:7-9, 26; Trenton Historical Society 1929:140; Egle 1969:115-116; Stracke 1980:86, 88; John G. Waite Associates 1998:22).

The ownership status of the Trenton Steel Works property from the mid-1780s through into the early 19th century is obscure (Table 4.2). Stacy Potts’s half share, as noted above, was acquired by John Nancarrow and White Matlack in 1787 and was still technically in their hands (or in the case of Nancarrow, in his widow’s hands) in 1810, despite Matlack’s failure to meet the obligation of his bond to Potts. The fate of this half share between 1810 and 1814, when the steel furnace lot in its entirety passed from Jonathan Rhea to Garret Wall (see below), is unclear and no evidence has been found for Nancarrow and Matlack ever making use of the property for steel manufacture. How the other half share of the property passed from Stephen Sewell, the owner in 1782, to Jonathan Rhea is also unknown. It is thought that Rhea, a well-practiced attorney and former Clerk of New Jersey’s Supreme Court, was somehow able to lay claim to the property despite its questionable chain of title and legal standing. How long the steel furnace, the furnace house and other structures remained standing is also uncertain. The construction of West Front Street through the Barracks and across Petty’s Run in 1792-93 may well have hastened the demise of the various buildings on the site, if they had not already been mostly pulled down by that time.

C. THE FITHIAN COTTON MILL

From the mid-1780s until early in the second decade of the 19th century the industrial sites along Petty’s Run between Second (West State) and West Front streets appear to have lain fallow. No documentary evidence has been found for water-powered industrial activity along the run during this period. Instead, new construction was focused on the State House lot to the west, the development of which was facilitated by the opening of West Front Street, and on the erection of residences along Second Street (see above, Chapter 3). Resumption of industrial activity at the Petty’s Run Archaeological Site finally occurred in 1813-14
and was driven by the death of Benjamin Yard and the subsequent break-up of the plating mill property, and by the appearance on the scene of Josiah Fithian, a cabinetmaker from Cumberland County in southern New Jersey.

Benjamin Yard died in 1808 (New Jersey Will 2347J), and on July 15 of the following year his executors sold the half-acre lot “whereon a plating mill was formerly erected” to Jonathan Rhea of Trenton for $400 (Table 4.1). This property was described as being bounded on the east by a stable on the north side of Front Street located within the former barracks lot and on the west by “State” (later Delaware) Street. It was specifically noted that the lot Yard had sold to Owen Biddle and Timothy Matlack in 1762 “for a steel Furnace which is now in part standing thereon” was excluded from this transaction (Hunterdon County Deed 16:97). The small consideration paid for the former Yard property suggests that the plating mill had long since gone out of use and probably lay in ruins by 1809 (see above, Figure 3.16).

Jonathan Rhea (1754-1815), the purchaser of the plating mill property, was a prominent figure in state and Trenton politics (Figure 4.9). He was born in Monmouth County and served in the New Jersey line of the Continental Army during the Revolutionary War, eventually attaining the rank of Captain. Admitted to the bar in 1784, he practiced law in Freehold for several years until, in 1793, he was named to the position of Clerk of the New Jersey Supreme Court (a post he held until 1807). As a result of this appointment Rhea moved to Trenton, soon occupying the brand new offices of the Clerk of the Supreme Court that were built in the northeast corner of the State House lot in 1795-96 (Hunter Research, Inc. 2007b) and living in a house on the north side of Second Street across from the State House (Hunterdon County Mortgage 4:265). In 1807 Rhea took on two new prestigious posts when he was named President of the Trenton Banking Company (a post he held until his death in 1815) and Quartermaster General of the State of New Jersey (he continued in this position until 1813) (Schuyler 1926:211; Trenton Historical Society 1929:607-608; Hornor 1932:299).

By the time Jonathan Rhea purchased the plating mill property in 1809 he had already accumulated considerable real estate in the vicinity of the State House. Among his holdings was a lot he acquired in 1804 that bordered the north side of the plating mill property in the southeast angle of Second (West State) and State (Delaware) Streets, directly across from the offices of the Clerk of the Supreme Court (Hunterdon County Deed 7:154). Rhea erected a house on this lot sometime prior to 1811 when he sold the property to his protégé and future son-in-law, Garret D. Wall, of whom more will follow shortly (Hunterdon County Deed 18:347). Rhea also, at some point prior to 1814, gained control of what remained of the half-acre steel furnace lot (a small part of this had been taken for the construction of West Front Street) (Hunterdon County Deed 23:268). Thus, by around 1809-13, Rhea apparently owned much of the block bounded by Second (West State), Willow (Barrack), West Front and State (Delaware) Streets, including the former sites of the plating mill and steel furnace.

It is possible that Jonathan Rhea, with these several real estate maneuvers, was contemplating the reactivation of some type of water-powered industry along Petty’s Run toward the end of the first decade of the 19th century. Perhaps he foresaw redevelopment of part of his property for industrial purposes as being potentially lucrative at a time when the federal government was seeking to promote domestic manufacturing in the face of ongoing hostilities with Great Britain. However, approaching 60 years of age, his energy and inclination for such a project may have been flagging and potentially risky business ventures were perhaps not that appealing to him at this late
Figure 4.9. Portrait of Jonathan Rhea (1754-1815). Source: Schuyler 1926.
stage in his life. Instead, the mantle of waterpower developer came to fall upon the shoulders of Rhea’s neighbor, Josiah Fithian.

Josiah Fithian (circa 1770-1842) is a somewhat shadowy figure who lived in Trenton for less than a decade beginning around 1807-08. His brief time in the city was characterized by economic misfortune brought on by extensive borrowing and possibly reckless business investment. Born and raised in the Greenwich area of Cumberland County, he married Abahor Abigail Scudder (1778-1827) on March 26, 1807 in Kingston, New Jersey. Abahor Fithian was the youngest daughter of Lemuel Scudder and Mary Longstreet, both members of well-established and wealthy Princeton-area families. Shortly after their marriage, the Fithians moved to Trenton and took up residence on Second Street. In 1808 Josiah Fithian acquired a house and lot on the south side of Second Street, immediately west of Petty’s Run and abutting the northern edge of the plating mill property (Hunterdon County Deed 15:204).

Fithian soon began to establish himself as a cabinetmaker catering to the furnishing needs of upscale households in the Trenton area, and most especially those proliferating in the neighborhood around the State House. In the local newspapers he offered for sale “An Assortment of Mahogany and Cherry Furniture, READY FINISHED” and “a variety of articles, such as Clock Cases, Bureaus, Card, Dining and Breakfast Tables, etc. etc. Bedsteads, high and low posts …” (Trenton Federalist, August 26, 1808 and June 3, 1809). By the fall of 1809 he was advertizing himself as a “Cabinet and Chair Maker” who had set up shop “near the State House,” noting that he would make a wide variety of furniture on order (Trenton Federalist, October 5, 1809). Fithian’s furniture making business was operated from a cabinet shop located close to the eastern edge of his property on the west bank of Petty’s Run. Although no supporting documentary evidence has so far been found, it is possible that the cabinet shop made use of waterpower drawn from the run to saw, plane and turn wood.

Despite all of the upbeat advertizing, Fithian’s business seems to have been a shaky operation. In April of 1809 he borrowed $200 against his Second Street property from Mary O’Neale, a debt that was later assumed by her executrix Mary Brown (Hunterdon County Mortgage 4:297). In the following year he took out two additional mortgages, one for $600 on the same property from Elizabeth Skelton (Hunterdon County Mortgage 4:398), and another for $500 from the estate of Joseph Baker through which he acquired Baker’s house and lot on the east side of Petty’s Run adjoining his (Fithian’s) property with the house and cabinet shop (Hunterdon County Mortgage 4:508; Hunterdon County Deed 17:327). In 1811, Fithian sold off the eastern portion of the property he acquired from the Baker estate, including the house, to Francis “Fanny” Green (Hunterdon County Deed 18:163) and then, in April of the following year, he took out a mortgage of $1,000 on the western portion of this property from Joseph Bloomfield, a former Governor of New Jersey and fellow native of Cumberland County (Hunterdon County Mortgage 5:159). It is thought that all of these transactions were intended to raise additional money for his business activities, which by this time may have included plans to reconfigure Petty’s Run for future water-powered industrial development. None of these mortgages was ever paid off, a sign that Fithian, from the outset, was likely over-extended in his business endeavors.

At some point around this time, perhaps as early as 1812, Fithian evidently began to entertain the idea of establishing a cotton mill on Petty’s Run, which set in motion a new round of land acquisition and much more substantial borrowing. Cotton manufacture was a tempting investment for businessmen in the Middle Atlantic and Northeastern states during this period. The United States were engaged in prolonged hostili-
ties with the British culminating in the War of 1812, few imports of European textiles were making it into the American market, and the American government was actively seeking to both promote and protect the domestic manufacturing sector, especially with regard to textiles and metals.

John O. Raum, the late 19th-century Trenton historian, wrote vividly of the beginnings of Fithian’s cotton manufacturing venture:

In 1812 Josiah Fithian commenced the erection of a mill in Front Street, and near the site of the steel works of Stacy Potts. He had completed the walls, put on the roof, and was about putting in the machinery for a cotton mill, when a heavy rain undermined the foundation, and the mill fell with a terrible crash – a mass of ruins. He rebuilt it, put in machinery and commenced the manufacture of cotton. He continued here, however, but a short time … (Raum 1871:234-235).

While there is no reason to disbelieve Raum’s tale of the mill’s ill-fated initial construction and he was certainly correct in placing the mill near the site of the steel works, he may have been off by a year or two in his dating of this episode. The only land purchase that Fithian made in 1812 involved a small parcel along Petty’s Run bordering on the west side of Willow Street, north of Second Street (Hunterdon County Deed 20:243). This transaction, in which Fithian paid Joseph Brittain $700 for a property that, at the time, was discontinuous with his other holdings along the run, perhaps signaled his interest in future waterpower projects. However, the bulk of the borrowing and land acquisition in support of the cotton mill occurred in 1813-14 (Table 4.3). The key purchase occurred on July 27, 1813 when Fithian bought the eastern portion of the plating mill property from Jonathan Rhea for $300 (Hunterdon County Deed 21:509). In the following year he borrowed heavily against this property. In April, 1814 he mortgaged it to Ellen Burrowes for $500 (Hunterdon County Mortgage 5:472); a couple of months later he negotiated a second mortgage with Giles Olden of West Windsor for $1,000 (Hunterdon County Mortgage 6:2); and also around this same time he borrowed an undetermined but substantial sum from his brother-in-law Dr. Jacob Scudder of Princeton. All of these loans, it is surmised, were taken out to support the setting up of the cotton mill. Of particular note in the description of the property in the Burrowes mortgage are references to Petty’s Run being bordered by walls, which represent the first clear evidence for the creek being channelized, a project that Fithian appears to have undertaken in 1813-14.

Significantly, on January 5, 1814, Fithian acquired from Alexander Chambers for $1,200 another key parcel along Petty’s Run on the north side of Second Street (Hunterdon County Deed 22:123). This purchase, involving both a house and lot along with a floodgate and the right to raise a head of water, gave Fithian control over the entire length of Petty’s Run from Willow Street down to Front Street. Throughout 1813 and 1814, in addition to the loans made against the eastern portion of the plating mill property, Fithian was also borrowing heavily against his other real estate holdings on both sides of Second Street. In January of 1813 he mortgaged his property on the east side of the run (south of Second Street, north of the plating mill property) and the parcel bordering Willow Street (north of Second Street) to Elizabeth Milnor Stockton for $2,563.69 (Hunterdon County Mortgage 5:318). Before the year was out, ownership of the first of these lots passed to Elizabeth Stockton’s trustee (her brother, Joseph K. Milnor) in lieu of Fithian’s making a cash payment on his mortgage debt (Hunterdon County Deed 20:391). Clearly, Fithian was strapped for cash by this time, probably a result of funding the construction and equipping of the cotton mill.

In October of 1813 Josiah Fithian borrowed $500 from Rebecca Forman using his original house lot and cabinet shop on the south side of Second Street, west of the run, as collateral (Hunterdon County Mortgage...
<table>
<thead>
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<th>Begin Date</th>
<th>End Date</th>
<th>Owner</th>
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<tr>
<td>1813</td>
<td>1816</td>
<td>Josiah Fithian</td>
<td>Hunt. Co. Deed 21 509</td>
<td>Cotton mill built by Josiah Fithian</td>
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<td>1816</td>
<td>1821</td>
<td>Jacob Scudder</td>
<td>Chancery Court records (Burrowes vs. Scudder, 1820) (Hunt. Co. 34 595)</td>
<td>Scudder acquired property in sheriff's sale</td>
</tr>
<tr>
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<td>1823</td>
<td>Ellen Burrows</td>
<td>Hunt Co. Deed 34 595</td>
<td>Burrowes acquired property in sheriff's sale</td>
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<tr>
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<td>1841</td>
<td>Garret D. Wall</td>
<td>Hunt Co. Deed 34 597</td>
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</tbody>
</table>

For earlier ownership, see Table 4.1. For subsequent ownership, see Table 4.4 and Appendix A.1.
5:423). This latter property figured in two other mortgages in 1814, one of $2,000 granted to the Reverend Thomas Grant in January (which also involved other Fithian-owned land) (Hunterdon County Mortgage 5:435) and a second of $1,000 arranged with Ann White in April (Hunterdon County Mortgage 5:499). The operation of the cotton mill and the reconfiguration and channelization of Petty’s Run are thought to have provided the underlying motive for all of these additional loans.

At what point the cotton mill was actually put into operation remains unclear, but the land acquisitions and extended borrowing imply that this took place sometime in late 1813 or early 1814. The facility is believed to have been equipped with water-powered cotton picking and spinning machinery, another expensive investment for Fithian at this time. Weaving is likely to have been performed off the premises by independent weavers working out of their homes, since power looms were not yet in widespread use in the United States. Unfortunately, the mill seems to have been in difficulty even before the end of 1814 and certainly throughout 1815. Over the course of these two years, the War of 1812 wound down and trade between Britain and the United States resumed. Despite American tariffs on British imports, English textile manufacturers flooded the American market with cheaper, better quality textiles and numerous American mills went out of business, unable to compete. Fithian’s newly established cotton mill became one of many casualties of this major shift in global trade (White 1967 [1836]:209-210; McFarland and Neal 1969; Irwin and Temin 2001).

In his efforts to ward off the inevitable demise of the cotton mill, Fithian fell deeper into debt. As reported in court papers filed in 1820 by Ellen Burrowes against Jacob Scudder, Fithian, after he had mortgaged the mill property to Burrowes in April of 1814, became “larger indebted to various creditors in various large sums of money and particularly to Jacob Scudder …” (Chancery Court Records, Case Files, Box 114). On August 8, 1815 he mortgaged the plating mill lot yet again to secure $4,000 from the Trenton Banking Company to pay off his debts to Scudder (Hunterdon County Mortgage 6:173). As Fithian’s brother-in-law, Scudder seems to have sunk substantial sums into the cotton mill venture, perhaps more on account of their personal relationship than because of any clear investment benefit. In any event, by 1815, Scudder must have seen the writing on the wall and he filed suit against Fithian in the Hunterdon County Court of Common Pleas for non-payment of debts. On February 8, 1816 Scudder received a judgment against Fithian on a bond and warrant of attorney in the amount of $15,000, which led to a sheriff’s sale in May of 1816 as a result of which Scudder assumed ownership of the mill property (presumably because no buyers could be found) (Table 4.3; Chancery Court Records, Case Files, Box 114). In the meantime Scudder had already taken steps to sell off some of the mill’s assets, advertizing for sale in March: “A NEW set of New-England COTTON MACHINERY, 540 Spindles with a Picker” (Commercial Advertiser, March 12, 1816).

Josiah Fithian’s financial woes, not surprisingly, were far from over. He was sued in Chancery Court in 1817 by John Grant and Charles Ewing, Executors of Thomas Grant, and by Charles Ewing, on his own behalf, over a default on the $2,000 mortgage taken out from Thomas Grant in 1814 on the house lot and cabinet shop property on the south side of Second Street, west of Petty’s Run. These proceedings resulted in a prioritizing of the several creditors having a claim on the property (Chancery Court Records, Case Files, Box 98). This property, along with Fithian’s two other heavily mortgaged properties on the north side of Second Street, was sold to Charles Ewing in a sheriff’s sale for $2,530 on September 11, 1818 (Hunterdon County Deed 29:388). This represents the final severing of Fithian’s ties to Trenton, although he may well have moved out of the city a year or two ear-
lier. Little is known of Fithian’s later life. His failed cotton manufacturing venture may well have caused him and his family to live in considerably reduced circumstances. In 1840 he was living in Deerfield Township, Cumberland County, head of a household comprised of himself and four females, all under 40 years of age. He died on July 16, 1842 (New Jersey, Deaths and Burials Index 2011).

What Jacob Scudder did with the cotton mill property after he assumed ownership is uncertain. There is some reason to believe that he was unsuccessful in selling off the machinery and instead rented out the premises. In January, 1819, when he advertised the mill property for sale, it was noted that the mill was “occupied by Gideon H. Wells” (Trenton Federalist, January 11, 1819). Wells was a partner in the Eagle Factory, another Trenton textile mill that was founded at the South Broad Street crossing of the Assunpink Creek around the same time as the Fithian mill. The Eagle Factory fared somewhat better than Fithian’s mill, continuing in operation until the late 1840s (Hunter et al. 2009). Possibly Wells was using the Fithian mill as a satellite factory for storage purposes, or perhaps even for picking and spinning cotton.

Scudder had no success in selling the mill, but his efforts at doing so prompted Ellen Burrowes, Fithian’s original mortgagee in 1814, to take legal action against him. Burrowes, later the wife of Stacy G. Potts, a prominent journalist and lawyer and grandson of Stacy Potts (Potts 1860:34; Potts 1901:174), filed a bill of equity in the Court of Chancery on June 19, 1820 seeking redemption of her mortgage in addition to unpaid interest and legal costs, a claim totaling $639.89. In October the court found in favor of Burrowes and ordered that the mill property be the subject of a public sale so that she could be properly compensated (Chancery Court Records, Case Files, Box 114). In the resultant sheriff’s sale on September 21, 1821 Burrowes was forced to purchase the property herself (for only $500) to assure that her investment was protected, much like Scudder had had to do in 1816 (Table 4.3; Hunterdon County Deed 34:595).

On March 1, 1822 Ellen Burrowes embarked upon her own effort to sell the cotton mill. Advertized as “THAT LARGE BUILDING on Petty’s Run, which was erected for a factory. It could be finished so as to make two handsome dwelling houses,” it would seem that the mill was no longer operational (Trenton Federalist, March 1, 1822). Burrowes was finally successful in unloading this burdensome asset on January 2, 1823, receiving $600 in payment and almost covering her initial investment and accrued interest (Hunterdon County Deed 34:597). The buyer was none other than Garret D. Wall, the son-in-law of Jonathan Rhea (Table 4.3). It was Rhea, of course, who had triggered the whole sorry saga of the cotton mill when he had sold Josiah Fithian this same property almost 10 years earlier. Wall, in 1814, had already acquired the steel furnace lot from his father-in-law, along with the western portion of the former plating mill lot, for $800 shortly before Rhea’s death (Hunterdon County Deed 23:268) (Figure 3.17). With his purchase of the cotton mill property from Ellen Burrowes, Wall recombined the former plating mill and steel furnace properties in their entirety for the first time since 1762 and was now positioned to set in motion one final phase of water-powered industrial development along Petty’s Run (Table 4.4).

D. THE FRONT STREET PAPER MILL

At the time he purchased the cotton mill property in 1823 Garret Dorset Wall was in the beginning stages of a successful political career (Figure 4.10). Born in 1783 in Middletown, Monmouth County, he studied law in Trenton and was admitted to the bar in 1804. In his early professional life as an attorney he was likely helped by his marriage to Mary, the daughter of Jonathan Rhea, and from 1812 until 1817 he
## TABLE 4.4. FRON T STREET PAPER MILL - SEQUENCE OF OWNERSHIP.

<table>
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<th>Owner</th>
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<td>1841</td>
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<td>[Hunt Co. Deeds 23 268 &amp; 34 597]</td>
<td>Wall acquired plating mill lot in 1823; built paper mill in late 1820s</td>
</tr>
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<td>Henry P. Welling</td>
<td>Mercer Co. Deed C 378</td>
<td></td>
</tr>
<tr>
<td>1844</td>
<td>1866</td>
<td>Henry P. Welling &amp; Joseph G. Brearley</td>
<td>Mercer Co. Deed 34 29</td>
<td></td>
</tr>
<tr>
<td>1866</td>
<td>1876</td>
<td>Horatio G. Armstrong</td>
<td>Mercer Co. Deed 71 67</td>
<td>West section of paper mill pulled down circa 1874 and redeveloped as row housing</td>
</tr>
<tr>
<td>1876</td>
<td>1891</td>
<td>Caleb S. Green</td>
<td>Mercer Co. Deed 112 245</td>
<td>East section of paper mill pulled down circa 1876-77 and redeveloped as row housing</td>
</tr>
<tr>
<td>1877</td>
<td>1882</td>
<td>John Brennan</td>
<td>Mercer County Deed 115 143</td>
<td></td>
</tr>
</tbody>
</table>

For earlier ownership, see Tables 4.1 - 4.3. For subsequent ownership, see Appendix A.1
Figure 4.10. Portrait of Garret D. Wall (1783-1850). Source: Office of Legislative Services Library, New Jersey State House.
served as the Clerk of the State’s Supreme Court (a position previously held by his father-in-law). Wall resided in the house that formerly stood at 127-129 West State Street where he also maintained a law office (Figure 3.19). He acquired this house from Jonathan Rhea in 1811 (Hunterdon County Deed 18:347) (Schuyler 1926:211, 213; Stillwell 1930:231; Ershkowitz 1982:98).

After serving in the War of 1812 in command of a volunteer regiment from Trenton, Wall took on another important position in state government that had once been held by his father-in-law when he was appointed as the state’s Quartermaster General in 1815. He remained in this position until 1837. In 1827 he was elected to the New Jersey Assembly and received an appointment as a United States District Attorney. Wall appears to have maintained two homes (in Trenton and Burlington) as his political career flourished over the next several years. In 1829 he was elected by the state legislature to serve as Governor of New Jersey, but declined to take up the position, using his influence instead to have the Governorship bestowed on Peter D. Vroom, a staunch political ally and his future son-in-law. In 1832 Wall sold his house on State Street, and it appears that after this date he resided primarily in Burlington City. His political career continued, however, reaching a peak with his election to the United States Senate in 1835. Wall served one full term as a Senator, retiring to Burlington, where he died in 1850 (Schuyler 1926:213; Stillwell 1930:231; Ershkowitz 1982:99).

The precise date when Garret D. Wall constructed the Front Street paper mill and put this facility into operation is not known. Although secondary sources, notably Raum (1871:235), imply that this occurred sometime before 1819, soon after the cotton mill ceased business, no primary archival support has been found for this claim. Indeed, it seems certain that the paper mill was not in existence before 1823 when Wall reunited the former plating mill and steel furnace properties. All subsequent maps, deeds and views indicate that the paper mill was situated on the east side of the run on the plating mill/cotton mill parcel, which did not come into Wall’s hands until this year, after it had been advertised as suitable for conversion into a pair of dwelling units. Significantly, Wall mortgaged the combined property in 1827 to Alice Holmes for the sum of $1,500 (Hunterdon County Mortgage 12:56). This loan is probably an indication that the property was then undergoing or about to undergo improvement. On this basis, the late 1820s are tentatively viewed as the most likely period for the establishment of the paper mill.

In the early 19th century papermaking in the United States was a largely manual process involving large quantities of cotton and linen rags and an extensive supply of water (used both in the papermaking process and as a source of power). Paper manufacture was basically a two-phase operation involving first the reduction of rags into a pulp of cellulose fiber and then the production of paper from the pulp. The first activity began with the sorting, washing and soaking of collected rag stock. The soaking process, which involved immersing rags in vats of water for a period of about two months, was designed to induce rotting, which softened and helped separate the fibers. Fiber separation was finally accomplished by beating the softened rags in a stamping mill (generally a water-powered operation), with the end product of this operation being referred to as pulp. The pulp was then mixed with water and placed in a vat in preparation for the second production phase, the actual manufacture of paper (Gillispie 1959; Wilkinson 1975:12-13).

The first step in the paper production phase was performed by a vat man, the most skilled of the several laborers employed within the paper mill. This individual dipped a mold with a base of wire mesh into the vat of pulp and water. The mold was withdrawn from the vat with a thin layer of cellulose fibers coating the mesh base. The vat man then passed the mold
to a coucher, who extracted the layer of raw paper from the mold and placed it between two pieces of felt. The coucher repeated this activity until he created a “post” of about 200 sheets of paper separated by felt. This post was then passed to a layer, whose responsibilities included the use of a screw press to remove any remaining water and the separation of the paper sheets and the intervening pieces of felt. The resulting piles of paper were again pressed to further compact the fibers and create a smooth surface. The individual sheets of paper were then hung out to dry in a drying loft within the mill before being sent to the sizing room for further surface smoothing. Sizing involved dipping the paper sheets in a vat of gelatinous liquid made by boiling scraps of animal hide acquired from local tanneries. The sizing filled up the spaces between the cellulose fibers to yield the desired smooth surface. This activity was followed by another pressing (to remove excess sizing) and final drying. These final tasks were performed in the finishing room, where the paper sheets were polished, cut to size, pressed a final time and packaged (Gillispie 1959; Wilkinson 1975:13-17).

Pennsylvania, and more specifically Philadelphia, was the center of the American paper industry in the early part of the 19th century. Trenton’s geographical proximity to and close business links with Philadelphia encouraged the growth of papermaking in New Jersey’s capital city. Trenton also had a sizeable local population (which could provide rags, a labor force and an adequate market) and available water resources. Wall’s Front Street mill drew on Petty’s Run for its water supply and water power and also benefited from being close to several tanneries (including two a short distance upstream along Petty’s Run) which provided the scraps of hide used in sizing.

The first unequivocal evidence for the existence of the paper mill is provided by Thomas Gordon’s Map of the City of Trenton and Its Vicinity, published in 1836, which places the mill on the east bank of the run, north of Front Street, and identifies it as “17. Davison’s Paper” (Figure 3.21). In the following year the same facility was included in an inventory of all of the industrial properties then operating in Trenton (Potts 1837:253). It was stated that this mill, which was valued at $14,000 and produced 3,000 reams of paper annually, was owned by Garret D. Wall and operated by John Davisson. At that time it was the only paper mill in Trenton, but it was noted that a new, larger mill was then under construction on the recently completed power canal of the Trenton Delaware Falls Company. These two paper factories were, in fact, the first of four established in Trenton in the second quarter of the 19th century when papermaking joined textile manufacturing as two of the city’s leading industries during its initial period of industrialization following the completion of the power canal and the Delaware and Raritan Canal, and the arrival of the first rail lines (Raum 1871:187; Turk 1964:211).

Wall, as a well-to-do attorney and prominent politician, regarded the paper mill first and foremost as a business investment. With no hands-on knowledge of papermaking, he turned to an experienced Trenton area paper manufacturer, John Davisson, to operate the factory, presumably entering into some form of leasing arrangement with him. Davisson (circa 1779-1857) is believed to have been involved with the Front Street paper mill from its outset and to have continued there for the duration of Wall’s ownership. In the second decade of the 19th century he was the owner of a paper mill located at the present-day Whitehead Road crossing of the Assunpink Creek on the border of Maidenhead (now Lawrence) Township, Hunterdon County and Nottingham (now Hamilton) Township, Burlington County (Hunterdon County Mortgages 5:361, 7:228 and 7:279; U.S. Census of Manufactures 1820). Davisson was also in partnership in the paper manufacturing business, first in the firm of Houston & Davisson, which was dissolved in April, 1817, and then Stevens & Davisson, dissolved in September 1818 (Trenton Federalist, April
28, 1817 and September 14, 1818). From at least 1817 through the end of 1824, Davisson maintained a “Paper Ware-House” in Trenton on Second Street near the “New-Market” (between Warren and Broad Streets), first in partnership with Stevens and then on his own. For most of this period the warehouse was operated in conjunction with a store, probably at the same location, that sold stationery, wrapping paper and books. Many of the advertisements he placed in local newspapers during these years noted that he would pay cash for cotton and linen rags, a strong indication that he was involved in the manufacture of paper products (e.g., Trenton Federalist, September 18, 1817; September 14, 1818; February 19, 1821; March 31, 1823; September 29, 1823; December 24, 1824).

In 1825 both Davisson and Wall became embroiled in a major banking scandal involving the Trenton Banking Company and the State Bank at Trenton. Both men served as directors of the Trenton Banking Company and drew funds from this institution (especially Davisson), evidently borrowing against over-valued notes that the bank held for the State Bank. Neither institution held assets sufficient to support the lending that took place, and both banks were forced to declare insolvency. The State Bank at Trenton then filed suit against the Trenton Banking Company in the Court of Chancery (Trenton Public Library, Trentoniana Collection, Bill of Complaint, November 3, 1825). Wall appears to have weathered this particular storm, but Davisson was so beset by debt in the years following that he was eventually imprisoned in 1829, only being discharged following his filing a lengthy petition of insolvency (Hunterdon County Court of Common Pleas, Insolvent Petition 352). Davisson’s legal and money woes persisted into the early 1830s, as seen in creditors’ correspondence sent to Garret Wall (Garret D. Wall Papers, Box 5, Folders XXI and XXII), but Wall still supported Davisson in his paper making endeavors at the Front Street mill since he maintained ownership of the site, and Davisson continued working there, into the early 1840s. In the mid-1830s, Davisson still owned the “Paper Ware House,” store and an adjacent house and was able to take out mortgages on these properties (Hunterdon County Mortgages 11:153 and 12:1).

By 1840, the Front Street paper mill, located more than 1,500 feet downstream along Petty’s Run from the crossing of the recently completed Delaware and Raritan Canal, was operating under an arrangement with the canal company which evidently safeguarded its supply of water and waterpower. The annual report of the Delaware and Raritan Canal and Camden and Amboy Rail Road Transportation Companies for that year noted that “John Davisson, at Trenton, takes 64 inches, under four feet of head, at $4 per inch, making $256 per year” (Report of the Joint Board of Directors, to the Stockholders of the Delaware and Raritan Canal and Camden and Amboy Rail Road and Transportation Companies 1840:5). How this water was transported to the paper mill from the canal is unknown. It could have been separately piped there, or it may have been directed straight into the run, which would have meant other users between the canal and the paper mill could have gained access to it. It is notable that the paper mill was the only Trenton mill reported in 1840 as drawing waterpower from the canal. This circumstance may well have been the result of Garret D. Wall serving as a director of the canal company.

In 1841 Wall sold off the bulk of the former plating mill and steel furnace lots, including the “Factory Stables ... now in the occupancy of John Davisson,” to Henry P. Welling, a prominent physician in nearby Pennington, for $5,000 (Table 4.4; Mercer County Deed C:378). This transaction included the “machinery and fixtures in said mill” and “the water power connected ... with the privilege of using and cleaning out the channel of Pettys Run and enlarging the same for the free flowage of the water.” Wall retained only the western end of his former paper mill hold-
ing, a vacant parcel sited at the corner of Front and Delaware Streets (Appendix A.2 - 132-138 West Front Street). Welling took out three mortgages (totaling $5,000, the full purchase price) to finance his acquisition (Mercer County Mortgages A:356, A:356 and A:357). He then recouped a good portion of his initial investment and gained an influential partner when, in 1844, he sold a half share in the “paper Mill buildings” and associated properties to Joseph G. Brearley, a successful Trenton merchant, for $4,000 (Table 4.4). Davisson was no longer active in the operation of the mill by this time, as it was noted that it was “now in the occupancy of Lewis & Gummere” (Mercer County Deed 34:29). Raum states (with incorrect dates; 1871:235) that Davisson sold his right to operate the mill to T.J. Ames, who, within a year, sold out to John G. Gummere. The latter quickly sold a share in the business to Henry M. Lewis (Cooley and Cooley 1883:300; Trenton Historical Society 1929:570).

Gummere, a member of a prominent Trenton family, and Lewis, an experienced paper manufacturer (he had previously been active at Henry McCall’s paper mill at the Broad Street crossing of Assunpink Creek), jointly operated the Welling and Brearley facility for more than a decade. Welling and Brearley also appear to have been under some obligation to John Davisson, for in 1848 they conveyed a dwelling on State Street, which they had acquired the year before to a trustee appointed to represent the interests of the mill’s former operator (see Appendix A.1 - 121 West State Street; Davisson died in 1857, but this house remained under the control of Davisson’s trustee until 1871, at which time it was reacquired by Welling). This dwelling was located on the west bank of Petty’s Run, and in the deed recording this transaction Welling and Brearley retained full rights to “any natural or artificial stream or streams of water flowing” within the lot. It was further stated that they also reserved the right to repair or alter the banks or channels of any watercourses within the property (Mercer County Deed 0:94). These exceptions meant that Welling and Brearley could maintain or improve the water source which was so vital to their Front Street paper mill, and it is conjectured that a head gate controlling the flow of water into the paper mill flume was situated within this property (Raum 1871:235; Trenton Historical Society 1929:381, 542, 616-617).

The importance of Petty’s Run to the operation of the paper mill was further indicated by an agreement reached by Welling and Brearley and Isaac Dunn (the owner of a sash factory on the north side of State Street) with the owners of two tanneries sited further upstream on the run. The first of these tanneries, both of which were owned by the Potts family, was located just below the Delaware and Raritan Feeder Canal on the south side of Chauncey Street between Warren and Willow Streets, while the second was located in the southeast angle of Willow and Hanover Streets. It was noted that the southern section of Petty’s Run had been cut off from its natural source by the construction of the feeder. Contracts were concluded with the canal company to provide water from the feeder so that the several industrial sites along this bypassed section of the run could continue to be supplied with the water necessary for their various operations. In 1848 Welling and Brearley and Dunn, whose facilities were sited at the far downstream end of the run, lodged a complaint that the two Potts tanneries were both spoiling (through the dumping of “tan or filth”) and obstructing the flow of the all-important water course. An agreement was reached wherein the Potts interests promised they would limit their dumping activities and remove any obstructions in return for assurances that the flow of the run would not be inhibited at the paper mill or the sash factory (and could be properly flushed out) (Mercer County Deed 7:104).

The Sidney map of Trenton published in 1849 depicts the “Paper Mill” owned by “Brearley & Welling” and operated by “Lewis & Gummere” straddling the open channel of the run (Figure 3.23). This is thought
to be a somewhat simplified representation of the paper mill. The arrangement of buildings shown in the Whitefield view of Trenton produced in 1851 is noticeably different and more revealing (Figure 4.11). A cluster of three apparently connected buildings are shown in this view: a large, two-story, seven-bay structure on the right; a one-story, two or three-bay structure to the left; and a two-story, at least five-bay structure to the rear. When combined with the archaeological field evidence, it is clear that the left (west) end of the two-story, seven bay structure lay directly above Petty’s Run, while the smaller one-story structure contained a waterwheel and functioned as a wheelhouse. The structure to the rear is believed to be the former cotton mill, re-used as part of the paper mill. Further discussion of these buildings is provided in Chapters 7 and 8. Although difficult to see, other ancillary structures, possibly connected with the paper mill, are shown to the right and to the rear of the main building on Front Street.

In 1850 the mill (incorrectly listed as being under the sole proprietorship of John G. Gummere) was inventoried in the industrial schedules of the federal census for the State of New Jersey (U.S. Census of New Jersey 1850). The mill, which represented an investment of $14,000 in real and moveable property, was described as using water power and employing seven male hands and six female hands. At this time, 160 tons of rags (valued at $11,200), 50 tons of rope (another source of cellulose fiber; worth $2,750), 160 tons of coal (worth $560), a variety of “Powders & Acids” (worth $1,485) and various other articles (worth $2,000) were being processed annually to yield 135 tons of printing paper (apparently for use as newsprint) valued at $27,000.

John G. Gummere and Henry M. Lewis continued to operate the paper mill into the mid-1850s, by which time they were trading under the name of “Lewis & Gummere” (Clark et al. 1854-55). Joseph G. Brearley, who in 1853 became President of the Mechanics and Manufacturers Bank (later the Mechanics National Bank; Brearley held this position until 1870), was probably the more involved of the two owners of the mill during this period as Dr. Henry P. Welling continued to live and practice medicine in Pennington. In 1855 Gummere withdrew from the paper making partnership, leaving Lewis as the sole operator of the Front Street mill. In the following year Lewis acquired the portion of the old barracks building that had been owned by Stacy Potts just prior to his death (later 106, 108 and 110 West Front Street (Mercer County Deed 37:99). Lewis, who appears to have lived on State Street between Warren and Willow Streets during this period (Clark et al. 1854-55; Boyd 1859), may have acquired this property in an effort to provide housing for his mill employees. The lot on which the former barracks structure stood extended westward from the west end of the building to the east line of the paper mill property (in later years 112, 114 and 116 West Front occupied this frontage), and it also appears that Lewis was interested in using this vacant piece of land to support his manufacturing activities at the mill. Despite suffering losses in the economic downturn of 1857, Lewis’s papermaking enterprise mostly thrived in the late 1850s. He was characterized as having “Good business habits, doing good business and considered safe for his contracts” by Dun & Bradstreet and by the end of 1859 was operating three different paper mills in the Trenton area (Dun & Bradstreet, Mercer County Records 3518 and 3578; Raum 1871:235; Trenton Historical Society 1929:570).

“Lewis’ Paper Mill” is depicted on the Lamborn map of Trenton in 1859 (Figure 3.26) and Henry M. Lewis is listed as a paper manufacturer in the industrial section of the city directory of the same year (Boyd 1859). Around this time the mill appears to have occupied most of the Front Street frontage within the lot owned by Welling and Brearley (Figure 3.27). On the former barracks property adjacent to the eastern side of the mill Lewis built a small office structure on
Figure 4.11. Whitefield, Edwin. *View of Trenton, N.J. from Morrisville PA.* 1851. Detail.
the open land between the barracks and the mill, while the surrounding yard was probably used for storage and other mill-related activities. The lot to the west of the mill property was controlled around this time by Peter D. Vroom, the former Governor, and was the site of two small frame rental dwellings.

By the mid-19th century the American paper industry, following the example of its French and English counterparts, began to mechanize many of the tasks and processes housed within the traditional paper mill. Stamping mills were replaced by machinery that was faster and more efficient in separating the cellulose fiber needed to produce pulp. Huge papermaking machines were developed that effectively replaced the vat man, the coucher, and the layer, and various aspects of the sizing and finishing processes were also mechanized. The impact of mechanization on the Front Street mill was reflected within the industrial schedules of the federal census of 1860 (U.S. Census of New Jersey 1860). The Lewis mill (described as a “Brick” structure) now used both water and steam to generate the 40 horse power needed to operate “3 engines” and “1 machine” involved in the manufacturing process. The mill had also expanded during the past decade, and the work force now consisted of 20 male employees and 20 female hands. Production also increased with 480 tons of rags (worth $43,000), 900 tons of anthracite (worth $2500), and 20 tons of chemicals (worth $6500) being used to yield 350 tons of “News Printing paper” worth $70,000 (Gillispie 1959; Wilkinson 1975:12, 17, 36-40).

As shown by the often blunt assessments of Dun & Bradstreet, the fortunes of Henry Lewis took a dramatic turn for the worse in the early 1860s, in large part as a result of the fluctuating price of paper during the Civil War years. Through May of 1861 Lewis carried on a “very extensive business and is reported to have made considerable money,” although there were also indications that he had sustained some unspecified losses. By this time, he was running two, rather than three, mills and was “supposed to be worth 30 to 50 thousand [dollars] clear of encumbrances.” By October of 1861, while still “carrying on a large business” it was noted that “the state of affairs is cramping him, as it requires large means to meet his liabilities ….. His commercial standing is good, but like almost all men carrying on manufacturing, [he] has difficulty in getting ready money.” In the following month Lewis shut down the Front Street mill “owing to his embarrassment” and by the end of the year several suits had been filed against him by his creditors. In July of 1862 his mills were again “in full blast,” Lewis seemed “to be prosperous and it was “considered that he has lost nothing by failing.” Through all of this, Lewis lived “magnificently and extravagantly.” After doing well in late 1862, when he was able to cash in on a rise in paper prices having considerable stock on hand, Lewis and his enterprises were felled again by a precipitous price drop in early 1863. In June he was reported as being in “a dangerous financial condition on account of the reduced price of paper.” Next month, “in distress again,” it was noted that “he has been sick in consequence and has not yet got out of the house he joined to keep up the price of paper and has had to sell at a loss.” In August he died suddenly, leaving his business and personal affairs in some disarray (Dun & Bradstreet, Mercer County Record 3543).

Henry Lewis died without leaving a will, but the inventory of his moveable estate, which was compiled shortly after his death, included many references to his paper manufacturing activities (Appendix B.5). The deceased had retained an interest in the “Greene St. Mill” (the paper mill on the Assunpink at Broad Street), but his activities here seem to have been confined chiefly to a share in the ownership of the property. All of Lewis’s manufacturing pursuits appear to have been focused on the “Front St. Mill” (where it was noted that he owned much of the machinery in the building) and the adjacent “Office building.” The enumerations for the deceased’s business-related
personal property were extensive, with large quantities of raw materials (including coal, rags, rope and straw [the latter being yet another source of fiber]), chemicals (bleach, oil, clay, soda ash, potash, alum and rosin), and finished product (paper, with wrapping and twine for packaging). The machinery and hardware contents of the mill were also inventoried. The portion of the mill where pulp was produced included a soda ash tank, a straw tub, three rag cisterns, a rope cistern, three rag washers, a rag boiler, a rope boiler and a straw boiler, “beaters” and a bleach tank. The actual production of raw paper stock was handled by papermaking machinery, and the tasks of the finishing room were facilitated through the use of a cutting machine (New Jersey Inventory 1460K; Raum 1871:235).

Henry Lewis was immediately succeeded at the Welling and Brearley mill by Horatio G. Armstrong, an experienced paper manufacturer who came to Trenton from Philadelphia in the year that Lewis died. Armstrong concluded a lease agreement with the owners of the mill and shifted its production emphasis from newsprint to paper bags, although he did continue to make some printing paper and various other products. Paper bag manufacture was a particular specialty of Armstrong’s and he received patents in 1860 and 1873 for improved machinery for folding, cutting and gluing bags (Armstrong 1860, 1873). In 1865 Armstrong purchased the portion of the former barracks structure later referred to as 110 West Front Street and the adjacent office building and yard from Henry Lewis’s heirs (Mercer County Deeds 61:103, 61:104 and 61:106). He established his residence in this section of the former barracks and, as Lewis had before him, used the office and the surrounding yard as a part of his papermaking operation. In 1865 Horatio G. Armstrong was listed in the city directory as a paper manufacturer who resided on Front Street near Willow (Lant 1865-66). In the following year Armstrong became the owner of the Front Street paper mill when he purchased the property from Welling and Brearley for $16,250 (Table 4.4). The two former owners, who with this transaction ended an association with the mill that had lasted more than two decades, each accepted a mortgage from their former tenant worth $5,000 (Mercer County Deed 71:67) (Raum 1871:235; Woodward and Hageman 1883:697; Trenton Historical Society 1929:542).

Horatio Armstrong had ambitious plans for the paper mill that resulted in a major overhaul of the facility in the fall of 1865, continuing into the following year. This activity is believed to have involved some demolition and new construction on the east side of the run, but more importantly focused on the conversion of the hydropower system from a traditional vertical waterwheel to newer, more efficient and powerful hydraulic turbines. Unfortunately, this transition proved difficult and was initially unsuccessful, leading to legal proceedings between Armstrong and his principal contractor, the local builder and millwright Edmund Craft, who also happened to be a neighbor and owner of the next mill downstream, a bow factory located on Petty’s Run between West Front Street and the Trenton Water Power. The trials and tribulations of Armstrong and Craft in their efforts at upgrading the paper mill are first reflected in a lien placed on Armstrong’s property by Craft in the spring of 1866 and then much more vividly expressed in newspaper accounts of a case brought three years later by Armstrong against Craft in the Mercer County courts (see below and Appendix B.6).

On May 25, 1866 Edmund Craft placed a lien on Armstrong’s paper mill property. Craft claimed Armstrong owed him $2,054.76 “for labor performed and materials furnished by him [Craft] within one year last past for the erection and construction of the said building” (a portion of the paper mill). The subject of the lien is spelled out in some detail:
The said papermill and the said fixed machinery gearing and fixtures for manufacturing purposes upon a lot or cartilage situate on the Northerly side of West Front Street in the City of Trenton adjoining on the west a lot of Peter D. Vroom on the North a lot late of Charles Ewing deceased and on the East a lot of said Horatio G. Armstrong and fronting one hundred and nine feet six inches on Front Street the said machinery gearing and fixtures consist of one cast iron waterwheel and all the gearing shafting and fixtures connected therewith four paper engines one rag boiler one stack of rolls one water cistern three paper bag machines and all the other fixtures for manufacturing purposes in said mill contained (Mercer County Mechanic’s Lien A:113).

From this language and comparison of maps and views from the period it is thought that Craft’s work entailed the partial demolition of the rear (former cotton mill) portion of the paper mill and the construction of a new building on the east side of the run behind the mill’s main section. Further discussion of these modifications is provided below and in Chapters 7 and 8. It is important to note that the “cast iron waterwheel” referenced here was in fact a hydraulic turbine, which is clear from later newspaper accounts of court proceedings discussed in the following paragraphs. During this period, when traditional vertical waterwheels were beginning to be replaced with turbines, the latter were frequently referred to as horizontal waterwheels, tub wheels or turbine wheels.

In May of 1866, at the time the lien was docketed, tensions between Craft and Armstrong were at a high level. Craft, in the preceding three months, had removed the paper mill’s old waterwheel and installed a new Rider wheel (turbine) (Figure 4.12), which proved incapable of generating sufficient power to run the machinery in the paper mill. Indeed after four weeks, “the step in which the wheel run burned out, letting the wheel down; in falling it broke the gearing.” Armstrong paid for the necessary repairs, but five weeks later the hydropower system broke down again in much the same manner. At this juncture Armstrong replaced the Rider wheel with an “Ohio wheel” (almost certainly a “double turbine waterwheel” manufactured by James Leffel & Co. of Springfield, Ohio) (Figure 4.13), which appears to have operated more effectively, although perhaps not still to full capacity. This episode eventually led to Armstrong unsuccessfully filing suit against Craft and a fascinating tussle unfolded in the Mercer County courts in the fall of 1869. The accounts of the trial in the Daily State Gazette, transcribed in full in Appendix B.6, are revealing, not only about what was going on at the paper mill in 1865-66, but also about the broader state of water-powered industry along Petty’s Run and the manner in which millwrights and mill owners acted as agents for turbine manufacturers.

With regard to the poor performance of the Rider wheel, two main issues were in dispute. One concerned the size and weight of the wheel, which Armstrong claimed were too great for the amount of waterpower available in the run. The four-and-a-half-foot-diameter Rider wheel turned only at around 60 revolutions per minute, roughly half to two-thirds the required speed and too slow to operate the mill machinery. Armstrong consequently claimed he had been sold the wrong turbine, noting that he replaced it with a smaller, three-and-a-half-foot-diameter “Ohio wheel.” The other issue centered on Armstrong’s modification of the penstock (or flume), which Craft claimed reduced the waterpower available to the wheel. During construction of the penstock, designed as an eight-foot square wooden chute more than 20 feet in height which channeled the water to its point of impact on the wheel/turbine, rock was encountered toward the base of where the penstock was supposed to sit. Evidently some blasting of rock was undertaken, but Armstrong was unwilling to continue this to the full depth projected for the base of the penstock (possibly he was concerned that the blasting would destabilize the mill building). He therefore instructed the builders of the penstock to taper the chute toward the base, reducing the size of the penstock, thereby affecting the volume, rate and direction of the water
Figure 4.12. The Rider Waterwheel. Fig. 1 is a plan view; Fig. 2 is a cross-section; Fig. 3 shows the gate; and Fig. 4 shows a side view of the angled buckets in the turbine. A – penstock (or flume [as named in the patent]); B – turbine (or waterwheel); C – tub containing the turbine; D – chute to guide water from the penstock onto the turbine; E – gate; F – shoe ("supplementary chute-top ... to guide the water in an unbroken current into the tub when the wheel is worked at less than full gait"); G – turbine shaft; H – step (at base of shaft). Source: Caleb Rider (Assignor to George T. McLauthlin) 1858.
Figure 4.13. The Leffel Double Turbine Waterwheel and Penstock. Left: detailed view of the Leffel turbine. Right: side view of penstock and turbine setting. B – gate rod for opening and closing the gates; C – penstock (or flume); M – depth of the pit below the turbine setting; O – stuffing box around the turbine shaft; P – stuffing box around the gate rod; T – top decking of turbine box. Source: James Leffel & Co. 1867.
entering the wheel/turbine. This modification of the penstock was observed in the archaeological excavations (see below, Chapter 7).

The court proceedings also touched on several other issues of interest, including the variability of the stream flow in Petty’s Run, the complicated relationships between the various mill owners and water users along its course, and the effect of the Delaware and Raritan Feeder Canal on the run’s water supply. Edmund Craft emerges in the newspaper accounts as a key figure in the development of waterpower along Petty’s Run. For several years prior to 1865 he seems to have operated as an agent for George T. McLauthlin & Co. of Boston, makers of the Rider wheel, and had apparently set up other mills along the run with this particular type of turbine. In dealing with Armstrong’s paper mill, Craft eventually found himself in competition with and outmaneuvered by the aptly named Mr. Mills who was acting as an agent for the “Ohio wheel.” With this episode one can sense the rivalry between the competing turbine manufacturers and their agents as they sought to equip the local mills with the most up-to-date hydropower technology in the immediate post-Civil war era.

Other useful tidbits about the paper mill may be gleaned from the newspaper accounts of the Armstrong vs. Craft court battle. The spring of 1866 was clearly a challenging time for the mill. While the problems with the hydropower system were being straightened out, the mill was out of commission for several weeks and was unable to fill orders, losing business in Philadelphia as a result. It is apparent that the mill, prior to 1866, was powered by a traditional vertical overshot or breast wheel at least 20 feet in diameter. Finally, although the reportage is confusing in places, it would appear that the mill in the late 1860s operated with two turbines, presumably one being the Ohio wheel that replaced the Rider wheel in the wheelhouse, the other perhaps being positioned in the main channel of Petty’s Run at the western end of the main section of the mill. One wonders if the installation of this second turbine was necessitated by the poor performance of the Rider wheel and its replacement by the smaller Ohio wheel.

Horatio G. Armstrong was listed as a paper manufacturer in city directories from the mid-1860s through into the mid-1870s (Figure 4.14) (Webb & Fitzgerald 1867-68; J.H. Lant & Co. 1868-69; Metcalf 1870; J.H. Lant & Co. 1872; Boyd and Boyd 1873, 1875). His Front Street mill and adjacent office and residence were depicted on the detailed map of the city published in 1870 (Figure 3.28). This map also appears to confirm that the large two-story structure to the rear of the eastern section of the mill seen in the Whitefield view of 1851 (the possible earlier cotton mill) had been removed and replaced by a different rear addition with a smaller footprint. However, this map is small-scale and it is risky to take the building footprints as shown too literally.

The industrial schedules from the federal census of 1870 give additional details on Armstrong’s activities at the paper mill (U.S. Census of New Jersey 1870). The mill had been operational for a total of ten months during the previous year and employed a work force of 8 men and 13 women. Two turbines and a steam engine provided the power necessary to run four “Rag Engines” (used for fiber separation) and a “Cylinder Paper Machine” (which handled the actual production of raw paper). The mill, which was described as having the capacity to produce one-and-a-quarter tons of paper per year, had used 400 tons of rags, bagging and rope (valued at $5,500) and $500 worth of chemicals to yield 300 tons of “Roofing paper” (worth $24,000) in 1869. This production information apparently reflected another shift in manufacturing emphasis wherein the manufacture of paper bags was relegated to a secondary position. The reference to two turbines is notable and confirms the information provided in the newspaper accounts of the court proceedings of the previous year.
The paper mill and other buildings along the north side of West Front Street between Delaware and Willow Streets are depicted in the Fowler and Bailey bird’s eye view of the City of Trenton published in 1874 (Figure 4.15). The two-story double dwelling owned by Peter D. Vroom at the western end of the Front Street frontage is visible just to the east of the State House. To the east of the Vroom houses, separated by a vacant lot (later identifiable as 132 West Front Street), is a three-story, seven-bay structure which is thought to be the series of three row houses built by Henry Armstrong in 1874 on the site of the paper mill’s wheelhouse. These houses correspond to what are later known as 126, 128 and 130 West Front Street. Immediately adjoining to the east is another three-story, seven-bay structure with a gable roof. This building, the principal paper mill structure, matches well with the building shown in the Whitefield view of 1851 (Figure 4.11) and with the Sanborn fire insurance map data of 1874 (see below, Figure 4.16). The structure to the rear of the paper mill (the possible earlier cotton mill) is conspicuously absent in the Fowler and Bailey view, indicating that it had been removed by 1874, possibly in the late 1860s (cf. Figures 3.26 and 3.28). Visible just to the east of the mill in the bird’s eye view is Armstrong’s office, a small single-story structure, while to the rear of the office is a larger outbuilding probably used for storage and stabling. The large building at the eastern end of the block is the former barracks, the western end of which (with the projecting rear addition) was also owned by Armstrong. In 1873 Armstrong sold off this latter property (Mercer County Deed 94:23), but in the following year it was reacquired by his wife, Mary G. Armstrong (Mercer County Deed 100:281).

The Front Street paper mill is also depicted on the map of Trenton’s Second Ward included in the Everts & Stewart atlas of Mercer County published in 1875 (Figure 3.31). The mill footprint on this map broadly resembles that shown on the Beers map of 1870, with a narrow addition running the full length of the rear of the main eastern section of the building (Figure 3.28). The arrangement of these two components of the eastern portion of the mill, along with other aspects of the site, is greatly clarified by the Sanborn fire insurance maps of 1874, updated to 1886 (Figure 4.16). This particular map consists of a base, surveyed in 1874, over which have been pasted localized updates showing changes made to the urban landscape in the years between 1874 and 1886. This dual aspect to the map complicates its interpretation, but by projecting a bright light through the map sheet it is possible to view most of the earlier, pasted-over data. In 1874 the front portion of the main eastern section of the mill along the street is identifiable as a three-story, gable-roofed paper box manufactory with storage on the first floor and work rooms on the second and third floors. Although barely legible, there does appear to be an annotation indicating that the factory used water-power. The building attached to the rear of this is a two-story structure labeled “J. Jones & Co’s Woolen Mill” inside which picking and dyeing tasks were carried on, making use of coal-fired steam power.

Very little has been discovered about the Jones woolen mill. It appears to have been a very short-lived operation since it does not appear in either the 1870 or 1880 industrial censuses and is listed only in the 1875 city directory. In the latter source there is the following entry: “Jones J. & Co., (D. Wesley Titus and U.P. Scudder,) woolen manufrs, W Front n Delaware.” A few entries below on the same page appears “Jones Joshua, manuf woolen goods, Prison h Clinton n State,” which would seem to indicate that Jones’s home was on Clinton Avenue near State Street and also that he may at the time have been confined in prison. Titus and Scudder, evidently the owners of the woolen mill, lived at 26 West State Street and in Ewing Township respectively (Boyd and Boyd 1875:198, 272, 296).
Figure 4.15. Fowler and Bailey. Bird's Eye View of Trenton. 1874. Detail.
Figure 4.16. Tracing of Sanborn, D.A. Sheet 9. Insurance Diagrams of Trenton. 1874, corrected to 1886. Detail showing 1874 information beneath pasted-over mapping of 1886.
The underlying Sanborn map data of 1874 further indicates that the Jones woolen mill was adjoined to the rear (north) by a cluster of three smaller buildings comprising a two-story boiler house/drying room and two two-story sheds, linked by a covered one-story space. To the east of the paper box factory, an open yard extended south and east from the woolen mill to West Front Street, with one small shed located on the street frontage. Another structure of particular note on the underlying map of 1874 is a “Large Water Tank” positioned directly over the top of Petty’s Run. This feature, just barely visible on the Fowler and Bailey bird’s eye view of 1874, is thought to be connected to the paper mill (rather than the woolen mill), providing water storage capacity, either for the mill’s water-power system or, perhaps more likely, for the paper production process.

Both the Fowler and Bailey bird’s eye view and the Sanborn map data of 1874 indicate that the western section of the paper mill had been replaced by the row of three three-story brick row houses identified as 126, 128 and 130 West Front Street. Evidently, the wheelhouse portion of the paper mill and its hydropower system, by now obsolete, had been removed by 1874, as a result of Horatio G. Armstrong’s redevelopment of this part of the site for residential purposes. This change in land use, however, was not reflected in the property ownership until 1877, when Armstrong sold these three houses to John B. Brennan (Table 4.4; Mercer County Deed 115:143). The houses remained in the Brennan family until they were torn down to make way for the development of Mahlon Stacy Park in 1912.

Horatio Armstrong appears to have continued industrial operations in the main eastern section of the Front Street mill until 1876, at which time he sold the “mill and buildings” to Caleb S. Green for $12,000 (Table 4.4; Mercer County Deed 112:245). This conveyance included the eastern portion of the mill property and a narrow strip from the western end of the former bar- racks property that was attached to the eastern line of the mill lot. Green also agreed to assume full responsibility for the remaining amounts owed by Armstrong on the mortgages obtained from Joseph G. Brearley ($4,500) and Henry P. Welling ($2,500) in 1866.

Caleb Smith Green, the new owner of the eastern section of the paper mill, was a native of Lawrenceville who had established his law practice in Trenton after being admitted to the bar in 1843. In 1847 he married Ellen, the daughter of Charles Ewing, a recently deceased Chief Justice of the New Jersey Supreme Court (and formerly the owner of 121 and 125 West State Street). Green went on to become a highly successful lawyer and businessman in Trenton, and in later years he served as a judge on the Court of Errors and Appeals and as the manager of the New Jersey Lunatic Asylum (now the Trenton Psychiatric Hospital). He lived in the house formerly occupied by Garret D. Wall and Stacy G. Potts at the southeast corner of State and Delaware Streets (127 and 129 West State Street) and built the dwellings known as 123 and 125 West State Street during the late 1860s (Appendix A.1) (Cooley and Cooley 1883:84-85; Woodward and Hageman 1883:566; Ely et al. 1910:229-230).

Green was also interested in the residential potential of the former Armstrong property, and he had the eastern section of the old paper mill torn down shortly after acquiring it. He immediately replaced this structure with four three-story brick dwellings (118, 120, 122 and 124 West Front Street; see Appendix A.2) which were to be used as rental properties. 118, 120 and 122 West Front Street were all attached (with 118 also sharing a party wall with 116 West Front Street, owned by the Armstrongs). An alley was left between 122 and 124 West Front Street, the latter sharing a party wall with 126 West Front Street, owned by the Brennans. The alley, known as Green’s Alley, provided access to the rear of the lots along State Street (Figures 3.33 and 3.35). All four of these residences remained in the Green family until they were pur-
chased and torn down by the State of New Jersey in 1913. In 1889 Green also acquired the adjacent lot at the corner of Front and Delaware Streets from the Vroom family estate (Mercer County Deed 168:334). He appears to have had the frame double dwelling on this lot removed immediately after this purchase and this property remained vacant up to the time it was incorporated as part of the park adjacent to the State House.

In 1876 Horatio G. Armstrong and his wife were listed in the city directory as the owners of a “stationary and paper” store on State Street between Warren and Willow Streets (Boyd and Boyd 1876-77). In 1877 Armstrong re-established his manufacturing operations in a mill located on Broad Street (Mains & Fitzgerald 1877) and remained active there until his death in 1879. He was succeeded at the Broad Street factory by his wife and in 1883 her operation was described as one of Trenton’s three active paper bag mills (Woodward and Hageman 1883:697). The Armstrongs also built three two-story brick dwellings within the former yard to the west of the old barracks building (formerly the site of the paper mill office). These residences (112, 114 and 116 West Front Street) were built to extend westward from the west wall of the former barracks (110 West Front Street) and were completed during the late 1870s. As the Armstrongs themselves lived on Broad Street during this period they rented out these four adjacent dwellings. The development of Mahlon Stacy Park resulted in the removal of the three newer structures and the additions that had been made to 110 West Front Street and the renovation of the core of the latter as part of the restoration of the barracks.
Chapter 5

PETTY’S RUN - NATURAL STREAM TO URBAN CULVERT

A. HISTORICAL OVERVIEW

1. The Industrial Exploitation of Petty’s Run

Petty’s Run served as a source of waterpower and a supplier of water to local industry from at least the early 1730s. This use intensified as the population of the town of Trenton increased during the mid- to late 18th century. By the later colonial period the town’s street pattern had begun to expand westward into the Petty’s Run drainage and the stream was being exploited by several industrial facilities, including a brewery, a pair of tanneries (one with a bark mill), the Harrow/Yard plating mill and probably also by a smith’s shop associated with the Trenton Steel Works (Hunter Research, Inc. 2008b). Portions of the run’s course had certainly been altered by this time in an attempt to improve its ability to serve as a source of water and power for these industries. In the 1730s a millpond of uncertain extent stretched from immediately upstream of the plating mill to the crossing of the River Road. How long this pond remained a part of the plating mill’s hydropower system and whether it also serviced the steel works is not entirely clear. It probably continued in existence up until the Revolutionary War era, but had certainly disappeared from the city landscape by the turn of the 19th century when the southern section of the run was located fully within the city’s street pattern (see above, Figure 3.15).

While the tanneries along Petty’s Run remained active into the second half of the 19th century, both the plating mill and steel works had ceased operation by the mid-1780s. From the 1790s through into the mid-19th century the run appears to have been progressively channelized in an effort both to control its flow and generate more waterpower. In 1790, for example, the section of the stream immediately north of Second (West State) Street was the subject of considerable attention in a deed in which Joseph Brittain transferred a parcel of land containing the run to Thomas Barrett. Barrett was permitted to “raise a head of water in the sd. main channel” (presumably for water-power purposes) in part by constructing a “sufficient Bank or Dam” along the property line with Brittain’s other adjoining property and by installing a four-foot-wide floodgate in the channelized run. Both parties retained the right to open the floodgate “in time of a freshet or flood” to prevent inundation of adjoining land (Hunterdon County Deed 1:414).

The documentary record provides no indication that Barrett ever drew waterpower from Petty’s Run, but his right to install a floodgate “in the main channel of the water course” passed to Josiah Fithian when the latter acquired a stone dwelling and lot of land on the north side of Second (West State) Street from Alexander Chambers in 1814 (Hunterdon County Deed 22:123). Fithian appears to have exercised this right around this same time when he erected a cotton mill on the site of the earlier plating mill on the south side of the street. This construction project evidently involved a major reconfiguration of Petty’s Run, since “walls” lining the run were referred to as property boundaries later in 1814, presumably reflecting drainage improvements that were designed to regulate the flow of water to the cotton mill (see Hunterdon County Mortgage 5:472). The cotton mill was only in operation for three or four years, but in the late 1820s the construction of the Front Street paper mill on the site of the Trenton Steel Works necessitated further modification of the drainage for industrial purposes.
In the case of both the cotton mill and the paper mill, in the absence of the millpond, it is assumed that the waterpower of Petty’s Run was tapped via a control gate and flume.

The construction of the Delaware and Raritan Feeder Canal in the early 1830s involved the spanning of Petty’s Run just north of Chauncey Street, roughly 1,600 feet upstream from the paper mill. The canal was carried over the creek on an embankment, and a culvert funneled the run beneath the new manmade waterway. It appears that the canal interfered with the natural drainage and may even have captured some of the Petty’s Run headwaters, thereby affecting the flow to industrial water users downstream along the run. However, the Feeder Canal also offered the mills and tanneries the prospect of a controlled supplementary source of water in addition to the flow in the run. Indeed, the building of the canal and related alterations to the Petty’s Run drainage appear to have spurred the establishment of several additional mills, a number of which operated well into the second half of the 19th century.

Unfortunately, no original agreements between the Delaware and Raritan Canal Company and the various industrial water users along Petty’s Run have so far been found, but their existence is referenced in a six-part indenture of August 1848 in which the principal water-using landowners downstream of the canal crossing each agreed to maintain sufficient flow in the run for industrial purposes and not interfere with one another’s uses (Mercer County Deed 77:104). It is clear from this indenture that at this time the mills and tanneries along Petty’s Run were continuing to draw water directly from the stream, the flow of which was apparently being supplemented by release of water from the canal. Interestingly, this indenture was drawn up just a few months after the canal had been re-filled following a period of work on the waterway by the canal company (State Gazette, March 31, 1848). Although requiring further research, it is hypothesized that some modification of the Feeder Canal took place around this time at the Petty’s Run crossing, which may have prompted the drafting of the agreement between the landowners along the run.

While one suspects that the relationship of the Delaware and Raritan Feeder Canal and the industrial water users along Petty’s Run was quite fractious in the mid-19th century, the coming of the canal nevertheless led to a gradually expanded channelization of the watercourse, improved regulation of the water flow and the establishment of more mills. If the entire section of the run extending upstream from West State Street to the canal crossing was not channelized when the canal was built in the early 1830s it certainly seems to have been so by the late 1840s (Figure 3.23). By 1870, and perhaps even by the late 1850s, the section of the run extending upstream from the canal crossing to Pennington Avenue also appears to have been channelized (Figures 3.26 and 3.28). That the channelized run at times contained a substantial flow in the mid-19th century is confirmed by the following news item:

A small black boy fell into Petty’s run, near Dunn’s Blind Factory [on the upstream side of the West State Street crossing], yesterday morning, and was carried by the current through the culvert in State street and down the run, nearly to the paper mill. He escaped without serious injury, but very thoroughly drenched (State Gazette, June 3, 1848).

Crossing the downstream end of Petty’s Run, another manmade waterway, the power canal of the Trenton Delaware Falls Company (later known as the Trenton Water Power), was also built in the early 1830s. This waterway also had an effect, albeit less wide-ranging than that of the Delaware and Raritan Canal, on the industrial use of Petty’s Run. Seven miles long and engineered at an elevation roughly 20 feet below that of the Feeder Canal, the Trenton Delaware Falls Company’s canal was intended to open up downtown Trenton and south Trenton to water-powered indus-
trial development and was almost certainly designed to complement rather than compete with the Delaware and Raritan Canal (Hunter 2005). The power canal was built on a substantial embankment running along the bank of the Delaware River and, again, Petty’s Run was routed beneath the new waterway in a culvert. Sometime between 1831 and 1836, a sawmill was erected by Fish, Cook and Company on the right bank of Petty’s Run immediately upstream of the power canal crossing. This mill, powered by no more than a four-and-a-half-foot head of water from Petty’s Run, was specifically positioned here to receive and process rough-hewn lumber that had been rafted down the Delaware River and then into the power canal. From the early 1830s up until the 1880s the mill site went through several rebuildings, functioning variously as a sawmill, carpentry shop and bow factory (where curved wood, mostly for use in furniture, was manufactured) (Figures 3.21-3.23, 3.26, 3.28 and 3.30-3.33) (Hunter Research Associates 1989a:Appendix C).

The continuing exploitation of Petty’s Run in the later 19th century for waterpower and as a source of water for other industrial uses is clearly apparent from contemporary maps, notably the Sidney map of 1849, the Lamborn map of 1859 and the Beers map of 1870 (Figures 3.23, 3.26 and 3.28). During this period, in addition to the paper mill and bow factory below West State Street, there were no less than three tanneries, a spice mill, a sash and blind factory, the water-powered printing press of the Trenton Daily News, a flour mill and a wool factory all active at one time or another along the run downstream of the Feeder Canal. Upstream of the canal, another spice mill, another flour mill and Clossen’s turning mill were in operation (Johnston 1932:44). A gradual abandonment of water-using industry along Petty’s Run took place over the final quarter of the 19th century as concerns about sanitation came to the fore and other production technologies and power sources came into play.

2. Petty’s Run as a Source of Potable Water

Despite the extensive industrial exploitation of Petty’s Run in the 18th and 19th centuries, the stream’s headwaters (and most especially a series of springs) to the northwest of the town played a vital role in the early development of Trenton’s potable water supply system. In the 1790s growing public concern over the quality of water in urban communities and the realization that a link likely existed between recent yellow fever epidemics and polluted water (notably in Philadelphia) caused many towns and cities along the eastern seaboard to experiment with and develop controlled, piped water supply systems. Trenton was in the vanguard of this movement. Indeed, in the first decade of the 19th century, as Benjamin Latrobe was struggling to establish the first waterworks in Philadelphia, Trenton was taking the first steps toward putting in place its own network of water pipes using a gravity-fed supply from local springs (Podmore 1930a-d, 1931a-f; Cotter et al. 1992:54-55).

Prior to 1800, Trenton citizens, like most urban dwellers, drew fresh groundwater from wells and springs, and gathered rainwater in cisterns. A public well existed on Warren Street, but by the turn of the 19th century this was beginning to run dry, presumably from over-use by a growing population. Early in the first quarter of the 19th century, springs were ranged along the Assunpink Creek, with a particularly abundant one being located between Front and Lafayette Streets near Broad Street, from which water was reportedly piped across the Assunpink to the Hall and Ewing distillery. However, it was Petty’s Run that was developed as the source for Trenton’s first water supply system. The headwaters of this relatively minor drainage, roughly two miles in length, lay to the north and northwest of the town center and fed several different branches. As noted above, the main stem of the creek, downstream from the Delaware and Raritan Feeder Canal, was well established in the
colonial period as a power source for mills behind the Old Barracks and as a source of water for tanning in the area to the west of King (Warren) Street. Further upstream, however, near the present-day intersection of Pennington Avenue and North Willow Street, a cluster of springs offered the prospect of an easily accessible and steady supply of potable water that could be distributed down into the core of the community (Podmore 1930a).

In 1801, Stephen Scales, who lived near the junction of Pennington Avenue and North Willow Streets close to Petty’s Run, petitioned the state legislature for the right to convey water through the city streets from a spring to which he had water rights on land owned by Richard Way Furman. Although two counter-petitions were presented in November of 1801 by water-using interests downstream along Petty’s Run, Scales prevailed. On December 3, the state legislature passed an “An Act to authorize Stephen Scales to convey the Water from his Spring, through the several Streets of the City of Trenton.” The act gave him authority to route water “through any lots through which it may be necessary for it to pass in its way to the streets of the said city” and to build the necessary infrastructure, subject to agreements reached with affected property owners and with provisions for compensation for damages. In recognition of Scales’ opponents, the act also required:

That the said Stephen Scales, his heirs or assigns, shall not take or make use of any water whatever, but such as shall originate or rise from his spring, or upon his said lot, so as aforesaid purchased, but shall permit and suffer all the water, not originating or rising upon his said lot, or from his spring, freely and uninterruptedly to pass, for the use of the tan yards on the stream made thereby (Charter of the Trenton Water Works 1841).

Scales did not have the means to implement his plans for providing water to the city. In September of 1802 he assigned his contract with Furman, the landowner, to a newly formed company, which within a few days secured title to the land containing the spring. The company was initially capitalized at $1,200 with 60 shares being issued, valued at $20 each. There were 25 original shareholders, among whom were such city notables as Abraham Hunt and James Ewing. Scales himself held only one share. The company formally incorporated on February 29, 1804 as “The President and Directors of the Trenton Water Works.” Soon thereafter, a fountain was constructed at the springhead to supply water to the system of pipes that began to be laid in the principal streets of the town. The route of the water main from the spring into town was eastward to Warren Street and then south down Warren Street toward the Assunpink with branch mains extending east and west along streets such as Hanover, Second (West State) and Front. Broad Street was also presumably fed from the upper end of town, perhaps via Hanover Street. The pipes took the form of “water logs” – rough-hewn tree trunks that were drilled by hand auger to produce a three- to four-inch bore through which the water flowed. The documentary record remains silent on the type of wood used and the manner in which the pipes were fastened together. One of Stephen Scales’ neighbors, William Closson, a pump maker by trade, evidently played a major role helping Scales in making and laying the pipes (Trenton Historical Society 1929:370-371; Podmore 1930b, 1930c).

The first three years of operation were reasonably successful. Included among the early customers were the Trenton Banking Company, whose offices were in the old Hunterdon County Courthouse on South Warren Street between East State and East Front Streets, and the Masonic Lodge, located in the southeast angle of South Willow (Barrack) and West Front Streets. It is unclear if the New Jersey State House tapped into the Trenton Water Works at this early date. However, there were difficulties in maintaining a steady supply. Sometime around 1805, efforts at removing a blockage in the system involved taking out a plug under the Warren Street bridge over Petty’s Run, but this
did little to improve the flow and still did not prevent the water backing up at the fountain. Scales’ lack of success at tracing the obstruction in the pipes may have resulted in his losing the contract to continue laying new pipes. Other complaints from customers concerned the unsuitability of the water for drinking - its tepid character in the summer months; its tendency to freeze in midwinter – and the fact that users were charged for a whole year’s supply without any adjustment in the fees for breaks in service (Podmore 1930c, 1930d, 1931a).

In 1810 a second water company was organized, promising a better product and quality of service. William Closson played a key role again, not only agreeing to supply the infrastructure, but also providing the land with the necessary spring, which happened to lie adjacent to the Trenton Water Works facility. Capitalized at $2,000 with 100 shares issued at $20 apiece, the company quickly attracted some 71 subscribers and in the fall of 1810 presented a petition to the state legislature to incorporate the Proprietors of the Trenton Aqueduct Company. The Trenton Aqueduct Company was duly incorporated in February of the following year, despite the protests of the Trenton Water Works and the industrial water users downstream along Petty’s Run. In April, in response perhaps to the competition, the latter company declared its first dividend of $3 a share (Trenton Historical Society 1929:371; Podmore 1930d).

Beginning in 1811, there ensued a decade or so of intense rivalry between the two water companies. Both drew water from springs along the same section of Petty’s Run; both maintained small reservoirs at the fountainhead; and both ran pipes along many of the same streets. Unfortunately for the citizens of Trenton, although the competition led to some lowering of rates, the draw of two separate water companies on the Petty’s Run springs only strained the supply. The city, in essence, could not support two independent systems. The Trenton Water Works made overtures to the Trenton Aqueduct Company to merge, but was rebuffed. The older company then proceeded, around 1820, to upgrade its facilities. The old mains were dug up and replaced with new yellow pine water logs connected by cast-iron couplings. Lead piping was installed to connect the mains to individual properties, with brass ferrules and stop-cocks being used to reduce wastage and control the flow of water. These improvements gave the edge to the Trenton Water Works, which finally succeeded in absorbing the Trenton Aqueduct Company over the summer of 1821 (Trenton Historical Society 1929:371; Podmore 1931a, 1931b).

Through the 1820s and 1830s the consolidated water companies, operating under the name of the Trenton Water Works Company, and the improved system of water logs with iron and brass hardware and lead pipes provided a relatively stable supply of water to the community. Problems persisted with frozen pipes in the winter, however, in part because they had not been laid deep enough in the ground. In 1839, it was resolved to substitute the water logs with cast iron pipes, a task that continued through the early 1840s. During this same period, two ventures were started with the goal of distributing a supply of water through the rapidly expanding neighborhoods of Mill Hill and Bloomsbury that lay south of the Assunpink Creek in South Trenton. In 1839, the Trenton Gas and Insurance Company, incorporated in the previous year, was granted the rights to erect a reservoir and lay pipes for this purpose. The project never materialized. In 1848, the Trenton and South Trenton Aqueduct Company was incorporated with much the same goal and was granted the right to draw water from either the Assunpink below the milldam at South Broad Street or from the Delaware River. This company also seems never to have implemented its plans (Trenton Historical Society 1929:371-372; Podmore 1931c).
Through the 1840s the Trenton Water Works Company struggled to keep pace with the expanding demand for water in the city and it became increasingly obvious that the springs and reservoirs along Petty’s Run were inadequate for the job. They could barely supply the downtown area north of the Assunpink, let alone the communities south of the Assunpink and the northward expansion of the city along the transportation corridor containing the Delaware and Raritan Canal and the Trenton to New Brunswick branch line of the Camden and Amboy Railroad. Following a management shake-up in 1850, the Trenton Water Works Company received authorization from the state legislature in 1852 to draw water directly from the Delaware River. Additional capital stock was issued and the company embarked upon a major infrastructure project that radically changed how the city gathered its water, at the same time laying the basis for the modern supply system. A small stone pump house was built on the banks of the Delaware River, just below the Calhoun Street bridge, at a cost of $3,000. Powered by the Trenton Water Power, this facility was designed to pump up to 600,000 gallons of water a day from the Delaware up to a new reservoir built a short distance upstream and northwest of the original Petty’s Run spring. The reservoir, 12 feet deep and with a capacity of 1,414,082 gallons, was the first of what ultimately became a series of four basins. At 4:00 p.m. on April 29, 1853 the new system was formally inaugurated and put into service amid great fanfare (Trenton Historical Society 1929:372-373; Podmore 1931d).

Droughts and uneven supply from the Trenton Water Power in the early 1850s prevented the new system from reaching full capacity and the original springs were kept in operation until about 1855. In September of this year, the reservoir was expanded through the addition of a new basin. In 1856-57, following a harsh winter and persistent problems with frozen pipes, a major overhaul of the mains was commenced, with new and replacement pipes required to be laid at a depth of six feet, well below the frost line. In 1858, following spring municipal elections in which public ownership of the water supply system was a hotly contested issue, the Trenton Water Works Company was finally acquired by the City of Trenton, a move that had first been mooted, but rejected, back in 1852. The city paid the company $88,000 in cash with an additional $12,000 being retained by individual stockholders who were unwilling to sell (these private interests were eventually also bought out by the city). The system functioned adequately through the 1860s and 1870s despite occasional setbacks. A frozen Delaware River in January of 1864 shut down the pump engine, depleting the reservoir to dangerous levels and causing the original springs to be drawn upon one final time with the help of a portable steam engine. In response, a new pump and pump house were opened on January 1, 1865 and soon after new lines were laid from the river to the reservoir. In 1871 the reservoir experienced one more phase of enlargement and the pump house facilities were upgraded yet again. In August of 1874, there was a break in one of the reservoir basins, which resulted in flooding along Petty’s Run and in the western part of the downtown. No loss of life occurred and repairs were made at a cost of $1,000 (Trenton Historical Society 1929:373-374; Podmore 1931d, 1931e).

The water supply system continued to be maintained and periodically upgraded throughout the final quarter of the 19th century. Following enactment of public works legislation in 1892 the riverbank pumping facilities were greatly expanded. A new river wall was built and a triple compound engine with a pumping capacity of ten million gallons a day was installed in tandem with a new boiler house and electric light plant. These improvements were brought on line in 1896, the same year that land was acquired for a new reservoir at the corner of Pennington Avenue and Prospect Street. This new basin was completed in 1899, replacing the old reservoir, which a decade later was reconfigured as a recreational facility that
came to be known as “the Stadium.” In 1906 a high-pressure station and standpipe were erected at the new reservoir. In 1914, the Trenton Water Works erected a large brick filtration plant on the northwest side of the Calhoun Street bridge. This project was implemented at the same time that Mahlon Stacy Park was created along the left bank of the Delaware between the mouth of the Assunpink and the “Island” neighborhood. In 1955, a new filtration plant was constructed over the top of the more southerly of the two Water Power/Sanhican Creek spillways. This plant was expanded in the 1960s and again in the 1990s to facilitate the addition of a dewatering plant (Trenton Historical Society 1929:374; Podmore 1931f).

3. Petty’s Run as City Sewer

From early historic times Petty’s Run served as a repository for sewage, debris and other forms of refuse. From the 1730s onward the tanneries along the run not only drew water for their vats and for the washing of hides, but also discharged effluent into the stream. As the downtown residential population increased and commercial activity expanded, occupants of properties bordering the run disposed ever larger quantities of human and animal waste and assorted rubbish into the stream channel. Over time the water quality deteriorated and the condition of the run became more and more of a public health concern, especially during periods of drought when insufficient flow was present to wash away the accumulating waste.

Although progressively channelized during the 19th century, Petty’s Run remained an essentially open watercourse up until the Civil War period. By 1870, based on map evidence, the only portion of the run that had been fully enclosed was the segment extending from the former sash and blind factory on the north side of West State Street down to the Delaware River (Figure 3.28); the rest of the stream was little more than a noxious open sewer. Around this time, following years of industrial and residential dumping, Petty’s Run gained a reputation as the City of Trenton’s most severe pollution problem. In an effort to correct the situation, a number of small-scale unrelated sewer lines were built, but the net effect of these uncoordinated projects was to increase pollution levels of the streams into which these sewers drained, notably Petty’s Run and the Assunpink Creek (Hering 1885:3; Lee 1895:90-91; Turk 1964:258).

A turning point was finally reached in the early 1880s when the City of Trenton’s Board of Health filed an injunction against Messrs. Hutchinson and Jacobus, respectively the owner and operator of the American House hotel on Warren Street, concerning the latter’s sewer line installed in 1876, which emptied into Petty’s Run between West Hanover Street and Willow Street. The resolution of this case in favor of the Board of Health on October 18, 1884 was informatively summarized in the local press:

…The suit was brought to compel the defendants to desist from emptying the contents of their necessaries into Petty Run by means of a sewer, which was laid a number of years ago by authority of the Common Council. This permission was granted in 1876 to Mr. Bartlett, by the passage of an ordinance which contained a proviso that the drain be removed in case it ever became a nuisance. The pipe was laid. In 1878 John P. Hutchinson became the owner and Alexander Jacobus is lessee. The hotel has eight water closets, three urinals, two sinks and three lavatories, all of which are connected by pipes with the sewer. The hotel is a large one, having about forty-five regular occupants and sometimes one hundred and fifty. Kitchen slops and laundry water also go into the drain. Petty Run passes near the hotel but not adjoining. It also passes along and through a thickly settled portion of the city. Its natural bed was about eight feet wide, but this has been narrowed by supposed improvements in places to two and three feet. In dry weather there is little water, and the Run is capable by its formation of retaining an immense amount of filth.
A NUISANCE WHICH SHOULD BE ABATED

The opinion, which is a lengthy one, concludes in the following manner: "Whatever may have been the power of the Council of the city of Trenton, and whatever privileges, not rights, Bartlett acquired under the license, the Legislature, in its wisdom, has enacted that whenever the Board of Health shall be notified that a nuisance or other source of foulness, hazardous to the public health, exists, such Board may examine the same in a summary way and order or cause the same to be abated. The Legislature has also enacted that any such Board of Health, instead of proceeding in a summary way to abate a nuisance or such source of foulness, may file a bill in the Court of Chancery, in the name of the State, on the relation of such Board of Health, for an injunction to prohibit the continuance of such nuisance or such foulness. This is without exception or qualification. This does not say “unless licensed.” It comprehends every nuisance or source of foulness hazardous to the public health. I think the relator was justified in filing the bill. I think the discharge of the water-closets and the like of the defendants into the petty Run through the pipe named and described in the bill is a nuisance and hazardous to the public health and should be abated. I will so advise. The defendant ought to pay costs (Trenton Times, October 20, 1884).

Concurrent with this court action and with the state legislature’s passage in 1882 of a bill authorizing cities in New Jersey to construct sewers, the City of Trenton began to take active measures to address its growing sanitation crisis. Rudolph Hering, a well-known sanitary and hydraulic engineer based in Philadelphia, was hired to design a comprehensive sewerage system for the city, a task that was undertaken between 1884 and 1889. Hering’s overall plan, approved in principle by the Common Council in 1885, primarily aimed to channel sewage and storm water into the Delaware River downstream of the city. However, he recognized at the outset that Petty’s Run presented an immediate and pressing pollution problem and to address this he recommended the construction of the so-called “Petty’s Run Drain” (later known as Petty’s Run Drain No. 1), a fully enclosed culvert that was continued upstream from its Willow Street terminus to the area of the Delaware and Raritan Canal Company’s property near the east end of Feeder Street (Hering 1885:3-4). This recommendation was acted upon quickly and the drain was in place by 1888, at first operating independently of the city-wide system that had yet to be built (Haven 1888).

The construction of Hering’s comprehensive sewerage system took place between 1888 and 1897 with the main arteries – the interceptors – being built first, followed by a web of laterals that for the most part followed the city’s street pattern. Finally, connections were made to individual properties. While much of the construction was reportedly carried out by hand, it is likely that steam shovels were used for many of the larger sewer trenches. The first portion of the system to be built in 1888-91 was the North Assunpink Interceptor which extended from Calhoun Street along State, Willow, Front and Warren Streets to a temporary outfall at the mouth of the Assunpink Creek. The second major interceptor, the South Assunpink or Lamberton Street Interceptor, was constructed in 1891-92 from Hamilton Avenue along Second, Bridge and Lamberton Streets to the main outfall at the southern end of Lamberton Street near the southwestern corner of Riverview Cemetery. By 1894, the system was sufficiently complete for the two interceptors to be connected, and the temporary outfall at the mouth of the Assunpink was abandoned (Israel 1976; Hunter 1982). It was probably around this time that the brick storm drain known as Petty’s Run Drain No. 3 was installed running south down Willow Street and west along West Front Street, joining the original course of Petty’s Run immediately downstream of the West Front Street bridge (Figure 5.1). This modification led to the re-routing of storm water that would otherwise have flowed down the original channelized course of Petty’s Run between Willow Street and West Front Street, thereby leaving as an “orphan” the short section of Petty’s Run with its much reduced storm water catchment area that today passes through the core of the Petty’s Run Archaeological Site.
Figure 5.1. Profile of Petty’s Run Drain No. 3. Circa 1890-95. The drain flows from right to left down the center of Willow Street across West State Street and then west along West Front Street beneath the Old Barracks; at far left the drain connects to the Petty’s Run culvert immediately downstream of the West Front Street bridge (see Photographs 6.25-6.27). (Source: City of Trenton Engineer’s Office [rolled drawings]).
Photograph 5.1. Historic photograph looking north and upstream along Petty’s Run from the Trenton Water Power toward buildings fronting on to the south side of West Front Street. December 6, 1913. In the foreground is the site of the mid- to late 19th-century bow factory and planing mill formerly powered by Petty’s Run; by the time of this photograph the site had been cleared and Petty’s Run is in the process of being placed within a new concrete culvert which is still in place today; at top of view is the brick storage building, 125 West Front Street, shown in Figures 3.38 and 3.39; the New Jersey State House is visible in upper left corner. (Source: Old Barracks Association [OBA 1981.006.0010]).
Photograph 5.2. Historic photograph looking south and downstream along Petty’s Run toward the Trenton Water Power from just south of West Front Street. December 6, 1913. The Trenton Water Power is carried over the run on an embankment; the masonry foundations at left are probably part of the mid- to late 19th-century bow factory and planing mill formerly powered by Petty’s Run (Source: Old Barracks Association [OBA 1981.006.0015]).
The section of the Petty’s Run culvert extending south from West Front Street to the Delaware River was completely realigned and rebuilt in 1911-13 as part of the construction of Mahlon Stacy Park. The realignment mostly took place in 1911 when the 12-foot-high concrete river wall was erected along the edge of the Delaware River from the mouth of the Assunpink Creek upstream to the Calhoun Street bridge. The section between West Front Street and the Trenton Water Power was rebuilt in concrete over the winter of 1913-14 following the demolition of buildings in the block bounded by West Front Street, South Willow (Barrack) Street, the Trenton Water Power and Delaware Street (Photograph 5.1 and 5.2).

B. DESCRIPTION AND ANALYSIS

The Petty’s Run drainage system is not large and is difficult to trace within the modern urban landscape. Its three main branches all rise less than two miles from the Delaware River and for the most part are today contained within culverts and therefore not visible at the ground surface. A few sections exist as channelized or restored stream corridors, but the courses of the original natural streams are now virtually obliterated after almost two centuries of urban development and land use (Figure 5.2).

The headwaters of the longest branch of Petty’s Run lie to the northwest of town, west of Prospect Street, and drain generally southeastward to a point just east of North Willow Street and north of Tucker Street, where a second, shorter branch flows in from the north. This second branch rises to the north of Pennington Avenue between Calhoun Street and Martin Luther King Boulevard. The third main branch originally rose to the north northeast of the town center in the Coalport area between North Clinton Avenue and the U.S. Route 1 Freeway. The natural configuration of this branch was radically affected by the construction of the Delaware and Raritan Canal (both the Feeder and the main canal) in the early 1830s. Today, its waters flow west southwest underground from the area of Feeder Street to a point just west of North Warren Street and south of Bank Street, where they converge with the combined southward flow of the first two tributaries.

From the point where the three main branches converge near Bank Street, Petty’s Run originally flowed southwest to the Petty’s Run Archaeological Site where it tumbled over the bluff edge into the Delaware River floodplain, there turning south and southeast before joining the Delaware at the mouth of the Assunpink Creek. Today, the run’s waters are contained within brick culverts (the Petty’s Run Drain Nos. 1 and 3) that pass along Chancery, West Hanover, North Willow, Barrack and former West Front Streets where they rejoin the original Petty’s Run stream corridor at the base of the bluff between the State House and the Old Barracks and from there flow south to the Delaware within a concrete culvert. Extending upstream for roughly 400 feet from the base of the bluff through the core of the Petty’s Run Archaeological Site almost to North Willow Street is a buried, channelized and culverted segment of the historic Petty’s Run stream corridor. It is this latter stretch of Petty’s Run, referred to here as the Petty’s Run culvert, and particularly the portion between West State and West Front Streets, that is the focus of the following description and analysis (Figure 5.3).

In October 1985, in the course of archaeological testing in connection with various proposed improvements to the New Jersey State House complex, a buried manhole was revealed in the sliver of parkland between State House and the Old Barracks roughly midway between West State Street and the former West Front Street (Photograph 5.3). Removal of the manhole cover led to the discovery of the Petty’s Run culvert, the existence of which had been largely forgotten by the City of Trenton engineering, water and sewer departments. Inspection of the culvert interior
Figure 5.2. The Petty’s Run Drainage System.
Figure 5.3. Petty's Run Culvert – Overall Site Plan.
Photograph 5.3. View looking north showing the manhole giving access into the Petty’s Run culvert, as revealed by archaeological excavation in October 1985. The dashed line indicates the below-ground course of the culvert; West State Street at top; the brick walkway is in the rear yard of 119 West State Street; the stone walls define the rear property lines of 117 (right) and 119 (left) West State Street; the stone steps to the right of the manhole gave access to Green’s Alley from 119 West State Street; scales in feet (Photographer: Terrence W. Epperson, October 1985) [HRI Neg. #88002/D2:001 {color slide}].
and basic research into municipal records quickly established that the culvert was a semi-abandoned part of the city’s storm sewer system, still technically draining a limited catchment area along West State Street. Its utility as a storm drain had been dramatically reduced when the Petty’s Run Drain No. 3, probably built in the mid-1890s, diverted the bulk of the Petty’s Run flow into a storm sewer running along North Willow, Barrack and West Front Streets. The use of the culvert was further reduced when Mahlon Stacy Park was created in 1914-16 and the portion of the drain between West State and West Front Streets was deeply buried beneath landscaping fill. Upon the rediscovery of the manhole the City of Trenton extended the entry shaft upward and re-set the manhole cover at existing grade, thereby facilitating future inspection and maintenance (Photograph 5.4).

A more thorough examination and documentation of the Petty’s Run culvert in 1985 soon established that the buried conduit held considerable archaeological interest. Testing in the surrounding area had encountered numerous foundations, many of which related to mills and industrial facilities ranged along the run. It was apparent from close inspection of the culvert interior that it contained several construction features that were likely related to these buildings. Accordingly, a longitudinal profile, plan and selected cross-sections were recorded at that time of the portion of the culvert between West State and West Front Streets (Figure 5.4). Further inspection and documentation of the culvert took place in conjunction with the archaeological excavations of 2008-09 and a clearer understanding was obtained of the culvert’s many features. Substantial portions of the exterior of the culvert were exposed to view during the excavations, which assisted greatly in its interpretation (Photograph 5.5). The following narrative provides a description and analysis of the culvert based on the various inspection and documentation exercises carried out in 1985 and 2008-09, making use of photographs and data gathered during both of these investigative campaigns (i.e., this description predates the stabilization and display of the Petty’s Run Archaeological Site in 2012-13).

Access into the Petty’s Run culvert in 1985 and 2008-09 was achieved by ladder down the manhole in the park between the State House and the Old Barracks. Personnel entering the culvert were required to have OSHA certification in confined space entry and provision also had to be made for emergency rescue in the event of accidents or air quality problems (Photographs 5.6 and 5.7). At the base of the manhole, roughly 12 feet below grade, the culvert measures some six feet in height and is five feet wide (Photograph 5.8). The side walls are built of stone to a height of roughly three feet, the roof of the culvert being spanned by a brick arch. All masonry is mortared and the floor of the culvert is composed of exposed schist bedrock. This is the basic style of construction throughout the West State to West Front Street length of the culvert. At various points along its course ceramic and cast iron pipes (typically three to twelve inches in diameter) feed into the run, mostly through the brick-vaulted portion of the culvert, but also occasionally through the stone side walls. In the apices of the bridge arches beneath West State and West Front Streets much larger street drains empty storm water into the culvert.

Stone side walls are noted in documents as early as 1814 along this stretch of Petty’s Run and they are believed to have been built around that time as an integral part of the Fithian cotton mill hydropower system. It is possible, however, bearing in mind the long history of waterpower usage at this location, that portions of the stone side walls (especially downstream of the manhole in the vicinity of the plating mill and steel works) are of 18th-century date. The brick vaulting is believed to date from the 1860s and 1870s based on analysis of historic maps (cf. Figures 3.23, 3.26, 3.28 and 4.16) and structural evidence.
Figure 5.4. Petty’s Run Culvert, West State Street to West Front Street – Site Plan and Profile.
Photograph 5.4. View looking northeast showing the manhole giving access into the Petty’s Run culvert after the City of Trenton had raised the manhole cover to existing grade. 115 West State Street is visible in the background (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002/D2:003].
Photograph 5.5. View looking north showing the area of the manhole that gives access into the Petty’s Run culvert at an early stage of the archaeological excavations in August 2008. The manhole drops approximately 12 feet to the creek bed at a point where the run begins to descend the bluff edge down to the Delaware River floodplain; the brick-arched top of the culvert is visible at lower left; the manhole was originally set at the top of the steps, but was raised up to existing grade in 1985; the steps gave access from the rear of properties fronting on to West State and West Front Streets to Green’s Alley which ran north-south parallel to and to the east (right) of Petty’s Run; the four large stone slabs at left cap a square stone and brick masonry footing that formerly supported a water tank (see above, Figures 5.13 and 5.14); the lower stone wall at center right is the north wall of the cotton mill; the upper stone wall and the wall to the left of the culvert define the rear property lines of 117 and 119 West State Street respectively; scales in feet (Photographer: Joshua Butchko, August 2008) [HRI Neg. #08024/D10:072].
Photograph 5.6. View looking west showing preparations for entry via the manhole into the Petty’s Run culvert. The New Jersey State House is in the background (Photographer: William Liebeknecht, June 2008) [HRI Neg. #08024/D2:004].
Photograph 5.7. Structural engineer Janine Hildebrant prepares to enter the manhole giving access to the Petty’s Run culvert. Archaeologists and engineers accessing the culvert had all received “confined space entry” training; a tripod with hoist was erected over the manhole for use in emergency removal of staff from the culvert (Photographer: William Liebeknecht, June 2008) [HRI Neg. #08024/D2:008].
Photograph 5.8. View looking south showing the interior of Petty’s Run culvert at the foot of the manhole. The culvert is lined with mortared stone side walls and capped with a mortared brick arch. The wrought-iron I-beam spanning the culvert behind the ladder is one in a series of five that underpinned four large stone slabs capping the square stone and brick foundation which formerly supported a water tank atop the culvert (the I-beams were replaced in 2009); beyond the arch of the culvert’s next step down the bluff edge is just visible (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002/D2:004].
Proceeding upstream from the manhole towards West State Street, the culvert maintains the same elevation and width (Photographs 5.9 and 5.10). The height varies between five-and-a-half and six-and-a-half feet owing to irregularities in the surface of the bedrock. Approximately 55 to 60 feet upstream, midway between the manhole and West State Street, there are the remains of what appears to be a water control feature exposed in the culvert floor (Figure 5.5; Photographs 5.11 and 5.12). A series of five timbers are set transversely across and embedded into the base of the culvert. The ends of the two most substantial of these timbers are built into the side walls, suggesting that they predate or, more likely, are contemporary with the wall construction. The southernmost beam is a 6 x 2-inch plank set on edge. Roughly four feet to the north, and separated by a shallow pool of standing water, is a 6 x 6-inch beam with a series of three 4 x 2-inch mortise holes in its upper surface. Immediately adjoining the downstream side of this beam is an 8-inch long, 2.5-inch thick plank, while along its upstream side are two more planks, 4.5 feet long, 1.5 inches thick, set on edge and extending downward for at least a foot into the culvert floor. Beyond this, upstream to the north, is a 4-foot long space where the bedrock appears to have been cut away. The northern, upstream end of this space is marked by a clear transverse east-west cut in the bedrock which is sharp contrast to the otherwise dominant southwest-northeast strike of the bedrock in the culvert floor.

This feature is probably the remains of some kind of timber water control mechanism related to the drawing of waterpower from Petty’s Run. While there is a slim possibility that this feature pre-dates the construction of the stone side walls and is related to the plating mill or steel works, it is far more likely that it represents the remains of a gate connected to either the cotton mill or paper mill. Presumably a wooden flume drew water off from the main channel of Petty’s Run at this location, directed a portion of its flow either to the east or west. Documentary evidence discussed in Chapter 4D suggests that a head gate for the paper mill existed here in the 1840s and 1850s and drew water into a flume that ran parallel to and west of the run.

Upstream from the water control feature, the culvert continues on a straight and level course toward West State Street, curving slightly to the east as it nears the bridge beneath the roadway (Photograph 5.13). Underneath the West State Street bridge the culvert widens slightly and angles further to the east, passing beneath 114 West State Street on the north side of the street. The downstream end of the West State Street bridge, built in the early 1780s, is easily distinguished since there is an abrupt transition from the brick vault of the culvert to the stone arch of the bridge (Photograph 5.14). The upstream side of the bridge is not so easily distinguished, however, as the culvert continues northward from West State Street as a stone-arched tunnel. Feeding into the culvert through the apex of the bridge arch is a large cast-iron drain that carries storm water from the north side of West State Street into the run (Photograph 5.15). The street-level grate for this drain is located adjacent to the sidewalk in front of 114 West State Street.

Upstream of the West State Street bridge, the Petty’s Run culvert was only cursorily examined. It is less easily traversed, mostly because of deep puddles and accumulations of muddy silt and debris, more than a foot thick in places. This stretch of the culvert appears to have been stone-built in its entirety, but merits a more thorough inspection at some point in the future, particularly with a view to finding evidence of the water-powered entities (a carpenter’s shop, sash and blind factory, spice mill and newspaper printing works) that operated on the upstream side of the West State Street bridge. The culvert was explored to its full length, roughly 310 feet upstream of the manhole, where a brick wall blocks its continuation (Photograph 5.16). The brick wall, set at an angle across the culvert, appears to be the rear of a structure still standing at 13 North Willow Street.
Figure 5.5. Petty’s Run Culvert, Remains of Water Control Feature – Plan View.
Photograph 5.9. View looking south along the Petty’s Run culvert from just upstream of the manhole. The ladder is at the manhole location; the steel I-beam beyond is a replacement of the rusted wrought-iron predecessor that had supported the four large stone slabs; the culvert can be seen descending the bluff edge beyond; note the drain at right, one of several funneling storm run-off into the culvert (Photographer: Joshua Butchko, November 2009) [HRI Neg. #08036/D22:011].
Photograph 5.10. View looking south along the Petty’s Run culvert from roughly mid-way between the manhole and West State Street. This section of the culvert is straight and has minimal gradient. The ladder is at the manhole location; in the foreground at right a seam in the masonry and offset in the stone side wall reflect a slight change in direction of the culvert and probably a different building episode; in the culvert floor below the second light from the left are the remains of timbers set into the bedrock and side walls (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:002].
Photograph 5.11. View looking north showing horizontal timbers set into the culvert floor and side walls, probably remains of a water control feature (floodgate or sluice for either the Fithian cotton mill or Front Street paper mill); the timbers are set four feet apart at either end of the scale rod; scale in feet (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002/D2:010].
Photograph 5.12  View looking south showing horizontal timbers set into the culvert floor and side walls, probably remains of a water control feature (floodgate or sluice for either the Fithian cotton mill or Front Street paper mill); scales in feet and centimeters (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:045].
Photograph 5.13. View looking north along the Petty’s Run culvert from roughly mid-way between the manhole and West State Street. This section of the culvert has minimal gradient and curves slightly eastward; at the far end of this section is the transition to the stone-arched bridge that carries West State Street over Petty’s Run (Photographer: Joshua Butchko, November 2009) [HRI Neg. #08036/D22:010].
Photograph 5.14. View looking south along the Petty's Run culvert from the West State Street bridge. The stone-arched construction is the bridge; the brick-arched construction carries the culvert beneath the site of the house at 119 West State Street (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002/D2:012].
Photograph 5.15. View looking north along the Petty’s Run culvert from the downstream side of the West State Street bridge. The large cast-iron drain at center delivers run-off from the north side of the street above; the culvert continues on beneath 114 West State Street (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:033].
Photograph 5.16. View looking northeast showing the blocked upstream end of the Petty’s Run culvert at the rear of the building at 13 North Willow Street. Note that the culvert has a stone arch at this location, probably evidence of its enclosure earlier than the segment to the south of West State Street (Photographer: Joshua Butchko, November 2008) [HRI Neg. #08024/D22:029].
Returning to the manhole and proceeding downstream along Petty’s Run, the culvert almost immediately descends some 20 feet in elevation over a horizontal distance of 80 feet (Photographs 5.17-5.19). This drop, down the edge of the bluff which parallels the left bank of the Delaware River, is accomplished within a series of four steps consisting of two long brick-arched vaults with two shorter linking spans, one each at the upstream and downstream ends. This is one of the most visually striking elements of the Petty’s Run Archaeological Site, especially when viewed from the interior of the culvert, where the downstream end of the upper long vault reaches an impressive height of 15 feet. The two furthest downstream segments of the culvert arch have now been largely removed as part of the public display of the site.

Immediately downstream of the manhole, forming the link between the upstream end of the upper brick-arched vault and the long culvert segment that stretches from the manhole to West State Street, is a roughly eight-foot-square stone-built “box” set directly on top of the culvert side walls (Photographs 5.5 and 5.17). The exterior downstream side of the box has a brick facing and the top of the box is capped with four large bluestone slabs, each roughly 2 x 7.5 feet and 4 inches thick, supported by five 4-inch-square steel I-beams set transversely across the culvert. The steel I-beams were installed in 2009 in place of five 2 x 4-inch rusted wrought-iron I-beams. The box structure supported a water tank in 1874 (Figures 4.15 and 4.16) and could conceivably have pre-dated the brick-vaulted enclosure of this section of the culvert, which is believed to have taken place in the 1860s. The stone capping presumably occurred after the removal of the water tank, most likely when the paper mill property was redeveloped later in the 1870s. The stone capping probably stored water for use in the paper mill’s pulping activities and was presumably supplied from the run via the paper mill’s hydrosystem.

The two long brick-vaulted sections of the culvert that encompass its descent of the bluff edge have stone side walls that increase dramatically in height as one moves downslope. The culvert floor is also exceptionally treacherous here, being composed of large irregular outcrops of gneiss bedrock running diagonally across the floor of the run (Photographs 5.18-5.20). The base courses of the side walls on both sides of the culvert include many large slabs of rough-dressed gneiss, some of which may be parts of mill buildings alongside the run or of earlier raceway construction (Photograph 5.21) (see below, Chapter 7). While the stone side walls probably date in part from the early 19th century and relate to the cotton mill and paper mill construction episodes, their uppermost courses and the brick vaulting most likely date from the 1860s and 1870s. All historic maps after the Lamborn map of 1859 (Figures 3.28ff.) show no surface sign of Petty’s Run between West State Street and the Trenton Water Power, implying that this segment of the stream was covered over prior to 1870. This may have been the case, although based on the archaeological evidence it is thought the residential redevelopment of the paper mill site in the mid-1870s was accompanied by a wholesale rebuilding of the culvert on the north side of the West Front Street bridge.

About 80 feet south of the manhole at the base of the bluff the culvert opens out to the west to a maximum width of almost ten feet and a stone-arched vault replaces the brick (Figure 5.6; Photographs 5.22 and 5.23). It is at this point that the culvert begins to approach the north face of the West Front Street bridge and there is a roughly six-foot long transitional section of stone-arched masonry that links the downstream end of the brick-vaulted culvert to the upstream face of the bridge. It is thought that this wider stone arch was installed in a separate construction action, immediately following the covering of the channelized run, when the eastern portion of the paper mill site was redeveloped with row housing in 1876-77. Originally
Figure 5.6. Petty’s Run Culvert, Immediately Upstream of the West Front Street Bridge – Plan View.
Photograph 5.17. View looking north showing the interior of Petty’s Run culvert at the foot of the manhole. The exposed bedrock in the floor of the culvert is at the rim of the bluff where the run begins its descent into the Delaware River floodplain; visible at top is one of the wrought-iron I-beams and stone slabs capping the square stone and brick foundation which formerly supported a water tank atop the culvert (the I-beams were replaced in 2009) (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:020].
Photograph 5.18. View looking south along the Petty’s Run culvert downstream from the manhole. This view is from near the rim of the bluff looking down the first step of the culvert; the arch of the second step is visible beyond; note the irregular character of the bedrock in the culvert floor and its “grain” running diagonally across the culvert alignment (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:018].
Photograph 5.19. Detailed view of the brick vaulting and stone side walls at the junction of the first and second steps within the culvert halfway down the bluff edge; the terracotta pipe at left likely drained Green’s Alley which ran parallel to and east of the culvert; the pipe at right likely drained the late 19th-century row home properties that succeeded the Front Street paper mill (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002/D2:005].
Photograph 5.20. View looking north along the Petty’s Run culvert from the base of the bluff just north of West Front Street; the run drops more than 20 feet in elevation over a horizontal distance of 80 feet between the manhole and the West Front Street bridge (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002 DBC 5114:28A].
Photograph 5.21. Detailed view looking north showing masonry at the base of the culvert side wall. There are several locations where the side wall masonry includes large flat slabs of stone, some of which may relate to the construction of buildings and other features adjacent to the run; the stone is locally quarried gneiss, probably extracted from immediately west of the run (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:039].
Photograph 5.22. View looking south along the Petty’s Run culvert showing the upstream face of the stone arch that links the downstream end of the culvert to the upstream end of the West Front Street bridge (Photographer: Elton Pope Lance, October 1985) [HRI Neg. #88002 DBC 5114:14A].
Photograph 5.23. View looking north along the Petty’s Run culvert from beneath the West Front Street bridge. The vertical wall bisecting the arch at left center is the west side wall of the culvert; to the left of this is a blocked opening, the downstream end of an overflow channel or drain that ran parallel to and between the culvert and the Front Street paper mill wheel pit; to the right of this wall is the base of the bluff; note the considerable silting of the culvert beneath the bridge in the foreground (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:031].
the portion of the channelized run inside the eastern section of the paper mill would probably have been open, i.e., un-vaulted, inside the basement.

Moving into the culvert beneath the West Front Street bridge and then turning to face upstream, one can view in cross-section the downstream end of the two-foot thick north-south stone wall that forms the west side of the culvert (Photographs 5.23-5.25). The space immediately to the west of this wall has been blocked with masonry, the lower portion of which consists of laid stone, the upper consisting of rubble. This represents the downstream end of the overflow channel or drain that ran parallel to and between the culvert and the paper mill wheel pit on the east side of the main partition wall that divides the two main sections of the paper mill. This channel is thought to have been constructed in the mid-1870s or later as part of the residential redevelopment of the paper mill site and presumably gathered run-off from the row-house properties along the north side of West Front Street. It may have been intended as a replacement drainage system carrying water that would otherwise have flowed through the now filled-in paper mill wheel pit and tailrace.

Along the western side of the culvert the linking stone arch blocks the paper mill tailrace (Figure 5.6; Photograph 5.25). The width of the tailrace as it exits the wheel pit on the opposite (western) side of the partition wall is approximately four feet and a blocked opening of similar width is visible toward the base of the arch within the culvert, immediately upstream of the brick facing on the upstream side of the bridge. Again, the blocking of the paper mill tailrace presumably took place in the late 1870s; the application of the brick facing to the bridge probably occurred earlier, perhaps when the paper mill was erected in the late 1820s.

The West Front Street bridge, built in 1792-93, is largely constructed in stone (Photograph 5.26). With a seven-foot span at the base of its arch, it extends beneath the street for a distance of almost 25 feet. At its downstream end it connects with the brick-built storm drain (Petty’s Run Drain No. 3) that flows from east to west along the line of West Front Street (Photograph 5.27). This latter drain, which is oval-shaped in cross-section, is part of the late 19th-century city-wide sewerage system designed by Rudolf Hering and was probably built in the mid-1890s (Photograph 5.28). A manhole in the backyard of the Old Barracks property gives access to this drain about 15 feet upstream from its junction with the Petty’s Run culvert and immediately upstream of this point there is a sharp change in the drain’s elevation, executed with some finely made brick and stone masonry (Figure 5.1; Photograph 5.29). South of the West Front Street bridge the combined culvert and storm drain continue on to the Delaware River in a concrete conduit (Figures 5.2 and 5.3; Photograph 5.30).
Photograph 5.24. Detailed view looking north showing the blocked opening at the downstream end of the overflow channel or drain that ran parallel to and between the culvert and the Front Street paper mill wheel pit. The vertical wall at right is the west side wall of the culvert; the base of the overflow channel is just above the level of the horizontal scale rod; the arch is part of the construction that links the downstream end of the culvert to the upstream end of the West Front Street bridge; scales in feet (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:056].
Photograph 5.25. Annotated view looking northwest showing the relationship of the Petty’s Run culvert, the overflow channel or drain, the Front Street paper mill tail race and the West Front Street bridge (Photographer: Richard Hunter, November 2011) [HRI Neg. #08024/D22-032].
Photograph 5.26. View looking south along the Petty’s Run culvert from the downstream end of the West Front Street bridge. The stone arch is part of the bridge; the brick masonry beyond is part of Petty’s Run Drain No. 3, probably constructed in the mid-1890s; the main channel of Drain No. 3 flows in from the left converging with the culvert and continuing on down to the Delaware River; note the brick street drain in the apex of the stone arch (Photographer: Joshua Butchko, June 2008) [HRI Neg. #08024/D1:026].
Photograph 5.27. View looking north showing the junction of the Petty’s Run culvert and Petty’s Run Drain No. 3 immediately downstream of the West Front Street bridge. The culvert is at left with the bridge beyond; Drain No. 3 is at right (Photographer: Joshua Butchko, November 2008) [HRI Neg. #08024/D22:017].
Photograph 5.28.  View looking northeast along Petty’s Run Drain No. 3 from just upstream of its junction with the Petty’s Run culvert.  Note the bedrock outcropping in the left side and base of the drain (Photographer: Joshua Butchko, November 2009) [HRI Neg. #08036/D22:007].
Photograph 5.29. View looking east showing the drop at the downstream end of Petty’s Run Drain No. 3 just before it joins the Petty’s Run culvert (Photographer: Joshua Butchko, November 2008) [HRI Neg. #08024/D22:022].
Photograph 5.30. View looking south along the Petty’s Run culvert downstream from the West Front Street bridge. This section of the culvert is constructed in concrete and was built over the winter of 1913-14 (Photographer: Joshua Butchko, November 2008) [HRI Neg. #08024/D22:018].
Chapter 6

ARCHAEOLOGICAL APPROACHES AND METHODS

A. OBJECTIVES AND APPROACHES

The Petty’s Run archaeological investigations had two broad objectives. The first was to contribute to the design of the Capital State Park through a major archaeological investigation focused on the Petty’s Run culvert, West Front Street bridge, the Harrow/Yard plating mill and the Yard steel furnace. Within the context of this objective, the specific goals of the archaeological work were to daylight the culvert, expose the upstream face of the West Front Street bridge and progressively expose the buried foundations of the plating mill, steel furnace and other mill and building remains within an approximately 150 x 100-foot area. This exposure would inform the design process and stimulate an ongoing dialog between the client, regulatory agencies, the park designers, archaeologists and historians. The second objective, not spelled out in such detail but nevertheless implicit in the work scope, was the recovery, analysis and presentation of important historical information about this small segment of urban landscape, and about the people who had used and modified it over time.

While these two objectives are broadly similar, they are not identical. For example, the goal of preserving structural features for incorporation into a permanently displayed and protected historic site may be in direct conflict with the need to investigate deposits that lie beneath them. Perhaps the clearest instance of this dilemma was the relationship of the north wall of the mid-19th-century paper mill to the underlying remains of the mid-18th-century steel furnace. The paper mill wall, a substantial, visually obvious and well-preserved masonry structure, crossed over the top of the northern part of the base of the colonial-era steel furnace. Strict observance of the first goal would have required that the paper mill wall be left in place since it was a part of the structural history of the site. However, the historical importance of the steel furnace was such that the decision was made to remove the overlying section of the paper mill wall in order to obtain more complete information on a little-known colonial industrial feature.

There are many ways in which archaeological sites can be excavated, and the methodology adopted will vary with the nature of the site, the research objectives of the excavation, the resources available, and what might be termed the archaeological “culture” of the region in which the site is located (for a discussion of this latter variable and how it affects the way archaeology is carried out in practice, see Carver 2011, *passim*). A few observations on this final point are also felt to be in order here.

The field design for this investigation was developed by Ian Burrow and Richard Hunter, two British-trained archaeologists who had worked in cultural resource management in the United States for almost 20 and almost 30 years respectively. Their historical/geographical/archaeological British training in the late 1960s and 1970s was characterized by a strong emphasis on the rigorous dissection and recording of cultural stratigraphy, by a preference for the examination of urban sites through large-scale “open-area” excavations, and by a profound interest in the study of cultural landscapes and historic topography through time.

Their subsequent American experiences built on these perspectives and attitudes in a number of ways. Firstly, the archaeology of the 18th and 19th centuries, a strong focus of American cultural resource work but
still somewhat less valued in the United Kingdom, is complemented by a wealth of historical documentary resources that opens up new avenues for research, and can provide extraordinary levels of chronological precision and functional interpretation. These resources were exhaustively pursued as part of the Petty’s Run investigations. Secondly, the emphasis in American archaeology on the value of artifacts as conveyors of cultural information influenced attitudes towards artifact retrieval and analysis (e.g., through the much more extensive use of soil screening than has traditionally been the case in the U.K., and through much more structured and detailed database-driven analyses). A third factor was the more developed philosophy of site significance evaluation present in American public archaeology, an ethic strongly influenced by the procedures laid down in Section 106 of the National Historic Preservation Act and in 36 CFR Part 800, the implementing federal regulation.

The field design that emerged reflected all these influences. The general area of the Petty’s Run Archaeological Site had been evaluated through several previous studies, and although some of these eventually proved to have been interpreted incorrectly in detail, they provided invaluable information on the depth and nature of the deposits and features. Likewise, the site had been subjected to highly skilled and detailed historical research some years prior to the current project, and this also provided powerful predictive information on what might lie beneath the grass and trees of the park. Experience on numerous projects in the Trenton area had also given the archaeological team a good understanding of the artifacts that could be anticipated on the site.

The decision to excavate and expose a large area, without intervening balks or standing profiles, reflected the wish to observe large-scale patterning in the site stratigraphy, and a confidence in the ability of the project team to maintain vertical and horizontal control and documentation. A broad understanding of the pre-urban topography and its transformation informed the way the site was dug, and the information that was sought from it. However, this strictly “British” view of things was modified pragmatically by the selective use of grids of five-foot square excavation units, an approach commonly employed in the practice of field archaeology in the Mid-Atlantic region. These units provided for very detailed examination of critical areas and the ability to analyze artifact distributions more precisely than would otherwise have been possible (e.g., see below, Figure 7.5).

B. FIELD LOGISTICS AND METHODS

After documentary photography of pre-excavation field conditions (Photograph 6.1), various protection systems were put in place. These included: the erection of fencing around trees that were to be protected (Photograph 6.2); the installation of silt-trap dams around drains (Photograph 6.3); the laying down of polythene sheeting and hay bales for management of backdirt piles; and the erection of perimeter security fencing (Photograph 6.4).

The removal of several thousand cubic yards of soil, firstly to stockpile locations in the southern part of the site and then to offsite locations, was a considerable operation in its own right (Photographs 6.5-6.7). The bulk of the actual soil removal was accomplished by a large trackhoe, with a loader carrying out much of the stockpiling. The machine excavation involved a team operation between a highly skilled operator, S.L. Spaulding Company, and, typically, two archaeologists who observed the stratigraphy, shovel-cleared the exposed and excavated surfaces, and provided specific guidance to the backhoe (Photographs 6.6 and 6.7).

It was well understood that the first several feet of the site deposits would consist of soils laid down in the second decade of the 20th century when Mahlon Stacy
Photograph 6.1. General view looking southeast showing the Petty’s Run Archaeological Site on July 7, 2008. The central tree is marked for removal; the other two trees still remain. The southwest corner of the Thomas Edison State College property is at the extreme left, and the Old Barracks, with its palisade fence, is visible in the left half of the view. The ground surface is essentially that created in the late 1920s, a gentle slope masking the underlying bluff edge (Photographer: Joshua Butchko, July 2008) [HRI Neg. #08024/D3:001].
Photograph 6.2. View looking northwest showing protective fencing around park trees (Photographer: Ian Burrow, July 2008) [HRI Neg. #08024/D5:027].
Photograph 6.4. View looking west showing west stockpile area ready for use on July 21, 2008. The New Jersey State House is in the background (Photographer: Ian Burrow, July 2008) [HRI Neg. #08024/D5:031].
Photograph 6.5. View looking north showing backhoe with loader and trackhoe on site, July 21, 2008. The temporary access road is in the foreground, with snow fencing around protected trees beyond (Photographer: Ian Burrow, July 2008) [HRI Neg. #08024/D5:032].
Photograph 6.6. View looking southwest showing the beginning of archaeological excavations on July 22, 2008. Sod is about to be removed from the west side of Trench A. The caution tape marks the approximate location of the Petty’s Run culvert (Photographer: Seth Gartland) [HRI Neg. #08024/D6:004].
Photograph 6.7. View looking southeast showing fill being removed from on top of the Petty’s Run culvert. The top of the culvert’s brick arch is visible at the lower left (Photographer: Ian Burrow, September 2008) [HRI Neg. #08024/D17:019].
Park was created, but it was not known precisely how deep these would be at any particular location, or how easily they would be to distinguish from the potentially more significant underlying sediments. The exposure of walkways and paved areas associated with the West Front Street row houses of the mid- to late 1870s, and also of the earlier 19th-century West State Street residential properties, proved to be a very useful horizon indicator, because it could be assumed that material lying above these features was part of the early 20th-century park landscaping, and materials below would predate them. In general, the identification of this horizon marked the point at which wholesale removal of material was substituted for more selective machine excavation (which in some places went much deeper than this) and traditional manual archaeological excavation.

2. Site Area Terminology

Because the area was quite large, amounting in total to some 15,000 square feet, and because Petty’s Run was seen as a defining feature, the site area was subdivided into four unequal quadrants, termed Trenches A, B, C and D, the divisions lying at northing 1215 and easting 1115 (Figure 6.1). While helping to make the recording and excavation more manageable, in retrospect this organization of the site did not greatly enhance its understanding.

Within the trenches, individual excavation areas, termed excavation units (EU) were opened at specific locations. In Trenches A and B these took the form of several irregularly shaped excavations (Trench A: EU #s 2, 3, 4 and 9997; Trench B: EU #s 1, 2, 3, 9998 and 9999). These were investigated early in the excavation and were designed as a sampling system for the deeper stratigraphy before this was fully understood. In the southern part of Trench B, and especially in Trench C, the grid was used to establish clusters (termed Blocks) of five-foot by five-foot excavation units.

3. Documentation

Stratigraphic recording was based on the concept of the “context,” defined as the smallest unit of stratigraphy (or evidence of human action, such as the cut interface for a pit or similar feature), that could be defined macroscopically by the archaeologists. There are other ways of documenting complex archaeological sequences, but this flexible approach, combined with a pro-forma recording system that encouraged documentation of sequences and relationships, worked well at Petty’s Run. Each trench (A through D) adopted an independent sequence of contexts from 1 to n, and these were cross-referenced during the analysis. Contexts in units were part of the overall
Figure 6.1. Petty’s Run Archaeological Site: Site Plan Showing Extent and Locations of Archaeological Excavations.
sequence so that each trench retained its own internal consistency. The data from these context sheets is summarized in Appendix C.

Spatial information was recorded in both plan and profile. Almost 80 plans and profiles were drawn in the traditional way using gridded mylar drawing film. Each of these was given a drawing number using a single sequence for the whole project. The locations of all the profiles, with their field drawing numbers, are shown in Figure 6.1. Locational information (xyz coordinates) were recorded for all these drawings, and elevation data was systematically included on all profiles.

In addition to these manual drawings, an overall site plan was developed for several stages of the work using a total station. These digital layers are selectively used in this report to provide overviews of the whole site (Figures 6.1 and 7.1) and of several detailed views of portions of the site (as represented in several drawings included in Chapter 7).

Site notebooks were used by several members of the archaeological team as a third component of the site record. This is a recognition that pro-forma stratigraphic sheets record only key information about individual elements of the site. They are not a very good vehicle for journaling, analysis, problem solving, and for recording such details as site conditions and personnel activities. A total of five site notebooks were therefore completed during the field project, and they form an important, if sometimes inchoate and anecdotal, part of the site archive.

Photography for the project was captured digitally, and the photographic archive is held in electronic form. Information about each frame was, however, recorded in the field on pro-forma photo log sheets, which were bound together in ring-binders with the digital equivalent of contact sheets. The photographic record is organized into groups of pictures. These groups are still termed “films,” reflecting an older technology. A total of 3333 frames, organized into 45 “films,” was taken during the course of the archaeological excavations. The photo inventory sheets were subsequently transcribed and reworked into an Excel© spreadsheet file, allowing for sorting of the data by columns and word searches. This portion of the site archive can be easily exported into other applications such as Access© for additional analysis.

4. Artifacts and Samples

Artifacts and samples were collected at various levels of detail. During mechanical excavation with a backhoe and gross removal of fill deposits by shovel selected items, chiefly artifacts of individual interest, were recorded by general provenience only, either from the site as a whole or from individual trenches. Generally, however, artifacts and samples were collected by context within units, permitting the recovery of the location of an individual item to within five feet in plan and to within the vertical extent of its context within the units. Some items were additionally point-provenienced because of their intrinsic importance or for their implications for the date and/or function of the stratigraphic contexts with which they were associated.

Artifacts removed from the site for analysis were sorted, washed (except in the case of metals and delicate objects, which were carefully dry-brushed), identified and cataloged. A comprehensive inventory of cataloged artifacts is provided as Appendix D. Wood and metal parts of the water box that contained the circa 1870 turbine in the Front Street paper mill were conserved by Milner + Carr Conservation, LLC and Materials Conservation Collaborative, LLC (Appendix E). Two heavily corroded metal artifacts recovered from the southwest corner of the collapsed furnace house structure were subjected to metallographic analysis by the Yale University
Archaeometallurgy Laboratory. Characterized as cast iron grate bars from a fire box, these items and their analysis are reported in Appendix F and in a recent article in the *Journal of Archaeological Science* (Thomas et al. 2012).

**D. SAFETY**

The Petty’s Run site was potentially dangerous, as are many urban archaeological projects. Deep, unconsolidated deposits lying unconformably on one another formed a substantial part of the site. There were high, potentially unstable, side walls to the excavations in many places. Massive unstable masonry foundations were present at several locations. A channelized stream ran through the site inside a leaking culvert which deposited water on the lower parts of the project area after heavy rains. Rains also caused erosion and undermining of parts of the site exposed for long periods. There were dramatic and considerable changes in elevation across the site, including a deep mill wheel pit that filled with water unless pumped. The ground was uneven, slippery and treacherous in wet, icy and snowy conditions. Added to this was the presence of heavy machinery working in close proximity to the archaeological team.

Recognition of all these issues, and other potential hazards such as contaminated soils, required the development of a detailed Health and Safety Plan for the project, which is included in this report as Appendix G.

A particular challenge was posed by the great depth of the site and the unstable and unpredictable character of the fill deposits. Wherever possible these deposits were benched. Otherwise (e.g., where space was limited) they were shored (Photograph 6.8). In all cases these measures followed the OSHA Standards set out in 29 CFR 1926 Safety and Health Regulations for Construction, Subpart P: Excavation. The field project was completed without any OSHA reportable incidents taking place.

Machine operations required close interaction between the operator and the archaeologists. Hard hats, steel-toed boots and fluorescent vests were required for all field crew while machines were operating. The machine operator also had to take account of his surroundings and the possibility of tipping over or entrapping the machine in the wildly varying landscape of the site.

The Petty’s Run culvert presented its own particular safety challenges, and was identified as a “confined space” as defined by OSHA under 29 CFR 1910.146 Permit-required Confined Spaces. All field staff entering the culvert were thus required to have received 8-Hour Confined Space Entry Training. Entry into the culvert involved the use of safety harnesses to descend a ladder placed within a manhole. Electric lights were strung along the sides of the culvert to facilitate its inspection. Periodic air monitoring was conducted to ensure that there was no build-up of potentially harmful gases within the culvert.

**E. PUBLIC ACCESS AND PUBLIC OUTREACH**

From the earliest stages of project planning, it was envisaged that information would be provided to the public in various formats. Selected materials resulting from this effort are presented in Appendix H.

Direct “real-time” interpretation of the site was accomplished by having an experienced archaeological educator, Vivian Braubitz, on site at lunchtimes during the week, when large numbers of people passed the site. A viewing platform was built, and this provided an informative and quite dramatic overview of the excavations (Photographs 6.9a and 6.9b). Sometimes
numbers were too great for the platform and the terrace surrounding the adjoining Thomas Edison property was used instead (Photograph 6.10). Ms. Braubitz also made use of a binder of illustrative materials and artifacts from the site in her informal and engaging presentations. A visitor’s log book was maintained, which eventually contained well over 500 entries, the overwhelming majority of them expressing great enthusiasm and interest in the project.

Occasional on-site tours were given to special interest groups (Photograph 6.11), to undergraduate and graduate classes from Rider and Rutgers Universities, and also during Trenton’s annual Patriots Week celebrations.

Several presentations were made at offsite locations, including conferences at the Ironbridge Gorge Industrial Museum in Ironbridge, England in June 2009 (published as Hunter and Burrow 2010), the Council for Northeast Historical Archaeology (2009), the Society for Industrial Archaeology (2010), the Archaeological Society of New Jersey (2010), the European Archaeological Association meeting in Oslo, Norway (2011) and the Trenton Museum Society (2011). In addition, key presentations were made to the State Capitol Joint Management Commission (November 2010) and also to several working groups involved with the planning for the Capital State Park project.

A less traditional medium for public outreach was the maintenance of a web journal (www.pettysrun.org), which was designed as a lively, popular, and sometimes mildly irreverent, record of the progress of the project. Weekly entries were made when the field project was active, and at other times when there were updates or news to report. Entries from the journal are included in Appendix H. This innovative approach to communicating the progress of the Petty’s Run excavations to the wider world led to the project receiving an annual New Jersey Historic Preservation award in 2010.

Over the five years duration of the Petty’s Run project there were numerous media reports in local newspapers, on local and regional television stations, and on the Internet. A selection of this coverage and comment is included in Appendix I.
Chapter 7

SITE EXCAVATION NARRATIVE

This chapter provides a broadly sequential account of the archaeological resources identified at the Petty’s Run site. These are treated in seven sections (C through I below), which group them by broad chronological phases that are similar (but not identical) to those used in Chapters 2, 3 and 4. The current chapter is not intended as a step-by-step and context-by-context description of the excavation, because such an account would be overwhelmingly detailed and cumbersome. Almost 800 context numbers were assigned during the excavations, and these are of widely varying character and significance. Selectivity, based on intense exposure to the data over many months, was essential.

This narrative is driven strongly by the information presented in the 25 figures and 72 photographs included here. The chapter is somewhat more interpretive and less purely descriptive than is often the case with less complex sites, partly because of the wish to present a concise account, and partly because the site sequence is remarkably clear. The precise date and interpretation of some features cannot be stated with certainty, but overall the correspondence between the archaeological and historical data-sets is very close and permits the use of this approach and framework.

The stratigraphic and artifactual data from which this account has been developed are presented in Appendices C and D, and also in the other record types discussed in Chapter 6. Those wishing to check on, and, potentially, reinterpret the material presented here will be able to do so using these data.

A. OVERVIEW OF STRATIGRAPHY AND SEQUENCE

The most striking impression the site made on those who excavated it was the enormous volume of fill that had been placed on this piece of landscape, chiefly between the mid-1870s and early 1920s. In places this material was almost 20 feet thick (Photographs 7.1 and 7.2). Dominant in this activity was the filling of the deeper part of the site in 1913-15 when the portion of Mahlon Stacy Park between the State House and the Old Barracks was created. Significant amounts of material were also deposited, however, in the mid- to late 1870s, when the industrial land uses were largely replaced by residential ones and the channelized segment of Petty’s Run between West State Street and West Front Street was covered over and buried. The final removal of several houses along the West State Street frontage in 1922 resulted in a final phase of deposition (restricted to the northern part of the site) of building rubble capped with clays and loams.

Beneath these fill layers, a series of complex stone and brick foundations were found to survive in varying degrees of completeness and coherence. Figure 7.1 is a simplified version of the plans of these foundations and features within the excavated area, and should be consulted in conjunction with the details of the recording system shown in Figure 6.1. The graphic provides a general guide to the site layout, and is supplemented by the more detailed drawings spread throughout the current chapter. Figure 7.1 also shows the location and figure numbers of profiles which are used in this report to express key stratigraphic relationships and structural information. These were selected from over 40 profiles drawn in the field, all of which are retained in the site archive.
Photograph 7.1. Petty’s Run Archaeological Site. General view of excavations in progress in the eastern portion of the site in September 2008. This view, looking north-northeast towards Thomas Edison State College, shows the complexity and depth of the stratigraphy on the site. The figure at top center stands in front of walling emplaced in 1905-08. The figure at left stands between two flights of steps built in 1876-77 to give access to Green’s Alley, which ran to the right of the arched Petty’s Run culvert. The parged masonry to the right of the figure is the interior face of the north wall of the early 19th-century Fithian cotton mill. The figure at bottom center is standing on bedrock at about 20 feet above sea level, about 18 feet below the surface on which the upper figure is standing. The wall behind the lower figure dates from the late 19th century. The upper three to five feet of the visible stratigraphy is 20th-century landscaping fill laid brought on to the site between 1913 and 1922. Most of the remainder is demolition material from 1913 when the row houses on West Front Street were torn down to make way for the park (Photographer: Seth Gartland, September 2008) [HRI Neg. #08024/D15:003].
Figure 7.1. Petty’s Run Archaeological Site – Overall Site Plan.
Figure 7.2. Petty’s Run Archaeological Site – North-South Profile across Site along Easting 1090 showing Major Features and Horizons (for location, see Figures 7.1 and 7.24).
West - East Profile Along 1182.5 N

Figure 7.3. Petty’s Run Archaeological Site – East-West Profile across Site along Northing 1182.5 showing Major Features and Horizons (for location, see Figures 7.1 and 7.24).
Photograph 7.2. Petty’s Run Archaeological Site. The east side of Trenches A and D. This composite view, looking east, shows the deepest deposits at the eastern side of the excavation, including several phases of 19th-century construction, and also demonstrates the depth and complexity of the stratigraphy on the site (see also the drawn profile, Figure 7.19). The datum string is at 26.32 above sea level, and the bedrock at the bottom of the view is at roughly 21 feet above sea level. The ground surface in 2008 lay at 37 feet above sea level. The prominent rock mass at the bottom right is the lowest portion of the disturbed south wall [D91] of the Harrow/Yard plating mill, *circa* 1734-77. North of this, lying on the bedrock, is a brown silty clay [D92], which may reflect siltation behind the wall after the destruction of the plating mill during the Revolutionary War. This is overlain by a distinctive darker mottled coarse sand layer flecked with brick [A111], possibly representing a stable ground surface. Robbing of the plating mill wall was followed by the placement of a mixed fill level [D89]. The wall immediately to the left of the scale pole [D81] was cut into this level and is the probable south wall of the early 19th-century Fithian cotton mill. The walls of the row houses at 120 and 122 West Front Street were built in or just after 1876 on a second fill level. The rough brick and stone wall [D80] above the cotton mill south wall is the party wall between the rear sections of 120 and 122 West Front Street. The curving stone foundation [A156] in the left foreground is the base of a mid- to late 19th-century boiler within the rear section of the Front Street paper mill, later used as a woolen mill. The prominent stone wall [A105] in the profile just beyond is the south wall of the rear section of the paper mill (see Figures 4.16 and 7.16). Scales in feet (Photographer: Seth Gartland, June 2009) [HRI Neg. #08036/D17:254 and 256].
The vertical relationships and stratigraphy of the site are presented in summary form in Figures 7.2-7.4. The two north-south profiles (Figures 7.2 and 7.4) roughly bisect the areas west and east of Petty’s Run respectively, and illustrate the great depth of fill materials (up to 18 feet) in the southern portion of the site. The 18th-century industrial components lie at the base of both profiles. The west-east profile (Figure 7.3) shows the multi-phase character of the site and the multiple foundations identified, particularly in Trench C west of Petty’s Run.

In terms of features and stratigraphy, the site falls into contrasting northern and southern portions, the division lying at the point where the bluff, on which West State Street runs, falls away to a lower gently sloping terrace that today extends south uninterruptedly to the Delaware River. The excavation showed, however, that the underlying Paleozoic bedrock topography is less simple and more dramatically formed than the modern landscape would suggest.

The northern or upper portion of the site was the scene of very limited activity during the colonial period when it is thought to have contained a milldam and millpond, probably surrounded by farm fields and a strip of woodland along the bluff rim (see above, Figures 3.4-3.6). Beginning in the early 19th century, following the westward extension of Second (West State) Street across Petty’s Run in the early 1780s, the excavation area gradually became incorporated into the backyards of houses being constructed on lots ranged along the south side of this street. The privies, walls and walkways found here all belong to this 19th-century residential phase, with the exception of an 18th-century wall found in Excavation Units 1 and 2 in Trench B, which runs along a much earlier property line.

In the southern part of the site, on the bluff slope and toward its base, several 18th- and early 19th-century industrial features were clustered beside Petty’s Run. The waterpower available at this crucial point where the run descended the bluff in a ravine was the raison d’être for this industrial activity. The character of the landscape changed dramatically, however, when Front Street was extended westward across Petty’s Run to the State House lot in the early 1790s, leading to a reworking of the water-powered industrial facilities in the second decade of the 19th century, and again in the late 1820s. The north frontage of West Front Street soon emerged as the dominant influence on land use within the project site, eventually leading in the 1870s to redevelopment of the industrial property for row homes. The boundaries of the rear portions of the West Front Street and West State Street properties were the subject of repeated adjustment and change between about 1870 and 1910, and this is reflected in the physical remains on the site.

B. SOLID GEOLOGY AND DRAINAGE

The solid geology of the site has considerable research value and visual interest of its own. Its examination and analysis by locally based professional geologists has provided important new insights and data on the Precambrian rocks of the Trenton area (see Volkert 2010 for a detailed characterization of the local metamorphic geology). The Trenton Prong rocks encountered here are assigned to the Mesoproterozoic era, about 1.6 to 1 billion years ago. More specifically, the gneisses in the Trenton formation outcropping at the Petty’s Run site are probably about 1.3 billion years old and are correlated to the well-known Wissahickon Formation of eastern Pennsylvania (Volkert 2010:38). These gneisses and the other metamorphosed rocks strike east-northeast across the site at about N70°, and present a powerful visual impression (Photographs 7.3 and 7.4) (Volkert 2010:45). Bedrock was encountered from elevations as low as 13 feet above sea level in the paper mill wheel pit, to as high as 39.5 feet in Excavation Unit 2 in Trench B (see below, Figure 7.17).
Context List

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<td>Mortared stone wall (E-W property boundary)</td>
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<td>Mortared stone stairway (access from Wilson Alley to Green’s Alley)</td>
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<td>Mortared stone wall (north wall of cotton mill, re-used as rear section of paper mill)</td>
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<td>A105</td>
<td>Mortared gneiss wall (very late 19th century, function unknown)</td>
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<td>Dry-laid stone wall of large gneiss blocks (west wall of plating mill)</td>
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Figure 7.4. Petty’s Run Archaeological Site – North-South Profile across Site along Easting 1132.5 showing Major Features and Horizons (for location, see Figures 7.1 and 7.24).
Photograph 7.3. Petty’s Run Archaeological Site. Gneiss and other metamorphosed bedrock formations of Mesoproterozoic age, about 1.6 to 1 billion years old, exposed northwest of the Front Street paper mill wheel/turbine pit and north of the Trenton Steel Works furnace house. View looking south-east (Photographer: Ian Burrow, August 2009) [HRI Neg. #08036/D19:8].
Photograph 7.4. Petty’s Run Archaeological Site. Bedrock outcrop of gneiss and other metamor-
phosed lithology of Mesoproterozoic age, about 1.6 to 1 billion years old, exposed north of the Trenton
Steel Works furnace house. View looking west-southwest with the New Jersey State House in the
background (Photographer: Ian Burrow, August 2009) [HRI Neg. #08036/D19:18].
Photograph 7.5. Petty’s Run Archaeological Site. One of several drill holes observed in the quarried face of the bedrock north of the Trenton Steel Works furnace house. View looking northwest (Photographer: Ian Burrow, August 2009) [HRI Neg. #08036/D19:6].
Clear evidence for historic quarrying of the gneisses for building purposes was encountered in the form of drill holes observed at several locations along the steep bluff edge to the west of Petty’s Run (Photograph 7.5). These cannot be precisely dated, although the random incorporation of stones with identical drill holes into the west wall of 130 West Front Street [Context C130], built in 1874, suggests that the quarrying pre-dates this construction episode. The quarrying technique was probably the traditional manual “hammer and tap” system used until compressed-air drills were developed in the late 1800s.

A detailed discussion of Petty’s Run is provided in Chapter 5, but the following points may be emphasized here. In its unaltered state early in the colonial period, Petty’s Run flowed across the bluff top and made its way over the bluff edge at the lowest point in the vicinity: about 30.5 feet above sea level compared to the 39.5 feet bedrock elevation recorded about 50 feet to the west-northwest in Excavation Unit 2, Trench B. This difference in elevation underscores how dramatic and varied the topography of the area must have been during the pre-urban era. From the bluff edge, the bed of the run inside the culvert drops a vertical height of about 12 feet in a horizontal distance of 30 feet, terminating in a southern, almost vertical, drop of about four feet. From that point the bed falls more gradually from about 18 feet to about 14 feet above sea level over a horizontal distance of about 70 feet. North of this second drop the current stream bed within the culvert is at a higher elevation than the adjoining bedrock to the east. This can be seen in Figure 7.15, and is puzzling, but may be related to mill construction activity. South of the southern vertical drop, however, the bedrock elevations within and outside the culvert are closely similar. Another unusual feature is the sharp, almost vertical bedrock face, about five feet high, against the west side of the run, discovered during excavation of the West Front Street bridge (see below, Section F). All in all, the impression obtained from the bedrock is that Petty’s Run in the early historic period tumbled over the bluff edge through an irregular, rocky ravine.

C. PREHISTORIC AND PRE-UrBAN SEDIMENTS AND FEATURES

No prehistoric features were identified in the Petty’s Run excavations, in contrast to the situation at the Thomas Edison State College Site immediately to the northeast where partially intact Native American refuse pits and burials were found (see Supplement). Prehistoric evidence at the Petty’s Run site was confined to lithic and ceramic artifacts, many of them recovered from disturbed soil contexts (Figure 7.5; Photograph 7.6; Tables 7.1-7.4).

A total of 627 prehistoric items were recovered from 42 separate contexts. Of this number, 451, or 72%, were from Context C161 spread across 15 excavation units. Context C161 was a mottled loamy silt with pebbles, gravel and charcoal flecking (10YR 2/2, 10YR 5/3), chiefly located around the exterior of the steel works’ furnace house. It overlay both the collapsed remains of the furnace house and the stone features built after it was abandoned, indicating that these prehistoric artifacts were recovered from a secondary context. A selection of the wide range of lithic and ceramic artifacts recovered from this context is illustrated in Photograph 7.6.

A further 105 artifacts (17%) were recovered from Contexts B19 and B44 in Excavation Units 1 and 2 (Figure 7.17). These are also secondary deposits with admixed historic materials and they lie on either side of the 18th-century boundary wall that was the main feature at this location (see below). Even the stratigraphically earliest context here [B42] contained both historic and prehistoric materials.
Figure 7.5. Petty's Run Archaeological Site – Distribution of Prehistoric Cultural Materials by Excavation Unit.
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<td>C</td>
<td>910</td>
<td>416</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>611</td>
<td>417</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>611</td>
<td>522</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>611</td>
<td>523</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>145,146,147</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>712</td>
<td>general provenience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>712</td>
<td>wall scraping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>134</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>202</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>208</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
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</tr>
</tbody>
</table>

**TABLE 7.1. PETTY’S RUN ARCHAEOLOGICAL SITE: SUMMARY OF PREHISTORIC ARTIFACTS**
Outside of these two groups of contexts, the remaining 53 artifacts were found in low concentrations in 39 contexts. These were chiefly in Trench C, in part because this area saw the most extensive hand excavation, but also because stratigraphic conditions elsewhere, especially in Trench D, were not conducive to the survival of stable earlier historic and prehistoric sediments. Only two artifacts were recovered from the rather restricted excavations in Trench A, and only four from Trench D. The Trench C contexts were in the 300, 400 and 500 series, and, like Context C161, chiefly represent earlier historic horizons.

The following summarizes the principal items in the prehistoric artifact assemblage:

1. Lithics (Table 7.2)

   a. Projectile Points
   Three formal projectile points were recovered: two Woodland jasper triangles from Context C161, Excavation Unit 1008 (Photograph 7.6); and a single argillite stemmed point from Context B8, Excavation Unit 9999, in the northwest corner of the site.

   b. Bifaces
   Eleven bifaces and biface fragments were found. These were fashioned in argillite, chert and quartz and included two chert and two quartz specimens from Context C161.

   c. Drill/Awl
   One jasper drill or awl fragment was recovered from Context C161 (Photograph 7.6). Another argillite drill or awl was recovered from Context C522, Excavation Unit 611.

   d. Unifacial Tool
   One quartz unifacial tool was recovered from Context C161, Excavation Unit 1012 (Photograph 7.6).

   e. Utilized Flake
   One black chert utilized flake was found in unprovenienced soils in Trench C.

   f. Debitage
   The dominant raw materials represented in the 499 pieces of lithic debitage were jasper (47%), chert (27%) and argillite (14%), with smaller quantities of other regionally occurring lithics (Table 7.2).

   g. Thermally Altered Rock
   Only 38 pieces of thermally altered rock, almost all of quartzite and of small size, were recovered.

2. Ceramics (Tables 7.3 and 7.4)

   All but one of the 63 prehistoric ceramic sherds were recovered from Context C161 in the southwestern portion of the site around the exterior of the furnace house (Photograph 7.6). Tables 7.3 and 7.4 break down the ceramic materials according to their surface treatment and temper, following the methodology developed by Stewart for the Trenton Complex archaeological studies (Stewart 1998 [1996]). Of the 63 sherds, 34 could be assigned with confidence to eight of Stewart’s types. Of these 34 specimens, 23 are Middle and Late Woodland types, while only three are of Early Woodland affinity. Stewart Types VIII ND and XV ND are also most likely Late Woodland in date. The seven otherwise untyped sand-tempered and net/fabric impressed sherds also probably date from the late Middle Woodland period and later (Stewart 1998[1996]:20). The 22 mostly small organic-tempered sherds, the majority without distinctive surface treatment, are not assigned to any period or cultural association.
### TABLE 7.2. PETTY’S RUN ARCHAEOLOGICAL SITE: PREHISTORIC LITHICS FREQUENCY BY TYPE AND RAW MATERIAL.

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Argillite</th>
<th>Chalcedony</th>
<th>Chert*</th>
<th>Jasper</th>
<th>Quartz</th>
<th>Quartzite</th>
<th>Sandstone</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>biface</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drill/awl</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>projectile point</td>
<td>1</td>
<td>2</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wedge</td>
<td>1</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>uniface</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>utilized flake</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>tested cobble</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>4</td>
<td></td>
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<td>tested pebble</td>
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<td>2</td>
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<td>3</td>
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<tr>
<td>Subtotals</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td>Debitage</td>
<td></td>
<td>72</td>
<td>5</td>
<td>135</td>
<td>236</td>
<td>49</td>
<td>2</td>
<td>499</td>
</tr>
<tr>
<td>Thermally altered rock</td>
<td>3</td>
<td>1</td>
<td>29</td>
<td>5</td>
<td>38</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Totals</td>
<td>85</td>
<td>5</td>
<td>140</td>
<td>245</td>
<td>54</td>
<td>31</td>
<td>5</td>
<td>565</td>
</tr>
</tbody>
</table>

*Includes Onondaga chert (2) and Coxsackie chert (1)
### TABLE 7.3. PETTY’S RUN ARCHAEOLOGICAL SITE: PREHISTORIC CERAMIC SHERDS FREQUENCY BY SURFACE TREATMENT/DECORATION AND TEMPER

<table>
<thead>
<tr>
<th>Surface Treatment/Decoration</th>
<th>Argillite</th>
<th>Organic</th>
<th>Quartz</th>
<th>Sand</th>
<th>Sand/Grit</th>
<th>Sand/Argillite</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cord-wrapped paddle</td>
<td>5 (VIII A)</td>
<td>3 *</td>
<td>1 (VI B)</td>
<td>2 (XV B)</td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Fabric/net-impressed</td>
<td></td>
<td></td>
<td></td>
<td>7 *</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Impressed</td>
<td></td>
<td></td>
<td>1 (XV A)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Incised</td>
<td>1 *</td>
<td></td>
<td>6 (XV A)</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Smoothed</td>
<td>2 (VIII G)</td>
<td>4 *</td>
<td>2 (VI)</td>
<td>6 (XV A)</td>
<td>1 (VIII G)</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Indeterminate/Undecorated</td>
<td>2 (VIII ND)</td>
<td>14 *</td>
<td></td>
<td>2 (XV ND)</td>
<td>4 (XV ND)</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>9</td>
<td>22</td>
<td>3</td>
<td>23</td>
<td>5</td>
<td>1</td>
<td>63</td>
</tr>
</tbody>
</table>

* Types unassigned to Stewart Typology
TABLE 7.4. PETTY’S RUN ARCHAEOLOGICAL SITE: PREHISTORIC CERAMIC SHERDS FREQUENCY BY STEWART TYPOLOGY AND CULTURAL AFFILIATION.

<table>
<thead>
<tr>
<th>Stewart 1998 Type</th>
<th>Early Woodland</th>
<th>Middle/ Late Woodland</th>
<th>Unassigned</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>VIB</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>VIII A</td>
<td></td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>VIII G</td>
<td></td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>VIII ND</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>XV A</td>
<td></td>
<td>13</td>
<td></td>
<td>13</td>
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<tr>
<td>XV B</td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>XV ND</td>
<td></td>
<td></td>
<td>6</td>
<td>6</td>
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<tr>
<td>Organic Temper*</td>
<td></td>
<td></td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Sand Temper*</td>
<td></td>
<td></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>3</strong></td>
<td><strong>23</strong></td>
<td><strong>37</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

* Types unassigned to Stewart Typology
3. Discussion

Although the artifact sample size is small, the distribution of Native American cultural materials within the site conforms to the topographic characteristics of the bluff edge overlooking the Delaware River in the Petty’s Run vicinity. Artifacts are concentrated in two main areas: along the upper terrace between West State Street and the bluff rim lying roughly 100 feet to the south; and on the lower terrace between 175 feet and 250 feet to the south of West State Street. The upper terrace concentration continues a pattern of mostly Woodland, but also Archaic period Native American occupation that has been observed along much of the south side of West State Street between Barrack Street and Calhoun Street, most notably on the Thomas Edison State College campus (see Supplement), on the site of the underground garage between the State House Annex and the New Jersey State Library (Hunter Research, Inc. 1993), and in front of the New Jersey State Museum (Hunter Research, Inc. 2004). The lower terrace concentration is part of a focus of occupation on the west side of Petty’s Run that has been encountered in earlier archaeological work (Historic Sites Research 1990:44-48, 107-108; Hunter Research, Inc. 2007a:5-12 to 5-22) and which complements evidence of Woodland period activity on the opposite (east) side of Petty’s Run on the site of the Old Barracks (Hunter Research, Inc. 1991; Martin 1991).

In terms of Native American artifacts from the Petty’s Run site, the lithic assemblage, with its emphasis on cryptocrystalline materials rather than argillite, and the presence of Late Woodland triangles, supports the impression from the ceramics that the majority of the material is of the Late Middle Woodland and Late Woodland periods, dating from about AD 800 through about AD 1600 or later. This also is consistent with the results from other investigations in the vicinity, including the Old Barracks and Thomas Edison State College, and is a further demonstration of the long-term use by Native Americans of the bluffs and drier portions of the Delaware floodplain north of the Assunpink in Trenton.

D. EIGHTEENTH-CENTURY INDUSTRIAL FEATURES

The archaeological signatures of two 18th-century industrial features – the steel furnace of circa 1745-1783 and the plating mill of circa 1733-1777 – survive within the Petty’s Run site, on the west and east sides of the run respectively. Although the plating mill was established earlier than the steel furnace, the latter is described first here because of its greater historical significance, better preservation and more extensive archaeological investigation.

1. The Trenton Steel Works: Construction and Use

The overall configuration of the features relating to the steel furnace is shown in Figure 7.6 and Photograph 7.7. These elements are ascribed to the steel furnace phase on the basis of their locations within the stratigraphic sequence, their specific character, their spatial and structural relationships to each other, and commonality of construction techniques. Apart from the brick used for the furnace itself, the structures were predominantly composed of the local gneiss, bonded with a distinctive orange-yellow sandy lime mortar (10YR 6/8) that was present in some quantity on this part of the site but not observed elsewhere. Where not directly associated with wall foundations, it could be confidently ascribed to rebuilding episodes (of which there may have been several) or to demolition activities following the documented abandonment of the furnace operation in the mid- to late 1780s.
Photograph 7.7. Trenton Steel Works. View looking north-northeast showing the surviving features of the furnace house and the furnace base. The southwest corner of the furnace house [C140, C145] is in the left foreground, with a section of collapsed wall [C341] on its west (left) side. The furnace base [C333] is at upper right, its northern wall still obscured by the north wall of the paper mill wheelhouse [C52]. Beyond the wheelhouse wall is a surviving length of the furnace house north wall [C141], with two bracing walls [C176 and C177] extending south to connect to the furnace base. The west wall of the paper mill wheelhouse [C146] runs north-south in the lower center of the view, heading for the butt joint to the north that marks the northwest corner of the paper mill wheelhouse. The pink tape was placed to help interpret the site for a group of visitors. Scales in feet (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D15:060].
Context List

<table>
<thead>
<tr>
<th>Context</th>
<th>Description/Interpretation</th>
<th>Munsell</th>
</tr>
</thead>
<tbody>
<tr>
<td>C52</td>
<td>Mortared gneiss wall (north wall of paper mill wheelhouse, re-used as north wall of 126, 128 and 130 West Front Street)</td>
<td>–</td>
</tr>
<tr>
<td>C61</td>
<td>Mortared sandstone wall (west wall of wheel/turbine pit)</td>
<td>–</td>
</tr>
<tr>
<td>C71</td>
<td>Mortared gneiss wall (south wall of paper mill wheelhouse, re-used as south wall of 126, 128 and 130 West Front Street)</td>
<td>–</td>
</tr>
<tr>
<td>C130</td>
<td>Mortared gneiss wall (east wall and west end of north wall of 130 West Front Street)</td>
<td>–</td>
</tr>
<tr>
<td>C140</td>
<td>Yellow mortared rough hewn stone wall (west wall of furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C141</td>
<td>Yellow mortared rough hewn stone wall (north wall of furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C144</td>
<td>Mortared stone wall (south property wall of 132 West Front Street)</td>
<td>–</td>
</tr>
<tr>
<td>C145</td>
<td>Yellow mortared rough hewn stone wall (south wall of furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C146</td>
<td>Mortared stone wall (west wall of paper mill wheelhouse)</td>
<td>–</td>
</tr>
<tr>
<td>C151</td>
<td>Partially mortared large gneiss boulder (incorporated into west wall of furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C176</td>
<td>Yellow mortared stone wall (west bracing wall of steel furnace)</td>
<td>–</td>
</tr>
<tr>
<td>C177</td>
<td>Yellow mortared stone wall (east bracing wall of steel furnace)</td>
<td>–</td>
</tr>
<tr>
<td>C209</td>
<td>Cut (builders trench for furnace house wall)</td>
<td>–</td>
</tr>
<tr>
<td>C210</td>
<td>Sand loam with yellow mortar and stone debris (backfill of robbed furnace house builders trench)</td>
<td>10 YR 3/3</td>
</tr>
<tr>
<td>C319</td>
<td>Carbonized wood (barrel remains)</td>
<td>10 YR 2/1</td>
</tr>
<tr>
<td>C333</td>
<td>Massive stone and brick foundation (steel furnace base)</td>
<td>–</td>
</tr>
<tr>
<td>C341</td>
<td>Yellow mortared stone masonry (collapsed section of furnace house west wall)</td>
<td>–</td>
</tr>
<tr>
<td>C345</td>
<td>Stone wall fragment (secondary structure west of furnace house?)</td>
<td>–</td>
</tr>
<tr>
<td>C363</td>
<td>Dense cobbles (feature in southwest corner of furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C364</td>
<td>Cut (builders trench for south wall of furnace house or demolition/re-use feature)</td>
<td>–</td>
</tr>
<tr>
<td>C408</td>
<td>Dense brick debris with brick dust (demolition material from steel furnace)</td>
<td>5 YR 5/8</td>
</tr>
<tr>
<td>C409</td>
<td>Dry-laid uncured stone revetment wall (west side of ramp)</td>
<td>–</td>
</tr>
<tr>
<td>C410</td>
<td>Medium to large cobbles layer with loam (part of ramp)</td>
<td>10 YR 5/1</td>
</tr>
<tr>
<td>C413</td>
<td>Cut (excavation for ramp)</td>
<td>–</td>
</tr>
<tr>
<td>C416</td>
<td>Quarried gneiss boulders with silty loam (part of ramp)</td>
<td>10 YR 3/1</td>
</tr>
<tr>
<td>C423</td>
<td>Yellow mortared stone masonry (collapsed walling from furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C424</td>
<td>Cut (excavation for ramp?)</td>
<td>–</td>
</tr>
<tr>
<td>C425</td>
<td>Cut (builders trench for west wall of furnace house)</td>
<td>–</td>
</tr>
<tr>
<td>C525</td>
<td>Dry-laid uncured stone revetment wall with medium to large boulders (east side of ramp)</td>
<td>–</td>
</tr>
<tr>
<td>C604</td>
<td>Mortared stone wall (south wall of 130 West Front Street)</td>
<td>–</td>
</tr>
</tbody>
</table>

Figure 7.6. Petty’s Run Archaeological Site, Trenton Steel Works – Overall Plan of Features Associated with the Steel Furnace and Furnace House.
The surviving foundations and footings were generally set into a somewhat variable B horizon loam, sandy clay or sandy silt with small amounts of gravel, pebbles and cobbles [C329, C367, C415] that lay on the bedrock or on orange coarse sandy gravel [C536]. The B horizon was virtually free of cultural material and had probably been truncated by the successive occupation episodes. Three historic items were found in Context C367 in Excavation Unit 303 immediately north of the furnace house. These comprised one of the heavily glazed brick masonry fragments typical of the furnace superstructure and two lead/manganese glazed redware sherds. These are assumed to be intrusive and to have been trampled into the context during rebuilds or demolition. The lack of prehistoric material was particularly notable.

The furnace house was a stone-walled rectangular building lying immediately west of Petty’s Run, and roughly oriented to the cardinal directions. In exterior dimensions it extends 31 feet (9.4 m) north-south and approximately 36 feet (10.9 m) east-west. Much of the south wall and almost all of the east wall of the furnace house no longer survive, but the northeast corner of the building is still intelligible and expressed as several very large stone blocks with patches of orange-yellow mortar. A raceway and wheel pit, probably with an overshot or breast waterwheel, may have originally lain adjacent to the east side of the furnace house, but all trace of these features was likely removed either by the channelization of Petty’s Run in connection with the construction of Josiah Fithian’s cotton mill, circa 1813-14, or by construction of the Front Street paper mill waterpower system in the late 1820s (Figure 7.6; Photograph 7.8).

The furnace house walls [C140, C141, C145], which generally survive to a height of two feet (0.60 m) or less, are composed chiefly of locally quarried and roughly dressed gneiss. The source of the gneiss was probably the bluff edge just to the north and rear of the building where evidence of quarrying was visible (see above and Photograph 7.5). Large water-rounded boulders and cobbles, probably recovered from the nearby Delaware River floodplain and adjoining terrace landforms, were also used as foundation material in places. The west and south walls are two feet (0.60 m) thick, the north wall 1.75 feet (0.5 m). No door, window or other openings were observed.

The furnace base [C333] lies within the furnace house and five feet to the south of its north wall (Photograph 7.9). Although much truncated by later building episodes, it retains some structural detail. In plan it is 10.5 feet east-west by 9.5 feet north-south (3.2 by 2.9 m). The interior foundation is of tightly packed mortared gneiss rubble surrounded by stone retaining walls standing up to two feet (0.6 m) high (Photograph 7.10). In the center of both the east and west walls is a distinctive long slab of quartzitic sandstone 32.5 inches (82.5 cm) long (Figure 7.7).

The north side of the furnace base is the best preserved, having been incorporated into the north wall of the 19th-century paper mill (Photograph 7.11). Here, four courses of brick masonry, much of it showing evidence of exposure to heat, survive on top of the stone footing. The rows of brickwork are alternately all headers and all stretchers (English bond), with the lowest course being headers. The bricks were evidently made in a mold 8.5 inches long, 4.25 inches wide and 2.5 inches deep. The stone foundation of the base steps down to the south, following the natural contour of the ground surface. Two lower courses of brick, evidently used to level up the foundation for a continuous brick structure, are identifiable in places on the stone footings. The bonding of these appears to have been more expedient and irregular.

Examination of the bonding of the brick and of the mortar ‘ghosting’ where bricks have been displaced indicates that the surface of the furnace base was divided into three structural ‘zones’ from north to south. The central zone, where the lowest bricks
Photograph 7.8. Trenton Steel Works. View looking west along the north wall of the furnace house [C141]. The walling in the foreground represents the northeast corner of the furnace house with a fragment of the east wall being visible here, possibly flanking the west side of a raceway or wheel pit. Note the thick overlying demolition deposit of stone interspersed with the distinctive orange-yellow sandy lime mortar that characterized the furnace house construction. The north wall is visible at the top of view between the two figures, with the paper mill wheelhouse north wall [C52] at upper left. Scale in feet (Photographer: Ian Burrow, May 2009) [HRI Neg. #08036/D13:016].
Photograph 7.9. Trenton Steel Works. View looking east showing the base of the cementation furnace [C333] during its final stage of excavation under wet conditions in mid-July, 2009. The far horizontal scale pole lies on a large stone block in the center of the east wall. A similar block can be seen on the west wall in the foreground. The brick and brick impressions of the furnace superstructure are visible on the north and south (at left and right). The central portion has been partially excavated to reveal the stone rubble base. At left, the stone north wall of the paper mill wheelhouse [C52] has been partly removed to fully expose the brick north wall of the furnace. One of two secondary furnace bracing walls [C177] is visible at upper left, and the flat gneiss slab that may have been part of the flooring adjacent to the furnace is at lower left. Scales in feet (Photographer: Seth Gartland, July 2009) [HRI Neg. #08036/D17:513].
Photograph 7.10. Trenton Steel Works. View looking north showing an exposed section of the mortared stone and brick masonry in the south side of the cementation furnace base [C333]. The fill deposits at right and left were left in place to support the structure. Scales in feet and inches (Photographer: Ian Burrow, May 2009) [HRI Neg. #08036/D13:002].
Context List

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<tr>
<td>C141</td>
<td>Yellow mortared rough hewn stone wall [north wall of furnace house]</td>
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</tr>
<tr>
<td>C176</td>
<td>Yellow mortared stone wall [west bracing wall of steel furnace]</td>
<td>--</td>
</tr>
<tr>
<td>C177</td>
<td>Yellow mortared stone wall [east bracing wall of steel furnace]</td>
<td>--</td>
</tr>
<tr>
<td>C319</td>
<td>Carbonized wood [barrel remains]</td>
<td>10 YR 2/1</td>
</tr>
<tr>
<td>C333</td>
<td>Massive stone and brick foundation [steel furnace base]</td>
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</tbody>
</table>

Figure 7.7. Petty’s Run Archaeological Site, Trenton Steel Works – Detailed Plan of the Steel Furnace Base and Adjacent Portions of the Furnace House.
Photograph 7.11. Trenton Steel Works. View looking west showing the northeast corner of the cementation furnace base [C333]. Four courses of brick masonry survive here because they were incorporated into the north wall of the paper mill (removed in this view). The eastern of the two secondary bracing walls [C177] abuts the brickwork at right. Note the rough coursing of the brickwork in the lower interior of the furnace base. Scales in feet and inches (Photographer: Ian Burrow, July 2009) [HRI Neg. #08036/D17:413].
appear to be all aligned with their long axes east to west, is roughly three feet (one meter) wide, and runs between the two large sandstone blocks in the west and east walls.

The northern wall of the furnace base is supported at its eastern and western ends by short north-south walls of mortared stone [C176, C177] braced against the inner side of the north wall of the furnace house, and it is here that some evidence of a structural sequence was noted (Figures 7.8 and 7.9; Photograph 7.12). The most likely explanation for these walls is that they are buttresses intended to counter weakness in the furnace structure after repeated use. It is clear that they are secondary features that were built on top of an occupation soil [C324] associated with a barrel [C319] set into the ground at the northwest corner of the furnace and with an adjacent gneiss floor slab. No clear evidence of buttresses was observed on the south side of the furnace. These may have existed, but been removed in the subsequent paper mill or residential building episodes on the site.

Excavation of the ‘pre-buttress’ soil [C324] yielded chunks of heavily vitrified brick and cemented sand. A very similar soil [C361] was present north of the furnace house north wall (i.e., outside the building). Unfortunately, construction of the north wall of the 19th-century paper mill had largely destroyed the stratigraphic relationship between the north wall of the furnace house and the furnace base, although it seems likely that the pre-buttress soil represents a working horizon that accumulated against a furnace structure. The presence in the pre-buttress soil of firebrick, also found in quantity elsewhere on the site, perhaps implies a rebuilding of the furnace stack on more than one occasion prior to the construction of the buttresses. In other words, the surviving furnace base may have been rebuilt and date from the later operation of the steel works.

Also found within the pre-buttress soil deposit were three artifacts of particular interest (Photograph 7.13). A clay pipe bowl fragment with the initials “RT” correlates with Iain Walker’s Type Q, a style of pipe attributed to one of three generations of pipe makers named Robert Tippet in Bristol, England, who were in business from 1660 until as late as 1730. The specimen is a heelless variety thought to have been manufactured for export only since they are rarely found in England, but are common recovered on archaeological sites in eastern North America (Walker 1977:1314-1318, 1396, 1493-1501). A marked “Robert Tippet” pipe was recovered from the French frigate Machault, sunk in June of 1760, which has led to the suggestion that Tippet pipes were being counterfeited later in the 18th century by French pipe makers (Sullivan 1986:90). “RT” pipes have also been found in other similarly late contexts: from the shipwreck Bate-des-Chaleurs, again around 1760; at Fort Gaspereau, New Brunswick, circa 1750-56; and at Fort Michilimackinac, circa 1740-80 (Hanson and Hsu 1975:141). The occurrence of an “RT” pipe at the Trenton Steel Works fits well with these later finds and with the use of the steel furnace site from the late 1740s through the Revolutionary War. Much of a very large, thick-walled globular redware storage jar was also recovered from Context 324. With a clear, lead-glazed interior and unglazed exterior, this vessel has a distinctly non-domestic appearance and may have served an industrial purpose inside the furnace house. Two joining pieces of a sizeable block of heat-altered limestone from the same deposit may represent material used in making lime mortar for construction of the furnace or furnace house.

The space between the two bracing walls was filled (possibly at the time they were constructed) by a very distinctive coarse yellow sand [C312] that was red-den and blackened by heat in the area closest to the furnace (Figure 7.9). This context, together with the walls and the furnace itself, are truncated above about 27 feet (8.25 m) above sea level by the depredations of the 19th century.
Figure 7.8. Petty’s Run Archaeological Site, Trenton Steel Works – Elevation of the Western Bracing Wall and North-South Profile across Earlier Stratigraphy between the Steel Furnace and the North Wall of the Furnace House in Excavation Unit 104 (for location, see Figures 7.1 and 7.6).
Context List

<table>
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<th>Description [Interpretation]</th>
<th>Munsell</th>
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<tbody>
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<td>C52</td>
<td>Mortared gneiss wall [north wall of paper mill wheelhouse, re-used as north wall of 126, 128 and 130 West Front Street]</td>
<td>10 YR 4/2, 10 YR 3/3, 5 YR 4/6</td>
</tr>
<tr>
<td>C141</td>
<td>Yellow mortared rough hewn stone wall [north wall of furnace house]</td>
<td>10 YR 4/3, 10 YR 3/3, 5 YR 4/6</td>
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<tr>
<td>C300</td>
<td>Sandy loam with brick, stone, shell, coal [late 19th-century demolition/fill]</td>
<td>10 YR 5/3, 10 YR 3/3, 5 YR 4/6</td>
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<tr>
<td>C311</td>
<td>Silt clay loam [fill of C326]</td>
<td>10 YR 3/3</td>
</tr>
<tr>
<td>C324</td>
<td>Loamy clay with charcoal [occupation deposit inside furnace house?</td>
<td>10 YR 4/2</td>
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<tr>
<td>C326</td>
<td>Cut [builders trench for north wall of furnace house]</td>
<td>10 YR 4/2</td>
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<tr>
<td>C327</td>
<td>Silty clay loam [fill of C326]</td>
<td>10 YR 3/3</td>
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<tr>
<td>C330</td>
<td>Silty fine sand with cobbles [leveling deposit for furnace house construction?]</td>
<td>7.5 YR 4/4</td>
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<tr>
<td>C331</td>
<td>Very fine silty sand [B horizon]</td>
<td>10 YR 4/2</td>
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<tr>
<td>C333</td>
<td>Massive stone and brick foundation [steel furnace base]</td>
<td>10 YR 4/2</td>
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<tr>
<td>C340</td>
<td>Silty sand [late 19th-century fill]</td>
<td>10 YR 5/3</td>
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<td>C360</td>
<td>Silty sand with charcoal [occupation deposit outside furnace house?]</td>
<td>10 YR 4/3</td>
</tr>
<tr>
<td>C361</td>
<td>Sandy silt with charcoal flecks [occupation deposit outside furnace house?]</td>
<td>10 YR 3/3</td>
</tr>
<tr>
<td>C366</td>
<td>Silty sand with brick [furnace house demolition level]</td>
<td>10 YR 4/2</td>
</tr>
<tr>
<td>C367</td>
<td>Sandy silt [B horizon]</td>
<td>10 YR 4/2</td>
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</table>

Figure 7.9. Petty’s Run Archaeological Site, Trenton Steel Works – North-South Profile across the Steel Furnace Base and the North Wall of the Furnace House (for location, see Figures 7.1 and 7.6).
Photograph 7.12. Trenton Steel Works. View looking south showing the base of a barrel [C319] set within a pit [C309] and contemporary with the use of the steel furnace. Note the partially removed brick rubble [C310] filling the pit at right. The western furnace bracing wall [C176] is at left, abutting the south wall of the furnace house [C141] at the bottom of the view. The pit’s relationship to the bracing wall suggests that the pit and barrel were both in place prior to the construction of the bracing wall, which is certainly a secondary feature in the furnace sequence. The north wall [C52] of the 19th-century paper mill wheelhouse is at top (see also Figures 7.6 and 7.7). Scales in feet and inches (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:236].
Photograph 7.13. Trenton Steel Works. Selected artifacts from Context C324. **Top left:** white clay tobacco pipe bowl fragment with impressed initials “RT” and the edge of a raised cartouche on the side of the bowl, possibly attributable to one of three generations of pipe makers named Robert Tippet of Bristol, England, *circa* 1660-1730 (the pipe could also be a later 18th-century copy of a Tippet pipe). **Bottom left:** fragment of heat-altered limestone, possibly raw material for making lime mortar. **Remainder of image, top to bottom:** rim sherd, body sherd and base sherd of a large, thick-walled, redware storage jar with lead-glazed interior surface, cupped lug handle and restricted, everted, flat rim (this vessel was likely used for industrial purposes) (Photographers: Lindsay Lee, July 2009 and Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-02].
2. The Trenton Steel Works: Abandonment and Re-Use

The southwestern portion of the furnace house retained considerable structural and stratigraphic integrity, and showed evidence for systematic demolition and perhaps re-use, possibly reflecting the complex and contentious history of the steel furnace property in the 1780s. The rather complicated archaeological stratigraphy of this part of the site’s development is shown in several figures and photographs. Figure 7.6, the overall plan of the furnace house, also shows the locations of the profiles presented in Figures 7.10-7.13. These primarily illustrate the relationship of the furnace house to a series of deposits and features around the southwest exterior of the building. Photographs 7.14-7.19 present general and feature-specific views of this part of the site.

The western and southern walls of the furnace house [C140, C145] were built into the B-horizon loams described previously. The west wall also incorporated a large displaced gneiss boulder [C151] and the bedrock ridges in this part of the site had been graded for the northern part of the wall, much of which had been robbed out in the 19th century. The southwest corner of the building was well preserved (Photograph 7.14). The south wall [C145] had a trench [C364] on its northern (interior) side. The fill of this trench [C361, C373] contained redware kiln shelf and sagger fragments as well as several pieces of redware vessels, including slip-trailed examples. There were also a few pieces of creamware and clay tobacco pipe stems. To the north of this feature was a two-foot-wide zone of cobbles [C363] with a sharp northern edge running parallel to both the wall and the trench cut [C364]. This was only partially excavated but also yielded a redware sherd. These features were initially interpreted as a builders’ trench and associated stratigraphy for the south wall [C145], but now seem better viewed as post-dating the steel furnace use phase (see below).

The sequence of sediments and structures marking the end of the life of the furnace remains difficult to interpret, the challenge beginning with the poorly understood configuration of the bedrock on this part of the site. As can be seen in Figure 7.11, there is a sharp drop of almost three feet in the bedrock elevation about five feet to the north of the south wall of the furnace house. This drop could be the result of quarrying [C351, C414, C424, C425], but against this must be set the presence of dense reddish gravel [C536] sitting directly on the bedrock to the south of the drop. Context C536 appears to be an ancient in-situ erosional or fluvial deposit.

Overlying Context C536 was a layer of large and medium cobbles and gneiss blocks in sandy loam [C535] (Figures 7.12 and 7.13). This context was notable for containing several pieces of cast-iron fire-grate bars, almost certainly derived from the cementation furnace (Photographs 7.20 and 7.21) (Appendix F). Also recovered from this layer were several pieces of dressed steatite that had been subjected to extreme heat. Steatite, a material remarkable for its ability to absorb, store and evenly radiate heat, may well have been used in the construction of the furnace lining or possibly even the cementation chest. Context 535 thus appears to relate to a demolition phase of the furnace. This was in turn overlain by a sterile silty loam [C420]. Above this was Context C422, the first of a series of stone and cobble layers forming a ramp-like structure extending southwestwards from the southwest corner of the furnace house (Figure 7.6; Photograph 7.16). Context C422 contained only one cultural item: a piece of corroded iron, possibly another fire-grate bar fragment.

After this rubble layer was put in place, a section of the mortared masonry of the west wall of the furnace house [C341] was deliberately pulled down to the west, giving the appearance of a paved surface. A layer of sandy material [C417] containing chunks of the distinctive orange-yellow sandy lime mortar used
Photograph 7.14. Trenton Steel Works. View looking south showing the southwest corner of the furnace house. The horizontal scale pole lies in front of the furnace house’s south wall [C145], with its western end at the interior southwest corner of the building. A builder’s trench [C364] has been excavated in front of the south wall. The furnace house’s west wall [C140] extends off to the lower right, with a collapsed section of wall [C341] outside the building at top right. Note the large natural boulder incorporated into the west wall in the right foreground. The west wall of the paper mill wheelhouse [C146] lies to the left of the north arrow. Scales in feet and inches (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D15:045].
Mortared gneiss wall [west wall and west end of north wall of 130 West Front Street]

Yellow mortared rough hewn stone wall [south wall of furnace house]—

Context List

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<td>C140</td>
<td>Mortared stone wall [west wall of paper mill wheelhouse]</td>
<td>10 YR 3/3</td>
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<tr>
<td>C146</td>
<td>Yellow mortared rough hewn stone wall [west wall of furnace house]</td>
<td>10 YR 4/2, 10 YR 4/3</td>
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<tr>
<td>C147</td>
<td>Cut [robber trench of furnace house south wall]</td>
<td>10 YR 4/2, 10 YR 4/3</td>
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<tr>
<td>C210</td>
<td>Mottled silt with pebbles, gravel and charcoal [post-furnace house demolition accumulation]</td>
<td>10 YR 2/2</td>
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<tr>
<td>C357</td>
<td>Yellow mortared stone masonry [collapsed section of furnace house west wall]</td>
<td>10 YR 2/2</td>
</tr>
<tr>
<td>C364</td>
<td>Medium to large cobble layer with loam [part of ramp]</td>
<td>10 YR 4/2, 10 YR 4/3</td>
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<tr>
<td>C407</td>
<td>Medium cobbles and large stones [part of ramp or steel furnace occupation deposit?]</td>
<td>10 YR 4/2, 10 YR 4/3</td>
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Figure 7.10. Petty’s Run Archaeological Site, Trenton Steel Works – West-East Profile along Northing 1165 showing Occupation, Demolition and Post-Demolition Stratigraphy West of the Furnace House (for location, see Figures 7.1, 7.6 and 7.24).
### Context List

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<td>C130</td>
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<td>C161/352</td>
<td>Mottled silt with pebbles, gravel and charcoal (post-abandonment of steel furnace)</td>
<td>10 YR 2/2</td>
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<tr>
<td>C341</td>
<td>Yellow mortared stone masonry (collapsed section of furnace house west wall)</td>
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<tr>
<td>C345</td>
<td>Stone wall fragment (secondary structure west of furnace house?)</td>
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<tr>
<td>C346</td>
<td>Brick pilaster (part of west wall of 130 West Front Street)</td>
<td>--</td>
</tr>
<tr>
<td>C347</td>
<td>Brick pilaster (part of west wall of 130 West Front Street)</td>
<td>--</td>
</tr>
<tr>
<td>C348</td>
<td>Silty loam with mortar lenses (mid-1870s paper mill demolition/row house construction deposit)</td>
<td>--</td>
</tr>
<tr>
<td>C349</td>
<td>Mottled silt with pebbles, gravel and charcoal (post-abandonment of steel furnace)</td>
<td>10 YR 2/2</td>
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<tr>
<td>C350</td>
<td>Medium to large cobble layer with loam (part of ramp)</td>
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<tr>
<td>C351/414/424/425</td>
<td>Cut (construction and/or robbing trench related to furnace house)</td>
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<tr>
<td>C354/407</td>
<td>Mottled silty sand with mortar lenses (mid-1870s paper mill demolition/row house construction deposit)</td>
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<tr>
<td>C367</td>
<td>Mortared stone wall (south wall of 130 West Front Street)</td>
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### South-North Profile

Figure 7.11. Petty’s Run Archaeological Site, Trenton Steel Works – South-North Profile showing Furnace House and Related Stratigraphy Below and South of the West Wall of 130 West Front Street (for location, see Figures 7.1, 7.6 and 7.24).
Context List

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<td>Mortared griss wall (south wall of paper mill wheelhouse, re-used as south wall of 126, 128 and 130 West Front Street)</td>
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<tr>
<td>C368</td>
<td>Shallow cut (19th-century wall maintenance?)</td>
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<tr>
<td>C369</td>
<td>Loam (fill of C368)</td>
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</tr>
<tr>
<td>C417</td>
<td>Mottled silty sand with dense mortar chunks (furnace house demolition)</td>
<td>10 YR 5/3, 10 YR 4/6</td>
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<tr>
<td>C423</td>
<td>Yellow mortared stone masonry (collapsed walling from furnace house)</td>
<td>--</td>
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<tr>
<td>C500</td>
<td>Mottled sandy silt with clay (fill, c. 1913-14)</td>
<td>10 YR 4/4, 10 YR 5/5, 2.5 Y 5/1</td>
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<tr>
<td>C501</td>
<td>Mottled silty sand with brick, mortar and shell debris (fill, c. 1913-14)</td>
<td>10 YR 5/2, 10 YR 5/3</td>
</tr>
<tr>
<td>C502</td>
<td>Mottled sandy silt with gravel, plaster and lime (fill, c. 1913-14)</td>
<td>10 YR 5/6, 10 YR 2/1</td>
</tr>
<tr>
<td>C503</td>
<td>Crushed charcoal (fill, c. 1913-14)</td>
<td>10 YR 2/1</td>
</tr>
<tr>
<td>C504</td>
<td>Mottled fine sand with charcoal and brick flecking (fill, c. 1913-14)</td>
<td>10 YR 4/3, 10 YR 5/6</td>
</tr>
<tr>
<td>C505</td>
<td>Crushed charcoal (fill, c. 1913-14)</td>
<td>10 YR 2/1</td>
</tr>
<tr>
<td>C506</td>
<td>Mottled silty sand with brick and charcoal flecking (fill, c. 1913-14)</td>
<td>10 YR 5/3, 10 YR 4/4</td>
</tr>
<tr>
<td>C507</td>
<td>Loose medium sand with brick and cobble debris (row house demolition, 1913)</td>
<td>10 YR 5/4</td>
</tr>
<tr>
<td>C508</td>
<td>Cut (20th-century pipe trench)</td>
<td>--</td>
</tr>
<tr>
<td>C509</td>
<td>Mottled sandy silt with plaster, cobbles, and brick debris (20th-century pipe trench fill)</td>
<td>10 YR 5/3, 10 YR 4/2</td>
</tr>
<tr>
<td>C510</td>
<td>Terracotta pipe (20th-century drain)</td>
<td>--</td>
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<tr>
<td>C511</td>
<td>Fine silty sand with small and medium gravel (fill, c. 1913-14)</td>
<td>7.5 YR 5/3</td>
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<tr>
<td>C512</td>
<td>Mottled clayey sand with medium pebbles and brick and mortar flecking (fill, c. 1913-14)</td>
<td>7.5 YR 6/2, 7.5 YR 5/3</td>
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<tr>
<td>C513</td>
<td>Silty clay with iron concretions (fill, c. 1913-14)</td>
<td>7.5 YR 6/2</td>
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<tr>
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<td>Mottled fine sand with charcoal and brick flecking (fill, c. 1913-14)</td>
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<td>C515</td>
<td>Fine silty sand (fill, c. 1913-14)</td>
<td>7.5 YR 5/3</td>
</tr>
<tr>
<td>C516</td>
<td>Mottled medium silty sand with brick rubble (fill, c. 1913-14)</td>
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<tr>
<td>C517</td>
<td>Dense plaster with medium cracked stones (row house demolition, 1913)</td>
<td>10 YR 6/1</td>
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<tr>
<td>C518</td>
<td>Mottled fine silty sand with charcoal, brick, and medium cracked stones (row house demolition, 1913)</td>
<td>10 YR 7/2, 10 YR 3/2, 10 YR 5/3</td>
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<tr>
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<td>Mottled fine sand with small gravels and brick debris (row house demolition, 1913)</td>
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<tr>
<td>C520</td>
<td>Loose sand with cobbles and gravel (lower part of 20th-century drain)</td>
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<tr>
<td>C521</td>
<td>Plaster layer (West Front Street leveling deposit?)</td>
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<td>Charcoal in dark loam (West Front Street leveling deposit?)</td>
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<td>Mottled fine silty sand with mortar (West Front Street leveling deposit?)</td>
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<td>C524</td>
<td>Brick rubble with glazed brick fragments (furnace house demolition debris)</td>
<td>5 YR 6/6</td>
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<tr>
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<td>Fine silty sand (furnace house demolition)</td>
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<tr>
<td>C526</td>
<td>Fine silty sand (furnace house demolition)</td>
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<td>Fine silty sand (furnace house demolition)</td>
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<tr>
<td>C528</td>
<td>Cut for post (19th-century construction?)</td>
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<tr>
<td>C529</td>
<td>Mix of C521, 522, and 523 (fill of C529)</td>
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<tr>
<td>C531</td>
<td>Interior circumference of posthole (post-mold within C529 and C530)</td>
<td>--</td>
</tr>
<tr>
<td>C533</td>
<td>Cut (19th-century intrusion)</td>
<td>--</td>
</tr>
<tr>
<td>C534</td>
<td>Medium sand with stone brick and pebbles (fill of C533)</td>
<td>10 YR 4/2</td>
</tr>
<tr>
<td>C535</td>
<td>Large and medium cobbles and large gravels boulders with pebbly sand loam (steel furnace occupation deposit)</td>
<td>10 YR 5/4</td>
</tr>
</tbody>
</table>

Figure 7.12. Petty’s Run Archaeological Site, Trenton Steel Works – North-South Profile across West Front Street showing Occupation, Demolition and Post-Demolition Stratigraphy South of the Furnace House (for location, see Figures 7.1 and 7.6).
Context List

<table>
<thead>
<tr>
<th>Context</th>
<th>Description</th>
<th>Munsell</th>
</tr>
</thead>
<tbody>
<tr>
<td>C161</td>
<td>Mottled loamy silt with pebbles, gravel, and charcoal flecking (post-furnace house demolition accumulation?)</td>
<td>10 YR 2/2, 10 YR 5/3</td>
</tr>
<tr>
<td>C407</td>
<td>Mottled silty sand with gravel, brick, and the brick rubble (leveling deposit for mid-1870s construction?)</td>
<td>10 YR 4/2, 10 YR 5/3</td>
</tr>
<tr>
<td>C410</td>
<td>Medium and large cobbles in loam (part of ramp)</td>
<td>10 YR 3/1</td>
</tr>
<tr>
<td>C412</td>
<td>Medium claysey sand with pebbles (post-furnace house demolition accumulation?)</td>
<td>7.5 YR 5/4</td>
</tr>
<tr>
<td>C415</td>
<td>Silty sandy loam (B horizon)</td>
<td>10 YR 4/4</td>
</tr>
<tr>
<td>C417</td>
<td>Mottled silty sand and mortar chunks (furnace house demolition)</td>
<td>10 YR 5/3, 10 YR 4/6</td>
</tr>
<tr>
<td>C420</td>
<td>Silty loam with gravel and small cobbles (steel furnace occupation deposit?)</td>
<td>7.5 YR 5/3</td>
</tr>
<tr>
<td>C521</td>
<td>Plaster layer (West Front Street leveling deposit?)</td>
<td>--</td>
</tr>
<tr>
<td>C522</td>
<td>Charcoal lens (West Front Street leveling deposit?)</td>
<td>10 YR 2/1</td>
</tr>
<tr>
<td>C523</td>
<td>Mottled fine silty sand with mortar (West Front Street leveling deposit?)</td>
<td>10 YR 4/3, 2.5 Y 6/4</td>
</tr>
<tr>
<td>C524</td>
<td>Brick rubble with glazed brick fragments (furnace house demolition debris)</td>
<td>7.5 Y 6/4</td>
</tr>
<tr>
<td>C525</td>
<td>Dry-laid uncut stonewall with medium to large boulders (sides of ramp)</td>
<td>--</td>
</tr>
<tr>
<td>C526</td>
<td>Fine silty sand (furnace house demolition)</td>
<td>10 YR 3/3</td>
</tr>
<tr>
<td>C527</td>
<td>Fine silty sand (furnace house demolition)</td>
<td>10 YR 4/3</td>
</tr>
<tr>
<td>C533</td>
<td>Cut (19th-century intrusion)</td>
<td>--</td>
</tr>
<tr>
<td>C534</td>
<td>Mottled medium sand with stone and brick rubble (of C33)</td>
<td>10 YR 4/2, 10 YR 5/3</td>
</tr>
<tr>
<td>C535</td>
<td>Large and medium cobbles and large gneiss boulders with pebbly sand loam (steel furnace occupation deposit?)</td>
<td>10 YR 5/4</td>
</tr>
<tr>
<td>C536</td>
<td>Medium orange gravel with sand loam (Horizon)</td>
<td>7.5 Y 4/4</td>
</tr>
</tbody>
</table>

Figure 7.13. Petty’s Run Archaeological Site, Trenton Steel Works – East-West Profile along West Front Street showing Occupation, Demolition and Post-Demolition Stratigraphy Southwest of the Furnace House at the western end of Trench C (for location, see Figures 7.1 and 7.6).
Photograph 7.15. Trenton Steel Works. View looking southwest showing the west wall of the furnace house [C140]. Scales in feet and inches (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D15:031].
Photograph 7.16. Trenton Steel Works. View looking north-northwest showing the late 18th-century post-abandonment features at the southwest corner of the furnace house. The south and west walls of the furnace house [C140, C145] are at the center and upper right, overlaid by the north, south and west walls of the paper mill wheelhouse [C52, C71, C146]. A collapsed section of the west wall of the furnace house [C341] lies immediately outside and adjacent to the building. Except for the north wall [C130], the walls of the row house at 130 West Front Street have been removed. Most of this view is taken up by the ramp-like feature composed of stone rubble [C420, C422] retained by walls on its northwest and southeast sides [C409, C525]. This feature overlaid the collapsed section of furnace walling and yielded redware kiln furniture (apparently from an on-site pottery operation in the mid-to late 1780s) and cast-iron fire grate bars from the steel furnace. The site grid is at a five-foot interval (see also Figures 7.10-7.13) (Photographer: Ian Burrow, July 2009) [HRI Neg. #08036/D17:620].
Photograph 7.17. Trenton Steel Works. View looking east southeast showing the late stages of the excavation of the ramp outside the southwest corner of the furnace house under less than ideal weather conditions. The wall defining the southeastern edge of the ramp [C525] runs diagonally across the view from center left to upper right. The southwest corner of the furnace house [C140, C145] is at lower left, with the collapsed wall segment [C341] in the foreground, and yellow mortar and debris extending to the right and southwest. The overlying rubble layers of the ramp have been removed. Prominent in the degraded profile beyond the ramp in the center of the view is a mass of red brick fragments (many vitrified) and dust [C524]. This is overlain to the east, at upper left by a layer of compacted white plaster or mortar [C521], probably part of the original road bed for West Front Street. The southwest corner of the paper mill wheelhouse [C71, C146] is at left above the southwest corner of the furnace house. The site grid is at a five-foot interval. Scales in feet and inches (Photographer: Seth Gartland, July 2009) [HRI Neg. #08036/D18:013].
Photograph 7.18. Trenton Steel Works. Close-up view looking east showing the lower portion of the east profile across West Front Street in Trench C, Excavation Unit 712, approximately five feet west of the profile shown in on Figure 7.12. A five-course section of highly vitrified brick masonry lies in the lower portion of Context C524, one of the destruction/demolition levels of the furnace house. At top, the plaster or mortar surface [C521] is interpreted as part of the original road bed of West Front Street, cut on its southern side by a later disturbance [C533, C534]. The north arrow lies on the lowest cultural level [C535] directly above the bedrock. Scales in feet and inches (Photographer: Seth Gartland, July 2009) [HRI Neg. #08036/D17:175].
Photograph 7.19. West Front Street. View looking north-northeast showing the cross-section excavated through the former West Front Street in Trench C (see also Figure 7.12). The five-course stone wall at left is the south wall and southwest corner of the paper mill wheelhouse [C71], with two courses of the south wall of 130 West Front Street [C604], built in 1874, abutting it at left. The wall emerging from underneath the paper mill wall [C71] at lower left is the revetment [C525] defining the southeast side of the late 18th-century ramp feature associated with the steel furnace. Isolated large stones to the right of Context C525 are collapsed masonry [C423] from the furnace house walls. The north arrow lies on the surface of Context C535, the lowest cultural context directly above the bedrock, which itself lies about one foot below the bottom of the excavation. Above Context C535 are brick and mortar deposits representing the demolition of the steel furnace at the end of the 18th century. Above these lies a horizon of dark loam with charcoal [C522]. This is capped by a conspicuous white horizon of plaster or mortar [C521], which is interpreted as the base for a now-completely robbed but probable stone block pavement and sidewalk in West Front Street, which would have been at an elevation of about 26 feet above sea level at this location. The gap in Context C521 is a posthole. Demolition levels about 2.5 feet thick [C507], probably from 1913, overlie Context C521, and these are capped by other 20th-century fill deposits. The grade in 2008 was roughly five feet above the height of the horizontal scale pole prior to the excavation. Scales in feet and inches (Photographer: Seth Gartland, July 2009) [HRI Neg. #08036/D17:422].
Photograph 7.20. Trenton Steel Works. Selected steel furnace-related artifacts from Context C535. Two corroded cast-iron fire-grate bar fragments from the steel furnace; the upper fragment is encrusted with slag and firebrick (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-03].
Photograph 7.21. Trenton Steel Works. Selected steel furnace-related artifacts from Context C535. Corroded cast-iron fire-grate bar fragment from the steel furnace (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-04].
in the furnace house walls was found partly overlying the masonry mass. Context C417 produced 89 artifacts of considerable interest including fragments of saggers from redware pottery production, redware and stoneware sherds (some of both ware types clearly identifiable as wasters), several pieces of furnace brick and a number of clay tobacco pipe fragments. Among the stoneware sherds were ten pieces of a dark brown salt-glazed pipkin, of which several more pieces were found in the directly overlying deposits (Photograph 7.22). This vessel was probably made locally but is not characteristic of the wares produced during this period by Trenton potter James Rhodes (Skerry and Hood 2009:204-208). One of the clay pipe fragments is part of a bowl with a “TD” cartouche and marked (illegible) spur, which can be attributed a late 18th-century date of manufacture (Walker 1966:86).

Two stone deposits were placed on top of Contexts C341 and C417. The lower, Context C410, was composed chiefly of large rounded river cobbles in a loam matrix. This again produced a wide variety of cultural material including firebrick fragments, pieces of heat-reddened steatite, sagger and kiln shelf fragments in both redware and stoneware, ten more sherds from the stoneware pipkin noted above (Photograph 7.22), creamware and pearlware sherds, iron kettle fragments, turtle shell fragments, a catfish spine and pieces of animal bone. The steatite and brick fragments are of particular interest (Photograph 7.23). One very large specimen comprises a block of steatite fused to a piece of firebrick that has a thick drip of greenish-grey glaze on its surface. Several other bricks also display the glaze covering and silica encrustations. These materials are all thought to be part of the steel furnace structure, perhaps portions of the furnace lining, although the glaze covering may derive from pottery manufacturing activity. Context C416 was a more restricted deposit composed largely of quarried pieces of gneiss, most likely from the furnace house. It produced a similarly wide range of artifacts, including another fire-grate bar fragment, a piece of an axle, two more sherds from the above-noted pipkin (Photograph 7.22) and a possible cut nail with a machine-formed head, an innovation conventionally dated to the second decade of the 19th century.

The ramp deposits were retained by two unmortared wall-like alignments of larger stones on the northwest and southeast [C409, C525], and by a cut [C413] on the southwest that may also have been revetted with stones. Both of the retaining structures contained additional sagger and kiln shelf fragments as well as pearlware and redware sherds and more large pieces of steatite. Apparently contemporary with the ramp were sandy deposits to the southeast [C526, C527] (Figures 7.12 and 7.13). These too contained pieces of firebrick and steatite, redware kiln furniture (including a sagger lid) and wasters, and turtle bones (Photograph 7.23). Overlying these levels, and apparently stratigraphically later than the wall defining the southeastern edge [C525], was a layer [C524] composed almost entirely of broken red brick containing several larger pieces of mortared, heavily vitrified and glazed brick masonry (Photographs 7.18 and 7.24), together with redware sherds, sagger and kiln shelf fragments and other items of kiln furniture.

Southeast of the ramp, Context 524 seems to have been the final deposit prior to the construction of West Front Street in 1792-93 (Figure 7.12; Photograph 7.19). To the west and northwest, however, a distinctive loam with pebbles and gravel and charcoal flecking [C161/C352/C350] covered the stony deposits of the ramp. The latest diagnostic items in this level are mid-19th-century brass buttons, but the context also produced the largest number of prehistoric artifacts from any context on the site (see above), in addition to pieces of firebrick and iron fire-grate fragments (both likely from the steel furnace structure), a possible crucible fragment, pieces of slag and charcoal, iron cauldron fragments, redware kiln furniture, numerous redware sherds of various vessel types (including pipkins and pie plates) and decorative styles, and a
Photograph 7.22. Trenton Steel Works. Stoneware pipkin from Context C161. Seven mending sherds of a locally made brown salt-glazed stoneware pipkin. Additional sherds from this vessel were recovered from Contexts C410, C416 and C417 (Photographers: Lindsay Lee, July 2009 and Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-10].
Photograph 7.23. Trenton Steel Works. Selected steel furnace-related artifacts from Contexts C410 and C526. Top row left to right: firebrick fragment encrusted with silica, probably from the furnace structure; fragment of a dressed steatite block reddened from exposure to extreme heat. Bottom row: fragment of a dressed steatite block reddened from exposure to extreme heat and encrusted with silica (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-19].
Photograph 7.24. Trenton Steel Works. Selected steel furnace-related artifacts from Context C524. Segment of firebrick wall probably from the steel furnace structure. This block of masonry has endured extreme heat and is covered with a gray and green glaze (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-05].
range of other ceramics, including sherds of pearlware (Photographs 7.25-7.30). While much of this material appears to have been redeposited from the nearby steel furnace and likely resulted from the demolition of this structure, other items may be derived from elsewhere on the site, especially in view of the numerous prehistoric items in the matrix. This context was overlain by thin sandy levels containing patches of mortar [C348, C354, C407]. The west wall of 130 West Front Street [C130], believed to have been constructed in 1874 lay directly on top of these contexts (Figures 7.10 and 7.11). Context 407 produced some brick fragments, but no other cultural materials.

The complex series of sediments and features described above appears to relate to the final years of the operation of the steel furnace and to its destruction. The following discussion seeks to explore in more detail the chronology, sequence and purpose of these sediments and features. The documentary evidence presented and discussed in Chapter 4 indicates that steel production at the site was continuing at some level until 1783 or 1784, but no later. While it seems probable that the substantial structural remains, particularly the vitrified brick masonry and the cast-iron grate bars, would only have got into this part of the site as a result of radical demolition marking the effective end of the furnace’s life, it should be noted that cementation furnaces often experienced structural failure that led to rebuilding. The construction of secondary buttresses on the north side of the furnace stack is likely evidence of attempts at correcting this type of problem. Context C535, stratigraphically the earliest of the contexts of this ramp episode, contained no chronologically diagnostic artifacts, but had substantial pieces of the cast-iron grate bars that are almost certainly from the furnace. This context points to at least major structural change involving either substantial rebuilding of the furnace stack or its final demolition. In this context, it is important to note that the documentary record implies major rebuilding episodes both in the early 1760s, following Owen Biddle and Timothy Matlack’s purchase of the steel works, and in the early 1780s, when Stacy Potts revived the furnace operation.

Unfortunately, Context C420, which overlay Context C535, contained no artifacts, while Context C422, the earliest portion of the ramp itself, yielded only corroded iron, perhaps also fragments of grate bars. Context C417, which overlay the collapsed wall fragment [C341], had a mixed artifact assemblage including two pearlware sherds dating to no earlier than 1780 and stoneware sherds possibly of local manufacture. A terminus post quem of 1780-85 seems justified for this context, which also included redware saggar fragments. The overlying ramp deposit [C410] and the stratigraphically contemporary side walls [C409, C525] also contained pearlware sherds, as well as pieces of kiln shelving and saggar fragments.

Context C524, the broken brick deposit southeast of and piled against the wall that defined the southeastern edge of the ramp [C525], may represent a later episode since it contained two nails with machine-formed heads (after circa 1813) and a mid-19th-century button. This evidence is puzzling because Context C525 lies within West Front Street, which was laid out in the early 1790s. Context C525 was overlain by two bedding layers [C522 and C523] for a very dense plaster surface [C521], which may be the base for a Belgian block or similar paving surface (see Figure 7.12; Photograph 7.19). On the basis of the artifacts, however, Contexts C522 and C523 need not be later than about 1800. It is possible, therefore, that the nails and button are intrusive into Context C524 and that this layer, too, dates broadly to the 1780-1800 period.

Context C161, which seems to seal off this ramp episode, also extends into the West Front Street alignment. Like Context C524, this context also had two mid-19th-century buttons. The latest ceramics, however, are mocha and shell-edged pearlware types that are typical of the first decades of the 19th century.
Photograph 7.25. Trenton Steel Works. Selected steel furnace-related artifacts from Context C161. *Top row:* three silica-encrusted firebrick fragments (one with an impression of an opossum paw), probably from the steel furnace structure. *Bottom:* fragment of corroded cast-iron fire-grate bar from the steel furnace (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-06].
Photograph 7.26. Trenton Steel Works. Selected steel furnace-related artifacts from Context C161. *Top row:* glassy, spongy and pumice-like iron slag fragments, probably waste from metalworking processes taking place within the furnace house. *Middle row, left to right:* four thin crystalline metallic fragments of uncertain function; three large chunks of charcoal, possibly material used in the cementation process of steel manufacture. *Bottom row, left to right:* fragment of dolomite which has been exposed to extreme heat; rim fragment from a cast-iron cauldron (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-07].
Photograph 7.27. Trenton Steel Works. Selected pottery manufacturing-related artifacts from Context C161. 
*Top left:* red earthenware kiln shelf fragment with a finished edge and manganese lead-glazed scar from the rim of a six-inch diameter vessel, probably a porringer. *Top right:* textured red earthenware kiln shelf fragment with two finished edges. *Bottom left:* red earthenware kiln shelf fragment with a finished edge and a manganese-lead scar from the rim of a 6.5-inch vessel, probably a porringer. *Bottom right:* red earthenware rectangular kiln prop coated with manganese lead glaze (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-08].
Photograph 7.28. Trenton Steel Works. Selected pottery manufacturing-related artifacts from Context C161. 

*Top row:* three red earthenware sagger rim sherds with manganese lead-glazed, thin-bodied hollowware sherds adhering to their interior surface. *Middle row, left to right:* red earthenware sagger, full profile with a small rim vent; red earthenware sagger base sherd, warped from overheating; red earthenware sagger base sherd. *Bottom:* red earthenware sagger lid fragment with partial finial (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-09].
Photograph 7.29. Trenton Steel Works. Selected red earthenware pottery from Context C161. **Top row, left to right:** two jug rim sherds coated with manganese lead glaze; three porringer rim sherds coated with manganese lead glaze. **Second row:** two hollowware base sherds. **Third row, left to right:** exterior surface of a lead-glazed plate body sherd with a kiln scar; incised or sgrafitto, lead glaze-decorated plate body sherd; white slip-trailed hollowware body sherd. **Bottom row, left to right:** two plate rim sherds with marbleized white slip and coggled edges, splashed with copper oxide; plate rim sherd with marbleized white slip and coggled edge (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-11].
Photograph 7.30. Trenton Steel Works. Selected artifacts from Context C161. *Top row, left to right:* rim sherd, creamware plate with Royal pattern rim; base sherd, creamware bowl; two mending body sherds, pearlware with hand-painted blue geometric decoration; body sherd, pearlware bowl with hand-painted blue geometric decoration (interior and exterior views). *Middle row, left to right:* neck sherd, English brown salt-glazed stoneware jug; body sherd, Westerwald grey-bodied salt-glazed hollowware vessel with impressed florets highlighted with cobalt blue. *Bottom row:* fragment of olive green case bottle used to hold spirits (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-12].
Overall, the diagnostic artifact types from these contexts conform well to the stratigraphic sequence and show that the series of features and deposits southwest of the furnace house most probably came into being sometime between circa 1785 and the early years of the 19th century. The complete absence of whiteware from any of these contexts certainly suggests that they had ceased to accumulate by around 1820, when whiteware was becoming common. The ramp structure itself seems to be more tightly dated to the 1780s and 1790s, and given the stratigraphy of West State Street it seems most likely to date to between circa 1783 and 1792 (although the steel furnace [or perhaps furnace house] was still “in part standing” as late as 1808 [see above, Chapter 4C]).

It is also clear that, soon after the wall section [C341] was pulled down on the west side of the furnace house, the debris from a redware pottery was increasingly present on the site. Kiln shelf and sagger fragments were found in all the ramp contexts and associated deposits from Context C417 onwards in the stratigraphic sequence. These are found with actual redware sherds (including wasters), with pieces of brick and steatite from the furnace structure, and with food debris, chiefly mammal bone. These cultural materials appear to be incorporated into the ramp and associated deposits, rather than dropped onto them.

The implication is that the deposits had been brought, as very mixed material, from another nearby location. The configuration of the ramp and the intentional incorporation of a part of the furnace house wall as part of the ramp strongly suggest that the bulk of this material was brought from the interior of the furnace house. The considerable quantity of redware kiln shelving, saggers and wasters furniture incorporated into the material is taken to reflect the presence of an active redware production facility in the area of the furnace house, even though no documentary evidence for such activity has as yet been found. It is tempting, though not supported by any hard evidence, to see the deposit of grate bars in the early ramp level [C535] as evidence for partial disassembly of the steel furnace in order to convert it to redware pottery production. The overlying level would then represent accumulation during a short period of operation, and the overlying ramp features as a demolition episode when both steel and pottery production had ceased.

This scenario does not explain why such an elaborate ramp structure was created and where the materials presumably hauled across it were taken. Some was evidently used as a base matrix for the new West Front Street, but the intention seems to have been to take the remainder off to the southwest, up the slight incline caused by the configuration of the underlying bedrock. Since the early 1790s was a time of considerable new construction and activity in this part of Trenton, these materials may have been readily re-usable for a variety of building purposes. When this activity had ceased, the area was evidently deliberately covered with a gravelly loam deposit that also contained furnace and kiln material as well as a considerable quantity of prehistoric artifacts presumably derived from the immediate vicinity.

3. The Harrow/Yard Plating Mill and Petty’s Run

During the Thomas Edison State College investigations of 1996, substantial wall foundations of early 19th-century or earlier date were identified at the southwestern corner of the campus property in the area where the plating mill was predicted to lie, based both on specific documentary references and on general topographic grounds (see Supplement). At the time of their discovery, these foundations were interpreted as the remains of the 18th-century plating mill. Reassessment of these foundations, based on the results of the Petty’s Run excavations, indicates that they are much more likely to be part of the early 19th-century Fithian cotton mill (see below, Section
Photograph 7.31. Harrow/Yard Plating Mill. View looking north showing the south-facing profile along Northing 1215 (see Figure 7.16). This excavation provided the first view of the plating mill foundation [A157, D91] adjacent to a large natural boulder, immediately to the right of the range pole. A complex series of post-abandonment water-borne silts and sands lies above and around this foundation, with a sequence of 19th-century fill levels topped by the wall [A105] at top. Bedrock is just visible at lower left. Scales in feet and inches (Photographer: Seth Gartland, September 2008) [HRI Neg. #08024/D13:093].
Figure 7.14. Petty’s Run Archaeological Site, Harrow/Yard Plating Mill and Fithian Cotton Mill – Overall Plan showing 18th- and 19th-century Foundations East of the Petty’s Run Culvert.
Figure 7.15. Petty’s Run Archaeological Site, Harrow/Yard Plating Mill – West-East Profile across the West Wall of the Plating Mill and Possible Raceway Remains (for location, see Figure 7.14).
West-East Profile and Elevation
East of Culvert at Northing 1215N

Figure 7.16. Petty’s Run Archaeological Site, Harrow/Yard Plating Mill – West-East Profile along Northing 1215 (for location, see, Figure 7.14).
Photograph 7.32. Harrow/Yard Plating Mill. View looking north-northwest showing the southwest corner foundation of the plating mill in Trenches A and D. The western wall of the plating mill [A157, D91] runs from bottom to top in the center of the view, converging with the eastern side wall [A88] of the Petty’s Run culvert, where fragmentary remains of possible raceway walling [A172] protrude from underneath the culvert side wall (see Figure 7.15). The southern wall of the plating mill [D91] runs from the center of the view to the right. The curving masonry wall at upper right A156] is the base of a mid- to late 19th-century boiler or chimney stack in the rear wing of the paper mill (Photographer: Ian Burrow, July 2009) [HRI Neg. #08036/D25:108].
Photograph 7.33. Harrow/Yard Plating Mill. View looking south-southwest showing the southwest corner foundation of the plating mill in Trenches A and D. The north arrow lies on a massive piece of quarried gneiss incorporated into the west wall of the plating mill [A157, D91]. The disturbed remains of the south wall [D91] lie immediately behind the further scale pole. Beyond this lies the stone masonry of the south wall of the cotton mill [D72]. The eastern side wall of the Petty’s Run culvert is at right [A88, D14]. The more coherent masonry at top center is the rear walls of the row houses at 122 (left [D77]) and 124 (right [D44]) West Front Street, separated by Green’s Alley. Scales in feet and inches (Photographer: Seth Gartland, July 2009) [HRI Neg.#08036/D17:214].
F). Despite this misidentification in 1996, the general configuration of these features proved helpful in locating the actual remains of the plating mill, even though the latter ultimately proved to be more fragmentary than had been hoped.

Portions of what are interpreted as the west [A157/ D91] and south [D91] walls of the plating mill, and a possible wall fragment relating to a raceway system [A172 and A173] were identified east of the Petty’s Run culvert. Figure 7.14 shows these features in plan, and Figures 7.15, 7.16 and 7.19 show portions of the features in profile. Photographs 7.2 and 7.31-7.33 provide views of the foundations from different vantage points. The massive, apparently un-mortared, gneiss foundations lay directly on the bedrock, and it appears likely that this part of the landscape was largely devoid of soils at the time of the construction of the plating mill. The large size of many of the stones suggests that they were quarried in the immediate vicinity, most logically from the cliff-like landform immediately to the north and northwest. Apart from the hint of water-power features implied by Contexts A172/A173 there is no evidence to show how the building was laid out or its exact relationship to Petty’s Run. The massive nature of the foundation is consistent with a building that would be subject to the continual heavy vibration of a waterwheel, camshaft and trip-hammer.

Disappointingly, there were no contemporary surfaces associated with the plating mill foundations. On the north (interior) of the south wall was a brown silty clay [D92], which may reflect siltation behind the wall after the abandonment and partial demolition of the mill during the Revolutionary War. A series of post-abandonment water-borne silts and sands also lay above and around the foundations close to the southwest corner. The overall impression is that the documented slighting of the mill by the Continental Army in September 1777 was both thorough and effective.

E. OTHER 18TH-CENTURY FEATURES

The remainder of the site produced little in the way of 18th-century features or artifacts from sealed and secure contexts. One exception to this was a well-preserved stone boundary wall profiled in Excavation Units 1 and 2 in Trench B (Figure 7.17; Photograph 7.34). This wall had been previously identified in Trench 1 of the Parking Lot D investigations to the west of the Petty’s Run site in 2005 (Hunter Research 2007a: 5-1 to 5-12). Excavation Units 1 and 2 were placed to intersect with its projected line further to the northeast. Upper levels were removed by machine and lower portions hand-excavated. Figure 7.17 in this report should be compared with Figure 5.2 in the 2007 report.

The grey-mortared gneiss wall [B32] in Excavation Unit 1 was about 18 inches wide and survived to a maximum height of about four feet. In contrast to the situation further southwest, it was set on the back-slope of the bedrock, which rises southeastwards an additional three feet above its elevation at the wall. The wall was built onto a weathered bedrock deposit [B42] on the southeast. This yielded three pieces of creamware, suggesting that the wall dates to no earlier than the third quarter of the 18th century. A pre-1800 date is suggested by artifacts in the contexts that accumulated against the wall after its construction (see below). The wall also partly overlay a similar, but artifact-free, deposit [B46] on the northwest side. A rather deeper and better defined loamy silt deposit [B39], also artifact-free, accumulated against the southeast face of the wall.

A series of other sediments accumulated against the northwest [B45, B44, B33] and southeast [B37, B31] faces of the wall. These all contained substantial amounts of late 18th- and 19th-century artifacts, including a range of ceramic types (Photographs 7.35-7.37). It appears likely that this accumulation took place earlier against the northwestern side of the wall,
Photograph 7.34. Eighteenth-Century Property Wall. View looking south in Trench B at Excavation Units 1 and 2 (see Figure 7.17). The mortared stone wall in the foreground [B32] follows the northwest line of Isaac Harrow’s plating mill lot which dates from the 1730s, but it may not have been built until later in the 18th century. It follows the grain of the bedrock beyond and remained as a property boundary into the mid-1870s. The stone wall fragment [B30] on top of the bedrock at the far end of the excavation is part of a late 19th-century feature in the rear yard of 123 West State Street. Scales in feet and inches (Photographer: Seth Gartland, August 2008) [HRI Neg.#08024/D11:032].
Figure 7.17. Petty’s Run Archaeological Site – South-North Profile across 18th/19th-century Boundary Wall in Trench B, Excavation Units 1 and 2 (for location, see Figure 7.1).
Photograph 7.35. Selected artifacts from Context B33. *Top row, left to right:* rim sherd, white slip-trailed and copper oxide-decorated red earthenware plate with clear lead glaze and coggled rim; white slip-trailed red earthenware body sherd with clear lead glaze; red earthenware body/base sherd with manganese lead glaze; rim sherd, cream-colored earthenware serving dish. *Middle row, left to right:* rim sherd, pearlware plate with scalloped blue shell-edge decoration; rim sherd, whiteware serving bowl with blue transfer-printed floral decoration (interior and exterior views); body sherd, whiteware bowl with interior/exterior blue transfer-printed floral decoration; rim sherd, ironstone china plate or saucer with molded bead rim and blue transfer-printed geometric decoration. *Bottom row, left to right:* body sherd, white salt-glazed stoneware tea bowl with scratch blue decoration; rim sherd, Chinese porcelain bowl with a scalloped body and underglaze blue geometric Nanking border decoration; body sherd, Chinese porcelain with underglaze blue geometric decoration; rim sherd, Chinese porcelain bowl with remnant overglaze orange geometric decoration; pale aqua marine cylindrical glass bottle fragment with blow-pipe pontil scar (base and profile views) (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-14].
Photograph 7.36. Selected ceramic artifacts from Contexts B31 and B37. **Top row, left to right:** rim sherd, white slip-trailed red earthenware plate with coggled edge; base sherd, manganese lead-glazed footed red earthenware hollowware vessel (interior and profile views); base sherd, brown salt-glazed stoneware master ink bottle. **Second row, left to right:** body sherd, engine-turned, dry-bodied redware teapot (interior and exterior views); body sherd, refined redware coated with silver luster glaze; body/rim sherd, white tin-enamedeled buff earthenware ointment pot (side and profile views); fragment of white tin-enamedeled fireplace tile with hand-painted purple decoration. **Third row, left to right:** rim sherd, creamware plate with Royal pattern scalloped edge; three mending rim sherds, pearlware plate with molded green shell edge decoration; rim sherd, pearlware plate with molded blue Rococo-style shell edge decoration; rim sherd, pearlware serving dish with molded blue shell edge decoration. **Fourth row, left to right:** rim sherd, pearlware bowl with scenic blue transfer-printed decoration; body sherd, pearlware plate with scenic blue transfer-printed decoration; two mending rim sherds, whiteware plate with floral blue transfer-printed decoration; rim sherd, whiteware plate with scalloped and beaded rim and floral blue transfer-printed decoration; rim sherd, whiteware cup with interior and exterior geometric black transfer-printed decoration. **Fifth row, left to right:** rim sherd, Chinese porcelain teacup with overglaze orange geometric decoration; base sherd, Chinese porcelain plate with interior overglaze brown scenic decoration (interior and exterior views); rim sherd, Chinese porcelain teacup with overglazed black geometric decoration (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-15].
Photograph 7.37. Selected artifacts from Contexts B26, B31 and B37. *Top row, left to right:* two mending fragments of a bone toothbrush; head of a bone toothbrush (obverse and reverse views); bone hair pin, hand-carved with geometric design and human head (from Context B26); socketed bone utensil handle; bone utensil side plate (obverse and reverse views). *Middle row, left to right:* eight-sided, clear glass goblet stem; clear glass tumbler base (bottom and profile views); olive green glass bottle neck with a hand-tooled rim. *Bottom row, left to right:* clay marble; three single-pierced bone buttons; two brass Tombac buttons (obverse and reverse views); stamped brass button with a soldered eye (obverse and reverse views); brass bed-curtain ring (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-16].
Photograph 7.38. Selected artifacts from Context B207. **Top row, left to right:** white and yellow tin-enameled ointment jar; base sherd, Jackfield-type red earthenware hollowware vessel with a manganese glaze (interior and profile views); body sherd, Staffordshire-type buff-bodied earthenware plate with marbleized brown, black and white slip decoration. **Middle row, left to right:** rim sherd, pearlware plate with scalloped blue shell-edged decoration; rim sherd, pearlware plate with scalloped green shell-edged decoration; two base sherds, Chinese porcelain plates with hand-painted blue geometric and scenic Canton decoration. **Bottom row, left to right:** base sherd, red stoneware teapot with engine-turned decoration (side and base views); olive green spirits bottle neck and closure with a hand-tooled rim (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-13].
since Context B45 contained nothing later than creamware and the overlying Contexts B44 and B33 had whiteware but no ironstone. In contrast, Context B37, directly above Context B39 on the southeast side of the wall, yielded 100 pieces of ironstone. The differences may reflect the fact that this wall remained as the boundary between the West State and West Front Street properties until the mid-1870s (Figure 3.30).

The artifact assemblage recovered from deposits accumulated against the southeastern side of the wall is notable for having sherds of several high-end ceramic types (engine-turned redware, lusterware, porcelain) and other fine household items, such as a curtain ring, a toothbrush, an ink bottle and metal buttons (Photographs 7.36 and 7.37). These materials may have originated from the Rhea/Wall household, which occupied the dwelling built around 1804 at the southeast corner of Second (West State) and Delaware Streets, although this would have required the tossing of debris over the wall on to the adjoining industrial property. Conversely, the occurrence of redware kiln furniture fragments in the lowest cumulative deposit [B45] against the northwest side of the wall, may be the result of trans-wall waste disposal from the steel furnace site on to the Rhea/Wall property.

The property wall was truncated and overtopped by fill deposits, the lowest layer of which [B26] likely dates from shortly after 1874, when the rear property lines of the West State and West Front Street properties were reconfigured (see above, Chapter 3). A variety of 19th-century artifacts were recovered from this layer, including a fine hair pin of carved bone (Photograph 7.37). This hair pin, the end of which is fashioned into a human head with a headdress, bears some resemblance to another pin recovered recently from the Lambert/Douglas House Site in south Trenton. Both pins have design characteristics of possible African-American origin (Hunter Research, Inc. 2011:4-21). All told, Excavation Units 1 and 2 in Trench B yielded 6,490 artifacts, almost 40% of the total recovered from the site.

One other part of the steel works lot contained intact 18th-century deposits of some limited interest for the artifacts they yielded. This was the area behind (to the rear of) furnace house at the base of the bluff on the west side of the run. Here, a complex sequence of interbedded silts and sands, probably in part derived from floods, had accumulated over the course of the second half of the 18th century, perhaps continuing up until around 1813-14 when the cotton mill was erected. One particular deposit, a mottled fine sandy silt [B207] yielded a number of artifacts of demonstrable 18th-century date, including an almost complete tin-glazed earthenware ointment pot, sherds of Chinese export porcelain, engine-turned redware, Jackfield-type ware, slip-trailed buff Staffordshire ware, shell-edged creamware and pearlware, and the top of a glass mallet bottle (Photograph 7.38).

**F. LATE 18TH- AND EARLY 19TH-CENTURY LANDSCAPE**

1. Investigations on the Alignment of West Front Street: the Petty’s Run Bridge

One of the objectives of the archaeological investigations was to gain a better understanding of the character and elevation of West Front Street, which had been constructed in 1792-93 and abandoned around 1915. The stone arched bridge that carried the street across Petty’s Run had been observed from within the culvert, but it was considered important also to investigate the upper portions of the bridge and, if possible, recover and document any surviving paving materials and any evidence of a paving sequence for the street itself. The trackhoe had previously been used to remove park-related fill deposits in the area of the bridge to an elevation of about 28 feet above sea level.
Figure 7.18. Petty’s Run Archaeological Site – East-West and South-North Profiles in the Vicinity of the West Front Street Bridge (for location, see Figure 7.1).
A unit about eight feet by five feet was then excavated to a depth of another eight feet to expose a portion of the western side of the masonry of the bridge (Figure 7.18; for unit location, see Figure 7.1).

The upper surface of the bridge arch was an irregular mass of gneiss held together with a hard sandy lime mortar. Unexpectedly, the gneiss bedrock was exposed at roughly the same elevation (about 20 feet above sea level). The bedrock about 40 feet to the west (Figure 7.12) was at about 22 feet above sea level, and it had been assumed that the elevation would be several feet lower than this closer to the run. As is apparent in the profile, however, the western abutment of the bridge must have been set against a bedrock face that drops almost vertically about five feet to the bed of the run. This seems likely to reflect the earlier historic and prehistoric conditions, suggesting that the run at this point flowed in a narrow, almost gorge-like, channel through a bedrock outcrop. The upper foot or so of the bedrock was heavily weathered into a greenish sandstone [D201/D97]. The bridge masonry had been built up against this and both had been covered with fill deposits of clayey sand, rubble and wood charcoal [D200, D202, D203, D206].

2. The Search for the Fithian Cotton Mill and a Reassessment of the Thomas Edison State College Discoveries of 1996

The short-lived cotton mill that was in existence from 1814 to around 1816 proved to be archaeologically elusive until late in the excavation process, but features from the structure were finally plausibly identified in Trenches A and D, mainly through a process of elimination.

Excavation at the southern end of Trench D uncovered three separate wall alignments (Figures 7.14 and 7.19; Photographs 7.33 and 7.39). The massive but fragmentary walling of the plating mill [A72, A91, A39 and A159] was stratigraphically primary in this sequence and partly underlay the more northerly [D72] of two east-west gneiss wall foundations (best seen in Photograph 7.39). The complex and massive gneiss foundations [D71, D103] south of Context D72 clearly predated the row houses of the late 1870s and were evidently a continuation eastwards of the northern wall of the paper mill, with its fragmentary arch on the west side of Petty’s Run (see Figure 7.22 and below). The relationship between Contexts D71 and D72 could not be ascertained stratigraphically, but it was very apparent that the latter predated the east side of the Petty’s Run culvert wall, which was built over it. On the culvert interior at this point the massive quoins of what is probably the western end of Context D72 project a short distance from the base of the culvert wall out into the run (Photograph 5.19).

It was then appreciated that Context D72 ran parallel to, and about 45 feet south of, the substantial east-west wall [A31] that lay just east of the manhole access (see Figures 7.14 and 7.24; Photograph 7.40). It was already apparent that the plating mill foundations [A72, A91, A39 and A159] were not related to Context A31 (being on a different alignment) and it was therefore hypothesized that Contexts A31 and A72 were part of the same structure. This structure was later than the plating mill and either contemporary with or earlier than the paper mill. The walling identified in the Thomas Edison State College excavations of 1996, which had at the time been interpreted as the remains of the plating mill, could now be seen as more probably forming the northeast corner of the cotton mill. The fortunate identification of both the northeast and southwest angles of the building enables it to be presented on Figure 7.14 as a structure about 45 feet square internally and 50 feet square externally.

The cotton mill building was subsequently incorporated into the Front Street paper mill, erected in the late 1820s. The northern wall [A31] was later used as part of the long east-west boundary that divided...
Photograph 7.39. Fithian Cotton Mill. View looking west in Trench D showing the south wall of the cotton mill in the center foreground [D72]. The lower portion of the Petty’s Run culvert immediately beyond ([D14] with datum nail and yellow string) is probably a continuation of this wall that was subsequently incorporated into the culvert side walling. To the left of the cotton mill south wall and at a slightly lower level is part of the northern wall of the main eastern section of the paper mill [D71]. Along the left margin of the view are the rear walls [D77, D44] of the row houses at 122 and 124 West Front Street, separated by Green’s Alley. Note also the fill at center and upper left placed between the brick bulkhead wall of Petty’s Run and the stone rear wall of 124 West Front Street [D44] (Photographer: Ian Burrow, July 2009) [HRI Neg. #08036/D25:107].
### Context List

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<th>Interpretation</th>
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<tr>
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<td>Mortared mica schist wall (later rear wing of paper mill, post-c. 1865)</td>
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<tr>
<td>A110</td>
<td>Coarse silty sand with mica schist chunks (mid-19th-century fill)</td>
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<td>10 YR 4/2</td>
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<td>A111</td>
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<td>Mortared brownstone and gneiss wall (paper mill boiler base, c. 1865)</td>
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<td>A166</td>
<td>Mortared gneiss stone floor or surface (late 19th-century feature)</td>
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<td>A176</td>
<td>Mortared stone and brick wall (permanent foundation of rear section of 122 West Front Street)</td>
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<tr>
<td>A180</td>
<td>Mortared brick and stone wall (partition wall between 120 and 122 West Front Street)</td>
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<td>A190</td>
<td>Mortared gneiss stone floor or surface (late 19th-century feature)</td>
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<tr>
<td>A195</td>
<td>Mortared brownstone and gneiss wall (later paper mill period construction?)</td>
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<tr>
<td>A200</td>
<td>Mortared coarse gravelly sand (mid-19th-century fill)</td>
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<td>Mortared brownstone and gneiss wall (paper mill boiler base, c. 1865)</td>
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<tr>
<td>A235</td>
<td>Mortared gneiss stone floor or surface (late 19th-century feature)</td>
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Figure 7.19. Petty’s Run Archaeological Site, Harrow/Yard Plating Mill, Firthian Cotton Mill and Front Street Paper Mill – North-South Profile showing the South-west Corner of the Plating Mill, the South Wall of the Cotton Mill and Parts of the Paper Mill (for location, see Figures 7.1, 7.14 and 7.24).
Photograph 7.40. Fithian Cotton Mill. View looking northeast from the top of the Petty’s Run culvert showing the north wall of the cotton mill and later features in Trench A. The scale pole rests against the interior face of the north wall [A31] (note the joist hole [A59] and the parging of the upper part of the wall). The flagstone steps [A23] were constructed around 1876 to provide access to Green’s Alley which ran along the east side of the culvert. They are built onto the cotton mill wall and are contemporary with the stone wall [A16] at upper left. This wall serves as the rear property boundary between house lots facing onto West Front and West State Streets (see also Figures 7.14 and 7.25). Scale in feet (Photographer: Seth Gartland, August 2008) [HRI Neg. #08024/D11:146].
Photograph 7.41. Fithian Cotton Mill. View looking down and east at the breach created in the cotton mill north wall for Green’s Alley circa 1876. The vertical scale pole rests on a length of north-south brown sandstone walling [A58] that may be part of a structural component of the cotton mill. The cotton mill north wall [A31] is at right, oversailed and flanked by the masonry constructed circa 1876 for the steps [A23] leading down to Green’s Alley. Bedrock is visible at the bottom of the view with its grain running diagonally to the walls. Scales in feet (Photographer: Seth Gartland, August 2008) [HRI Neg. #08024/D10:69].
Photograph 7.42. Fithian Cotton Mill. View looking southwest from the roof of the Kelsey Building showing the northeast corner of the cotton mill on the property of Thomas Edison State College as excavated in 1996. The northeast corner of the mill building is in the center of the view, with 19th-century landscaping features visible in the foreground. Scales in feet (Photographer: Ian Burrow, September 1996) [HRI Neg. #96034/14:024 {color transparency}].
Photograph 7.43. Fithian Cotton Mill. View looking south showing the northeast corner of the cotton mill on the property of Thomas Edison State College as excavated in 1996. Scales in feet and inches (Photographer: George Cress, October 1996) [HRI Neg. #96034/19:011 {color transparency}].
Photograph 7.44. Fithian Cotton Mill: clues in the modern landscape. View looking northwest showing the western end of the high stone wall that forms the southern edge of the Thomas Edison State College property. The prominent vertical butt joint visible in the center of the view coincides, on the north side of the wall, with the substantial north-south masonry wall that was excavated in 1996. This was thought at that time to be evidence of the 18th-century Yard/Harrow plating mill, but is now considered to form the eastern wall of the early 19th-century Fithian cotton mill (which was incorporated into the Front Street paper mill in the late 1820s). The joint also marks the western end of Hancock (later Wilson) Alley, of which the high stone wall formed the southern side. The paving in the foreground dates to a relocation of the alley southwards after 1950. The squared red sandstone masonry to the west (left) of the joint can be dated to circa 1905-08 on cartographic evidence (see also Photograph 7.45) (Photographer: Ian Burrow, July 2008) [HRI Neg. #08024/D5:11].
Photograph 7.45. Fithian Cotton Mill: clues in the modern landscape. View looking east showing the southern end of the stone wall that now forms the western edge of the Thomas Edison State College property and was formerly the western boundary of 115 West State Street. The prominent vertical butt joint visible at left coincides, on the other side of the wall, with the substantial east-west masonry wall that was excavated in 1996, the western continuation of which was uncovered in 2008-09 and is now interpreted as the north wall of the early 19th-century Fithian cotton mill (which was incorporated into the Front Street paper mill in the late 1820s). The squared red sandstone masonry to the right (south) of the joint can be dated to 1905-08 on cartographic evidence (see also Photograph 7.44) (Photographer: Ian Burrow, July 2008) [HRI Neg. #08024/D5:09].
the West State Street and West Front Street properties from the late 1870s into the early 20th century (Figures 3.30-3.33; Photographs 7.40 and 7.41). The interior northeast corner (Photographs 7.42 and 7.43) evidently remained quite visible in the urban landscape until it was blocked from view by new walling and covered with fill in 1905-08 (Figures 3.34 and 3.35; Photographs 7.44 and 7.45).

G. THE FRONT STREET PAPER MILL

The Front Street paper mill foundations, together with the Petty’s Run culvert, formed the dominant visible physical features in the southern part of the site (Figure 7.1). The main section of the paper mill consisted of a south-facing, three-story, seven-bay masonry building fronting on to West Front Street and positioned directly over Petty’s Run. A one-story wheelhouse was attached to the west and a rear wing, believed to have been the earlier cotton mill, adjoined to the north (see above, Figures 4.11 and 4.15). The paper mill was originally erected in the late 1820s, underwent a number of modifications and was eventually pulled down to make way for row housing in the mid-1870s. The surviving masonry of the common wall between the main mill building and the wheel-house [C16] (immediately east of the wheel pit) stands up to 18 feet high (Figure 7.3; Photographs 7.46 and 7.47). This particular wall and several of the other paper mill foundations were incorporated into the late 19th-century row houses (see below, Figure 7.24 and Section H).

The main surviving walls of the paper mill [C15, C16, C25, C26, C52, C71, C85, C146, D47] were composed of the roughly dressed gneiss that was a typical feature of much Trenton masonry construction from the late 17th century until well into the first half of the 19th century. The gneiss blocks were laid in a light grey mortar and were easily distinguished from the masonry of the steel works’ furnace house by the absence of the orange-yellow sandy lime mortar used in the latter’s construction. Somewhat more of the mill was exposed west of the culvert than to the east, but it was clear that the mid-1870s construction of the row homes at 120, 122 and 124 West Front Street and modification of the culvert had removed much of the eastern section of the building. Substantial foundations [D71, D103], interpreted as remnants of the north wall of the main eastern section of the mill, were observed, however, at a considerable depth beneath Green’s Alley (Figure 7.14; Photograph 7.39). These, combined with the historic map data, enabled much of the footprint of the paper mill along West Front Street to be identified on the ground (see above, Figure 4.16). The two front sections of the mill building combined for an east-west frontage of approximately 89 feet along West Front Street. The western section of the mill (the wheelhouse) measured roughly 35 feet east-west by 30 feet north-south, while the larger eastern section measured roughly 54 feet east-west by 35 feet north-south (Figure 7.1).

Additional structural remains were documented to the north of both of the front sections of the paper mill. To the rear of the main eastern section of the building, on the east side of Petty’s Run, the former cotton mill was apparently incorporated within the paper mill (see above, Section F of this chapter and Figure 4.11) and then later replaced by other buildings on the same site, apparently in 1865 when Horatio G. Armstrong took over the property (Figure 4.16). Traces of the south wall of the cotton mill [D72] were found running parallel and adjacent to the north wall of the main eastern section of the paper mill [D71], while more upstanding remains of the cotton mill’s north and east walls [A31; 102] survived further north at the southwest corner of the Thomas Edison State College campus. Higher in the stratigraphic profile were remnants of the later structures [A105, A156, D81] that replaced the cotton mill building (Figures 7.14-7.16 and 7.19; Photographs 7.31-7.33, 7.39-7.43).
Photograph 7.46. Front Street Paper Mill. View looking west showing the east face of the common wall [C16] between the main eastern section of the paper mill and the wheelhouse. The upper portions of the wall are plastered, reflecting their incorporation into the basement of 124 West Front Street in 1876-77 (note the diagonal scar of a staircase at right). The rectangular brick panel in the center blocks an arched opening visible on the opposite (western) side of the wall, through which access was obtained to the paper mill wheel pit. The ladder at lower right leans against a prominent offset [C40], possibly an early channelizing wall for Petty’s Run, which flows in the culvert just behind the wall running from right to left in the foreground of the view. The wall at left [D47] is the southern foundation of the eastern section of the paper mill, later re-used as the southern foundation of the row house at 124 West Front Street. The two walls in the foreground are the north and east walls of 124 West Front Street [D44, D45], constructed inside the footprint of the eastern section of the paper mill. Green’s Alley ran north-south (right to left) at the bottom of the image (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D15:086].
Photograph 7.47. Front Street Paper Mill. Mosaic view looking east showing the west face of the common wall [C16] between the main eastern section of the paper mill and the wheelhouse, against which has been placed the walling [C60] forming the east side of the wheel/turbine pit. The tailrace opening is at lower right. The vertical timbers for the frame supporting the turbine box and penstock are visible at bottom center, with two joist holes in the wheel/turbine pit wall directly above. The steep bedrock face forming the north side of the wheel/turbine pit is at left. The battered wall [C70] at right forms south end of the pit; the brown sandstone ashlar masonry [C60, C70] of the pit walling is secondary to the gneiss wall [C16] behind. At upper right the brick piers on top of the wheel/turbine pit east wall [C60] and against the paper mill partition wall [C16] are features within the basement of 126 West Front Street, dating from circa 1874-1913. The details of the bearing mount for the waterwheel are shown in Photograph 7.51. Scales in feet (Photographer: Seth Gartland, August 2009). [HRI Neg. #08036/composite images].
Photograph 7.48. Front Street Paper Mill. View looking north across the eastern end of the wheelhouse. The wheel/turbine pit in the foreground is defined by mortared stone walls [C60/C85, C61] set within the masonry of the wheelhouse [C52, C16 and C71]. The shallow, unconsolidated rubble north wall of the wheel/turbine pit [C67] has been removed, but sat atop bedrock directly in front of the north wall of the wheelhouse (see Photographs 7.49 and 7.50). The south wall of the wheel/turbine pit [C70] is not visible because of the angle of view. In the base of the pit the timber remains of the penstock are in the process of being exposed. The bearing slots for a roughly 20-foot-diameter overshot waterwheel are visible midway along the east and west walls of the wheel/turbine pit. Beyond the pit, the upper walls [C12, C13] are the foundations of the rear wing of the late 19th-century row house at 126 West Front Street; the fragmentary foundations beneath [C25, C26] are thought to have supported the flume and penstock bringing water to the waterwheel and turbine. Scales in feet and inches (Photographer: Joshua Butchko, December 2008) [HRI Neg. #08036/D2:086].
Figure 7.20. Petty’s Run Archaeological Site, Front Street Paper Mill – Plan of the Wheel/Turbine Pit in 1866 showing the Turbine Box and Penstock.
Paper Mill Wheel/Turbine Pit, c. 1870
East Elevation

Penstock
South Elevation

Penstock
East Interior Elevation

Context List

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<tbody>
<tr>
<td>C60</td>
<td>Mortared sandstone wall (east wall of wheel/turbine pit)</td>
</tr>
<tr>
<td>C61</td>
<td>Mortared sandstone wall (west wall of wheel/turbine pit)</td>
</tr>
<tr>
<td>C67</td>
<td>Stone rubble (fill behind north wall of water box)</td>
</tr>
<tr>
<td>C70</td>
<td>Mortared sandstone wall (south wall of wheel/turbine pit)</td>
</tr>
<tr>
<td>C71</td>
<td>Mortared stone wall (south wall of paper mill and 126 West Front Street)</td>
</tr>
<tr>
<td>C16</td>
<td>Mortared stone and brick wall, partially stuccoed (dividing wall between east and west sections of paper mill and between 124 and 126 West Front Street)</td>
</tr>
<tr>
<td>C67</td>
<td>Mortared stone wall (south wall of paper mill and 126 West Front Street)</td>
</tr>
<tr>
<td>C71</td>
<td>Mortared stone wall (south wall of paper mill and 126 West Front Street)</td>
</tr>
</tbody>
</table>

Figure 7.21. Petty’s Run Archaeological Site, Front Street Paper Mill – East Elevation of the Wheel/Turbine Pit [top], South Elevation of the Penstock [center] and East Interior Elevation of the Penstock [bottom].
Traces of two other east-west foundations were also documented to the north of the wheelhouse portion of the paper mill [C25, C26] (Figure 7.1; Photograph 7.48; also visible in Photographs 7.50 and 7.68 below). These clearly lay below the foundations of the rear wing of the row house at 126 West Front Street and above the remnants of the furnace house. They may be fragments of footings that supported the flume and penstock carrying water to the waterwheel (and later turbine), although there is also a possibility that one or both of these poorly understood masonry features relate to additions to the rear of the wheelhouse.

1. The Waterpower System

The major surviving element of the paper mill’s waterpower system was the wheel/turbine pit (Figures 7.1, 7.20 and 7.21; Photographs 7.47-7.61). This sizable, stone-lined chamber remains one of the most visually powerful features of the site. Originally built to contain an overshot or breast waterwheel close to 20 feet in diameter, it was later remodeled to house a hydraulic turbine. Both types of hydropower system will have driven papermaking machinery in the main eastern section of the paper mill through a system of gears, line shafts and belts. The precise configuration of the power transmission system remains unknown, but was presumably taken off from the west side of the waterwheel and from directly above the turbine, and from there transmitted up and over into the mill’s eastern section.

a. Phases 1 and 2: Waterwheels

In its first phase, beginning in the late 1820s, the wheel/turbine pit measured about 12 feet wide east-west by 26 feet north-south and was defined by gneiss walling on the east [C16], south [C71], west [C85] and north [C52]. The shallow north wall sat at the top of a steep bedrock face that sloped down to the base of the pit (Photographs 7.49 and 7.50). Within the heavily modified masonry of the east side wall [C16] is a blocked arched opening formed of brick, visible on both the west and east faces of the wall (Photograph 7.51). This most likely served as an opening to allow access into the wheel/turbine pit for inspection and maintenance purposes. There was no obvious indication in the masonry of where the original waterwheel axle’s bearing slots were located and these have almost certainly been obscured by later modification of the wheel/turbine pit. The original wheel would have been of the overshot or breast variety and of similar diameter (around 20 feet) to the later waterwheel described below.

This initial scheme was modified at least twice during the lifetime of the mill. The second phase, apparently related to the installation of a replacement waterwheel prior to 1866 (see above, Chapter 4D), entailed the facing of the gneiss walling on the west, south and east sides of the pit with finely dressed and rusticated ashlar masonry of brown Triassic sandstone [C60, C61, C70], probably obtained from the quarries north of Trenton and transported into town along the Delaware and Raritan Feeder Canal (Zdepski 2010). The east and west walls incorporated masonry bearing slots presumed to be for the axle mounts for this replacement wheel (Photographs 7.51 and 7.52). This second-phase wheel, again of overshot or breast type, would have been around 20 feet in diameter (Figure 7.21 [top]).

A tailrace opening was located in the southeast corner of the pit serving both phases of waterwheel hydropower usage as well as the final phase of usage involving a turbine (Photograph 7.53). The original tailrace was probably shorter in length and was modified when the wheel pit was reconfigured for the second waterwheel sometime prior to 1866.
Photograph 7.49. Front Street Paper Mill. View looking east across the northeast corner of the wheelhouse and northern end of the wheel/turbine pit. In the foreground, the northern wall of the wheelhouse [C52] is abutted by the less regular, unconsolidated masonry defining the northern end of the wheel/turbine pit [C67]. The upper fill of the wheel/turbine pit [C68], at this point unexcavated, is visible at right. The high, partially stuccoed wall at top [C16] is the common wall that formed the east end of the wheelhouse and west end of the main section of the paper mill. The mortared brick wall at left [C13] is the west foundation of the rear wing of the late 19th-century row house at 126 West Front Street. Scales in feet and inches (Photographer: Seth Gartland, December 2008) [HRI Neg. #08036/D1:031].
Photograph 7.50. Front Street Paper Mill. View looking north across the northeast corner of the wheelhouse and northern end of the wheel/turbine pit. The pit, defined by ashlar masonry at right and left [C60, C61] and the un-consolidated rubble on bedrock in the center [C67], is filled with sandy silt, coal ash and debris [C68] and in the process of being removed. Wrought-iron tie rods, part of the penstock construction, are visible within the fill. Beyond the wheel/turbine pit and north wall of the wheelhouse [C52] are remnants of foundations [C25, C26] thought to have supported the flume and penstock bringing water to the waterwheel. The mortared brick wall at upper left [C13] is the west foundation of the rear wing of the late 19th-century row house at 126 West Front Street; at upper right are remains of drains [C19] associated with this row house property. Scales in feet (Photographer: Seth Gartland, December 2008) [HRI Neg. #08036/D1:061].
Photograph 7.51. Front Street Paper Mill. View looking east showing the blocked arched opening in the common wall [C16] between the main eastern section of the paper mill and the wheelhouse, and the waterwheel bearing slot in the east wall of the wheel/turbine pit [C60]. The blocked brick-arched opening gave access to the pit for inspection and maintenance of the waterwheel. The bearing slot in the east wall would have contained a mount supporting the east end of the second-phase waterwheel axle (a corresponding bearing slot survives in the wheel pit west wall). The bearing slot is three feet across (Photographer: Ian Burrow, December 2008) [HRI Neg. #08036/D25:004].
Photograph 7.52. Front Street Paper Mill. View looking west showing the bearing slot, 4.5 feet across, in the west wall of the wheel/turbine pit [C61]. This would have contained a mount supporting the western end of the paper mill’s second-phase waterwheel. The masonry immediately beyond [C85] may be evidence of an earlier bearing slot for the original waterwheel (Photographer: Ian Burrow, October 2008) [HRI Neg. #08024/D17:024].
Photograph 7.53. Front Street Paper Mill. View looking east showing the blocked tailrace opening in the southeast corner of the wheel/turbine pit. Modern lumber at top is set in the original lintel slot at top. Scales in feet and inches (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:295].
Photograph 7.54. Front Street Paper Mill. View looking northwest showing some of the wrought-iron tie rods found during machine excavation of the wheel/turbine pit fill [C68]. These rods were part of the penstock for the turbine that was installed in place of the waterwheel in 1866. The wheel/turbine pit was abandoned around 1874 when the wheelhouse was demolished and the turbine was removed; the pit was filled sometime after the row house at 126 West Front Street had been constructed. Scales in feet and inches (Photographer: Seth Gartland, December 2008) [HRI Neg. #08036/D1:54].
Photograph 7.55. Front Street Paper Mill. Wrought-iron tie rods recovered from the fill [C68] of the wheel/turbine pit. These rods were part of the penstock for the turbine that was installed in place of the waterwheel in 1866. Scales in feet and inches (Photographer: Ian Burrow, December 2008) [HRI Neg. #08036/D25:18].
Photograph 7.56. Front Street Paper Mill. View looking south showing the wheel/turbine pit fully excavated. The timber remains of the penstock framework are in the foreground, while the turbine would have been set above the plank flooring within the central part of the wheel/turbine pit where the four-foot scale rods are placed (note the two joist pockets in the side wall of the pit at right and the sloping bedrock in the far right corner). The tailrace exits the wheel/turbine pit at upper left. Scales in feet and inches (see also Figure 7.20) (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:267].
Photograph 7.57. Front Street Paper Mill. View looking north showing the intact base of the penstock at the northern end of the wheel/turbine pit (note the series of three wrought-iron tie rods used to strengthen and hold in shape the penstock’s timber construction). Scales in feet and inches (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:172].
Photograph 7.58. Front Street Paper Mill. View looking southwest showing the intact base of the pen-
stock at the northern end of the wheel/turbine pit (note the wrought iron tie rods used to strengthen and
hold in shape the penstock’s timber construction; also note the circular drain hole in the southwest cor-
Photograph 7.59. Front Street Paper Mill. View looking north showing the penstock partially removed. The back and front boards of the penstock have been detached. The five posts that framed the rear of the penstock are angled to follow the slope of the bedrock that formed the north wall of the wheel/turbine pit. Rubble was placed behind them to help brace the frame against the bedrock. Scales in feet (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:203].
Photograph 7.60. Front Street Paper Mill. View looking northwest showing detail of the framing of the northwest corner of the penstock. The angled post at right has the back board lying against it. The vertical post is tenoned into an underlying sill beam and scarfed against the back board (note the iron tie rod, cut during the investigations, and iron spikes). Scales in feet (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:208].
Photograph 7.61. Front Street Paper Mill. View looking north showing the plank floor in the base of the wheel/turbine pit beneath where the turbine would have been set. Six pairs of circular impressions visible in the floor surface are thought to relate to the seating for the four-and-a-half-foot-diameter Rider wheel (turbine) that was installed in March 1866 and then removed two months later (see also Figure 7.20). Scales in feet (Photographer: Seth Gartland, May 2009) [HRI Neg. #08036/D11:270].
East Section of Paper Mill
South Elevation of Arches Across Petty's Run

Context List

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<tr>
<th>Context</th>
<th>Description/Interpretation</th>
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</thead>
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<td>C16</td>
<td>Mortared stone and brick wall, partially stuccoed (drying wall between east and west sections of paper mill and between 124 and 126 West Front Street)</td>
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<tr>
<td>C40</td>
<td>Mortared stone wall (offset, wider base of C16)</td>
</tr>
<tr>
<td>C600</td>
<td>Mortared stone wall (north wall of east section of paper mill, bonded to C16, C40)</td>
</tr>
<tr>
<td>C601</td>
<td>Mortared brick arch (spanned Petty's Run in paper mill era)</td>
</tr>
<tr>
<td>D67</td>
<td>Mortared brick arch (roof of Petty's Run culvert, 1876-1877)</td>
</tr>
<tr>
<td>D67/12</td>
<td>Stone masonry (blocking of D601 after reconstruction and culverting of Petty's Run in 1876-1877)</td>
</tr>
</tbody>
</table>

Petty's Run Culvert
as rebuilt 1876-1877

Figure 7.22. Petty's Run Archaeological Site, Front Street Paper Mill – South Elevation of the North Wall of the East Section of the Paper Mill and West-East Cross-Section of the Petty's Run Culvert (for location, see Figures 7.1 and 7.24).
b. Phase 3: Turbines Installed in 1866 and before 1870

In contrast to the limited field evidence relating to the waterwheel phases, there were substantial remains relating to the final, turbine, phase of the paper mill’s hydropower operations.

The upper portions of the wheel/turbine pit were filled with a loose sandy fill and coal ash [C68, C69], apparently placed in the chamber sometime after the row house at 126 West Front Street had been erected in 1873-74 (see below, Section H, for further discussion). The first indications of any surviving waterpower structure was the appearance of long wrought-iron rods, some with wood adhering, aligned north-south in the upper part of the pit fill (Photographs 7.50, 7.54 and 7.55). It was initially thought that these might be parts of a waterwheel, but as the work continued it became clear that they were associated with the penstock, a fixed, wooden chute-like structure constructed in the northern end of the pit to supply water to a turbine.

The permanently wet and largely anaerobic conditions in the base of the pit had led to exceptional preservation of the oak beams and planking of this structure and of a plank floor that extended further to the south (Figures 7.20 and 7.21; Photographs 7.56-7.61). When fully exposed the base of the penstock was revealed as being 8.6 feet by 4.9 feet in plan at the base of the wheel/turbine pit. The bottom section of this structure was comprised of five massive horizontally-laid oak beams. The beams forming the north and south sides extended the full width of the wheel/turbine pit and were joined at their ends by two equally massive north-south beams. An intermediate east-west beam braced the frame, and the spaces between the beams were packed with large stones and clay.

A series of five vertical and five angled posts were found tenoned into the tops of the exterior beams of this framework. The southernmost beam, which was actually a composite of two beams one above the other, had two end posts, a central post and three additional mortises. One of these mortises retained a sawn-off tenon, while a dislodged post fragment with a tenon, recovered nearby, was found to fit perfectly into one of the others (Figure 7.21 [south elevation]). All three of these mortises likely held vertical framing members. Each of the north-south side beams had a central vertical post.

The northernmost beam lay at the foot of the steep, ten-foot-high bedrock slope that formed the north end of the wheel/turbine pit. This bedrock slope was obscured and capped by a rubble facing [C67] that provided bracing for a row of five angled posts that were mortised into the beam (Photographs 7.49, 7.50, 7.56 and 7.59). A vertical post was set against the south side of each of the corner angled posts (Photograph 7.60). The posts and beams were not only accurately mortised and tenoned but also held by threaded wrought iron tie-rods secured with four-sided nuts, doubled in some cases. The structure was thus extremely massive and solid.

The posts provided external bracing for the thick boards that formed the penstock, essentially a wooden chute designed to provide a steady supply of water to the turbine which would have occupied the adjoining timber-framed space to the south within the wheel/turbine pit. The floor of the penstock, a rectangle three feet by seven feet internally, had a small drain hole in the southwest corner (Photograph 7.58). The boards and posts survived only to a height of three feet or so, but it was evident from the decayed wood in the overlying fill levels, and from the number and increasing length of the tie-rods, that it had originally extended much higher. Overall, the remains of the penstock as documented through archaeological excavation conform remarkably closely with the details.
of the paper mill hydropower system provided in the court proceedings of 1869 in the case of Horatio G. Armstrong vs. Edmund Craft. Based on the combination of archival and archaeological data, the penstock is projected to have been roughly eight feet square at the top, tapering to a narrower four-by-eight-foot rectangle at its base and with a gate at the bottom on its southern side. The entire penstock structure would have extended to a height of at least 20 feet (see above, Chapter 4D and below, Appendix B.6; Figure 7.21 [east elevation]).

South of the penstock was a finely-laid oak plank floor with the boards running north-south. This measured seven feet north-south and ended abruptly with a straight east-west edge about 18 inches north of the tailrace opening, except at its western end where it was constructed around a piece of upstanding bedrock (Photograph 7.56). In the surface of the plank floor were six pairs of circular impressions indicating the locations of posts or rods in a frame that would have supported a turbine (Photograph 7.61). These impressions, enclosing a circular space roughly five feet in diameter, are interpreted as evidence of the “Rider wheel,” the four-and-a-half-foot-diameter turbine installed by Edmund Craft in March of 1866. The fact that the impressions occur in pairs, may reflect the repair and re-setting of this turbine following its failure four weeks after its installation. It is thought that the smaller, three-and-a-half-foot-diameter “Ohio wheel” (probably a Leffel turbine) may have been mounted in a different manner, perhaps at a slightly higher elevation in the wheel/turbine pit.

Two vertical rectangular posts were set in the wood plank floor five feet south of the penstock. These most likely were part of the framing for the turbine box that contained the Rider wheel. In addition, and probably of the turbine phase, there are four rectangular joist pockets, two in each of the side walls of the wheel/turbine pit. These are assigned to this phase because they were cut into the walls after construction of the masonry and therefore do not appear to be part of the design for the second-phase waterwheel. The joist pockets are centered between 3.1 and 3.7 feet above the plank floor. They most likely held cross timbers for a frame that supported and stabilized a turbine, quite possibly the Ohio wheel/Leffel turbine that replaced the ill-fated Rider wheel (Figures 7.20 and 7.21).

2. Other Structural Remains Relating to the Front Street Paper Mill

The only other structural feature beyond the wheel/turbine pit which throws light on the paper mill’s waterpower system was a fragmentary section of the main north wall of the eastern section of the mill immediately west of the Petty’s Run culvert (Figure 7.22; for location, see Figure 7.24). This wall [C600] was mostly demolished in 1876-77 when the new rear wall of 124 West Front Street [C36/D44] was built just to the south and the Petty’s Run culvert was reconstructed. Figure 7.22 shows the springing of the brick arch [C601] and its blocking [C602/D112], the latter action being contemporary with the culvert wall [D67]. The small segment of the arch which survives makes an estimate of its diameter only approximate, but this is attempted in the drawing, which suggests that the east side of the arch was roughly coincident with the extant culvert east wall. The large offset stone masonry in the lower part of the interior of the culvert east wall just to the north of this point may relate to the east side of this earlier arch, or perhaps more likely, based on its position, to the earlier cotton mill and channelization of the run (see above, Section F).

The critical point to be made here is that, during the paper mill era, the main channel of Petty’s Run passed through the western end of the main eastern section of the mill within a stone-lined channel approximately eight feet in width. It is hypothesized, but not proven, that the second turbine referenced in the court proceedings of 1869 and in the industrial schedules of the
federal census of 1870 may have been located in this space directly above the run (see above, Chapter 4D and Appendix B.6).

3. **The Landscape**

   **a. The West State Street Properties**

   While the southern portion of the site was undergoing repeated industrial changes in the 18th and 19th centuries, the area on the top of the bluff along West State Street was being progressively developed as a series of residential properties. Archaeological investigation of these properties was somewhat constrained because of the need to retain specimen trees in this area. The main investigation effort took the form of a linear mechanical excavation, Trench B, Excavation Unit 3 and Trench A, Excavation Unit 4 (Figure 7.1). Figure 7.23 provides a composite west-east profile across these units through the northern portions of Trenches A and B. This profile is essentially a cross-section through the backyards of 125, 123, 121, 119 and 117 West State Street, as developed and numbered by about 1870. The main structural features, from west to east, are: a double privy [B49, see below] on the 125/123 properties; a north-south boundary wall [B60] between 123 and 121 West State Street; a north-south wall [B79] west of the Petty’s Run culvert; and the culvert itself [B43, A43, A44] (Photograph 7.62).

   The earliest feature stratigraphically was the wall just west of Petty’s Run, a dry-laid gneiss structure running north-south [B79]. This lay directly on top of an artifact-free wet silty loam [B78] that itself lay directly on the bedrock. The wall was flanked by loam sediments [B76, B77], which also extended eastward against the west wall of the Petty’s Run culvert. Context B79 was truncated above this level and covered by a context containing brick rubble [B75], which was also piled against the culvert wall. Overall, these data imply that this wall [B79] is early in the sequence at this location. The presence of a loam surface below it suggests that it was not part of an earlier Petty’s Run retaining system, and it is most likely a late 18th- or early 19th-century property wall, perhaps between 121 and 119 West State Street.

   It proved difficult to assign particular deposits to specific residential properties, although intact late 18th/early 19th-century fill and occupation layers [B62, B70, B75-B77] were distinguishable at the base of the stratigraphic profile on the predecessors of 123, 121 and 119 West State Street. Above this, a more mixed and incoherent sequence of mid-19th- through early 20th-century deposits was evident. A wide range of domestic artifacts dating from the later 18th, 19th and early 20th centuries were recovered from these layers.

   **b. Privies**

   Two substantial stone-lined privies were located to the rear of houses fronting on to West State Street (Figure 7.1). Both had been emptied and then backfilled prior to or during the demolition of the houses in the 1920s. The western example [B49-B52], shown in profile on Figure 7.23, was identified as a double privy on the Sanborn map of 1874, updated to 1886 (see above, Figure 3.32), and was shared at that time by the owners of 123 and 125 West State Street (Absalom Clark and Caleb Green respectively). Caleb Green had purchased both properties as a single parcel from the estate of Francis A. Ewing in 1868, subdividing this in the following year. The dividing wall was of brick and appeared secondary, suggesting that the stone-walled structure predates 1869 and may even have originated much earlier in the 19th century. Material from the fill [B47, B48] suggests that it was backfilled not long after 1874. It is not shown on later maps.
Photograph 7.62. Petty’s Run Culvert. View looking east showing a section of the culvert in Trenches A and B (note the typical stone side wall, the brick barrel-vaulted roof and an inserted ceramic drain pipe). Scales in feet and inches (Photographer: Seth Gartland, July 2008) [HRI Neg. #08024/D7:91].
**Context List - Trench A**

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<td>A7</td>
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<td>10 YR 7/1, 5 YR 5/3</td>
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<td>A8</td>
<td>Silty loam with ash [early 20th-century fill]</td>
<td>2.5 Y 3/2</td>
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<td>Silty loam [late 19th-century fill]</td>
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<td>A11</td>
<td>Coal ash [late 19th-century fill]</td>
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<td>A43</td>
<td>Mortared brick arch [roof of Petty’s Run Culvert, 1876-1877]</td>
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<td>A44</td>
<td>Mortared stone wall [east side wall of Petty’s Run culvert, c. 1813]</td>
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<td>Dense brick rubble with mortar and sand [late 19th-century fill]</td>
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**Context List - Trench B**

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<td>B6</td>
<td>Compact silty loam [early 20th-century fill]</td>
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<td>Mortared stone wall [north wall of proxy at 121 and 125 West State Street, mid-19th-century]</td>
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<td>B60</td>
<td>Mortared cut stone wall [mid-19th-century property boundary between 121 and 123 West Street, c. 1843]</td>
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<td>B61</td>
<td>Cut [builders trench for wall B60]</td>
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<td>Loose silty loam [late 18th/early 19th-century occupation deposit]</td>
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<td>Cut [builders trench for wall B60]</td>
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<td>B70</td>
<td>Mortared stone loam with charcoal [late 18th/early 19th-century occupation deposit]</td>
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<tr>
<td>B77</td>
<td>Silty clay loam [late 18th-century fill]</td>
<td>10 YR 3/3</td>
</tr>
<tr>
<td>B78</td>
<td>Wet silty loam [buried A horizon, mid-19th-century occupation layer?]</td>
<td>7.5 YR 3/1</td>
</tr>
<tr>
<td>B79</td>
<td>Dry-laid gneiss wall [late 18th/early 19th-century boundary wall?]</td>
<td>–</td>
</tr>
</tbody>
</table>

Figure 7.23. Petty’s Run Archaeological Site – West-East Profile along Northing 1294 showing the Petty’s Run Culvert and Stratigraphy in the Rear Yards of 119, 121, 123 and 125 West State Street.
The eastern single privy [A32, A33, A34] was located in Trench A, Excavation Unit 3 immediately north of the boundary wall separating the West State and West Front Street properties, within the property that later became 117 West State Street (Figure 7.24). It may have been built at the same time as the boundary wall in the mid-1870s since the builders’ trenches were sealed by the same context [A45], or it may date from earlier in the 19th century. It seems likely that this privy was built after the construction of the culvert’s eastern side wall, which lies immediately to the west, since it would have been disrupted or destroyed by the channelization of the run. The feature measured 4.5 feet wide north-south and was probably about the same in the east-west dimension, although its east wall was inaccessible under the east profile of Trench A. The privy shaft was backfilled with densely packed brick, stone and mortar.

H. LATE 19TH-CENTURY TRANSFORMATION: ROW HOUSES, PROPERTY LINES, STEPS AND ALLEYS

The documentary and cartographic record shows that the paper mill and adjacent areas along the north side of West Front Street were transformed into row housing in 1874-77. These buildings survived until 1913 when they were demolished to make way for the section of Mahlon Stacy Park between the State House and the Old Barracks. Between the mid-1870s and mid-1910s the rear property lines of the homes fronting on to West Front and West State Streets, on either side of Petty’s Run, underwent multiple changes and adjustments which are apparent on both the historic maps (see above, Figures 3.30-3.35) and in the archaeological record (Figures 7.24 and 7.25). Figure 7.24 shows the main structural features of the row house properties at 124, 126, 128 and 130 West Front Street situated over and to the west of Petty’s Run. The western portion of 122 West Front Street was also examined, although more cursorily, and aspects of this house are also shown in Figures 7.14 and 7.19.

Although the foundations of the old paper mill formed the basis for much of these row houses, it is still notable how much totally new construction the row houses required. The south wall foundations of the wheelhouse and the main eastern section of the paper mill [C71, D47] were re-used as the south wall foundations of 122, 124, 126, 128 and part of 130 West Front Street and part of 130 West Front Street. The north wall foundations of the wheelhouse section of the mill [C52] similarly formed the rear wall foundations of the main sections of 126, 128 and part of 130 West Front Street. The major north-south dividing wall between the main eastern section of the paper mill and the wheelhouse [C16], which also formed the east side of the wheel/turbine pit, was substantially re-used as the party wall between 124 and 126 West Front Street. Other mill walls, however, were torn down and largely removed, leaving only one or two courses of masonry in place. The west wall of the wheelhouse [C146] was extensively robbed, as were the walls forming the north side of the main eastern section of the mill [C600-C603, D71, D93, D103]. Other buildings appended to the north side of the eastern section of the mill were torn down and their remnants were buried in fill (Figures 7.14, 7.16, 7.19 and 7.24).

Within the wheelhouse, new stone rubble party walls [C63, C72] were built to define the main sections of 126 and 128 West Front Street. 130 West Front Street was created by extending the north and south walls of the paper mill westwards by about ten feet [C367, C130] and then running a wall north-south [C130] to form its west side (Photographs 7.63 and 7.64). The footprints of the main sections of the resulting three houses were each about 15 feet wide and 26 feet deep internally. The lot at the western end of the row (132 West State Street) was never built upon.
Photograph 7.63. West Front Street Row Houses. View looking north showing the south elevation of the south walls of 130 and 132 West Front Street (see Figures 7.6, 7.10 and 7.11). The brick pier masonry in the center of the view is part of a corner buttress [C349] in the southwest corner of the basement of 130 West Front Street. The east-west walls on each side of the brick pier (the south wall of 130 West Front Street [C604] at right and the south wall of the 132 West Front Street property [C144] at left) were poorly constructed. The south wall of 132 West Front Street [C144] was apparently just a property wall, since no house was built on this lot. These walls are set on a complex series of 19th-century deposits containing brick and mortar lenses [C354/C407] overlying a humic buried modified A-horizon [C161/C352], which in turn lies on top of the rubble of the “ramp” structure [C416] built around the southwest corner of the furnace house in the 1780s or early 1790s. Scales in feet and inches (Photographer: Seth Gartland, July 2009) [HRI Neg. #08036/D17:428].
West Front Street Row House Properties

c. 1874-1913

Figure 7.24. Petty’s Run Archaeological Site – Plan showing the Principal Features of the West Front Street Row House Properties Built on the Site of the Front Street Paper Mill.
**Context List**

<table>
<thead>
<tr>
<th>Context</th>
<th>Description (Interpretation)</th>
<th>Munsell</th>
</tr>
</thead>
<tbody>
<tr>
<td>A16</td>
<td>Mortared stone wall (E-W property boundary)</td>
<td>--</td>
</tr>
<tr>
<td>A17</td>
<td>Coal ash/charcoal (late 19th-century fill)</td>
<td>10 YR 7/1</td>
</tr>
<tr>
<td>A18</td>
<td>Dry-laid stone path (late 19th-century yard feature)</td>
<td>10 YR 4/1, 10 YR 5/6</td>
</tr>
<tr>
<td>A20</td>
<td>Cinder block shaft (manhole extension, built 1985)</td>
<td>--</td>
</tr>
<tr>
<td>A22</td>
<td>Mortared stone stairway (access from Green’s Alley to culvert manhole)</td>
<td>--</td>
</tr>
<tr>
<td>A23</td>
<td>Mortared stone stairway (access from Wilson Alley to Green’s Alley)</td>
<td>--</td>
</tr>
<tr>
<td>A24</td>
<td>Sand (late 19th-century fill)</td>
<td>7.5 Y 5/2</td>
</tr>
<tr>
<td>A29</td>
<td>Stone slab (culvert roof, location of water tank, c. 1874)</td>
<td>2.5 Y 4/4, 10 YR 4/2</td>
</tr>
<tr>
<td>A30</td>
<td>Mortared stone wall (Petty’s Run culvert side walls)</td>
<td>--</td>
</tr>
<tr>
<td>A31</td>
<td>Mortared stone wall (north wall of cotton mill, re-used as rear section of paper mill)</td>
<td>--</td>
</tr>
<tr>
<td>A32</td>
<td>Mortared brick arch (culvert roof, c. 1876)</td>
<td>--</td>
</tr>
<tr>
<td>A33</td>
<td>Mortared brick (infill of culvert arch, c. 1876)</td>
<td>--</td>
</tr>
<tr>
<td>A34</td>
<td>Dry-laid sandstone wall abutting wall A31 (headrace feature?)</td>
<td>--</td>
</tr>
<tr>
<td>A35</td>
<td>Joint pocket in wall A11</td>
<td>--</td>
</tr>
<tr>
<td>A36</td>
<td>Mortared stone wall (common boundary wall between West Front Street and West State Street properties west of Petty’s Run, built c. 1874)</td>
<td>--</td>
</tr>
</tbody>
</table>

**Figure 7.25.** Petty’s Run Archaeological Site – West-East Cross-Section of the Petty’s Run Culvert and Adjoining 19th-century Walls at the head of Green’s Alley (for location, see Figures 7.1 and 7.24).
Photograph 7.64. West Front Street Row Houses. View looking west-northwest showing detail of the interior southern portion of the west wall of 130 West Front Street [C130]. The brick corner buttress [C349], also visible in Photograph 7.60, is at left, and the southernmost of two other robbed masonry (probably brick) piers [C346] is at right. The buttress and piers are six feet on center (see Figure 7.11). Scales in feet and inches (Photographer: Seth Gartland, July 2009) [HRI Neg. #08036/D17:436].
The main section of 126 West Front Street was unique in being constructed on top of the paper mill wheel/turbine pit. The creation of this residential property in 1874 required the removal of the turbine and substantial parts of the turbine box and water box from the pit, but interestingly the pit itself does not appear to have been filled at the same time. This is evident from artifacts found deeply buried in the coal ash and sandy soil pit fill, which included wasters of “flow blue” china marked “Burgess & Campbell” and “Royal Blue China,” indicating these were made by the International Pottery Company, a firm that did not commence business until 1879-80 (Photograph 7.65) (Barber 1904:59; Liebeknecht 2009; Hunter Research, Inc. 2013). One other artifact of particular interest found in the wheel/turbine pit fill was a glass bottle embossed “MORTON & RICHARDSON TRENTON” and manufactured circa 1840-90. Morton & Richardson were in business distributing glass and stoneware bottles, usually containing mineral water or beer, from the mid-1850s at least into the 1870s. Their bottling plant and brewery was located just a short distance upstream along Petty’s Run at the corner of Bank (Union) and Warren Street (Lamborn 1859; Beers 1870). (Note: a Morton & Richardson stoneware bottle was also recovered from sediment within the culvert upstream from the site between West State Street and North Willow Street).

Based on the ceramics recovered from the fill of the wheel/turbine pit, it is speculated that the pit was initially left unfilled, although probably covered over, and was intended to serve some sort of site drainage purpose for the row house properties. It is notable that a brick and stone drain [C19] was found running north-south along the west side of the party wall [C14] dividing the rear sections of 124 and 126 West Front Street (Figure 7.24; Photograph 7.50). At least three phases of this drainage feature were documented, the final one making use of cast-iron drain pipes [C18]. When the drain was originally constructed is uncertain. It may have been installed during the paper mill era to assist with site drainage, funneling water into the wheel/turbine pit, and then been retained when 126 West Front Street was built. Quite possibly, this arrangement proved unworkable for the inhabitants living in the new house and a decision was made sometime after 1879-80 to fill the pit, block the tailrace and install a brick floor in the basement. At this juncture, the site drainage appears to have been diverted on to the 124 West Front Street property and into the channel that ran between the Petty’s Run culvert and the common wall between 124 and 126 West Front Street (Figure 7.24; Photographs 7.66 and 7.67).

East of the wheel/turbine pit’s east wall [C16] the houses built by Caleb Green in 1876-77 were slightly larger than the Armstrong houses to the west. The main sections of both 124 West Front Street (which was built over the newly roofed Petty’s Run culvert) and 122 West Front Street (which was separated from 124 West Front by the five-foot-wide Green’s Alley [Figure 7.24; Photographs 7.33 and 7.39]), were about one foot deeper and with attached deeper and wider rear ells. Green’s Alley extended along the east side of the Petty’s Run culvert from West Front Street to the main east-west rear boundary wall that separated properties fronting on to West State and West Front Streets. The alley terminated at this point and rose up to the west and east via flights of stone steps. The westerly set of steps took pedestrians up and over the culvert to the original manhole access through its brick vaulted roof. The easterly set of steps connected to the western end of Wilson Alley (Figure 7.25; Photograph 7.41).

Exposure of the street elevations of the south walls of 124 and 122 West Front Street and Green’s Alley during restoration of the Petty’s Run site in 2012 showed that the southern end of the alley had been blocked with stone masonry at some point between the mid-1870s and around 1913. The historic maps do not provide any information on this blocking and it remains a minor mystery. It was also clear during
Photograph 7.65. West Front Street Row Houses. Selected artifacts from Context C69 (fill of paper mill wheel/turbine pit). *Top row, left to right:* saggar pin; two rim sherds, flow blue-decorated ironstone china plates produced by Burgess & Campbell’s International Pottery, *circa* 1879-1903, probably wasters; two base sherds, ironstone china plates produced by Burgess & Campbell’s International Pottery, *circa* 1879-1903, bearing Burgess & Campbell’s “Royal Blue China” mark, probably wasters. *Middle row, left to right:* handle sherd, pearlware pitcher with dark blue floral transfer-printed decoration; handle sherd, flint-enameled yellowware pitcher, probably made locally (side and front views); body sherd, Rockingham-glazed yellowware cuspidor with partial molded medallion, probably made locally; base sherd, ironstone china holloware vessel with black transfer-printed makers mark of John Moses’ Glasgow Pottery, *circa* 1863-1906; handle sherd, American grey-bodied, salt-glazed stoneware jug with cobalt blue decoration. *Bottom row, left to right:* glass bottle from local vendor Morton & Richardson; black vulcanized rubber tobacco pipe; white clay tobacco pipe bowl fragment with raised ribs (side and front views); Scottish white clay tobacco pipe stem fragment impressed “DAVIDSON” and “GLASGOW,” manufactured between 1861 and 1891 (two views) (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-17].
Photograph 7.66. West Front Street Row Houses. View looking north showing the brick arches within the stone rear wall of the main section of the house at 124 West Front Street [D44]. The arch at left, partially blocked with stone masonry, springs from an offset [C40] on the east side of the dividing wall [C16] between the eastern main section of the paper mill and the wheelhouse. It spanned what is thought to have been a drainage channel for the 124 and 126 West Front Street properties and ran parallel to and between the Petty’s Run culvert and the paper mill wheel pit. Like the arch further north [C30], this arch demonstrates a continuing concern with water flow even after the culvert was covered over and buried in the mid-1870s. The arch at right was probably designed to reduce the pressure of the house at 124 West Front Street on the Petty’s Run culvert structure itself [D57, D67]. Scales in feet and inches (Photographer: Seth Gartland, September 2008) [HRI Neg. #08024/D14:105].
Photograph 7.67. West Front Street Row Houses. View looking north showing the brick relieving arch [C30] supporting the rear wall of the rear wing of 124 West Front Street. This arch spanned the space between Petty’s Run culvert [A54, D57] and the party wall [C14] between 124 and 126 West Front Street. The spaces on both sides of the party wall [C14] between 124 and 126 West Front Street were subject to water problems during the lifetime of the row houses. Scales in feet and inches (Photographer: Seth Gartland, August 2008) [HRI Neg. #08024/D11:184].
Photograph 7.68. West Front Street Row Houses. General view looking northeast showing the rear yards and back sections of the row homes at 128, 126 and 124 West Front Street. Brick-paved walkways [C24 at left; C8 at center] are yard features of 128 and 126 West Front Street respectively, as is the rectangular cement area [C9] at center (for 126 West Front Street). The rear section of the house at 126 West Front Street is visible in front of the Petty’s Run culvert. A window well [C11] is visible in the center of the north wall, with a massive stone stair base [C15] to the south. The cast-iron drain pipe [C18] was the last in a series of drainage features in this area evidently trying to address continuing water problems ultimately deriving from the paper mill’s waterpower system. Above and to the right of the pipe is the fragmentary brick-arch in the north wall of the rear section of 124 West Front Street [C30]. The continuation of this wall can be followed on the surface of the Petty’s Run culvert roof. The massive masonry in the center foreground [C26], buried under fill laid down in 1873-74, is interpreted as footings for a structure supporting the flume and penstock at their point of entry into the paper mill wheelhouse (Photographer: Seth Gartland, August 2008) [HRI Neg. #08024/D11:190].
Photograph 7.69. West Front Street Row Houses. View looking north (north arrow is wrongly placed) showing the brick privy [B114] found in Excavation Unit 703, partially excavated and dismantled. The location of the privy suggests that it was built for 124 West Front Street around 1876-77. Scales in feet and inches (Photographer: Seth Gartland, April 2009) [HRI Neg. #08036/D8:164].
Photograph 7.70. Miscellaneous Artifacts, No Provenience.  *Top:* black India rubber man’s shoe embossed on the base “Patent June 1858 MEYER RUBBER CO SUCCESSOR TO FORD & CO”, made in New Brunswick, New Jersey, between 1858 and 1896.  *Bottom row, left to right:* red earthenware spool with black manganese lead glaze, 4.5 inches in diameter with a center mounting hole, possibly associated with the Fithian cotton mill or the Jones woolen mill; two-piece brass clothing buckle with molded and stamped floral decoration; manganese lead-glazed redware brick bat with a partial cat’s paw impression (Photographer: Elizabeth Cottrell, January 2014) [HRI Neg. #11009/D2-18].
these observations that the south wall of the main eastern section of the paper mill in the area of the alley and 122 West Front Street had been taken down to street level in the mid-1870s with the rather inferior new front wall of 122 West Front Street being built on top. This confirms the pattern seen to the west, where the paper mill walls were used to a more limited extent than might have been assumed.

The construction of 124 West Front Street over the culvert presented challenges. It is clear that, despite the enclosing of Petty’s Run, flowing water remained a problem west of the run for both the 124 and 126 West Front Street properties. Photograph 7.66 shows how the new rear wall of the main section of 124 West Front Street, which was only two feet south of the demolished north wall of the eastern section of the paper mill (shown in Figure 7.24), bridged the space between the culvert and the paper mill wall [C16] to the west. A brick relieving arch was sprung from the culvert side wall on the east and from an offset on the mill wall on the west. It is possible, as discussed above, that this offset wall formed the west side of Petty’s Run during the paper mill and cotton mill periods. The archway itself was partially blocked with stone masonry, but the space below was not, suggesting that the fill within it was designed to permit water to percolate downstream. The north wall of the rear ell of 124 West Front Street was constructed in a similar way, using a brick arch to span the space between the boundary wall [C14] on the west and the culvert to the east (Photograph 7.67).

The rear yards of the row houses at 126, 128 and 130 West Front Street produced ample evidence of stone property walls and brick patio and walkways that enclosed garden spaces (Figure 7.24; Photograph 7.68). Two shaft features, both probably privies, were discovered that could be associated with the West Front Street row housing phase. A square brick structure [B98] was attached to the south side of a common wall [B97] that crossed the rear yards of 126, 128 and 130 West Front Street. This feature was filled with lime and ash [B100], probably just prior to the demolition of the row homes along West Front Street in 1913. A dry-laid circular brick shaft [B114] was also found, dug into material piled against the Petty’s Run culvert in the mid-1870s (Photograph 7.69). This feature was located in the rear yard of 124 West Front Street and was probably built around 1876-77 when Caleb Green erected his set of row houses on the site of the eastern section of the paper mill. The lower, organic fill [B116] contained early 20th-century materials as did the overlying ash [B115] that probably marked the closure of the feature around 1913.

The demolition of the row homes along the north side of West Front Street in 1913 involved the wholesale tearing down of structures and the bulldozing of building debris and backyard soils into basements to create a grade suitable for creation of a park landscape. This process also led to some disturbance and redeposition of earlier archaeological deposits. These materials were largely removed using a backhoe during the early stages of the archaeological excavations. No attempt was made to systematically recover artifacts from the demolition debris and redeposited soils, although a number of items of interest were found, including a rubber overshoe manufactured by Ford & Company of New Brunswick, a redware spool, a Victorian brass buckle and a piece of glazed firebrick (possibly from the steel works) with the imprint of a cat’s paw (Photograph 7.70).

I. MAHLON STACY PARK

The creation of Mahlon Stacy Park, on the site of the complicated urban landscape that preceded it, entailed the placement of many thousands of cubic yards of fill to depths typically of eight to nine feet. The work took place in two stages, and these could be distinguished archaeologically. The 1913-14 phase entailed the demolition of the West Front Street properties and
the placement of fill generally only as far north as the south side of Wilson Alley on the east (the line represented by the high revetment wall that today forms the southern boundary of the Thomas Edison State College property). To the west some filling took place further to the north, up to the main east-west property wall [B30]. This had formed the common rear property line of the West State Street and West Front Street properties from the mid-1870s onward and was likely a convenient northern stopping point for the 1913-14 fill episode.

The fill used in this first phase was very mixed, with layers of ash, coke, clay, building material, and stony and sandy loams being visible as tip lines in some areas. The precise origin of the material is unknown but it is assumed to be from Trenton, a deduction supported by the frequent occurrence of ceramic wasters and kiln furniture from the late 19th-century Trenton potteries in the matrices.

The second phase, illustrated in Photographs 7.71 and 7.72, reflects the demolition of the houses along West State Street west of 115 West State Street in 1922, and subsequent leveling and landscaping. Photograph 7.71 shows distinctive yellow and reddish brown clay loams lying on top of much darker yard or fill deposits of the late 19th and early 20th centuries that overlie the Petty’s Run culvert. Photograph 7.72 shows the demolition material from the West State Street houses overlain by similar materials and capped by the humic loam of the park.

These fill episodes are archaeological resources just as much as the earlier phases of the site, but the agreed research design of the project legitimately assigned a much lower priority to these deposits. There is no doubt that detailed examination of the fill could answer questions about its origin and about the technology used to emplace it. For example, were there differences between the two episodes in terms of technology (manual/animal labor versus steam or gasoline power) and environmental controls (the 1920s material appeared much cleaner and was also probably derived from a smaller number of sources)? Documentary research into the records for the creation of Mahlon Stacy Park (held by the New Jersey State Archives) might further inform this aspect of the site.
Photograph 7.71. Mahlon Stacy Park. View looking northeast showing typical park stratigraphy in the northeast corner of Trench A. Informal field inspection recorded approximately three feet of chiefly yellowish demolition and landscaping deposits placed on the site after the demolition of the West State Street houses in 1922. The figure is standing on the partly exposed brick-arched roof of the Petty’s Run culvert. The darker soils below the demolition and landscaping deposits date from the late 19th and early 20th centuries (Photographer: Seth Gartland, August 2008) [HRI Neg. #08024/D23:013].
Photograph 7.72. Mahlon Stacy Park. View looking north showing the stratigraphy in the upper portion of the north wall of Trench B. A mass of brick and mortar from the demolition of houses along West State Street in 1922 is capped by about three feet of clayey loam and gravel landscaping materials brought in for the creation of Mahlon Stacy Park (see also Figure 7.23) (Photographer: Seth Gartland, July 2008) [HRI Neg. #08024/D7:63].
This chapter provides an overview and broader perspective on the Petty’s Run Archaeological Site, beginning with a narrative account of the changing topography through time and some general observations on the site as an urban space. The remaining sections discuss individual components and phases of the site in a more discursive manner, informed by the historical and archaeological detail presented in Chapters 3 through 7. The Petty’s Run site has proved in many ways to be typical of Trenton’s archaeology: producing important information on the city’s topography and its development and modification through time, revealing the coherent remains of major industrial features, and yet contributing only in a limited way to many of the research themes that are currently prominent in urban archaeology as a sub-discipline of historical archaeology. For additional contextual discussion of Trenton’s urban archaeology readers are referred to the recently published chapter: “Historical Archaeology in Trenton: A Thirty-Year Retrospective” in *Historical Archaeology in the Delaware Valley, 1600-1850* (Hunter and Burrow 2014).

To start with truly deep time, the work at Petty’s Run has contributed in a modest way to the understanding of regional geology. The exposure during the excavations of several hundred square feet of the Precambrian gneisses and other formations of the Trenton Prong has been helpful to ongoing research on the geomorphology and geological history of the Trenton area (Lacombe 2010; Volkert 2010).

From the point of view of human activity and use of the landscape, we now have a much better idea of the landscape around the downstream end of Petty’s Run as it would have appeared to Native Americans and to the English settlers who arrived here in the late 1670s. Petty’s Run itself flowed though a locally low point in the bluff formed by the Trenton Prong formation, at just over 30 feet above sea level. Within the archaeological site the stream tumbled down two steep falls and across more gently sloping ground before making its way through a second ridge of rock, roughly at the position of the later West Front Street, and then out onto the broad floodplain of the Delaware River that fans out at the mouth of the Assunpink Creek. The stream ran across exposed bedrock, and as it descended the bluff edge probably did not flow within a single well-defined channel. The ground on each side of the run is thought to have been bare, rocky and wet much of the time.

The bluff line over which the stream coursed extended higher to the west (towards the State House), reaching an elevation of almost 40 feet above sea level. The face of the bluff on this side of the run had a very
A steep slope of about 40%, dropping a vertical distance of more than 12 feet from top to bottom. To the south the ground sloped down more gently before rising again to form a second, lower ridge and then dropping away again to the floodplain. Although not exposed in the excavations of 2008-09, a broadly similar “two-step” natural topography prevailed on the east side of the run as documented by earlier investigations on the Thomas Edison State College property and within the Old Barracks lot (Hunter Research Associates 1989b; Hunter Research, Inc. 1989, 1991). Both the main bluff and this lower ridge attracted Native American occupation, no doubt perhaps because of the proximity of this location to the floodplain and Delaware River where fish and game will have been abundant. On the bluff top there was a slight back-slope which may have created a marshy zone where the drainage gathered before finding its way down the ravine-like landform and on to the floodplain. The original alignment of the River Road, generally assumed to have followed an aboriginal trail, skirted this area, crossing the run further to the north in the present-day Hanover Street area.

Significant modification of this landscape began in the 1730s through the efforts of Isaac Harrow. The construction of the plating mill on the left bank of the run near the base of the bluff was probably accompanied by quarrying of the exposed rock, and by some containment of the stream, although only very slight evidence for the latter was observed. Documentary references indicate that Harrow created a millpond on the blufstop to provide a head of water for the plating mill. No archaeological remains of a milldam were observed, however, and it is assumed all trace of this feature has been removed by later land use. The dam likely ran east–west on the rim of the bluff and may also have served to carry the lane which ran through the Harrow/Yard property from West (Barrack) Street down to the ford, landing and fishery on the bank of the Delaware River (see above, e.g., Figure 3.10).

This first industrial landscape fell victim to the Revolutionary War and its aftermath. The plating mill was thoroughly slighted by the Continental Army in the fall of 1777 to prevent its capture by the British as they advanced up the Delaware on Philadelphia. Its minimal archaeological remains tend to support Benjamin Yard’s claim that it was “destroyed.” The steel furnace was active, like the plating mill, in the early war years, but seems to have been shut down for much of the hostilities. It was revived in 1781 by local businessman Stacy Potts and struggled on for a few years, only to be brought down by a flurry of lawsuits and the post-war influx of cheaper, better quality English steel. The ruins of the steel works remained visible in some form for more than two decades, lying alongside the western extension of Front Street, which was laid out in 1792-93, crossing Petty’s Run on a fine stone-arched bridge. This roadway symboli-
cally bisected the barracks in order to open another route from the center of Trenton to the State House lot, the newly established seat of New Jersey’s state government. This piece of urban infrastructure may be viewed as a manipulation of space that expresses power relations on a national, even international, political stage. This type of human imprint on the cultural landscape is not unlike that seen in the town plans and gardens of the Chesapeake (Leone 1994; Shackel 1994).

Second (State) Street, to the north of the Petty’s Run site, had been extended to the west over the run a decade earlier in 1782, probably indicating that the millpond was no longer functional at this time. This street opened up the land west of Petty’s Run to subdivision and residential development, and the new roadway also came to define the northern edge of the State House lot. Homes were built on the north side of this street, west of the run, beginning in the early 1780s, but it was not until the first decade of the 19th century that new houses were erected on the south side to the east of the State House. Development of this southern frontage was relatively upscale with the wealthy, politically well-connected Rhea, Wall, Ewing and Wood families playing an important role during the first half of the 19th century. As the century wore on, the northern section of the Petty’s Run site experienced increasingly intense residential development and redevelopment to the point where the frontage between the State House and Barrack Street was entirely built-up by the Civil War era.

The southern part of the Petty’s Run site remained industrial for most of the 19th century, despite the proximity of the seat of state government and of residences of prominent individuals influential in business and politics. This apparent lack of concern with a variety of land uses mingling cheek by jowl in the downtown is a common feature of American cities before the late 19th century. A key factor in the continuing industrial land use was the more organized harnessing of waterpower along Petty’s Run, which involved the progressive channelizing of the creek on either side of Second (State) Street between roughly 1790 and 1815. The construction in the early 1830s of the Delaware and Raritan Feeder Canal and the canal of the Trenton Delaware Falls Company (the forerunner of the Trenton Water Power) further altered the industrial landscape. All of this hydro-engineering work facilitated the establishment of new water-powered mills along Petty’s Run. Between Second and Front streets, Josiah Fithian built his cotton mill in 1813-14, although this venture soon ran afoul of the uncertain economic climate surrounding the War of 1812 and the domestic textile industry. A more successful paper mill, set up by the prominent Trenton lawyer and politician Garret D. Wall, operated on this site from the late 1820s into the mid-1870s.

This second-phase industrial landscape along the north side of West Front Street was erased in a few short years between 1874 and 1877 and transformed into a residential one dominated by middle and lower class row homes. At the same time, the section of Petty’s Run between West State Street and the Delaware River disappeared from view under its culvert, the new housing, and several feet of fill. The following two decades saw frequent adjustments to property boundaries and several efforts to contain the drainage and sewage in this increasingly densely populated part of the city. The West Front Street lots were in some instances extended northwards at the expense of the longer pre-existing West State Street properties, while at the same time various odd or awkward property-line configurations were eliminated or rationalized (see above, Figures 3.31-3.34 and 3.37-3.38). In the meantime, corrective drainage alterations were made on the 124 and 126 West Front Street properties on either side of the run, while in the immediately surrounding area the first elements of the city-wide sewerage and storm drain system were installed. The
overall impression over the course of the final quarter of the 19th century is one of local residents and city government imposing increasing urban orderliness.

The residential character of the block bounded by West State, Barrack, West Front and Delaware streets and the predominantly industrial properties to the south were soon to be obliterated, however, by a major landscaping endeavor inspired in part by the “City Beautiful” movement (Rose 1996). The creation of a small area of parkland to the rear of the State House in the 1890s stimulated the development of far more ambitious plans extending both upstream and downstream along the banks of the Delaware. In 1913-14 the buildings along West Front Street were torn down, the street itself was abandoned and the Old Barracks was once again made whole in a burst of Colonial Revivalism. The topography of the area between the State House and the Old Barracks was drastically modified by the placement of deep fill south of the bluff. This greatly reduced the gradient, and effectively obscured all trace of Petty’s Run. A final episode of park construction in the 1922 removed a series of houses along West State Street and placed a final fill layer on the northern portion of the site. Mahlon Stacy Park, with its underlying philosophy of social harmony and civic virtue being fostered by aesthetically pleasing architecture and landscaping, was culturally a far cry from the multi-functioned and haphazardly planned urban space of the preceding decades.

B. THE FOUNDING MILL SEAT

Isaac Harrow’s ironworks, the first in the succession of water-powered milling operations at the Petty’s Run Archaeological Site, is thinly represented in both the documentary and archaeological records. From the archival sources may be gained some fascinating glimpses of what must have been a significant industrial and business investment in the fledgling “Trent’s Town” of the early 1730s. A newspaper advertisement of 1734 provides a sense of Harrow’s products, which included several classes of manufactured plate metal goods intended for both local and regional markets (Figure 4.1). An inventory of Harrow’s estate, following his death in early 1741, reveals him as a well-to-do blacksmith and iron merchant, and gives some useful clues to the equipment and materials at the works (Appendix B.1). A smattering of references in deeds and other primary sources throws valuable light on the locations of buildings and the layout of the site.

Benjamin Yard’s more than six-decade-long tenure of the plating mill property is minimally documented in the land records; his ironworking operations on the site apparently only lasted for roughly half that period and did not continue beyond the early years of the Revolutionary War. The continuing existence of the plating mill during the Yard tenure was reported in the inventory of colonial metalworking facilities compiled by Governor Jonathan Belcher in response to the Iron Act of 1750, which sought to contain the spread of American manufacture of finished iron and steel goods, thereby protecting the British metalworking industry. The British government permitted the plating mill to stay in production and the facility is thought to have operated in close concert with the nearby steel furnace in the years leading up to the American Revolution. The neighboring barracks, from the time of their construction in 1758-59 until the outbreak of the war, was likely a valued client.

In 1776, Yard’s services were retained by the local militia and probably also by the Continental Army, and the plating mill was busy making and repairing small arms in the months prior to the tide-turning battles of Trenton and Princeton. No clear evidence has been found for the mill continuing in operation after the battles, although this may have occurred. The disabling of the works by American troops in September 1777 (to prevent their take-over by British forces then advancing up the Delaware River) more
certainly spelled the end of smithing activities at the site. There is no indication of ironworking taking place on the plating mill property from this date up until Yard’s death at the age of 90 in 1808.

The Harrow/Yard ironworks is historically important as the first plating and blade mill to be established in New Jersey and was one of the earliest facilities of this type in the Middle Atlantic region. In 1750, following the directive of the Iron Act, it was one of only 14 such sites formally reported in the American colonies, and the only one in New Jersey. The mill may have initially processed iron supplied by the early Trent/Morris forge on the nearby Assunpink Creek, but it soon came to rely chiefly on the bar iron production of the many forges ranged along the tributaries of the Upper Delaware, especially those in the Musconetcong Valley. Iron was shipped downstream to the falls of the Delaware, offloaded on the river bank at the Harrow/Yard works, processed into variety of tools and plate metal products, which were then sold locally or transported to Philadelphia and other urban markets by river or road. In this manner, the ironworks was a classic example of economic geography, where a “break-in-bulk” point in the landscape (i.e., the falls) provided an opportunity to add value to a commodity (in this case, semi-processed iron and, increasingly, steel).

It is unfortunate that so little of the structure of the plating mill physically remained in place. The Continental Army did its work only too well in 1777 and the subsequent channelization of the run and construction of the Fithian cotton mill in 1813-14 further depleted the site. Within the limits of the excavation, the lowest courses of the massive foundations of the west and south walls, and a possible fragment of a hydrosystem feature on its west side, are the only archaeological components that can be confidently ascribed to this building. There is a possibility that other limited remains of the plating mill and its associated buildings may survive at a considerable depth immediately to the east of the excavation area beneath the alley between the Old Barracks and Thomas Edison State College and along the southernmost edge of the college property. Such remains will have suffered loss of integrity as a result of later land use change and will be extremely difficult to observe and document.

From the combined documentary and archaeological record one may venture some general observations about the overall layout of the plating mill property and the appearance of its main structural components (Figure 8.1). First the Harrows and then the Yards lived in a two-section dwelling at the corner of West (Barrack) and Second (West State) streets across from the ironworking complex. The shop or store itemized in the inventory of Isaac Harrow’s estate may also have been located on the house lot. The ironworks comprised at the very least a plating mill, workshop, blade mill and coal house. Mentions of a forge and smithy are probably duplicate references to the workshop or plating mill. The plating mill, workshop and blade mill may have occupied separate one-story buildings, but because they were all ultimately drawing on the same waterpower source, it is perhaps more likely that they were housed within a single structure. A suitable parallel for such an arrangement may be seen in the restored 17th-century ironworks at Wortley Top Forge near Barnsley in South Yorkshire, England (Photograph 8.1). The coal house, used for storing wood charcoal for the forge fires, is thought to have been a separate single-story structure, perhaps situated between the mill and the lane leading west into the mill yard from West Street. The coal house was almost certainly positioned close to the mill, so that workers had easy access to the fuel supply. A fitting parallel may be seen here in the adjacency of the coal house and forge at Andover Forge on the Musconetcong River (Hickey et al. 2013). All of these industrial buildings at the Harrow/Yard ironworks were probably of masonry construction, making use of rough dressed blocks of gneiss quarried nearby.
Figure 8.1. Conjectural Oblique View of the Harrow/Yard Plating Mill and Trenton Steel Works Looking South Southeast, *circa* 1765.
Little can be said with certainty about the configuration of the hydropower system. It is clear from the documents that the plating mill drew water from a millpond, but how many and what types of water-wheels were employed is open to question. The site topography suggests that the facility would have been equipped with overshot or possibly breast wheel[s]. The most likely waterwheel location would have been on the west (Petty’s Run) side of the plating mill, but raceways could also have been configured to bring water to wheels positioned against the north, east or even south sides of the building.

The inventory of Isaac Harrow’s estate compiled in early 1741 and later sale advertisements indicate that the works made use of a trip-hammer, two pairs of bellows and at least four grindstones, all of which could have been water-powered (in fact, the trip-hammer and grindstones were definitely driven by water). While it is not impossible that all the water-powered devices were driven by a single waterwheel, it is also feasible that multiple raceways and two or more wheels were involved. For comparable mill and forge layouts, the reader is referred to the mid-17th-century Saugus Ironworks in Massachusetts (Hartley 1957) and the plans and specifications drawn up in the mid-18th century by noted English engineer John Smeaton for state-of-the-art facilities like Kilnhurst Forge near Rotherham, South Yorkshire (Smeaton 1765).

A plausible, conjectural arrangement of the Harrow/Yard ironworks, with the plating mill, workshop and blade mill under one roof, might be as follows. The plating mill operation, as the heaviest energy user, was perhaps located at the western end of the building, close to the waterwheel and main power source, with a trip-hammer (also sometimes referred to as a tilt or helve hammer) being alternately lifted and dropped on to iron bars by cams rotating on the main drive shaft (Figure 8.2). A forge hearth with a water-powered bellows and a nearby anvil may have occupied the same work space allowing the trip-hammered plate metal to undergo further manual processing and the welding of steel edging on to the wrought iron. An adjoining work space to the east, perhaps in the center section of the building, contained the workshop with another forge hearth, water-powered bellows and anvil. Here the bulk of the plate metal products would have been fabricated. Finally, at the eastern end of the building, there was the blade mill with a series of water-driven grindstones, probably set on edge, used for sharpening products such as axes, knives, shovels and spades.

C. THE STEEL EXPERIMENT

The spirit of innovative investment, reflected in Isaac Harrow’s establishment of the plating mill, resurfaced a dozen years or so later. Benjamin Yard was clearly very familiar with Harrow’s ironworks before he acquired the plating mill property in 1745 (he may even have worked there), but at some point he must have come to see the potential advantage of investing in a related but much higher-risk operation: the manufacture of steel. Precious little is known how Yard came to this decision and many questions remain. How much, for example, did he know about the technology of steel production? Where did he acquire his steelmaking knowledge? How did he come to the conclusion that this was a viable project, given both the mercantilist realities of the British Empire, and his likely understanding of the difficulties of using American iron of uncertain quality (as opposed to high-grade Swedish iron) for steelmaking? Did he have investment partners for the significant capital outlay that the construction of a steel furnace required? Did he bring metalworkers experienced in the art of steelmaking to Trenton from elsewhere? If he did, the most likely source of this expertise would have been Philadelphia, but given what is known about the transfer of technology and the movement of individuals between Britain and the colonies in the mid-18th century it is at least possible that he had transatlantic advice and/or expertise. This latter topic
Figure 8.2. Diderot, Denis. Interior View of a Forge Showing Bar Iron Being Pounded into Plate Metal Using a Trip-Hammer. 1765. Source: Gillispie 1959:Plate 97.
is a potentially fruitful area for further research on the broader subject of American colonial steel manufacture.

Benjamin Yard had his steel furnace up and running prior to 1750, although in this year, according to the inventory of New Jersey metalworking operations compiled in accordance with the Iron Act, the steelworks was “not now used.” This perhaps lends weight to the idea that steelmaking in Trenton at this time was an intermittent and risky enterprise. In fact, no documentary evidence has been found for the steel furnace being in production between 1750 and 1762, the year in which Yard sold the facility to a pair of prominent young Philadelphia Quaker merchants, Owen Biddle and Timothy Matlack. Biddle and Matlack may well have rebuilt the furnace, since the furnace house was referred to as being “almost new” in 1765 when Biddle put his half share in the half-acre property up for sale. Biddle and Matlack’s interest in the steelworks is likely to have been predominantly mercantile, although Biddle, as a trained clock and watchmaker, surveyor and founding member of the American Philosophical Society, will have had a craftsman’s appreciation for the qualities of steel as a material for metal fabrication.

From the time of the Biddle and Matlack purchase in 1762 up until Revolutionary War, the Trenton Steel Works enjoyed a somewhat checkered history, occasionally in production and periodically up for sale, but throughout this period the facility continued under the control of wealthy Philadelphians seeking to capitalize on the growing market for this highly valued commodity. The steelworks owners hired a succession of ironmasters and smiths to make the steel, but there are clear signs in the documentary record that the quality of the product left something to be desired, despite the upbeat sales advertisements in Philadelphia and New York newspapers. By 1770 the works was wholly owned by John Pemberton, reputedly one of the wealthiest men in Philadelphia.

A Quaker and loyalist sympathizer, Pemberton curiously did not seem to have raised any objections to the furnace producing steel for the Continental Army in 1776. The steelworks was shut down for much of the war, apparently from around the time of the Battles of Trenton up until 1781 when the facility was revived with limited success for another two or three years by the Trenton-based firm of Potts & Downing. The facility finally ceased to make steel in late 1783 or early 1784 (see below).

Over the course of its almost four-decade-long history the operation of the Trenton Steel Works involved a varied cast of characters: an adventurous local blacksmith (Benjamin Yard); a pair of progressive-minded Philadelphia merchants, one of them a craftsman-scientist (Owen Biddle) and the other a political activist best known for elegantly copying Thomas Jefferson’s draft text of the Declaration of Independence (Timothy Matlack); other prominent Philadelphia Quaker merchants (Joseph Fox, Judah Foulke, John Pemberton, White Matlack); a leading Philadelphia steelmaker and engineer, who behaved in Trenton with somewhat questionable honesty (John Nancarrow); and one of Trenton’s most revered citizens during and after the Revolution (Stacy Potts). All told, the history of the Trenton Steel Works and its owners and operators offers a graphic demonstration of the still small-scale and highly interconnected character of late 18th-century New Jersey and Delaware Valley society and its entanglements with the major political and economic developments of the time.

As with the Harrow/Yard plating mill, the Trenton Steel Works drew on raw and semi-processed materials from the surrounding area. Wrought iron for conversion in the steel furnace was again shipped in from the New Jersey Highlands, primarily from the numerous forges along the Musconetcong River that were working Andover pig iron into bars. Andover ore was acknowledged throughout the region as the best iron source material for steel production. The
Trenton Steel Works had a close relationship in its later years with Mark Thomson’s Changewater forge on the Musconetcong, although several other facilities, such as Andover forge (at present-day Waterloo), Bloomsbury forge, the Union Ironworks and Durham may well have supplied the furnace with bar iron. Charcoal, the other main ingredient in the cementation steelmaking process, was likely brought in from closer by, from kilns in Hunterdon and Burlington Counties and from across the Delaware in Bucks County. No references have been found to a coal house on the half-acre steelworks property. Perhaps arrangements were made to store charcoal in the coal house on Benjamin Yard’s neighboring plating mill property after the steelworks lot was created in 1762.

Newspaper advertisements indicate that Trenton bluster steel was marketed and sold in several urban centers in the Middle Atlantic and New England. The bulk of the finished product appears to have been dispatched to merchants in Philadelphia and New York, although one assumes many batches were also sold locally in Trenton, Burlington, New Brunswick and other nearby towns. In the 1770s, some not very successful efforts were made to market Trenton steel in Salem, Massachusetts, while in the early 1780s consignments were being offered for sale in Baltimore. During the Revolutionary War, Trenton steel found its way to Continental Army armories in Albany and probably also to workshops under the control of the Military Supplies Department (although it has proved difficult to determine how much steel, if any, was actually delivered by Potts & Downing). Shortly before the Treaty of Paris concluded Anglo-American hostilities in 1783, Potts & Downing shipped a sample of Trenton steel to England, apparently with a view to developing some postwar export trade, but nothing ever came of this.

The archaeological remains of the Trenton Steel Works are more coherent and better preserved than those of the plating mill (Figure 8.1). Enough of the footprint of the furnace house has survived, and is now preserved, to allow for the recognition of the 30 by 34-foot stone building noted in Owen Biddle’s sale advertisement of 1765. The rough-dressed gneiss foundations of this structure are bonded with a distinctive orange-yellow sandy lime mortar that differs markedly from that used for the many other later walls on the site. Within the furnace house a roughly ten-foot-square masonry pad, the base of the furnace stack, survives substantially in the northeast quadrant of the building and is now protected beneath a plate glass panel. A wealth of furnace-related materials was recovered from demolition deposits immediately outside the southwestern corner of the furnace house – firebrick, gneiss and steatite, all showing evidence of exposure to extreme heat; fragments of cast-iron fire grate bars; and numerous amorphous pieces of metal, slag and metal-encrusted rock.

In their complete form, the furnace house and furnace, the core of the facility, are likely to have resembled other 18th-century steel manufacturing facilities found in Europe, especially in Britain, most notably in the Derwent Valley/Newcastle area of northeastern England and in the Sheffield area of South Yorkshire. The Blackhall Mill steel furnace in the Derwent Valley, for example, operated in the mid-18th century by German steel master William Bertram, offers a particularly useful parallel. Visited and sketched in 1754 by the Swedish engineer and industrial spy Reinhold Rücker Angerstein, the Blackhall Mill steelworks consisted of a simple one-story building with a furnace stack rising through the gable roof from within, much as suggested by the remains of the Trenton works (Figure 8.3) (Berg and Berg 2001:267-272). A steel furnace, possibly a different structure altogether, still survived at Blackhall Mill in the early 20th century when a furnace stack was photographed attached to the exterior of the furnace house (Photograph 8.2) (Cranstone 1997:113). The recently restored steel furnace at Derwentcote, a short distance downstream and across the river from Blackhall Mill, is also instruc-
Figure 8.3. Angerstein, R.R. Sketches of the Blackhall Mill Steel Furnace. 1754. Source: Berg and Berg 2001:272.
tive, showing a heavily buttressed furnace stack sandwiched between two buildings that likely served as workshops (Photograph 8.3). Both the Derwentcote and Blackhall Mill steelworking operations were considerably larger than the Trenton facility; they are referenced here primarily to give a sense of the overall appearance of the structures that would have stood next to Petty’s Run. Readers are also referred to a recent overview of the rapidly evolving state of late 18th-century British steelmaking for a clearer sense of the broader context within which Trenton steel was being produced (Evans and Withey 2012).

Turning more specifically to the furnace itself, the solid masonry pad within the furnace house at the Trenton Steel Works can be convincingly reconstructed as belonging to a modest-sized cementation furnace containing a single chest oriented east-west. The footings and exterior of the furnace stack appear to have been built of stone and would have been lined on the interior with firebrick. Inside the vaulted structure, the furnace floor, walls and flues would also have been constructed of firebrick. The cementation chest was probably built of firebrick, but the recovery of dressed steatite blocks from the site raises the possibility that this heat-radiating material may have been used.

In terms of overall dimensions, the furnace structure was roughly ten feet square and perhaps 18 to 20 feet high. It is estimated that the interior of the cementation chest might have measured around five feet in length and two feet across with a depth of around two to 2.5 feet. On this basis, the iron bars (and resultant blister steel) are unlikely to have exceeded four to 4.5 feet in length, and were probably two to three inches in width and perhaps 3/8 to half an inch thick. The furnace and chest dimensions are considerably smaller than those known for contemporary furnaces in the Derwent Valley/Newcastle area. The surviving Derwentcote furnace measures roughly 22.3 by 18.5 feet and rises to a height of almost 30 feet; its two chests each measured almost 12 feet in length, 2.5 feet in width and 3.5 feet in depth (Figure 8.4). The two chests at the neighboring Blackhall Mill furnace, as documented by Angerstein in the 1750s, were similarly much larger than that projected for the chest at the Trenton works: 11 feet long by 22 inches wide and 32 inches deep. With regard to capacity, the smaller single-chest Trenton furnace is thought to have produced roughly two tons of steel per heat; the double-chest Derwent Valley furnaces were turning out upwards of ten tons, or more than 2.5 times the Trenton output on a per-chest basis (Barraclough 1984:62, 67; Cranstone 1997:28, 29, 40; Berg and Berg 2001:271).

Another valuable source of comparative data for the Trenton steel furnace is Gabriel Jars, a French mining engineer who traveled widely in Europe in the late 1750s and 1760s, gathering information about metallurgical practices. In 1765 he visited both the Newcastle and Sheffield areas of northern England, documenting the steelmaking processes then in use. Jars produced scale drawings of several furnace types, including plans, cross sections and three-dimensional views. The Newcastle example, measuring roughly 21 by 17 feet in plan and more than 25 feet in height, is larger than the Trenton furnace, but otherwise provides a close parallel with its two chests centrally positioned over iron fire-grate bars (Figure 8.5). The Sheffield single-chest cementation furnaces, of which Jars shows several variations, were somewhat smaller (Figure 8.6). The drawings suggest they were around five feet in their longest dimension, i.e., roughly half the size of the Trenton furnace, although the accompanying text (see below) indicates they were larger than this.

Since Jars’ observations are especially pertinent to the interpretation of the archaeological remains of the Trenton Steel Works, the following excerpt, translated by historical metallurgist Kenneth Barraclough,
Figure 8.4. Plan and Cross-Sections of Derwentcote Steel Furnace. Source: Cranstone 1997:36 and 41.
Figure 8.5. Plans, Cross-Sections and Three-Dimensional View of a Steel Furnace in Newcastle. 1765. Source: Jars 1774:Planche VII and 359-361.
Figure 8.6. Plans, Cross-Sections and a Side View of Steel Furnaces in Sheffield, 1765. Source: Jars 1774: Planche VIII and 361-365.
PETTY’S RUN ARCHAEOLOGICAL SITE

is reproduced and gives a vivid sense of how the Sheffield single-chest cementation furnaces were built and operated:

In the town of Sheffield and its neighbourhood a large quantity of iron is converted into steel. Many of the furnaces used are similar to those at Newcastle but they are smaller and convert less iron in them at a time than the larger furnaces, which are much less common than the first, probably because these cost less to construct; they are made on the same principles.

The furnaces consist of a brick vault, about 12 ft long and 6 ft wide and 7 ft high in the middle. Some furnaces are larger or smaller. The iron fire grate on which the coal is placed is below ground under the middle of the vault. It is covered with large pieces of sandstone, resistant to fire, which form at the same time the bottom of the chest, pot or crucible which will contain the iron. On this base are built the sides of the crucible or chest with stone of the same kind as the base. Holes are made along the whole length of the grate which are made to come out inside the furnace between the sides of the chest and the vault. I judged that there were about six of the holes along each side so that the fire flames made at the grate were obliged to enter by these holes and envelop the whole of the chest, since the hearth and grate traversed the furnace for the whole length of the chest and flues were made each side. The flames finally debouched into the upper part in the middle of the vault where they went through a chimney flue.

They do not put more than 4 or 5 tons of iron at most into the furnace; a continual fire for five days is needed to convert the iron into steel.

The iron used is that from Sweden; it is known that no other is capable of making good steel. The iron is arranged in the chest with charcoal powder and the whole is covered with sand, as is the practice in Newcastle.

The cemented steel, which is also called blister steel, is taken to the hammer shop where the hammers are light and move very quickly .... The degree of heat given to the blister steel is a full cherry red; if it is too hot it will break in pieces. The hammer is worked very quickly so that the steel can be drawn at this heat without having to go twice into the fire. It is thus drawn into square rods of 4 to 5 lines to the side. It is not quenched into water. This steel is sold and used in this state for small articles (Barraclough 1984:213).

Consideration of the Newcastle and Sheffield cementation furnaces documented by Jars allows for a partial conjectural reconstruction of the steel furnace in Trenton (Figure 8.7). As the reconstruction shows, it is important to stress how little of the furnace structure actually survives at the Petty’s Run site – essentially, only the very base of the furnace was found intact, sliced off just above the floor level of the ash pit. While enough of the structure remains to indicate that a single cementation chest was centrally positioned along an east-west axis above the ash pit, there is unfortunately no way of knowing the design details of the flue system or stack.

The Sheffield connection is interesting for other reasons. Many of Trenton’s early settlers originally hailed from South Yorkshire and Nottinghamshire, from the villages around Sheffield and Chesterfield. Trenton’s founding settler, Mahlon Stacy, was a direct descendant of the Stacy family of Ballifield Hall near Handsworth, a few miles southeast of Sheffield. Interestingly, the Stacys rented out a steel cementation furnace at Ballifield that was in operation from around 1710 to 1765 (Barraclough 1984:74-75). Stacy Potts, the Trenton Steel Works’ final operator,
could also trace his lineage to the same Stacy family. Although no direct connection has yet been made between the Trenton Steel Works and the Ballifield furnace through Mahlon Stacy or Stacy Potts, it seems more than mere coincidence that some of the closest parallels to the Trenton furnace appear to lie in the Sheffield area. One wonders, for instance, if Benjamin Yard, the builder of the first furnace in the late 1740s, may have drawn on technological knowledge and steelmaking expertise transferred through Trenton families originating from the Sheffield area. Certainly, this is a topic for further investigation and carefully targeted transatlantic research may well find a firmer basis for this speculation.

The surviving steel furnace remains at Petty’s Run can only be securely dated to the 1780s and the structure probably underwent several rebuilding episodes prior to this time. Each firing of a cementation furnace typically took two to three weeks to complete, meaning that it would be difficult to undertake more than perhaps a dozen heats per year. The chests could only physically endure between 18 and 24 campaigns before they required replacing, while the furnace vaults and stacks also periodically required rebuilding (Cranstone 1997:4). Based on the archival record it is thought that the Trenton furnace was rebuilt at least twice (following the Biddle/Matlack purchase of 1762, and then again following Stacy Potts’s take-over of the site in 1781). There is a good possibility that the Potts furnace used the same footprint as the Biddle/Matlack furnace and may have re-used much of the latter’s basic structure (this is implied by the surviving presence of the 30 by 34-foot furnace house). It is less certain that Benjamin Yard’s steelworks made use of the same furnace house and furnace footprints, but it is important to note that no evidence was observed of other earlier furnace remains elsewhere on the site.

Beyond the conversion of bar iron to steel that was taking place in the cementation furnace inside the furnace house, there are other facets of the steelworks that remain open to question. Because of the positioning of the furnace house so close to the creek, it is speculated that a water-powered forge (with a bellows and perhaps a trip-hammer) may have been situated in the southeast corner of the building. There are documentary references to a smith’s shop with one fireplace being on the half-acre steelworks property in 1765 and to scythes and other articles being made and sold there at various times, which may lend support to this suggestion. Even though some secondary working of the steel was likely taking place across the run at the plating mill up until 1776, the impression left by the archival record is that, in its final Potts & Downing phase of operation in the early 1780s, all of the steelworks production activity was taking place on the steelworks lot. The plating mill, by this time, is thought to have ceased operation and been partially in ruins. Unfortunately, all archaeological traces of the southeast portion of the furnace house were obliterated by the construction of the 19th-century paper mill, so the waterpower question will never be resolved through excavation. The cementation process, incidentally, does not require the application of waterpower.

Despite the greater part of the half-acre steelworks lot being opened up to excavation, the archaeological investigations found no evidence for other buildings on the property aside from the furnace house. This raises questions about how and where the various raw materials and finished products were stored. Charcoal and cordwood will have needed to be kept dry and so may have been stockpiled in rented buildings on nearby adjoining land, perhaps on Benjamin Yard’s plating mill property. Incoming bar iron was perhaps stored outside, covered, in the yard, while steel and any fabricated goods most likely were kept inside the furnace house. The workforce, probably two or three men at most, will have lived off-site. There are references to a nearby house that seems to have been associated with the steelworks. This was built around 1773 for the ill-fated steel master John Zane and later
Figure 8.7. Conjectural Reconstruction of the Cementation Furnace at the Trenton Steel Works, circa 1765-85.
occupied by James Graham (possibly employed at the steelworks). It appears to have stood somewhere in the vicinity of the State House and was probably pulled down prior to the State House lot being developed in the early 1790s.

D. THE WAR YEARS AND THEIR AFTERMATH

Benjamin Yard as the owner of the plating mill and John Pemberton as the owner of the steelworks must have viewed the approach of the Revolutionary War with very mixed feelings. Quite apart from the conflicted loyalties with which many, particularly Quakers like Pemberton, had to contend, there were both opportunities and risks for those who owned or worked in these industrial facilities. On the one hand, there was a significant potential economic benefit in providing weapons and equipment to a military client. On the other, particularly as New Jersey quickly emerged as the “Cockpit of the Revolution,” there was the real danger that these valuable manufacturing operations could become targets as one side or the other increasingly sought to deprive its opponent of war-making capability in the drawn-out conflict.

Both of these scenarios played out on Petty’s Run. The plating mill and the steelworks both produced materiel for the patriot cause. Both apparently survived the ravages of the Hessians and British in the last weeks of 1776, since no war damage claims were filed in relation to those particular hostilities. The plating mill was, however, destroyed as a deliberate American policy decision in the fall of the following year. The British, who were imposing their grip over the Lower Delaware Valley and Philadelphia, might well have decided to re-occupy Trenton at this time, and the plating mill was evidently seen as too valuable a resource to be allowed to fall into their hands. The steelworks is not mentioned, the implication being that this more complex facility was not in a working state at this point.

With an eye to profit by reviving the manufacture of a much-prized material that was in short supply, the newly formed firm of Potts & Downing made serious commitments to produce steel for the American military in the final years of the war. This venture, started in the spring of 1781 when the price of steel reached new and extraordinary heights, soon foundered amid economic fluctuation, a dearth of hard cash, a chaotic supply network and shaky markets. The resumption of American imports of cheaper, better quality British steel was the final nail in the Trenton Steel Works’ coffin. Potts & Downing folded and Stacy Potts was all but ruined as a result of court actions brought against him by several creditors, most notably Mark Thomson (the owner of Changewater forge and a key bar iron supplier). Potts sold off many of his Trenton holdings and moved west to start over as one of the founders of Harrisburg, Pennsylvania, rebuilding his assets and reputation, and eventually returning to Trenton to serve as the city’s mayor. The uncertainties and hopes of the new nation are embodied in a remarkably vivid fashion by Stacy Potts and his changing fortunes and ambitions, many of which were intimately bound up with Trenton steel.

The archaeological investigations have shown that the steelworks enjoyed a brief new lease of life in the late 1780s or early 1790s as a redware pottery. Completely unanticipated by historical research, substantial quantities of pottery wasters and kiln furniture were found in amongst the demolition deposits to the southwest of the furnace house, underlying West Front Street. The steel furnace appears to have been repurposed as a pottery kiln, which perhaps involved the removal of the cementation chest to open up a kiln chamber within which pottery vessels could be stacked and fired. It is not known for sure who the potters were, but the strongest candidates by far are
members of the McCully family (John S. and his uncle, Joseph) who came to Trenton in the early 1780s and manufactured redware at a number of different locations close to Petty’s Run up until the late 1860s (Hunter Research, Inc. and the Potteries of Trenton Society 2013). Following the creation of West Front Street in 1792-93, portions of the Trenton Steel Works remained as ruins on the north side of this thoroughfare into the early years of the 19th century.

E. STATE GOVERNMENT CAMPUS

For a brief period, from the fall of 1783 through into the spring of 1785, there was a real possibility that Trenton would be selected as the site of the capital of the new republic of the United States of America. The favored location was the Lamberton riverfront (stretching roughly from Ferry Street south to Riverview Cemetery) and a flurry of land speculation ensued all along the left bank of the Delaware River in the Trenton area. It was during this period that Second (West State) Street was extended west across Petty’s Run and property along its course began to be subdivided for residential development. In the midst of this atmosphere of optimism, the Delaware Valley and Trenton lost out to the Potomac and Washington as the future site of the federal capital, but instead took on a new, lesser lease of life as the seat of New Jersey’s state government. Accordingly, a cluster of lots on the south side of Second Street, adjacent to and west of Petty’s Run, was acquired in early 1792 for the development of what became the New Jersey Capitol Complex. So came into being the State House Lot upon which the New Jersey State House was rapidly constructed and opened for legislative business on October 29 that same year.

With the opening of the State House, the impetus for residential development along Second Street continued, but the land along the Petty’s Run corridor, with its past industrial usage, was less conducive to new construction. The abandoned millpond, the ravine with its remnant hydropower features, the ruins of the plating mill, a steel furnace repurposed for pottery manufacture – these all likely served as obstacles to redevelopment and it took some three decades for this area to be fully reshaped. Another factor that almost certainly interfered with redevelopment along the run was the long-drawn-out legal dispute between Potts & Downing, the steelworks owners, and Mark Thomson, their bar iron supplier, over goods and services rendered during the war. Largely because of this entanglement, from the mid-1780s up until the end of the first decade of the 19th century the ownership of the steelworks property remained unclear and this circumstance may have prevented any significant changes in land use. Indeed, it was only in the years following the death of Thomson in 1803 that the steelworks property re-emerges as a recognizably owned piece of real estate and part of a larger landholding controlled by Jonathan Rhea, the Clerk of the New Jersey Supreme Court.

The first major new element in the landscape along Petty’s Run in the 1790s was the extension of West Front Street, punched unceremoniously yet tellingly through the old colonial barracks to provide another means of access from the downtown to the State House Lot. This roadway, established in 1792-93, redefined and expanded a critical portion of the city grid, and required the construction of a substantial stone bridge over the run at the foot of the “falls.” Even so, no buildings appear to have been erected along West Front Street between the barracks and the State House until the late 1820s.

Residential growth along the south side of Second Street was similarly sluggish. One house was built west of the run by Elias Howell sometime between 1800 and 1808, and another was in place before 1810 on the opposite east bank, apparently erected by Joseph Baker. Between 1808 and 1811, Jonathan Rhea constructed a substantial residence at the corner
of State (later Delaware) and Second streets directly across from his principal place of work, the offices of the Secretary of State and the Clerk of the Supreme Court in the northeast corner of the State House Lot. Rhea’s son-in-law, Garret D. Wall, who lived in this house for many years and also served as Clerk of the Supreme Court, would eventually emerge as the driving force behind the redevelopment of the Petty’s Run corridor between Second and West Front streets, but only after a short-lived and ill-fated attempt by Josiah Fithian to set up a cotton mill as a supplement to his cabinet-making business.

F. WATERPOWER REDUX

After the Revolutionary War, the portion of Petty’s Run behind the barracks was not used as a source of waterpower until at least 1809. By that year Josiah Fithian may have been drawing power from the run to operate machinery in his furniture manufactory on Second Street, although there is no conclusive documentary evidence of this actually happening. The site of Fithian’s cabinet shop lies just to the north of the excavation area on the west side of the run, fronting on to the south side of Second Street. The documentary record is somewhat more explicit, however, in showing that the run was becoming progressively channelized on both sides of Second Street, possibly beginning as early as 1790, and certainly by 1813, when Fithian set about erecting a cotton mill. This mill, apparently equipped with cotton picking and spinning machinery, was built on the site of the plating mill on the east side of the run. It was somewhat larger than the plating mill, measuring roughly 50 feet square externally, and the massive quoins of its southwest corner are incorporated into the stone side walls of the channelized run. While only the bottom-most courses of the cotton mill’s south wall and southwest corner survive today, its north wall and northeast corner (preserved beneath the southwest corner of the Thomas Edison State College campus) still stand to an extraordinary height of at least 12 feet. This curious present-day juxtaposition of industrial ruins has resulted from the cotton mill’s later incorporation into the Front Street paper mill followed by its final absorption into the late 19th-century urban residential landscape.

The Fithian cotton mill was one of three such mills established in Trenton early in the second decade of the 19th century, all founded in response to the nationwide call for expanded domestic textile production brought about by the British naval blockades of the War of 1812 (Hunter et al. 2009). The war soon ended with the signing of the Treaty of Ghent on Christmas Eve, 1814, and American textile mills fell victim to the vicissitudes of import tariffs and global economics. By 1816 the Fithian mill had ceased operation and Fithian himself was in considerable financial difficulty, soon thereafter departing the city. The mill building may have been used for storage and other non-milling purposes following its demise. When it was offered for sale in 1822 by Ellen Burrowes, one of Fithian’s creditors, it was suggested that the building could be converted into a pair of dwellings (foreshadowing a mill-to-residence transition that would take place a half century or so later). Instead, the cotton mill property came into the hands of Garret D. Wall and enjoyed one last round of water-powered industrial living as part of the Front Street paper mill complex.

The Front Street paper mill, established in the late 1820s, was a more durable enterprise, staying in operation for almost 50 years, producing newsprint and then, later on, paper bags and roofing paper. Wall, a well-connected and wealthy Trenton attorney and politician, supplied the initial capital and left the operation of the mill to local paper manufacturer, John Davisson. This pattern of separated ownership and operation continued from 1841 until 1855 under the partnership of Henry Welling, a physician,
and Joseph Brearley, a merchant (owners) and John Gummere and Henry Lewis (operators). From 1855 until 1866, Lewis was the sole operator, while Welling and Brearley retained ownership of the property; after this, both the ownership and operation of the mill were combined under Horatio G. Armstrong for the final decade of the mill’s existence. Despite its longevity, the mill had its ups and downs, most notably under Davisson and Lewis, while Armstrong, although responsible for upgrading the facility in the late 1860s, appears primarily to have presided over its fairly rapid decline and eventual replacement by row housing.

More generally, the Front Street paper mill may be seen as an early exponent of the water-powered industrial boom that Trenton experienced in the second quarter of the 19th century. Its construction, which is thought to have occurred around 1827, pre-dated the creation of the power canal of the Trenton Delaware Falls Company (later known as the Trenton Water Power) and the Delaware and Raritan Canal in 1831-34. The construction of the power canal, which crossed Petty’s Run downstream of West Front Street, had no direct effect on the mill’s hydrosystem. The building of the Delaware and Raritan Feeder Canal, however, which crossed the run roughly 1,600 feet upstream, interfered substantially with the water supply and hydropower of several mills and tanneries between Chauncey Street and West Front Street, necessitating agreements both between the industrial water users and the canal company, and among the industrial facilities themselves. Ultimately, the Feeder Canal appears to have helped stimulate industrial development along Petty’s Run and in the long term the paper mill likely received a more regular, predictable and measurable flow of water for its power generation and paper processing operations.

The archaeological excavations exposed substantial remains of the paper mill, sufficient to support a hypothetical reconstruction of the building (Figure 8.8). These remains conform reasonably well with the mill as depicted on mid- and late 19th-century maps and in the Whitefield view of 1851. The mill building had three principal components: a large, three-story, seven-bay brick main section and a one-story wheelhouse adjoining to the west, both fronting on to the north side of West Front Street; and a two-story, five-bay wing extending north from the rear of the main section along the east side of the run. This latter wing is identified as the former cotton mill, incorporated into the paper mill. It appears to have been mostly pulled down in the late 1860s, probably by Horatio Armstrong, and replaced by several other structures, one of which may have re-used portions of the old cotton mill’s walls.

The archaeological investigations focused much of their attention on the wheelhouse and the immense wheel/turbine pit set within the eastern end of this building. Excavation of the fill of the wheel/turbine pit and careful examination of its walls showed that the paper mill’s hydropower system had been reconfigured at least three times. As originally built, the mill is thought to have been powered by a large, 20-foot-diameter overshot or breast vertical water-wheel (probably constructed mostly of wood with some iron elements). Sometime prior to the mid-1860s this was replaced with a narrower waterwheel of similar diameter and construction, as shown by the west, south and east walls of the pit which were all sheathed in well-dressed brownstone blocks. Finally, in early March of 1866, the waterwheel was replaced with a Rider wheel (actually a turbine), which performed inadequately, breaking down twice within the space of nine weeks, leading to its replacement in early May with an “Ohio wheel” (probably a Leffel turbine). There is also documentary evidence that a second turbine was added in the late 1860s, possibly in the main channel of Petty’s Run within the western end of the main section of the paper mill (Figure 8.9).
Figure 8.8. Conjectural Oblique View of the Front Street Paper Mill Looking South Southeast, circa 1850.
Figure 8.9. Conjectural Reconstruction of the Front Street Paper Mill Wheel/Turbine Pit with Penstock and Turbine in 1866.
The transition of the paper mill’s hydropower system from waterwheel to turbine is exceptionally interesting, since it was beset by problems and led to a contentious court case in 1869 between the mill owner, Horatio G. Armstrong, and his neighbor, the millwright Edmund Craft, who removed the overshot wheel and installed the first, short-lived turbine. The newspaper reports of the court’s proceedings narrate a compelling story of technological improvement, somewhat clumsily applied, and provide much useful information about the use of waterpower along Petty’s Run at a time when the stream was clearly struggling to support the growing demand of local industry for reliable and expanded sources of energy and water supply.

No actual traces of waterwheels or turbines survived, but much of the base of the wooden penstock and the setting for the turbine still remained in place. The archaeological evidence, in fact, bore out some of the key points of the court proceedings of 1869, showing that the penstock design had been modified to be narrower at the base, and confirming that the first turbine, the Rider wheel, was four-and-a-half feet in diameter. The hypothesized type and size of the earlier waterwheels is based on the wheel pit dimensions, the positioning of the wheel bearing slots and the overall site topography. The technological progression through two waterwheels to a hydraulic turbine represents a fine demonstration of hydropower development as it typically applied to mid-19th-century American urban watermills, yet with an unusual Trenton twist (Hunter 1979:292-342). Unfortunately, physical remains of other aspects of the paper mill’s hydropower system (e.g., the headrace and the second turbine) were almost entirely absent in the area excavated. Similarly, there were no remains of the installations that transmitted the power from the wheels and turbines to the paper-making machinery, or of the machinery itself.

G. TOWN HOUSE AND ROW HOUSE

The study of consumer behavior has been a major theme in American urban archaeology for several decades (Spencer-Wood 1987; Mullins 2011). Closely linked to this theme, chiefly through the shared data provided by the sometimes overwhelmingly large artifact assemblages from urban sites, have been investigations of race, ethnicity, sex and gender in American cities, especially in the 19th century (see Orser 2004, Chapter 10, for a recent survey).

There was some prospect that the Petty’s Run Archaeological Site would contribute to some or all of these research themes. The rear yards of the developing West State Street properties extended into the site during the first half of the 19th century, and for almost 40 years from the mid-1870s onward much of the area was occupied by the houses and backyards of residential properties along West Front Street. There was therefore the possibility of recovering substantial quantities of artifacts from both yard and shaft deposits, particularly the fill of privies and wells. The contrast between the more upscale West State Street town-house properties and the less affluent West Front Street row houses, so apparent in the documentary, cartographic and photographic record, also suggested that material culture studies of the properties might be informative.

These expectations were not realized. The few shaft features which were located did not contain the anticipated large artifact collections. Those on the West State Street properties had been cleaned out prior to their final sealing with clean fill in the early 20th century, while the West Front Street shaft features were filled chiefly with ash and lime. The backyards of several of the properties fronting on to both West State and West Front streets did, however, retain their well-ordered brick walkways, which defined gardens and other features. This, plus the absence of sheet middens, and the observed evidence for the introduction
of mains sewerage and internal plumbing, combined to suggest cultural attitudes that placed an emphasis on order and tidiness, even in less wealthier households. Municipally organized garbage collection in Trenton dates from 1884 when the first ordinance aimed at controlling this aspect of urban living was enacted (Daniels 1938). From this point onwards, and especially after 1901 when the first crematory furnaces became operational in the city, little may be gained from archaeological analysis of residential waste deposits.

These data stand in contrast to the evidence from the house structures themselves. Although the facades of the row homes along West Front Street appear well-formed in historic photographs, their archaeological underpinnings revealed a different story. Perched, in places unconformably, on the foundations of earlier structures, and in one case supported on arches spanning the remains of an abandoned waterpower feature, these houses were poorly built using a combination of re-used and new materials. In contrast to the substantial paper mill walling, these row house walls proved fragile and unstable when exposed through archaeological excavation. Damp and drainage were clearly a chronic problem in the houses built over Petty’s Run and the paper mill’s wheel/turbine pit. These West Front Street homes were probably not especially desirable residences, despite their proximity to the State House and to the better quality houses on West State Street.

H. PARK AND PARKING LOT

The transformation of the heavily urbanized area around the New Jersey State House into Mahlon Stacy Park in the early years of the 20th century had dramatic implications for the landscape along Petty’s Run. It was almost as if the land surrounding the State House was wiped clean with an enormous City Beautiful cloth and planted anew with trees, shrubs, flowerbeds and lawns, removing all surface traces of the area’s 18th- and 19th-century industrial and residential history. In 1913-15, the terrain to the east of the State House was entirely recreated: numerous buildings were torn down, with much of the demolition debris being removed off site; the Old Barracks were restored to roughly their original form, adopting a Colonial Revival aesthetic; the upper portion of Petty’s Run, upstream of West Front Street, remained buried and mostly untouched, but the downstream section was reconstructed and re-buried along a more direct course to the Delaware; and the Trenton Water Power was reborn as Sanhican Creek, a linear water feature befitting the new park-like setting. Immense quantities of fill were brought in and the irregular topography of demolished buildings and abandoned yards was smoothed over and graded to create a gentle slope from the rear line of those properties fronting on to West State Street down to the mouth of the Assunpink Creek.

In 1922, the buildings at 117-129 West State Street (odd numbers only) were torn down, more fill was brought in and the park was extended up to the south side of the street, giving the State House a little more breathing space. This essentially completed the northeastern portion of Mahlon Stacy Park. During the late 1920s and early 1930s the architectural and scenic splendor of the Capitol Complex peaked with the construction of the State House Annex and the War Memorial and the ongoing maintenance of the riverfront open space. Subsequent, post-World War II changes to the park landscape, especially to the east and south of the State House, were driven largely by the automobile and a desire for vehicular convenience. The so-called “East-West Highway” opened in 1955 and facilitated access into the Capitol Complex and the downtown, passing through Mahlon Stacy Park from Calhoun Street to the Assunpink with the War Memorial standing between the northbound and southbound lanes. Just over a decade later, this road was replaced by John Fitch Parkway, today’s
N.J. Route 29, which devoured still more of the park landscape. This highway had the additional capability of speeding through-traffic along the riverbank below the State House. Highway development was immediately accompanied by the conversion of adjoining parkland to surface parking, notably extending south and east from the State House to Route 29 and toward the Old Barracks and the War Memorial. All this was easily achieved fill deposits laid down for the park.

From the standpoint of archaeology, the park and parking lot phase of land use is of minimal research interest, except that the landscaping and highway construction materials brought in and placed around the periphery of the State House have served to preserve and protect cultural deposits along Petty’s Run. It is unlikely that other forms of 20th-century urban land use could ever have ensured so effectively the below-ground integrity of the remains uncovered by the archaeological explorations of 2008-09.
This chapter focuses primarily on the sequence of events over the past decade that led to the full discovery and eventual stabilization and display of the Petty’s Run Archaeological Site (Table 9.1). It is a tale with many twists and turns, at times infused with politics, fueled by media interest and for the most part followed supportively by Trentonians, other residents of the Delaware Valley, local preservationists, historians and archaeologists. It was not until the summer of 2012 that its future as a heritage tourism asset was truly secured, even as plans for the more ambitious Capital State Park project were placed on indefinite hold. The proposed Capital State Park surrounding the New Jersey State House, which figures prominently in this narrative, provides the broader context for this preservation effort.

A. CAPITAL STATE PARK DESIGN COMPETITION AND MASTER PLAN

On October 21, 2004, Governor James E. McGreevey, speaking at the overlook at the Great Falls of the Passaic River, announced the designation of three new state parks at historic destinations in Paterson, Trenton and River Edge. These three parks were intended to function as urban counterparts to their many rural equivalents in the New Jersey state park system. As Department of Environmental Commissioner Bradley Campbell said at the time of their designation, “New parks in these cities will be centerpieces of community renewal in areas that are under-served by our park system” (“Governor McGreevey announces designation of three new state parks” 2004).

The Paterson and Trenton state parks, following their designation, became the subject of national design competitions held in 2005-06, which led to the selection in each case of a winning design firm that then went on to complete a master plan. Paterson’s state park has since been subsumed within the Paterson Great Falls National Historical Park, which was formally authorized by President Obama on March 30, 2009 and is currently engaged in a management planning and design process controlled by the National Park Service. The Trenton state park, soon to be christened the Capital State Park, progressed from a master plan into a design phase in 2008-09 and it was this work that ultimately gave birth to the Petty’s Run Archaeological Site. The park at River Edge on the Hackensack River, now known as the Historic New Bridge Landing State Park, became the focus of a master plan prepared in 2010 by the Historic New Bridge Landing Park Commission. Detailed designs for this latter park have yet to be developed and it remains a loose agglomeration of historic resources.

Five finalists were shortlisted by the State of New Jersey for the design of the state park in Trenton. Following presentations and interviews in late May, 2006, the Philadelphia-based firm of Wallace, Roberts & Todd, LLC (WRT) was selected as the lead designer based on submission of a design vision of “re-Casting Trenton” (Figure 9.1). WRT foresaw four principal actions in recasting the city: reinforcing the capital core; reforming the civic realm at the waterfront; releasing the Assunpink; and reconnecting Trenton (Wallace Roberts & Todd, LLC 2006). While the city’s historic assets were certainly viewed as having a place in the overall park concept, the main design emphasis was on reviving the city’s relationship to its fundamental ecology and underlying environmental
Figure 9.1. Wallace Roberts & Todd’s Winning Concept for the Trenton Urban State Park Design Competition. Source: Wallace Roberts & Todd, LLC 2006.
<table>
<thead>
<tr>
<th>Work Phase</th>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td><strong>Design Competition</strong></td>
<td>October 21, 2004</td>
<td>State announces national design competition for new urban state park in Trenton</td>
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<td></td>
<td>October 21, 2005</td>
<td>Initial design competition submissions due</td>
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<td></td>
<td>December 19, 2005</td>
<td>State announces five design competition finalists for Trenton urban state park</td>
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<td>May, 2006</td>
<td>Wallace, Roberts &amp; Todd (WRT) submits design for “re-Casting Trenton”</td>
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<td></td>
<td>May 23, 2006</td>
<td>Interviews for five design competition finalists</td>
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<td></td>
<td>June, 2006</td>
<td>WRT selected as design competition winner</td>
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<tr>
<td><strong>Master Plan</strong></td>
<td>February, 2007</td>
<td>Hunter Research (HRI) retained as cultural resource consultant to WRT design team to assist in development of Trenton park master plan</td>
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<td></td>
<td>February 7-January, 2008</td>
<td>Park master plan development, meetings with steering committee, public meetings and design workshops</td>
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<td></td>
<td>March 27, 2007</td>
<td>WRT design team presentation to State Capitol Joint Management Commission (JMC)</td>
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<tr>
<td><strong>Archaeological Exploration, Phase IA and IB Design</strong></td>
<td>February,2008-June, 2009</td>
<td>HRI &amp; WRT negotiate scope and cost of Petty’s Run archaeological explorations with State</td>
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<td></td>
<td>April, 2008</td>
<td>HRI provides input and permitting assistance to WRT for parking lot demolition and Phase IA schematic and final design</td>
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<td>April 11, 2008</td>
<td>HRI executes agreement with WRT for cultural resource services</td>
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<td>April 30, 2008</td>
<td>Notice to proceed received for Petty’s Run archaeological explorations</td>
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<td>June, 2008</td>
<td>WRT submits plans for Phase IA parking lot demolition</td>
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<td>July 21, 2008</td>
<td>HRI begins first phase of archaeological explorations</td>
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<td>September 1, 2008</td>
<td><a href="http://www.pettysrun.org">www.pettysrun.org</a> web journal launched</td>
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<tr>
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<td>September 26, 2008</td>
<td>HRI completes first phase of archaeological explorations</td>
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<td>December, 2008</td>
<td>HRI submits status report at end of first phase of archaeological explorations</td>
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<td></td>
<td>November 18, 2008</td>
<td>S. Harris Ltd. complete plans and specifications for replacement of I-beams supporting culvert just downstream of manhole</td>
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<td></td>
<td>December 1, 2008</td>
<td>HRI begins second phase of archaeological explorations</td>
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<td>January 16, 2009</td>
<td>HRI suspends second phase of archaeological explorations owing to winter weather</td>
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<td>March 25, 2009</td>
<td>HRI submits status report and plans for completing second phase of archaeological explorations</td>
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<td>April 8, 2009</td>
<td>HRI submits revised status report and plans for completing second phase of archaeological explorations</td>
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<td>April 24, 2009</td>
<td>S.L. Spaulding completes replacement of I-beams supporting culvert just downstream of manhole</td>
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<td>April 27, 2009</td>
<td>HRI resumes second phase of archaeological explorations</td>
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<td>May, 2009</td>
<td>WRT submits final design documents for Phase IA</td>
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<td>July 31, 2009</td>
<td>HRI completes second phase of archaeological explorations</td>
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<td>August 7, 2009</td>
<td>HRI submits status report on archaeological explorations</td>
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<td><strong>Phase IA</strong></td>
<td>August 10, 2009</td>
<td>WRT submits proposal to State for completing Phase IB schematic design and continuation of Phase IA archaeology and IB design</td>
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<td>December 1, 2009</td>
<td>Amendment #3 to WRT/HRI agreement (covering additional archaeological work done in the spring and summer of 2009)</td>
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<td>December 1, 2009</td>
<td>Bids received by State for Phase IA construction</td>
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<td></td>
<td>January, 2010</td>
<td>Occidental Construction Co. selected as winning low bid</td>
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<td>April, 2010</td>
<td>HRI receives New Jersey Historic Preservation award for Petty’s Run public outreach</td>
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<td><strong>Reburial</strong></td>
<td>August, 2010</td>
<td>Completion of Phase IB schematic design</td>
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<td>November 30, 2010</td>
<td>Presentation to JMC/JMC votes to reburry Petty’s Run</td>
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<td>December 5, 2010</td>
<td>Trenton Times editorial “Reburying Treasure”</td>
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<td>December, 6, 2010</td>
<td>State issues scope of work for closure of Petty’s Run</td>
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<td>December 20, 2010</td>
<td>WRT submits proposal to State for closure of Petty’s Run</td>
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<td>December 24, 2010</td>
<td>Trenton Times opinion piece by Helen Shannon for the Trenton Historical Society “Use same resources to keep Petty’s Run dig site open”</td>
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<td></td>
<td>January 10, 2011</td>
<td>Assembly Bill 3699 introduced to prevent closure of Petty’s Run</td>
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<td>January 25, 2011</td>
<td>Trenton Times editorial “Recovery, not re-covering”</td>
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<td></td>
<td>January 31, 2011</td>
<td>Senate Bill 2667 introduced to prevent closure of Petty’s Run</td>
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<tr>
<td></td>
<td>February 8, 2011</td>
<td>WRT submits revised proposal to State for closure of Petty’s Run</td>
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<td>April, 2011</td>
<td>HRI submits protocol for consultation and monitoring during closure of Petty’s Run</td>
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<td>May 12, 2011</td>
<td>WRT submits final design documents for the closure of Petty’s Run</td>
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<td>June 6, 2011</td>
<td>Pre-bid meeting for closure of Petty’s Run</td>
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<td>June 10, 2011</td>
<td>Atlantic City Press editorial “Petty’s Run Site/Reburying History”</td>
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<td>June 28, 2011</td>
<td>Watson Contracting, Inc. selected as winning low bid for closure of Petty’s Run</td>
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<td><strong>Stabilization</strong></td>
<td>July 6, 2011</td>
<td>State issues scope of work to WRT for stabilization of Petty’s Run</td>
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<td>August 15, 2011</td>
<td>WRT submits schematic design documents for stabilization of Petty’s Run</td>
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<td>September 16, 2011</td>
<td>NJDEP news release announcing that the State and County have agreed to preserve the Petty’s Run site</td>
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<td>December 6, 2011</td>
<td>Amendment #3 to WRT/HRI agreement relating to stabilization of Petty’s Run</td>
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<td>January 29, 2012</td>
<td>Memorandum of Agreement between the State (DEP, JMC) and County signed</td>
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<td>March 26, 2012</td>
<td>WRT submits final design documents for stabilization of Petty’s Run</td>
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<td>May, 2012</td>
<td>State adversifies for bids for stabilization of Petty’s Run</td>
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<td>June 6, 2012</td>
<td>Mandatory pre-bid meeting</td>
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<td>June 26, 2012</td>
<td>Bids received for stabilization of Petty’s Run</td>
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<td>Pre-bid review interview and certification</td>
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<td>July, 2012</td>
<td>Merrell &amp; Garaguso awarded contract to stabilize Petty’s Run</td>
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<td>July 25, 2012</td>
<td>Project kick-off meeting</td>
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<td>July 12, May, 2013</td>
<td>Stabilization project implemented</td>
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<td>April 30, 2013</td>
<td>Project close-out/final walk through</td>
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<td>Official opening</td>
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systems, and in particular to its rivers and canals – the Delaware, the Assunpink, Petty’s Run, the Delaware and Raritan Canal and the Trenton Water Power. Reconnecting the city to the Delaware River waterfront in a park-like setting and reconfiguring N.J. Route 29 as a boulevard were essential elements of this design.

In the transition from winning design concept to master plan, the State of New Jersey stressed its interest in incorporating the city’s history and heritage more fully into the park design. It was at this juncture that Hunter Research, a Trenton-based cultural resources consulting firm with extensive knowledge of the city’s history, architecture and archaeology, was added to the design team. The Hunter Research offices were also conveniently located on West State Street overlooking the core of the park. The WRT master plan, released in January 2008, took full account of the many historic attributes of the New Jersey Capitol Complex, recognizing that the many layers of history and archaeology, above and below ground, could enhance the visitor experience and give coherence to cultural aspects of the design (Wallace Roberts & Todd, LLC 2008).

The Capital State Park master plan proposed implementing the revised, more history-based design concept in a series of four main phases spread over several years (Figure 9.2). Phase I was broken into three sub-phases. Phase IA would convert the zone of surface parking between the State House and the War Memorial into the State House Common, an area of open space with an expansive lawn, water features, native plant species and a performance plaza. Phase IB envisioned “a fully developed heritage node” along Petty’s Run between the State House and the Old Barracks, although the extent to which archaeology might inform this element of the park was unclear at the outset of the design process (see below). Phase IC focused on an outlying section of the park along the Assunpink Creek between South Broad and South Warren streets, where the design needed to be integrated with ongoing plans to “daylight” and restore the creek and rehabilitate the historic South Broad Street bridge.

Phase II of the master plan anticipated the reconfiguration and expansion of the existing Welcome Center, currently buried in the bowels of the State House and accessed primarily from the underground garage, into a full-blown visitors center serving all users of the Capitol Complex, both indoor and outdoor. Phase III proposed the creation of a sculpture garden on the roof of the underground garage, easily reachable from the new visitors center, the State Library, the State Museum and West State Street. Phase IV, comprising the most ambitious and challenging components of the park, was broken into four sub-phases, which would ultimately tie together the various elements of the park into a single whole. Contingent on a major realignment and reworking of the N.J. Route 29 highway corridor, Phase IV actions included the creation of a riverfront park extending along the Delaware waterfront from the Calhoun Street bridge to the Assunpink confluence and then up the Assunpink stream corridor to South Warren Street. This phase also envisaged a bio-canal, roughly along the line of the former Trenton Water Power, and redevelopment of the southeast angle of the Calhoun Street/West State Street intersection.

B. CAPITAL STATE PARK PHASE IA AND IB DESIGN

At the present time (the spring of 2014), the Capital State Park master plan remains largely unrealized, stalled owing to a shortage of funds, economic uncertainty and a lack of political interest within New Jersey state government. Nevertheless, between 2008 and 2010 under the Corzine administration, considerable work was performed on Phases 1A and 1B of the overall park design, beginning in the summer and fall
Figure 9.4. Views (Sheet L-505), Capital State Park Phase 1B: Petty’s Run, Schematic Design. Source: Wallace Roberts & Todd, LLC 2010.
Figure 9.5. Site Grading, Base Bid (Sheet C-101), Stabilization of Petty’s Run Excavation. Source: Wallace Roberts & Todd, LLC 2012.
Figure 9.6. Add Alternate 1 – Ruin Area, Enlargement Plan (Sheet L-401), Stabilization of Petty’s Run Excavation. Source: Wallace Roberts & Todd, LLC 2012.
of 2008 with the replacement of the surface parking to the south of the State House with a temporary lawn in advance of park construction. In the following year, schematic and final design plans and bid documents were completed for Phase IA and construction bids were received in December 2009. Although a winning low bid was accepted shortly afterward, Phase IA of the Capital State Park was placed on hold at the onset of the Christie administration in January 2010. Phase IB, as described below, was eventually implemented, although not exactly as originally envisioned. Phase IC has not been pursued as a park component in any sense, although the federal and city-sponsored environmental restoration of this segment of Assunpink Creek has inched toward completion of the design work. No further progress has been made on the design and implementation of Phases II, III or IV of the Capital State Park master plan. Planning for the boulevardization of N.J. Route 29, an essential prerequisite for much of the park, has been largely dormant since 2008-09.

The design work that took place for Phases IA and IB started at roughly the same time in early 2008. Largely on account of the role of archaeology in the design process, work on Phase IB proceeded at a much slower pace than that for Phase IA. A decade ago, the true character of the Petty’s Run site was not fully understood. While earlier excavations had hinted at the existence of substantial and well-preserved buried remains, their horizontal and vertical extent was poorly understood and there was little sense of how such remains might be incorporated into a park setting. The Phase IB schematic design thus included exploratory archaeological excavations that were intended to clarify the character of the remains and inform the design development for this portion of the park. An initial campaign of archaeological exploration, conducted between late July and late September 2008, exceeded all expectations in terms of the range and quality of the archaeological resources, raising all manner of design possibilities. This led to the mounting of a supplementary excavation effort that was commenced on December 1, 2008. Unfortunately, owing to the severity of winter weather, this work was suspended in mid-January 2009. Resumed in late April, the supplementary excavations were finally completed on July 31, 2009.

While Phase IA schematic and final design documents were under preparation during 2009, the Phase IB schematic design inched forward in concert with the unfolding archaeological discoveries. Several design concepts were entertained, mostly involving the display of preserved foundations, construction of new retaining walls, multiple walkways around and within the site, large bedrock exposures, the “daylighting” of a portion of the run and the reintroduction of water into the site as a means of demonstrating the use of waterpower. Over the winter of 2009-10, continuing into the spring and summer, the schematic design evolved into a plan whereby the roughly 100-foot square core of the site would be stabilized and opened up to view (Figures 9.3 and 9.4). Concrete retaining walls would define the perimeter of the site, supporting an upper walkway level, while a ramp and pathway would lead down into and circulate visitors through the ruins at a lower level. A large outcrop of bedrock was to be exposed in the northwest corner of the site and a segment of the arched culvert roof was to be removed allowing the bed of Petty’s Run to be visible. Installation of a reconstructed, functional waterwheel was planned for the paper mill wheel pit, the wheel being powered by water piped to the site from the Delaware and Raritan Feeder Canal. This scheme was finalized and presented to the State in August 2010 (Wallace Roberts & Todd, LLC 2010), by which time the archaeological site had lain abandoned and mostly exposed to the elements for more than a year. Critical components of the site, including the base of the steel furnace, were covered by protective tarpaulins, but many areas were by this time overrun with weeds.
At this critical juncture, with plans for the interpretive treatment of the Petty’s Run site fairly well advanced, concern began to be expressed about the potential cost of the project and the unruly appearance of the remains. While there was considerable interest in the local community and among historians and archaeologists in preserving and displaying the site, pressure built within state government and certain political quarters to return it to its pre-excavation condition of early 2008. The final decision concerning the treatment of the site ultimately lay with the State Capitol Joint Management Commission (JMC), a legislative body created in 1992, whose charge includes maintaining, monitoring and preserving “the architectural, historical, cultural and artistic integrity of any completed project for the restoration, preservation and improvement of the State capitol complex” and the safeguarding of “any related artifacts, documents and objects” (New Jersey Office of Legislative Services 2002). On November 30, 2010, following a brief presentation on the importance of the archaeological resource, the JMC voted 5 to 2 to rebury the Petty’s Run site and return it to a sloping lawn-like setting. Early the next month, the State’s Division of Property Management and Construction issued a scope of work for the closure of Petty’s Run. WRT submitted final design documents for this action in May, 2011, with provision being made that the archaeological remains be appropriately stabilized, protected and monitored during the re-interment process. The project was put out to bid and a contractor was selected to undertake the work in late June. At this juncture, for reasons outlined below, the reburial plans ground to a halt.

Concurrent with the move to rebury the site, a ground-swell of opposition developed within the local community and historical and archaeological organizations. Within a week of the JMC decision to re-inter the remains, the Trenton Times published an editorial titled “Reburying Treasure,” noting that the site had “very practical value … to the city in terms of tourism and economic development” and calling for the State “to take the long view, consider Trenton’s future and rethink their decision” to bury it (Trenton Times, December 5, 2010). Other letters of support for leaving the Petty’s Run site exposed to view appeared in the following months, while bills were introduced in the state legislature seeking to prevent its closure (Assembly Bill 3699 on January 10, 2011; Senate Bill 2667 on January 31, 2011).

In the late spring and early summer of 2011, as the construction documents for the reburial of the site neared completion, the State began to entertain other options. It gradually became clear that a scaled-down project that stabilized and displayed a smaller portion of the site was feasible and would not cost too much more than the reburial. A key turning point in the reversal of the State’s decision to rebury was the commitment of Mercer County to apply funding toward the stabilization and display option from its Open Space, Farmland Preservation and Historic Preservation Trust Fund. In the late summer and fall of 2012 Mercer County and the State of New Jersey negotiated and came to an agreement that the Petty’s Run site would be preserved and kept open to public view. This course of action was memorialized in a Memorandum of Agreement between the State’s Department of Environmental Protection, the JMC and the County of Mercer, finally signed on April 3, 2012, by which time design documents for the stabilization and display of the site had been submitted to the State by WRT.

C. STABILIZATION AND DISPLAY OF THE PETTY’S RUN ARCHAEOLOGICAL SITE

In early July of 2011 the WRT design team was asked by the State’s Division of Property Management and Construction and the Department of Environmental Protection to provide schematic designs for alternative solutions to filling in the Petty’s Run excavation site. The primary objective was to preserve the his-
toric ruins and keep them visible for public display. Other objectives were to stabilize the side slopes of the excavation area; stabilize the various foundations and historic features; and provide fencing, walkways, interpretive signage and security surveillance for the site. A schematic design document, containing both a “full access scheme” and a “partial access scheme,” was submitted to the State in mid-August 2011. The recommended plan, the full access scheme, centered on an outer walkway system that provided access completely around the core of the site, while also filling in large portions of the excavation around the site perimeter. A secondary, inner, encircling walkway allowed pedestrian access closer to the historic ruins. The partial access scheme broadly resembled the full access scheme but did not include the secondary walkway closer to the ruins.

Using the schematic design work as a basis for further development, the design team was authorized to proceed with preparing final design documents for stabilizing and displaying the site. Submitted to the State in late March 2012, the final design package sent out for bid in May was structured as a base work component involving the construction of the outer pathway system, a south retaining wall, the creation of a fenced-off area containing the ruins, the “daylighting” of a section of the run, masonry stabilization and reconstruction, site grading and drainage, landscaping and the installation of lighting, security cameras and interpretive signage (Figure 9.5). Bidders were also requested to offer on a series of “add-ons” or alternates, which included two different versions of the inner walkway, both requiring the construction of additional retaining walls, and other minor embellishments.

Bids were received on June 26, 2012 and within less than a month the firm of Merrell & Garaguso, Inc. was selected as the prime construction contractor. The State and Mercer County eventually settled on building the project as defined in the base bid modified to include Add Alternate 1, which entailed the construction of an additional north retaining wall to support the inner walkway that looped around the east and north (but not the west) sides of the ruins (Figure 9.6). This alternate enabled visitors to the site to get closer to the base of the cementation furnace and allowed for better placement of the interpretive sign (Sign #6) that addressed the history and archaeology of the Trenton Steel Works. It also provided better views of Petty’s Run itself and of the West Front Street bridge.

A project kick-off meeting was held on July 25, 2012 and the contractor mobilized shortly afterwards. Work started in the following month and continued through the spring of 2013. Merrell & Garaguso deployed a team of laborers with general construction and excavation skills, as well as drawing on the expertise of an excavation subcontractor, MECO Constructors, Inc., the masonry preservation skills of Preferred Masonry Restoration, Inc., and several other specialists. The entire stabilization and construction program was monitored on a daily basis by archaeologists from Hunter Research with periodic site inspections being undertaken by engineers from S. Harris, Ltd. and Sadat Associates and landscape architects from WRT. Owing to the uniqueness of the site and the complexity of the work being performed, an exceptionally high level of coordination was required between State and County officials, the WRT design team and the contractor, and on many occasions unforeseen and intricate difficulties arose that were only resolved through on-site deliberation and decision making. A substantial photo archive and extensive notes were compiled during the course of the project oversight from which this brief project narrative has been distilled.

At the onset of construction the appearance of the site was unkempt to say the least, having lain fallow for three years (Photograph 9.1). While key elements of the site, notably the foundations of the furnace, furnace house and paper mill, had been protected by tarpaulins for much of this period, weeds had sprouted
Photograph 9.1. View of the Petty’s Run Archaeological Site looking east from the roof of the New Jersey State House showing the condition of the site immediately prior to its stabilization and display. Note the base of the Trenton Steel Works cementation furnace covered by a tarpaulin and the extensive bedrock outcrops in the left center of the view (Photographer: Richard Hunter, August 2012) [HRI Neg. #11056/D2:006].
and sediments had accumulated in many areas. In addition, a large and sprawling pile of back dirt, representing roughly one half of the soils and rubble fill that had been excavated by the archaeological team, lay just to the south of the excavated area, similarly covered with weeds. An initial site-wide clearance of vegetation and loose rubble was therefore undertaken before the real work of stabilization and new construction could begin. Following this, much of the back-dirt pile was carefully redeposited and compacted in the northern and northeastern portions of the site where certain of the ruins were to be reburied rather than displayed.

In August and early September much of the focus of the work was on the culvert. Its sidewalls, which had numerous voids and loose stones, were sealed from inside the culvert with injected grouting. The long segment of the culvert, immediately downstream from the manhole, was to be reburied, but prior to this taking place, the exterior faces of the sidewalls were fully exposed and repointed (Photographs 9.2 and 9.3). Drainage from the upper portions of the site was also to be gathered and directed into this section of the culvert, which involved the insertion of PVC pipe through its brick-arched roof. The section of the culvert extending downstream from the segment being buried almost to the West Front Street bridge was next opened up to view, so that visitors would be able to gain a sense of the original run and its role in the landscape as a source of waterpower. The culvert roof was carefully removed with jackhammers, masonry drills and sledgehammers revealing a roughly 25-foot length of the stream corridor (Photographs 9.4-9.6).

Concurrent with the work on the culvert and the north retaining wall, historic masonry specialists were engaged in several parts of the site, repointing and in some cases partially reconstructing foundations and other masonry features (Photographs 9.10-9.12). Considerable effort was taken in distinguishing and matching the color and texture of the various mortars used in the different walls. For example, the 18th-century foundations of the steel works made use of a distinctive, coarse, orange-brown, sandy mortar, while the walls of the mid-19th-century paper mill and late 19th-century row housing were bonded with a finer grey matrix. In all, eight different mortar types were replicated for use in the masonry preservation work.

By the end of November, the site was beginning to take on a recognizable shape as a large, rectangular window framing a tight agglomeration of ruins (Photograph 9.13). The north retaining wall was nearing completion (Photograph 9.14), the footings were being laid for the south retaining wall, most of the masonry preservation work was finished, and considerable quantities of fill had been brought in and laid down across the northern end of the site, reburying much of the culvert. In December, the north and south retaining walls were both substantially completed,
Photograph 9.2. View looking northwest showing masonry restoration contractors preparing the culvert’s eastern side wall for repointing. By this time much of the excavated soil had been redeposited in the northern portion of the site on the far side of the culvert. Note the PVC drain inserted into the culvert roof, later connected to drain pipes collecting surface run-off (Photographer: Joshua Butchko, August 2012) [HRI Neg. #11056/D4:101].
Photograph 9.3. View looking southwest showing the repointing of the culvert’s eastern side wall in progress. The umbrella and sackcloth helped to slow down the drying of the mortar in the summer heat. Note the formwork for the north retaining wall being installed on the far side of the culvert and the PVC drains installed on either side of the culvert roof, later connected to drain pipes collecting surface run-off (Photographer: Joshua Butchko, August 2012) [HRI Neg. #11056/D4:101]. (Photographer: Joshua Butchko, September 2012) [HRI Neg. #11056/D6:003].
Photograph 9.4. View looking southwest showing contractors “daylighting” the section of the culvert immediately upstream of the West Front Street bridge (Photographer: James Lee, October 2012) [HRI Neg. #11056/D9:029].
Photograph 9.5. View looking north showing contractors removing a portion of the brick arched culvert roof (Photographer: Joshua Butchko, September 2012) [HRI Neg. #11056/D4:057].
Photograph 9.6. View looking north showing the northern end of the “daylit” section of culvert. Scales in feet and inches (Photographer: Joshua Butchko, September 2012) [HRI Neg. #11056/D4:123].
Photograph 9.7. View looking southwest showing the north retaining wall under construction. Note how the formwork and concrete has been fitted over the bedrock outcrop (Photographer: Joshua Butchko, September 2012) [HRI Neg. #11056/D6:016].
Photograph 9.8. View looking southwest showing the north retaining wall under construction and masonry restoration in progress in the area of the Front Street paper mill wheel pit (Photographer: Joshua Butchko, October 2012) [HRI Neg. #11056/D7:020].
Photograph 9.9. View of the Petty’s Run Archaeological Site looking east from the roof of the New Jersey State House showing the north retaining wall nearing completion and masonry restoration in progress in the Front Street paper mill wheel pit. Note that the base of the Trenton Steel Works cementation furnace is still covered by a tarpaulin and the bedrock outcrops in the northwest part of the site have been buried beneath fill (Photographer: James Lee, November 2012) [HRI Neg. #11056/D12:009].
Photograph 9.10. Considerable care was taken during the masonry restoration work to match the color and texture of new mortar (bottom) with that of original mortar (top). The original mortar sample shown here is from the 18th-century Trenton Steel Works foundations (Photographer: Joshua Butchko, September 2012) [HRI Neg. #11056/D6:029].
Photograph 9.11. View looking north showing restored masonry at the southwest corner of the main section of the Front Street paper mill. The paper mill wheel pit is at left (Photographer: Joshua Butchko, October 2012) [HRI Neg. #11056/D11:011].
Photograph 9.12. View looking south showing the reconstruction of the west wall of the Front Street paper mill wheel house in progress. This partially surviving foundation was one of the few walls subjected to reconstruction, primarily to aid in the interpretation of the site (Photographer: James Lee, October 2012) [HRI Neg. #11056/D9:017].
Photograph 9.13. View of the Petty’s Run Archaeological Site looking east from the roof of the New Jersey State House showing the north retaining wall nearing completion and the south retaining wall in the beginning stages on construction. Note the base of the Trenton Steel Works cementation furnace is still covered by a tarpaulin and the northern end of the restored culvert has been reburied (Photographer: Richard Hunter, November 2012) [HRI Neg. #11056/D15:036].
Photograph 9.14. View looking northeast showing concrete being poured for the walkway on top of the north retaining wall (Photographer: Richard Hunter, November 2012) [HRI Neg. #11056/D16:005].
their surfaces scored to display simple rectangular panels and rubbed for a dark grey finish (Photographs 9.15-9.17). Drains and fill were placed up against the north side of the north retaining wall; fill was likewise placed against the south side of the south retaining wall on top of which would soon be laid an asphalt walkway.

With both retaining walls in position and defining the limits of the displayed ruins, attention was next turned to the core of the site where several critical details were executed. Within the basement of 124 West Front Street, where the open culvert was now exposed, steel bracing was installed to stabilize its sidewalls and the overlying basement foundation (Photograph 9.18). Custom-made steel gates with grilles were set within the culvert upstream and downstream of the “daylit” segment to prevent unauthorized access between the ruins and the city’s storm water system and to trap debris in times of flood. A metal frame was installed over the historically most significant feature of the site, the platform-like base of the cementation furnace (Photographs 9.19-9.21). This frame held a two-panel plate glass cover, the goal being to both protect and maintain the visibility of the furnace remains. One of the main challenges in displaying and interpreting the core of the site was how to distinguish for visitors the different structures and building phases represented in the various ruined foundations. This was achieved by using black steel edging and three different colored grades of crushed stone to highlight the major building footprints (Photograph 9.22). A rusty, slag-like reddish-brown crushed stone, a matrix with a suitably industrial and ferrous appearance, was used to fill the footprint of the Trenton Steel Works furnace house, while a light-grey crushed stone was used for the Front Street paper mill. A darker shade of grey trap rock was used for the edges of the site outside the building footprints.

By mid-February, after contending with periods of difficult winter weather, the fundamentals of the stabilized and displayed site were largely finished (Photograph 9.23). The ruins in the core of the site were preserved and interpreted. The concrete inner walkway had been poured and fencing was in the process of being installed. The lighting and security cameras were in place and final grading was under way. In early April, asphalt pathways were put in (Photograph 9.24), after which topsoil and turf were laid, and historic interpretive signage was erected at key viewing points around the site (Photographs 9.25 and 9.26). Six interpretive signs were created for the site, two providing general historical and geographic context for the ruins and four addressing specific elements of its land use history in greater detail (Photographs 9.27 and 9.28) (Appendix I). The Petty’s Run Archaeological Site was formally opened to the public at a dedication ceremony held on a fine spring day on May 14, 2013 (Photograph 9.29) and has been receiving a steady stream of visitors ever since, most notably from school groups conducting field trips to the Capitol Complex and attendees of the annual Patriots Week celebrations.

Over the past year, the condition of the site has held up well despite an exceptionally hard winter. Some minor adjustments were made to the infrastructure subsequent to the formal opening in May of 2013. Three of the historic interpretive signs were repositioned to ensure full American Disabilities Act (ADA) compliance. Action was also taken to arrest the progressive erosion of the northern end of the wheel pit, where the exposed bedrock was gradually wearing away and causing a build-up of sediment in the bottom of the pit. In the early spring of 2014, a concrete retaining wall was constructed across the northern end of the wheel pit. This feature was capped and faced with wood, generally echoing the timber construction that would have originally existed within the pit (Photograph 9.30). The area behind the wall was filled and covered over with the light grey crushed stone used to indicate the footprint of the paper mill.
Photograph 9.15. View looking northeast showing the south retaining wall close to completion. Note the north retaining wall is largely finished and filling has occurred along the east side of the site (Photographer: Patrick Harshbarger, December 2012) [HRI Neg. #11056/D23:003].
Photograph 9.16. View looking northeast across the interior of the site showing reconstructed Front Street paper mill and row house walls in the foreground and the north retaining wall and stabilized paper mill foundations beyond (Photographer: Patrick Harshbarger, December 2012) [HRI Neg. #11056/D27:001].
Photograph 9.17. View looking east showing the south retaining wall with fill placed up against its northern side. The ground on its southern side is under preparation for walkway construction (Photographer: Patrick Harshbarger, December 2012) [HRI Neg. #11056/D28:003].
Photograph 9.18. View looking south showing workers installing steel bracing across and above the "daylit" culvert (Photographer: Patrick Harshbarger, January 2013) [HRI Neg. #11056/D29:007].
Photograph 9.19. View looking northwest across the interior of the site showing the steel frame for the glass cover that would soon be installed over the stabilized Trenton Steel Works cementation furnace base. The landscape surrounding the site is approaching its final grade (Photographer: Patrick Harshbarger, January 2013) [HRI Neg. #11056/D29:006].
Photograph 9.20. View looking southwest showing the steel frame for the glass cover that would soon be installed over the stabilized Trenton Steel Works cementation furnace base. Note that the steel edging and colored crushed stone fill (used to delineate the different phases of the site) are also beginning to be installed (Photographer: Patrick Harshbarger, January 2013) [HRI Neg. #11056/D29:008].
Photograph 9.21. View looking northeast showing the stabilized and repointed Trenton Steel Works cementation furnace base beneath its protective glass cover and surrounded by reddish-brown crushed stone fill used to denote the footprint of the furnace house. The north retaining wall with its scored-panel surface and black cast iron railing is close to completion (Photographer: James Lee, February 2013) [HRI Neg. #11056/D34:006].
Photograph 9.22. View looking northwest across the interior of the site showing the use of reddish-brown and light grey crushed stone fill to distinguish between the footprints of the Trenton Steel Works furnace house and the Front Street paper mill. The landscape surrounding the site is close to final grade and the south retaining wall at left awaits the laying of its asphalt walkway (Photographer: Richard Hunter, February 2013) [HRI Neg. #11056/D30:001].
Photograph 9.23. View of the Petty’s Run Archaeological Site looking east from the roof of the New Jersey State House showing the construction nearing completion. The ruins have been stabilized, the Trenton Steel Works cementation furnace base lies beneath its protective glass cover and the different colors of crushed stone fill show the footprints of the furnace house and the Front Street paper mill. The north and south retaining walls have been completed and the walkways on the north and east sides of the site are in place. Final grades have been mostly established and lighting and security cameras have been installed (Photographer: Richard Hunter, February 2013) [HRI Neg. #11056/D32:001].
Photograph 9.24. View looking southwest showing asphalt pathways under construction around the outer perimeter of the site. Note the interior of the site is essentially complete at this point (Photographer: Richard Hunter, April 2013) [HRI Neg. #11056/D37:001].
Photograph 9.25. View of the Petty’s Run Archaeological Site looking east from the roof of the New Jersey State House showing completed construction. Note that three of historic interpretive signs were subsequently relocated for American Disabilities Act (ADA) compliance reasons and a retaining wall was also later installed within the northern end of the Front Street paper mill wheel pit (Photographer: Richard Hunter, April 2013) [HRI Neg. #11056/D40:001].
Photograph 9.27. View looking south showing the historic interpretive sign (Sign #6) overlooking the Trenton Steel Works furnace house and cementation furnace base (Photographer: Richard Hunter, May 2013) [HRI Neg. #11056/D43:003].
Photograph 9.28. View looking north showing the historic interpretive sign (Sign #4) overlooking the Petty’s Run culvert (Photographer: Richard Hunter, May 2013) [HRI Neg. #11056/D43:009].
Photograph 9.29. View looking southwest across the Petty’s Run Archaeological Site on the day of its formal dedication, May 14, 2013 (Photographer: Patrick Harshbarger, May 2013) [HRI Neg. #11056/D42:001].
Photograph 9.30. View looking northeast showing the wood-faced concrete retaining wall constructed in 2013-14 to arrest erosion of bedrock at the northern end of the Front Street paper mill wheel pit (Photographer: Patrick Harshbarger, May 2014) [HRI Neg. #11056/D48:002].
REFERENCES

A Plan and Survey of Sundry Pieces of Land Adjoining the Delaware River and Assunpink Creek Belonging to Jn. Cox
1789 Copy of manuscript map on file, New Jersey State Archives (NJDS), Trenton, New Jersey.

A Plan of Sundry Lots of Land the Property of Daniel W. Coxe, Esquire, Part of His Bloomsbury Estate
c. 1804 Copy of manuscript map on file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Abbott, Charles Conrad


Aitcheson, Leslie

*Alexandria Gazette*

*American Weekly Mercury*

Armstrong, Horatio G.


Barber, Edwin Attlee

Barraclough, Kenneth C.

*Basse’s Book of Surveys*
Manuscript on file, New Jersey State Archives (NJDS), Trenton, New Jersey.
Beers, Frederick W.

Berg, Torsten and Peter Berg (translators)

Berthier, Louis-Alexandre


Biddle, Henry D.

Bining, Arthur C.


Boyd, Andrew, and W. Harry Boyd (publishers)

1876-77  

Boyd, W.H. (publisher)  
1859  

Boyer, Charles S.  
1931  

Burlington County Wills  
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Carver, Martin  
1987  

2011  
*Making Archaeology Happen: Design versus Dogma.*  Left Coast Press, Walnut Creek, California.

Chancery Court Records, Case Files  
Potts & Downing vs. Thomson (1786-87), Box 69; Ewing *et al.* vs. Fithian (1817), Box 98; Burrowes vs. Scudder (1820), Box 114. On file, SCH0001, New Jersey State Archives (NJDS), Trenton, New Jersey.

Charter of the Trenton Water Works  
1841  

City of Trenton Engineer’s Office [rolled drawings]  
Manuscript maps on file, City of Trenton Engineer’s Office, City Hall, Trenton, New Jersey.

Clark, J.M., R.H. Moore and J.O. Raum  
1854-55  
*The Directory of the City of Trenton, for 1854-55.*  True American, Trenton, New Jersey.
Cohan, Zara  
1969  
A Comprehensive History of the State House and Recommendations for its Continuation as a Historic Site. Master’s Thesis, Newark State College, Newark, New Jersey.

*Commercial Advertiser*  

Cooley, Eli F., and William S. Cooley  
1883  

Cotter, John, Daniel G. Roberts, and Michael Parrington  
1992  

Cottrell, Alden T.  
1951  
*The Old Barracks at Trenton.* The Old Barracks Association, Trenton, New Jersey.

Cornwall Record Office  

Cranstone, David  
1997  

Cresson, Anne H.  
1908  

Cross, Dorothy  
1956  

*Daily Advertiser*  

Danckaerts, Jasper  
1679 [1867]  

*Circa 1679*  
*Map of the Delaware River from Burlington to Trenton.*
Daniels, P.N.  

Davis, S.  

Department of Defense Papers  
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Department of State Papers  
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Diary  

Donnelly, Frederick W.  

Dun & Bradstreet, Mercer County Records  

Dunlap’s Pennsylvania Packet  

Egle, William H.  

Ely, Reuben P., Warren S. Ely and Daniel B. Ely (compilers)  

Ershkowitz, Herbert  

Erskine, Robert  
1779  No 87, B. Road from Pennytown to Slack’s Ferry and from d* to Trenton and Howell’s Ferries. Manuscript map on file, New-York Historical Society, New York, New York. Copies on file at Washington’s Headquarters, Morristown National Historic Park,
Estimate of the Damages Sustained by the Inhabitants of the County of Hunterdon … from the Waste & Damage of the Troops in the Service of the United States …
1782
Manuscript on file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Evans, Chris, and Alun Withey

Everts and Stewart

Farewell Mills and Gatsch Architects, LLC
Corporate Archives. Princeton, New Jersey.

Federal Gazette

Fischer, David H.

Fischer, Friedrich

Fisher, Douglas A.

Force, Peter (editor)

Foulke Reunion Memorial Volume
Fowler & Bailey

Franklin Survey Company

*Freeman’s Journal*

Garret D. Wall Papers
Manuscript Collection, Princeton University Libraries, Special Collections, Firestone Library, Princeton, New Jersey.

Gaskill, Nelson B.
1914  The Old Masonic Lodge Building and Its Surroundings. On file, Trentoniana Collection, Trenton Public Library, Trenton, New Jersey.

*General Advertiser*

Gillispie, Charles C. (editor)

Godfrey, Carlos E.

Gordon, Thomas F.

“Governor McGreevey announces designation of three new state parks”

Hagley Museum and Library. Wilmington, Delaware.

Hanson, Lee, and Dick Ping Hsu
Hartley, E.N.  
1957  

Haven, Charles C.  
1882  

1888  
Profile on Line of Petty’s Run Drain. Manuscript drawing on file, City of Trenton, Engineer’s Office.

Hering, Rudolph  
1885  
*Report on a Sewerage System for the City of Trenton, New Jersey.* Naar, Day & Naar, Trenton, New Jersey.

Hewitt, Louise (compiler)  
1916  
*Historic Trenton.* The Smith Press, Trenton, New Jersey.

Hickey, Margaret M., Richard Hunter, James Lee, and Patrick Harshbarger  
2013  
Waterloo Village (Boundary Increase #1). National Register of Historic Places Registration Form. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

Historic Sites Research  
1983  

1987  
Archaeological Monitoring of the Old Barracks Area and Along the Delaware and Raritan Feeder Canal. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

1988  

1990  

Hixson, Richard F.  
1968  
Honeyman, A. Van Doren (editor)
1918  *Calendar of New Jersey Wills, Administrations, Etc., Volume II, 1730-50.* Documents Relating to the Colonial History of the State of New Jersey First Series, Volume XXX.

Horan, Sharon

Hornor, William S.
1932  *This Old Monmouth of Ours.* Moreau brothers, Freehold, New Jersey.

Hunter, Louis C.

Hunter Research Associates
1989a  Archaeological Investigations at the New Jersey State House, City of Trenton, Mercer County, New Jersey. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

1989b  Intensive Test Excavations at the Old Barracks, City of Trenton, Mercer County, New Jersey. Volume One - Text; Volume Two - Appendices. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

Hunter Research, Inc.
1989  A Phase I Archaeological Evaluation of 105-115 West State Street, City of Trenton, Mercer County, New Jersey. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

1991  Supplementary Archaeological Investigations at the Old Barracks, City of Trenton, Mercer County, New Jersey (Revision). On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.


1993  Archaeological Investigations at the New Jersey State House Complex, City of Trenton, Mercer County, New Jersey. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008a</td>
<td>Phase IA Cultural Resources Survey, Route 29 Boulevard Study, City of Trenton, Mercer County, New Jersey. On file, NJDEP, Trenton, New Jersey.</td>
<td>New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.</td>
</tr>
</tbody>
</table>
2008b The “Trenton in 1775” Mapping Project, City of Trenton, Mercer County, New Jersey. On file, New Jersey Historical Commission and Trenton Historical Society, Trenton, New Jersey.


Hunter Research, Inc. and the Potteries of Trenton Society

Hunter, Richard W.
1982 Archaeological Monitoring of the Lamberton Interceptor, Lamberton Street, City of Trenton, Mercer County, New Jersey. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

2005 Power to the City: The Trenton Water Power. History Traced by Route 29 Booklet Series. New Jersey Department of Transportation, Ewing, New Jersey.

Hunter, Richard W., and Ian C. Burrow


Hunter, Richard W. and Richard L. Porter

Hunter, Richard W., Nadine Sergejeff, and Damon Tvaryanas
Hunterdon County Court of Common Pleas, Insolvent Petitions  
On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

Hunterdon County Court of Common Pleas, Miscellaneous Records  
On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

Hunterdon County Court of Common Pleas, Minute Books  
On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

Hunterdon County Deeds  
On file, Hunterdon County Courthouse, Flemington, New Jersey.

Hunterdon County Mortgages  
On file, Hunterdon County Courthouse, Flemington, New Jersey.

Hunterdon County Road Returns  
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Independent Gazetteer  

Irwin, Douglas A. and Peter Temin  

Israel, Stephen  

J.H. Lant & Co. (publisher)  


James, Isabella (Mrs. Thomas Potts James)  
1874 *Memorial of Thomas Potts, Junior, who settled in Pennsylvania; with an Historic-Genealogical Account of his Descendants to the Eighth Generation.* Privately printed, Cambridge, Massachusetts.
James Leffel & Co.

Jan Hird Pokorny Associates

Jars, Gabriel

Jeffery, C.

John G. Waite Associates, Architects PLLC

Johnson, Amandus

Johnston, Elma Lawson

Jordan, John W. (editor)

Joseph Reed Papers

Karsch, Carl G.
Kashatus, William C., III

Klett, Joseph R.

Kraft, Herbert C.

Lacombe, Pierre (editor)

Lamborn, Robert H.

Lant, J. (publisher)

Lathrop, J.M.

Lee, Francis B.


Lee, Francis B. (compiler)

Leone, Mark P.
Liebeknecht, William B.

Linklater, Andro

Lossing, Benson J.

Mahlon Stacey’s Resurvey
1714 In *Basse’s Book of Surveys*. On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Mains & Fitzgerald

Martin, John W.

*Maryland Journal*

McCracken, George E. (compiler)

McFarland, Charles E., and Nevin E. Neal

Mercer County Deeds
On file, Mercer County Courthouse, Trenton, New Jersey.

Mercer County Mechanic’s Liens
On file, Mercer County Courthouse, Trenton, New Jersey.

Mercer County Mortgages
On file, Mercer County Courthouse, Trenton, New Jersey.
Metcalf, E.S.  
1870  

Miscellaneous Numbered Records  

Moon, Robert C.  
1898  

Moss, Roger W.  
n.d.  
Isaac Zane, Jr., A “Quaker for the Times.”  Copy on file, New Jersey State Library (NJDE), Trenton, New Jersey.

Mounier, R. Alan  
1996  
A Stage IB/II Archaeological Survey of Thomas Edison State College, City of Trenton, Mercer County, New Jersey.  On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

Mulholland, James A.  
1981  

Mullins, Paul R.  
2011  

*National Advocate*  

Nelson, William  
1911  

Nelson, William (editor)  
1916  

*Newark News*  
New Jersey, Deaths and Burials Index, 1798-1971

New Jersey Gazette
On file, New Jersey State Library (NJDE), Trenton, New Jersey.

New Jersey Inventories
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

New Jersey Office of Legislative Services

New Jersey State Archives, Revolutionary War Documents
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

New Jersey State Museum Maps and Files
On file, New Jersey State Museum (NJDS), Trenton, New Jersey.

New Jersey Supreme Court, Records
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

New Jersey Wills
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

New-York Gazette

The New-York Gazette, or the Weekly Mercury

New-York Packet

Numbered Record Books, Supply Records

Old Barracks Association Historic Photographs
On file, Old Barracks, Trenton, New Jersey.

Papers of the Continental Congress, Application of Individuals


Peale, Charles W.  


Pemberton Papers  

Pennsylvania Archives, Minutes of the Supreme Executive Council  

Pennsylvania Evening Post  

The Pennsylvania Gazette  

The Pennsylvania Journal  

The Pennsylvania Journal; and The General Advertiser  

The Pennsylvania Journal; and The Weekly Advertiser  
PETTY’S RUN ARCHAEOLOGICAL SITE

The Pennsylvania Journal and Weekly Advertiser

The Pennsylvania Packet

Philadelphia Gazette

Podmore, Harry J.


1931a From Water Logs to Iron Pipes: Conflict Between Companies Arises, Article No. 5. Trenton Magazine (January):9-10.


Potts, Joseph C.

Potts, Stacy G.

Potts, Thomas M. (compiler)
1901  *Historical Collections Relating to the Potts Family*.  T.M. Potts, Canonsburg, Pennsylvania.

Prager, Frank (editor)

Prince, Carl E. (editor)

Prince, Carl E. and Dennis P. Ryan (editors)

Prince, Carl E., Mary Lou Lustig and David William Voorhees (editors)

Radbill, Kenneth A.

Raum, John O.

Report of the Joint Board of Directors, to the Stockholders of the Delaware and Raritan Canal and Camden and Amboy Rail Road Transportation Companies, on the Completion of their Works; with the Proceedings of the Stockholders, at their Meeting on the twenty-ninth of January, 1840
1840  John Bogart, Princeton, New Jersey

Rice, Howard C., Jr. and Brown, Anne S.K. (translators and editors)
Rider, Caleb (Assignor to George T. McLauthlin)

Robert Hunter Morris Papers
Manuscript Collection, Rutgers University, Special Collections and Archives, Alexander Library, Rutgers, the State University of New Jersey, New Brunswick, New Jersey.

Robert Treat Paine Papers
Manuscript Collection, Massachusetts Historical Society, Boston, Massachusetts.

Rockefeller, George C.

Rolt, L.T.C., and J.S. Allen

Rose, Julie K.

Sadler, Wilbur F.
n.d. The Old Barracks, the Douglass House, and Their Surroundings at Trenton, New Jersey. On file, Trentoniana Collection, Trenton Public Library, Trenton, New Jersey.

Sadler Papers
Manuscript Collection, New Jersey State Archives (NJD), Trenton, New Jersey.

Sanborn, D.A.

Sanborn Map Company

1955  

Scarlett & Scarlett  
1890  
*Scarlett & Scarlett’s Fire Map of Mercer County.* Scarlett & Scarlett, Newark, New Jersey.

Scharf, J. Thomas, and Thompson Westcott  
1884  

Schubert, H.R.  
1957  

Schuyler, Hamilton  
1926  

Shackel, Paul A.  
1994  

Sidney, J.C.  
1849  

Skerry, Janine E., and Suzanne Findlen Hood  
2009  

Skinner, Alanson B. and Max Schrabisch  
1913  

Smeaton, John  
1765  
General Plan of Kilnhurst Forge as it was executed. Volume Two, Folio 99v & 100, Royal Society, London, England.

Smith, Robert F.  
2008  
Smith, Samuel S.  

Snyder, John P.  

Spencer-Wood, Suzanne M. (editor)  

Stackhouse, Asa M.  
1910  *Colonel Timothy Matlack, Patriot and Soldier*. Privately printed.

*State Gazette*  

State House Commission Minutes  
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

Stewart, R. Michael  

Stillwell, John E. (compiler)  
1930  *Historical and Genealogical Miscellany: Early Settlers of New Jersey and Their Descendants*.

Stracke, Gloria P. (compiler)  

Stretch, Carolyn W.  

Stryker, William S.  
1885  *The Old Barracks at Trenton, New Jersey. Read Before the New Jersey Historical Society, at Their Meeting at Trenton, N.J*. Naar, Day & Naar, Trenton, New Jersey.

1893  *Trenton One Hundred Years Ago*. Naar, Day & Naar, Trenton, New Jersey.

Sullivan, Catherine
1986  

Surrey, England, Extracted Parish Records
2001  

Swank, James H.
1884  

Thayer, Theodore
1943  

Thomas, Colin, Richard Hunter and Robert Gordon
2012  
Internal Oxidation of Cast iron Artifacts from an 18th-Century Steel Cementation Furnace.  

Thomas Edison State College
2006  
*A Campus With History ....*  Thomas Edison State College, Trenton, New Jersey.

Toothman, Stephanie S.
1977  
Trenton, New Jersey, 1719-1779: A Study of Community Growth and Organization.  

*Transactions of the American Philosophical Society, Held at Philadelphia, for Promoting Useful Knowledge*
1771  

*Trenton Federalist*

Trenton Historical Society
1929  

Trenton Public Library, Trentoniana Collection, Bills of Complaint
On file, Trenton Public Library, Trenton, New Jersey.

Trenton Public Library, Trentoniana Collection, Bonds
On file, Trenton Public Library, Trenton, New Jersey.
Trenton Public Library, Trentoniana Collection, Historic Photographs
   On file, Trenton Public Library, Trenton, New Jersey.

Trenton Public Library, Trentoniana Collection, Leases
   On file, Trenton Public Library, Trenton, New Jersey.

Trenton Public Library, Trentoniana Collection, Letters
   On file, Trenton Public Library, Trenton, New Jersey.

Trenton Public Library, Trentoniana Collection, Unrecorded Deeds
   On file, Trenton Public Library, Trenton, New Jersey.

_Trenton State Gazette_

_Trenton Times_

Trenton Township Tax Ratables
   On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

_True American_

Turk, Jesse R.

U.S. Census of Manufactures
1820  On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

U.S. Census of New Jersey
1850  On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

U.S. Census of New Jersey
1860  On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

U.S. Census of New Jersey
1870  On microfilm, New Jersey State Archives (NJDS), Trenton, New Jersey.

United States Coast Survey
1844  Survey of the Coast, Delaware River from Bordentown to Trenton, New Jersey. On file, National Archives, Record Group 77, Washington, D.C.
Volk, Ernest

Volkert, Richard

Walker, Iain C.
1977  *Clay Tobacco-Pipes, with Particular Reference to the Bristol Industry*. National Historic Parks and Sites Branch, Parks Canada, Ottawa, Canada.

Wall, Robert D., R. Michael Stewart, John Cavallo, Douglas McLearen, Robert Foss, Philip Perazio, and John Dumont

Wallace Roberts & Todd, LLC
2006  WRT Concept, re-Casting Trenton, Trenton Capital Park System Master Plan. On file, New Jersey Department of Environmental Protection, Trenton, New Jersey.
2010  Capital State Park, Phase 1B: Petty’s Run, Schematic Design. On file, New Jersey Department of Environmental Protection, Trenton, New Jersey.

Webb & Fitzgerald (publishers)
Wertime, Theodore A.

West Jersey Deeds
On file, New Jersey State Archives (NJDS), Trenton, New Jersey.

White, George S.

Whitefield, Edwin

Whitehead, William A.

Wilkinson, Norman B.
1975 *Papermaking in America*. The Hagley Museum, Greenville, Delaware.

Wilson, Thomas B.

Woodward, E.M., and John F. Hageman

*Worcester Magazine*

Zane, Harvey
1984 *Harvey Zane's Ancestral Search*. Emelia S. Zane, Jacksonville, Florida.

Zdepski, Mark