Life on the Philadelphia Waterfront 1687-1826:

A Report on the 1977 Archeological Investigation of the Area F Site Philadelphia, Pennsylvania

Prepared for
Independence National Historical Park
Philadelphia, Pennsylvania

By
John Milner Associates, Inc.
West Chester, Pennsylvania

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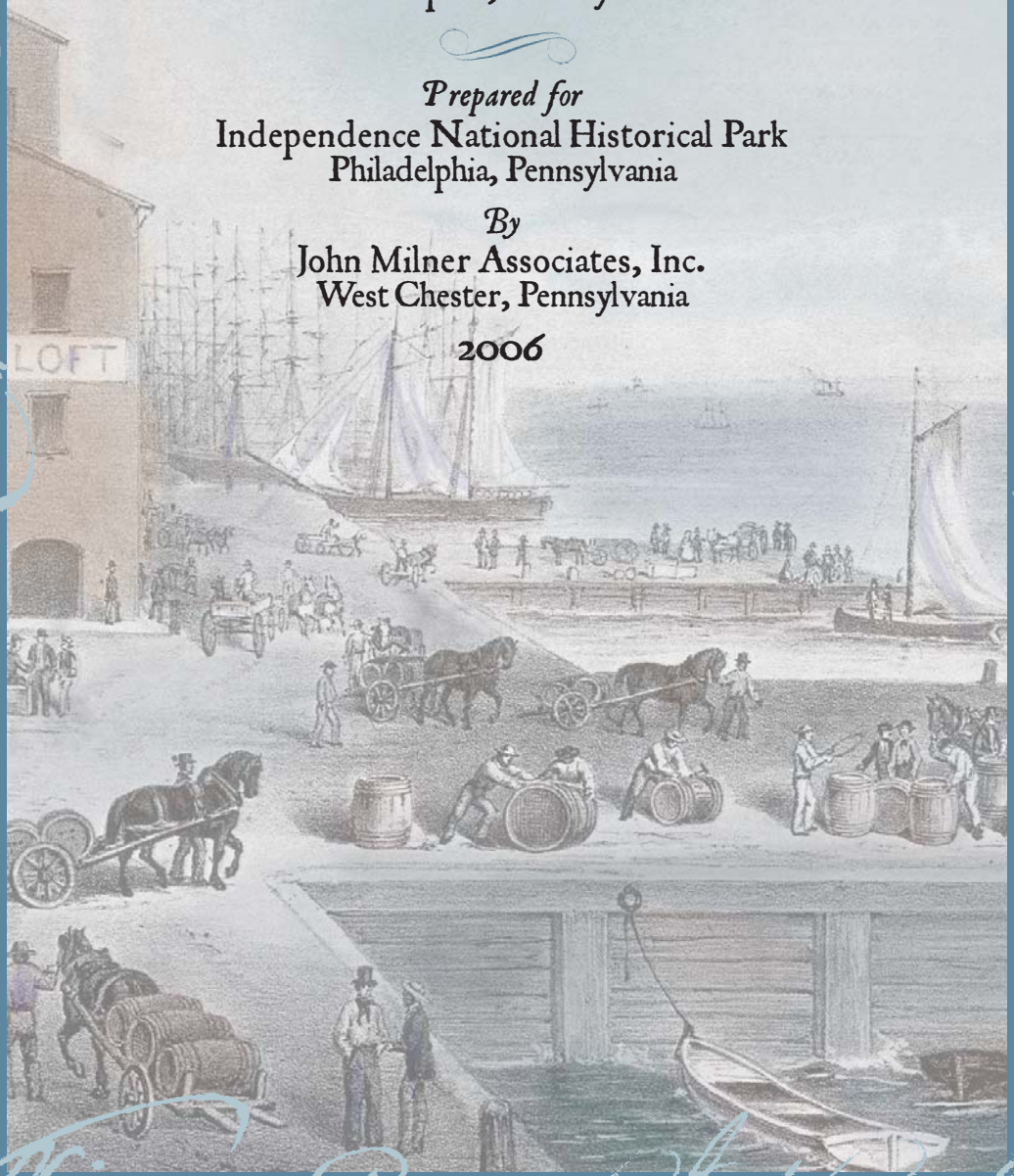

LIFE ON THE PHILADELPHIA WATERFRONT 1687-1826: A REPORT ON THE 1977 ARCHEOLOGICAL INVESTIGATION OF THE AREA F SITE PHILADELPHIA, PENNSYLVANIA

Prepared for

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2006

Thus times do shift, each thing his turne do's hold,
New things succeed, as former things grow old.
Robert Herrick 1591-1674
"Hesperides"

ABSTRACT

In 2001 John Milner Associates, Inc. (JMA) assumed responsibility for completing the analysis and report on a project that was begun in the mid-1970s. Under the direction of Daniel G. Crozier, Temple University excavated what is known as the Area F site in anticipation of the construction of a parking garage for Independence National Historical Park on Second Street in Philadelphia. The site is bounded by Front and Second streets on the east and west, and by Ionic and Gatzmer streets on the north and south.

The excavation uncovered 35 archeological features beneath the cellar floors of two buildings that were slated for destruction to make room for the parking garage. Nine of the eleven exposed shaft features and six architectural features dating to the eighteenth century were excavated. The shaft features were associated with four historic lots, and the assemblages recovered from six of them could be tied to the historic lot residents.

The focus of JMA's research is on change through time, with specific attention to three general areas: the organization and use of urban space; the daily lives of city dwellers; and the emergence and conduct of industry within an urban context. Specifically, the analysis focuses on two small lots on Gray's Alley (later Gatzmer Street) and two larger lots on the main streets, one on Front and one on Second. Artifacts from privy deposits associated with these lots give a sense of what life was like in the middle years of the eighteenth century for the family of mariner William Annis and baker William Gray on Gray's Alley, and the house and workshop of carver/graver Hercules Courtney on Front Street. By the last quarter of the eighteenth century, when few open spaces remained on the Area F block, Hercules Courtney's rented workshop/house on Front Street doubled as a licensed tavern, and the newer houses on Second Street included that of optician William Richardson, and later silversmith and umbrella manufacturer Robert Swan's residence. Artifacts relating to the trades of these early artisan households present an interesting contrast to the patrician lifestyle of dry goods merchant Robert Smith, who built a large house/store on Front Street on the former site of Hercules Courtney's tavern.

Nearly 68,000 artifacts were cataloged and analyzed from the Area F project, including a rich collection of Philadelphia redware, and examples from two of Philadelphia's most well-known potteries, Bonnin and Morris and Anthony Duché. Of particular interest were the artifacts that linked features to specific occupants, such as the optical lenses left behind by William Richardson, varnish resin and graphite mortar from Hercules Courtney's workshop, fire extinguishers from William Gray's bake house, residual bone and antler from Robert Swan's manufacture of umbrellas or cutlery handles, crucibles Swan may have used in his occupation as silversmith, and the monogrammed Chinese Export porcelain tea service owned by merchant Robert Smith.

The Area F archeological project has resurrected the lives of these early Philadelphians and reminds us of the important connection Philadelphia had to its riverfront, and of the entrepreneurial spirit of its Quaker founders.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

PREFACE

When I worked on the first Area F investigation at Gatzmer Street in 1976, I did not foresee the extent of the excavations, the importance of the site, or ever imagine that I would someday complete the report. After the initial field work, it is personally regrettable that I was not there to see and experience firsthand the excavations in the cellar of the Yoh Building and 114 South Front Street. When I returned to Philadelphia five years later to work part-time for Dan Crozier at Temple University, my first assignment was to draft the final drawings of the Area F features, assemble the artifact plates, and put together an early draft of the excavation report. At some point during this period, the funding ran out before the project was completed. I am grateful to Dan Crozier for his commitment to finishing this project and to the efforts of Dave Orr, Doris Fanelli, Allen Cooper, Karie Diethorn, Tony Ranere, Muriel Kirkpatrick, and Dan Roberts for their recognition of the importance of the Area F site and the need to complete the work begun at Temple University 30 years earlier. Funding for the completion of the Area F report was provided for by the National Park Service and with cooperation from Bob Bass at Hartrampf Engineering, Inc. of Atlanta. Without Bob's willingness to facilitate JMA's work through a prior contractual arrangement with the National Park Service, this report may not have been completed.

Dan Crozier, who directed the excavations at Area F, and his field supervisor, Doris Weiland, deserve thanks even at this late date, as does their field crew, which included: Phillip Bareiss, Kathy Bareiss, Barbara Uphoff, Judy Chase, Peter Messick, Roberta Taylor, and Jacqueline Thibaut. Doris Weiland was the project drafter responsible for the site plans. Temple University students who contributed in the laboratory were the late Jim Kurtz (photography of the reconstructed vessels), Michael Nicolazzo (elevation drawing of Feature 4/4A), and Susan Quick (mortar analysis). Temple University laboratory director Muriel Kirkpatrick and the Department of Anthropology watched over the collection while it was stored at Temple. On behalf of Dan Crozier, I would like to acknowledge the Independence National Historical Park staff who helped during the progress of the excavation: Hobart Cawood, Bob Giannini, and Penny Batcheler, and also those who helped during the current cataloging and report phase of the JMA project: Karie Diethorn, Doris Fanelli, Karen Stevens, and Coxey Toogood.

I am indebted to my colleagues at JMA for their expertise and because they are a great group of people to work with: Dan Roberts and Rebecca Yamin for their thoughtful review of the drafts of this report and suggestions to improve the text; laboratory staff: Alex Bartlett (glass analysis and tables), Nikki Tobias (small finds), Mark Tobias, Hadley Gerhardt, Keith Jacobs, and Kathryn Wood Masse (artifact processing); Tod Benedict for help in online research and editing; graphics by the talented team of Rob Schultz and Mary Paradise under the direction of Sarah Ruch; and Margy Schoettle for the painstaking job of copy-editing and report production.

I would like to thank the following individuals for their special contributions: Dan Crozier for his work on an early draft, and for his encouragement and support in the writing of this report; Betty Cosans-Zebooker for the use of her historical research, past and present; Roberta Zullick Taylor for the use of a large section of her report on the Area F seeds; Leslie Raymer for her analysis of the floral remains and the ill effects of long-term curation of soils; Karl Reinhard for his parasitology study; Claudia Milne for her analysis of the faunal material; Lori Aument for her analysis of the mortar study begun by Susan Quick, and for analysis of a resin found in one of the features; and Alex Bartlett for sharing his knowledge and insights on bottle glass.

I would also like to thank the following individuals for their assistance: Jeanne Solensky, Librarian of the Downs Collection of Manuscripts and Printed Ephemera; Bert Denker, Decorative Arts Photographic Collection, Winterthur Library; Leslie Grigsby, Curator of Ceramics and Glass, Winterthur Museum; and Ron Fuchs II, Assistant Curator of Ceramics for the Leo and Doris Hodroff Collection, Winterthur Museum.

And finally, the completion of the Area F report three decades after the site was excavated is dedicated to the memory of the late John L. Cotter. As a young archeologist, I remember Dr. Cotter's visits to the Area F site with admiration, respect, and gratitude for his kindness and professionalism. Moreover, it was through his foresight and persistence as a Park Service administrator that the Area F site was archeologically excavated in the first place. I think it is safe to say that he was a mentor to us all, and I hope this report is a worthy tribute to his pioneering archeological efforts at Area F and throughout the Philadelphia area in general.

1.0 INTRODUCTION

During the Bicentennial era, Area F, a National Register site in the heart of Old City, Philadelphia, was the focus of intensive study after it was selected as the site of a parking garage for visitors to Independence National Historical Park (INDE). "Area F" a designation of the Philadelphia City Planning Commission for the city block formed by the intersections of Front, Walnut, Second, and Chestnut streets in the city's Old Historic District. As part of a program of city revitalization taking place in the 1970s, the National Park Service and the City of Philadelphia selected the central portion of this block, because of its proximity to the then-new Visitors Center, for a parking facility (Greene 1974:ix; Batcheler 1978:13). In 1976, Temple University archeologists under the direction of Dan Crozier were contracted to conduct a survey in the Area F block between Front and Second streets and Ionic and Sansom streets. At the time, two twentieth-century warehouses stood on the site, one at 114 South Front Street, and another much larger one, the Yoh Building, at 117-123 South Second Street. Historical documentation was completed by Betty Cosans and three locations within the block were tested, revealing belowground structural remains in the open areas (sidewalks and razed lots) outside the standing warehouses (Crozier 1976). The following year the archeological investigation was expanded to the cellar interior of the two warehouses, and the vacant lot at the northwest corner of Front and Gatzmer Streets where foundation walls were thought to be the remains of the Anthony Morris house. Funding for these important archeological excavations was limited. It is a tribute to the Temple University archeological team led by Dan Crozier and INDE personnel, in particular Mr. Hobart Caywood, Superintendent, and Mr. Robert Giannini, Associate Curator, that so much was accomplished in so little time.

Temple University's 1977 excavations demonstrated the richness of the archeological resources surviving beneath the deep warehouse cellars. In all, 35 features, including architectural and truncated shaft features, were documented. Features not expected to be adversely impacted by the construction of the parking garage were half-sectioned, while features threatened with destruction were excavated entirely. Nine shaft features were sampled or excavated in full, four filled in during the eighteenth century and five in the nineteenth century.

Following demolition of the warehouses and commencement of construction in 1979, archeological monitoring by the Museum Institute for Conservation Archaeology (MICA) under the direction of Michael Parrington resulted, among other things, in the excavation of several features. Artifacts recovered from one of the features previously half-sectioned by Temple were turned over to Temple University for processing with the rest of the Area F collection. Processing of the Area F artifact assemblage and report preparation were begun in the early 1980s and completed by John Milner Associates, Inc. (JMA) 20 years later.

Temple University's investigations of the Area F site were reported in two preliminary reports by Dan Crozier entitled "Archaeological Survey Report, Area F" (1976), and "Archaeological Investigation, Area F, Independence National Historical Park" (1977), on file in the INDE archives. Also on file at INDE are two reports of the MICA investigations, "Archaeology at Sansom Street, Area F, Independence National Historical Park, Philadelphia, Pennsylvania 1979" and "Salvage Archaeology at Area F, Philadelphia, 1979" by Michael Parrington. Parrington (1979, 1983) subsequently published two articles based on his work at Area F. The Area F site was also the subject of a section of the book *The Buried Past, An Archaeological History of Philadelphia* (Cotter, Roberts, and Parrington 1992) entitled "The McIlvaine House Privy and Area F: Historical Archaeology in Practice" that dealt with the results of an analysis of floral

remains conducted by a member of the Temple University archeological team as a masters thesis and the results reported in the MICA reports.

In the spring of 1999, and again in the winter of 2001, meetings between representatives of INDE (Doris Fanelli, David Orr, Allen Cooper, and Karie Diethorn), Temple University (Anthony Ranere and Muriel Kirkpatrick), and JMA (Dan Roberts and Juliette Gerhardt) took place to discuss the status of the Area F artifacts and completion of a detailed report of the findings of the extensive archeological excavations carried out by Temple University. Over the next four years, JMA undertook to complete the technical sections of the Area F report and augment the existing report with a synthesis of the data that combined the historical and archeological evidence. JMA cataloged 67,894 artifacts from the Area F site into the National Park Service's Automated National Cataloging System+ (ANCS+). Completion of an inventory of the artifact assemblage was an essential step in the interpretation of the archeological remains. Once the artifacts were cataloged and archeological features analyzed it was possible to trace the development of Area F from the earliest settlement of Philadelphia up to the twentieth century.

It is worth noting that a great many technological changes took place during the 30-year hiatus between the original work and completion of this report. Temple's typed manuscript was scanned to convert it into a Word document, and then formatted to bring it into a workable medium. The maps, all hand drawn, and artifact plates—scaled compositions created from individual photographs of each artifact, were also scanned and converted into electronic media. Text and graphics completed at JMA in the course of this project have been done using current technology producing subtle differences that may be evident to the reader. The old and the new methods rest side by side in the body of this report as a testament to the changes in archeological documentation.

1.1 DESCRIPTION OF THE PROJECT AREA

Area F, acquired by the National Park Service in 1974 to provide parking facilities for INDE, is bounded by Front and Second streets to the east and west, respectively, and by Ionic and Sansom streets to the north and south (Figure 1). Archeological investigation of Area F concentrated on its northern half, i.e., that portion of the block north of Gatzmer Street, a small east/west street that bisects the larger city block. The structures located within the northern half of Area F at the time of the investigation were the Yoh Building (Plates 1-2), a large twentieth-century warehouse occupying 117-123 South Second Street with a lot extending east to 116 South Front Street, and a smaller structure occupying 114 South Front Street (Plate 3). These structures have since been demolished and the parking facility for INDE constructed.

1.2 PURPOSE AND GOALS OF THE INVESTIGATION

Specific locations within Area F were designated for archeological investigation, a decision made in consultation with INDE and Regional National Park Service personnel. It was determined that the cultural remains located in the northern portion of Area F were most threatened by the proposed parking garage construction. Therefore, all research was to be conducted in that portion of Area F bounded by Ionic, Front, Gatzmer, and Second streets.

In accordance with contractual arrangements and logistical considerations unique to this project, the objectives were: 1) to confirm that archeological evidences pertaining to the life of historic Philadelphia remained *in situ*, 2) to map and photographically record uncovered evidence, 3) to

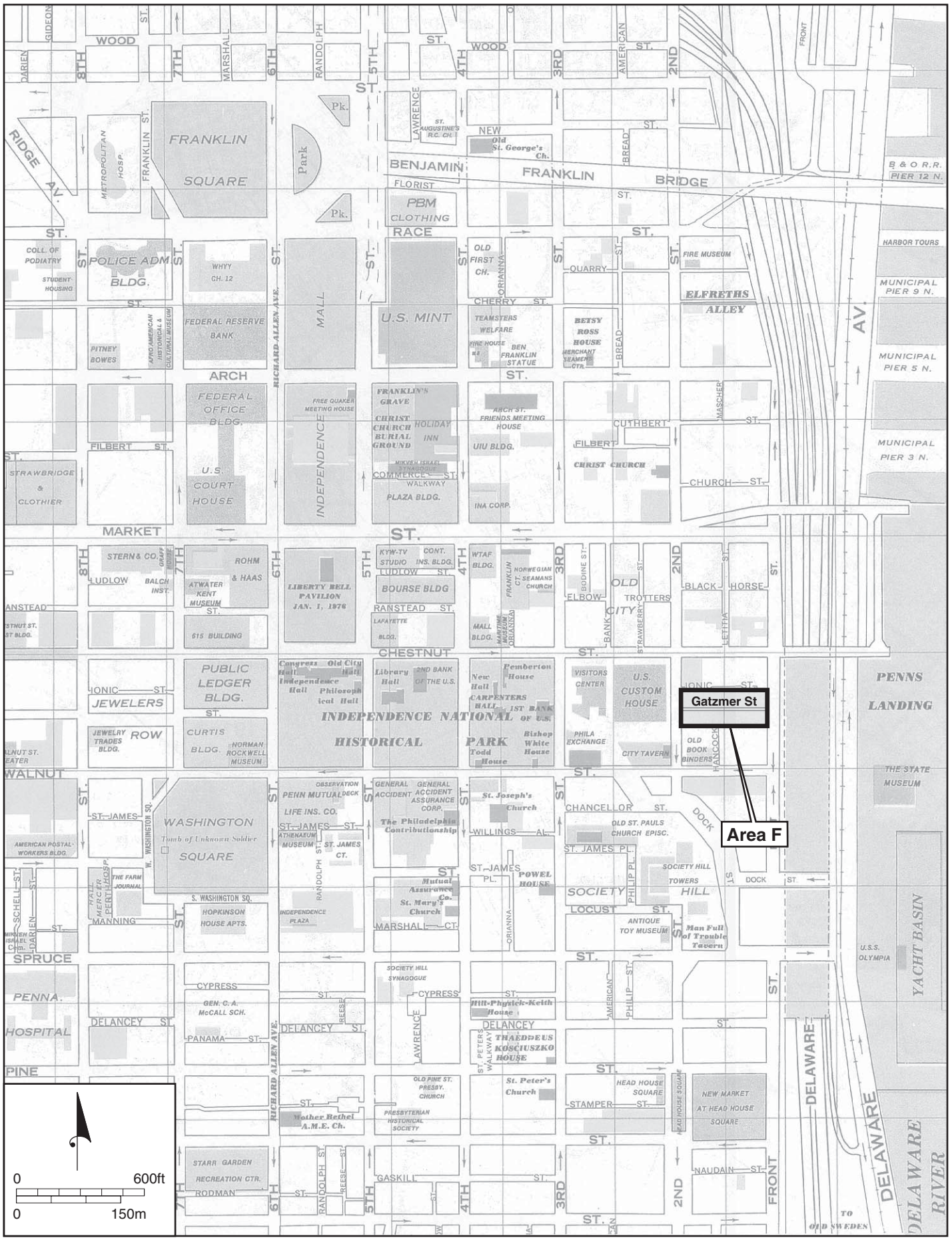


Figure 1. Area F project area. From Franklin's *Street and Zip Code Atlas of Philadelphia and Suburbs*.

Plate 1. The Yoh Building, built in 1908 at 117-123 South Second Street. View southeast, showing the Area F site as it looked in 1976.

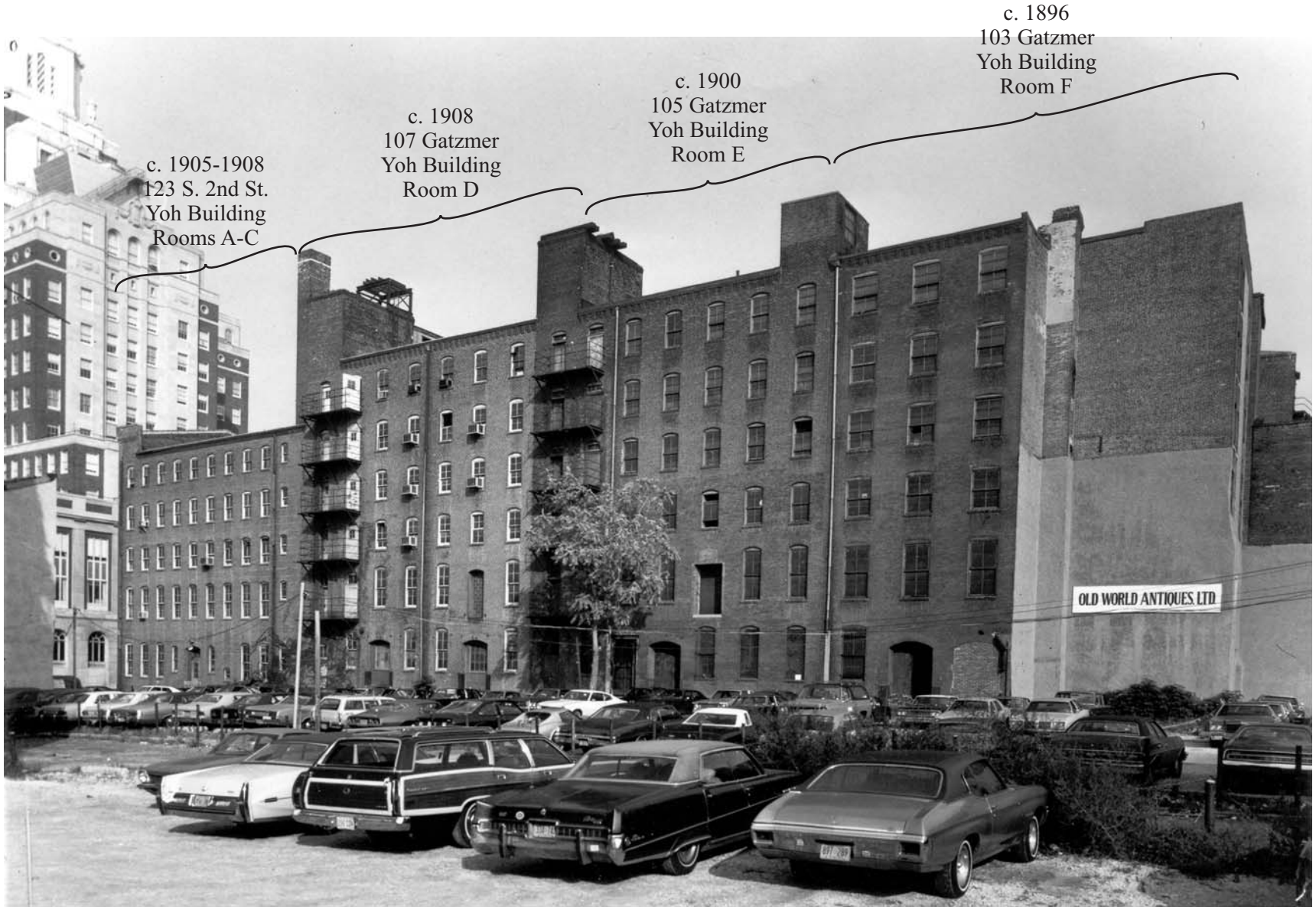


Plate 2. View north of the Yoh Building across the parking lot c.1976. Warehouses built by Thomas Roberts between 1896-1908, known collectively as the Yoh Building at the time of the archeological investigation of the Area F site. Historic maps indicate that these buildings housed a cigar factory (123 S. Second Street), dye stuffs (107 Gatzmer), and wool warehouse (103-5 Gatzmer). The cellars beneath 105 and 107 Gatzmer (Rooms D and E) were not investigated.

Plate 3. View of 114, 116, and 118 South Front Street c.1957 (City of Philadelphia Records Department, City Hall, Philadelphia). The white commercial building (No. 114) built c.1847 is the third structure on this lot. The Anthony Morris House (No. 118), on the corner of Front and Gatzmer Street, was demolished in the 1960s.

excavate only a portion of those features that were not threatened, 4) to excavate in total those features that would be destroyed by the proposed construction, or could not be partially excavated with safety, and 5) to provide protection for unexcavated or partially excavated cultural remains, including such measures as covering features with plastic or wood, and, where appropriate, with soil.

In the years since the Area F excavation took place, four important eighteenth-century sites, including Blocks 1 (Yamin et al 2004) and 2 (Yamin et al 2002) of Independence Mall, the Bourse Garage (Blomberg 1990), and Front and Dock Streets (McCarthy and Roberts 1996), have been excavated and reported. These sites, together with Franklin Court (Cosans 1975), 8 South Front Street (Cosans 1976), and New Market (Liggett 1978), excavated in the 1960s-1970s, provided a significant local comparative database in the analysis of the Area F archeological record.

1.3 METHODS OF DATA COLLECTION

1.3.1 BACKGROUND RESEARCH

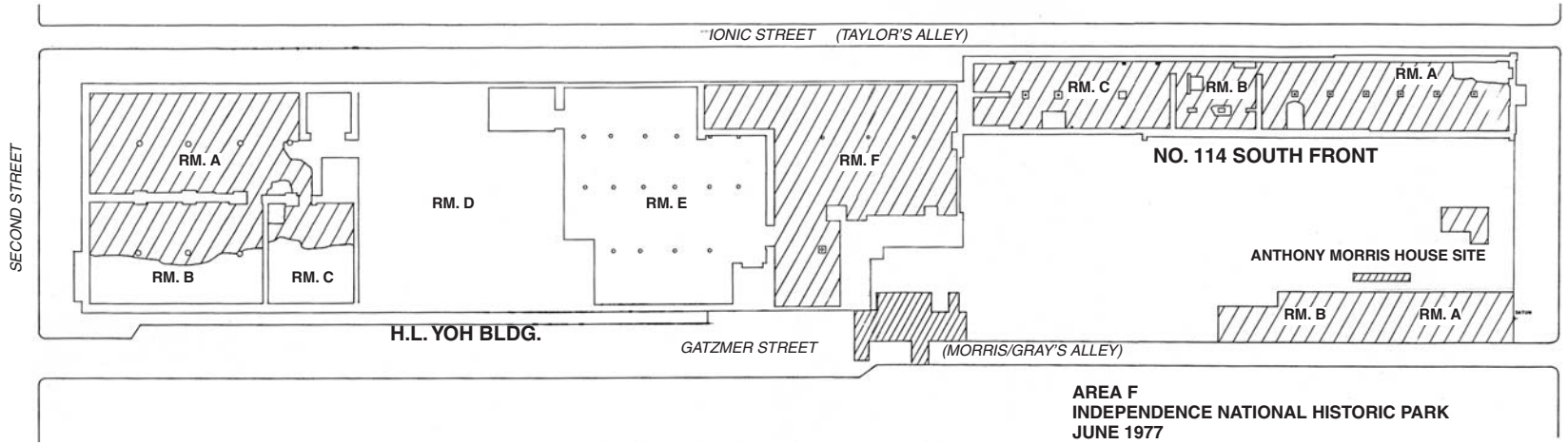
Area F has been well documented (Greene 1974; Cosans 1975a and 1977; Batcheler 1978). The historical background presented in this report is based on Cosans (1975a and 1977) with extracts from the research of Greene (1974) and Batcheler (1978). The data analysis focus on the north half of the Area F block that is the archeological site zone covered in Phases I and II, in order to correlate those archeological evidences recovered with the documentary record. A base map of the Area F block created from the 1788 Philadelphia County Tax (Toogood 1985) was also a useful source. Additional research, conducted by Cosans-Zebooker and Gerhardt updated specific lot histories during the course of the current JMA project.

1.3.2 FIELD METHODS

After various investigative approaches were reviewed, the following steps were considered the most effective use of funds and time available: 1) investigate locations most likely to be disturbed by deep building trenches and shafts for pillar supports; 2) investigate one location suggested by the documentary evidence, 3) excavate the areas most accessible to the archeological team, and 4) reduce, when possible, time lost to inclement weather.

The first operations involved removal of concrete basement floors from the still-standing Yoh Building and warehouse at 114 South Front Street (Figure 2). Though excavations for the construction of these buildings certainly destroyed many cultural remains, the concrete floors served to protect the remaining evidence *in situ*. INDE personnel did an excellent job removing the concrete from portions of Rooms A-C in both the Yoh Building and 114 South Front Street. The basement floor in Room F of the Yoh Building was mostly brick and was removed by the archeological team. Former structures on the site of the Anthony Morris House had been razed, and their basements were filled with spoil. Power equipment was used to remove this fill.

A coordinate system was established for the entire site area and each basement room. Vertical controls were established relative to the USGS elevation located in the sidewalk on Front Street. The site datum was calculated at 21.52 ft. above sea level (ASL). All feature elevations are given relative to sea level. A field laboratory was located on the first floor of the Yoh Building above



AREA F: Archeological excavations 1976, 1977.

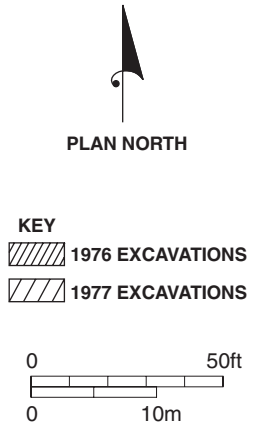


Figure 2. Area F site, showing basement rooms where archeological investigations were conducted in 1976 and 1977.

basement Room F. Excavation logs and maps were updated at this location, and artifacts were examined and boxed for transport here as well.

The field investigations were undertaken March 23, 1977-June 10, 1977, and October 11, 1977-November 7, 1977. Following the removal of concrete from the basement floors, the rooms were examined for archeological evidences and mapped. The field strategy included the excavation of trenches of various sizes to examine the stratigraphy beneath the floors. Where possible, a portion of the contents of privies, wells, and cisterns was not disturbed, thus preserved *in situ.* Shaft features threatened with destruction by the proposed construction were excavated in full, and only the half portions of the remaining shaft features were excavated. Features were excavated by hand in stratigraphic sequence. Artifacts were bagged by provenience and assigned bag numbers from the field log (see Table in Appendix I). Soil, mortar, brick, and wood samples were collected where appropriate and assigned a unique number in the sample log (see Table in Appendix I). Plan view and profile drawings recorded the stratigraphy and assigned bag lots for each feature. The field supervisor kept a running field log of the daily activities, and black-and-white prints and color slides completed the documentation of the field work.

1.3.3 LABORATORY PROCEDURES

Upon completion of field work the recovered objects and records were moved to the Laboratory of Anthropology, Temple University. Objects were cleaned, conserved where necessary, and reconstructed when possible. Initially all artifacts were numbered with the site accession number (3220) and the lot or bag number. A selected number of whole and reconstructed objects were assigned object numbers and photographed for the INHP museum card file. These objects (790), representing a sample of artifacts from various features, were described in a Reconstruction Catalog. All artifacts were stored in cardboard boxes and wooden trays in racks in the laboratory basement.

Wooden artifacts were carefully brush cleaned, immersed in wood preservative (Pentachlorophenol and other chlorophenols), drained, and air dried. Leather objects were brush cleaned and soaked in "Lexicol," a commercial leather preservative. Where necessary, leather objects were reshaped before drying. Metal objects were hand cleaned by wire brushing; identifiable objects were stabilized by dipping in yellow crystalline wax to retard further oxidation. Soil samples and fragments of building materials were retained for future research.

The Area F artifact collection remained in storage and was used as a study collection at Temple University for a period of 26 years. The collection consists of artifacts recovered during the 1977 archeological investigations conducted by Temple University as well as artifacts recovered from one feature partially excavated by Temple and later completed by the MICA team in 1979.

In 2001, the Area F artifacts were transported to JMA's West Chester laboratory for cataloging and analysis. Artifact identifications and provenience data were entered into the Automated National Catalog System Plus (ANCS+) following current National Park Service (NPS) curatorial standards as mandated by the NPS Cultural Resource Management Guideline NPS-28. Cataloging was organized by provenience and a unique catalog number was assigned to each artifact lot. Artifacts that had been conserved, or were in need of treatment, were identified in the Condition Description field. All artifacts have been labeled with the INDE catalog number and are stored in archival containers.

To the extent possible, ceramic and glass vessel analysis included crossmending vessels within features. The crossmending data contributed to the stratigraphic analysis and to a functional analysis of the artifacts. The artifact catalog lists vessels as well as remainder or residual sherds that could not be mended into vessels. The ANCS+ catalog includes percentage of vessel completeness and whether vessels match other vessels or are parts of sets.

The stratigraphic data within features were carefully examined and revised accordingly. Field notes and drawings were used to combine excavated strata into meaningful analytical strata (AS). Once crossmending was completed, the information was used to refine the analytical strata and date ranges of the feature deposits. The minimum number of vessels per analytical stratum within features was calculated.

Matching sets of ceramic and glass vessels were identified and quantified as is customary practice for assemblages of this significance. Ceramic and glass mean dates were calculated for primary deposits that date to the seventeenth or eighteenth centuries. *Terminus post quem* (TPQ) dates were calculated for all analytical strata. Every effort was made to connect specific assemblages with the people to whom they belonged. It was not possible to study the artifacts from every analytical unit in detail; consequently, features that were chosen for in-depth analysis were selected on the basis of age (seventeenth- and eighteenth-century material was emphasized) and a demonstrable connection between artifacts and residents of the block. Consumer choice (CC) index values were calculated for ceramic assemblages that date to the late eighteenth and nineteenth centuries. These values were used to compare the market value of the assemblages from Area F with the value of assemblages of comparable age found at other Philadelphia sites.

1.3.4 ORGANIZATION OF REPORT

The preliminary draft of the Area F report, written some 20 years ago, consisted of the historical background of the site, a description of the excavation, and a master's thesis on the Area F seeds by Roberta Zullick Taylor that was intended as an appendix. The draft was illustrated with a number of figures that included historic maps and images, a site plan, feature plans and profiles, and numerous photographs of the excavation and of the artifacts, most of which are reproduced in this report. The historical background, presented here in Section 2.0, is basically unchanged from the original draft. The text was taken from Betty Cosans's (1975 and 1977) original historical reports on the Area F block that were edited to cover only the project area, with added text from Greene (1974) and Batcheler (1978). This section is illustrated with Cosans's historical base maps and historic maps. The remainder of the draft, a description of the archeological and architectural features identified during the excavation, was a joint collaboration between Daniel G. Crozier and Juliette Gerhardt. This section of the original draft has been recrafted and reorganized into the present format. The artifact analysis conducted as part of the JMA project provided new data that rendered large sections of the original draft obsolete. Parts of this original chapter were integrated into Sections 3.0 and 4.0 and Appendix I.

The body of the report is organized into the following sections: The introduction (Section 1.0), the historical background described above (Section 2.0), and a description of the eighteenth-century features and associated artifacts by cellar room beginning with the Yoh Building on Second Street (Section 3.0) and 114 South Front Street (Section 4.0). A discussion of the artifacts within the context of shaft features and how they are linked to specific residents is presented in Section 5.0. Interpretative summaries tying the archeological remains to their historic lots are

presented in subsequent sections (Sections 6.0, 7.0, and 8.0), and the overall site interpretations and summary remarks on Area F are presented in the final chapter (Section 9.0).

Narrative descriptions of the remaining archeological resources—disturbed eighteenth- and nineteenth-century features and architectural details documented in the cellar rooms of the Yoh Building, 114 South Front Street, and 116-118 South Front Street—are presented in Appendix I by Daniel G. Crozier and Juliette Gerhardt. Following the description of architectural features in the cellars of the warehouses is a discussion of mortars and their use in dating structures. Mortar analysis, begun but not completed by Temple student Susan Quick, was summarized by JMA architectural conservator Lori Aument and is presented in Appendix II. An excerpt from a study of the floral remains, undertaken by Temple University graduate student Roberta Zullick Taylor in partial fulfillment of a master's degree, is included in Appendix III. As part of the JMA project, the unprocessed soil samples were subjected to analyses by archeobotanist Leslie E. Raymer of New South Associates and compared with Taylor's study (Appendix IV). Selected samples underwent parasitological analysis by Dr. Karl J. Reinhard of the University of Nebraska, whose results are also presented in Appendix IV. Analysis of the faunal remains was conducted by JMA faunal analyst Claudia Milne and is presented in Appendix V. Finally, the analysis of a resin (INDE 89951) recovered in a 114 S. Front Street feature is reported by Lori Aument in Appendix VI.

2.0 HISTORICAL BACKGROUND OF THE AREA F SITE

This section presents the background research for the northern portion of the Area F site prepared by Betty Cosans in advance of the archeological investigation. Cosans's historical reports (1975a and 1977) were edited to cover only the Area F site project area. Subsequent research by Cosans-Zebooker, conducted during the course of the current JMA project, added to the lot histories.

2.1 HISTORIC BASE MAP I: 1682-1684

William Penn's provincial capital was founded in 1682 on a narrow strip of land between the Delaware and Schuylkill rivers. Penn had his surveyor general, Thomas Holme, draw up a plan of the proposed layout of the city including five open squares and numbered plots to show prospective purchasers (Figure 3). In establishing the colony, Penn offered free land as a bonus to those who purchased a sizeable acreage.

The north part of Area F between Gatzmer and Ionic streets was originally part of two front lots granted to "first purchasers" in right of their purchase of large tracts of land in Pennsylvania (Figure 4). As originally laid out, the Area F block extended north/south from Chestnut Street to Walnut Street. The small east/west streets that presently run through the block (Gatzmer Street, Ionic Street, and Sansom Street) were originally private alleys cut through the block after the property was granted to private owners. The alleys were not part of Penn's plan for the city.

On January 29, 1682, a warrant was issued to Christopher Taylor for a front lot 102 feet in breadth on Front Street by 396 feet to Second Street (Pennsylvania Warrant & Survey III:222, hereinafter PWS; Figure 4, Lot 2). Taylor's lot, the second property on the block to be laid out, was surveyed two days later. As recorded in *Pennsylvania Warrants and Surveys*, the north /south dimensions were left blank in the return. This absence of dimensions was probably due to the fact that Taylor sold the southernmost half of the property before his survey was returned.

On April 10, 1683, Taylor sold the south part of his front lot to Thomas Hooten (Philadelphia County Patent Book A-1:59, hereinafter PCPB). Hooten's half of the front lot was resurveyed on July 16, 1684, two months after Taylor's survey was returned (PWS III:237). Taylor apparently had no resurvey made and had returned the original survey made nearly two years before, which, of course, was no longer an accurate description of the north/south dimensions of Taylor's property (PWS III:222). Another return for Taylor bearing no date but the correct dimensions of the property (51 by 396 ft.) also appears in *Pennsylvania Warrants and Surveys* (II:128). Taylor never obtained a patent for this property during his lifetime. Although he sold it before his death, a patent was finally issued to his heirs on May 26, 1691 (PCPB A-7:167). Taylor's laxity in observing the proper procedures for establishing clear title to land in Pennsylvania is somewhat surprising considering the fact that he was Penn's Registrar General in 1685 (Philadelphia County Deed Book E-l v. 5:129, hereinafter PCDB). Taylor's behavior was anomalous in terms of the other "first purchasers" on the block, all of whom promptly acquired proprietary patents for their properties. Hooten was not a "first purchaser"; however, he is included among the original grantees of land on the Area F block because his purchase was made before clear title to the land had been established.

On July 2, 1684, William Sharlow and William Wood as joint purchasers obtained a warrant for a front lot 102 x 396 ft. on the north side of Taylor's lot (Figure 4, Lot 7). The property was

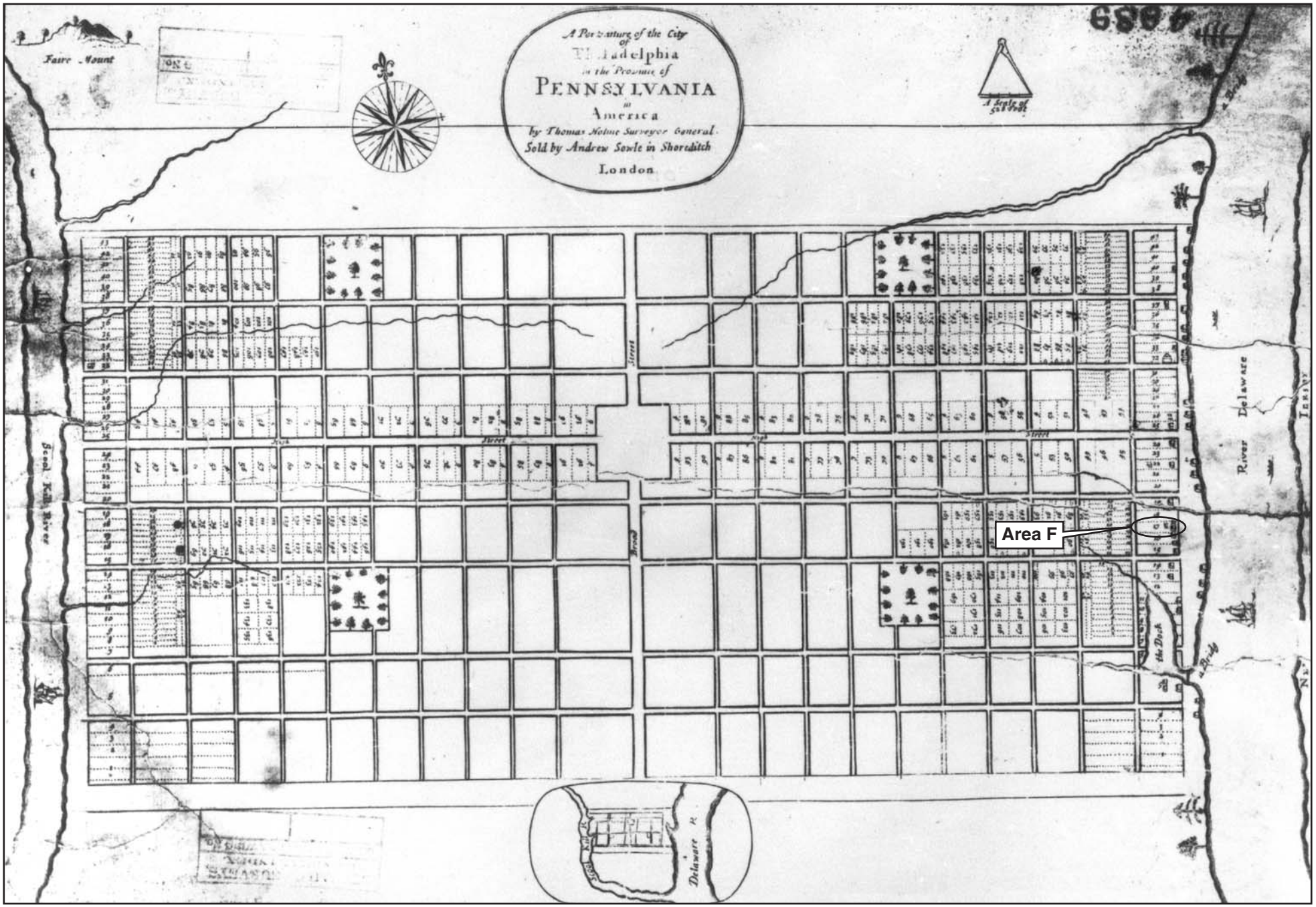


Figure 3. A Portraiture of the City of Philadelphia in the Province of Pennsylvania in America by Thomas Holme, 1683, referred to elsewhere as the "Holme Plan" (Snyder 1975:18).

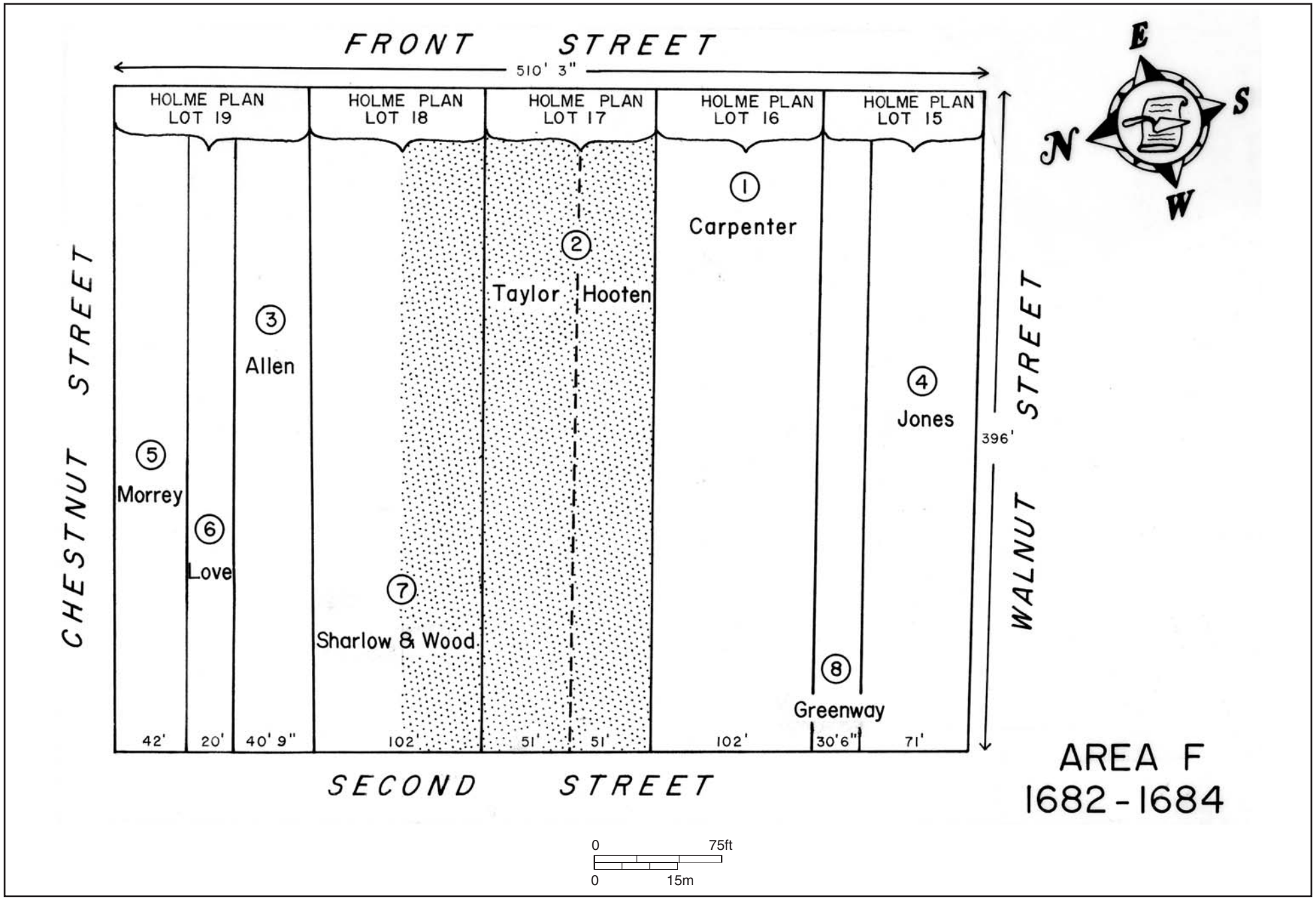


Figure 4. Area F Historic Base Map I: 1682-1684. Shaded area is the Area F site superimposed on the 1683 Holme Plan (Snyder 1975:18). The circled numbers indicate the order of conveyance.

surveyed for them a week later on July 9. Their survey was returned July 29, 1684 (PWS III:219) and a patent issued two days later (PCPB A-1:127). Sharlow and Wood's lot was the seventh property to be laid out on the Area F block.

There is no evidence to indicate that either Christopher Taylor or Sharlow and Wood undertook development of their properties. This was not unusual on a citywide basis where many "first purchasers" did not undertake development of their city lands. However, the Area F block was anomalous to the extent that four of the nine "first purchasers" located there (Samuel Carpenter, Humphrey Morrey, Griffith Jones, and Thomas Hooten) were personally involved in the initial development of their properties.

2.2 HISTORIC BASE MAP II: 1684-1692

Initial development of the Area F front lots preceded establishment of the alleys that are presently Ionic and Gatzmer streets and was oriented to the Front Street side of the block (Figure 5). On October 3, 1685, Christopher Taylor sold the remaining northern portion of his front lot to Thomas Lloyd for 110£ (PCDB E-l v.5:129). Between 1685 and 1687, Lloyd erected a dwelling on the Front Street side of the property. This structure was the first to be erected on the Area F properties and was probably located at the southwest corner of Front and Gatzmer streets (120 South Front Street; Figure 5). On May 4, 1687, Thomas Lloyd sold the dwelling and property to Anthony Morris in exchange for 218 acres in Philadelphia County (PCDB E-l v.5:523). Meanwhile, the front lot held jointly by William Sharlow and William Wood was partitioned, the north moiety (51 by 396 ft.) going to Sharlow and the southernmost (51 by 396 ft.) to Wood. Apparently William Wood's death occasioned the partition of the premises. In 1687 (no day or month recorded) Joseph Wood sold the south moiety of the property to Anthony Morris for 65£ silver (PCDB E-l v.5:647). With the acquisition of these two properties, Anthony Morris owned the entire north part of Area F extending from the south side of what is now Ionic Street to a point 16 feet south of Gatzmer Street, 102 feet in breadth, and from Front Street to Second Street, 396 feet in depth. Morris's concepts of land use were completely urban, and he quickly undertook the development of the property with full realization of its value as prime urban real estate.

Shortly after purchasing these properties, Morris sold a lot 20 by 396 feet on the north side of the property to Alexander Beardsley, who erected a brick house on the Front Street side of his lot at what is now the southwest corner of Front and Ionic streets (PCDB E-2 v.5:94; PCDB E-7 v.10:133).

> The main body of this house was apparently less than fifty feet deep, as access to its rear yard by an alley was granted by its neighbor to the south through a "gate which was then set in the partition fence" and any subsequent gate was to be placed "in the sd. fence not extending back from Front St. more than 50 ft." (Batcheler 1978:217).

Morris also erected his own city dwelling ca.1688 on the Front Street side of his property at what is now the northwest corner of Front and Gatzmer streets. The Morris dwelling remained in the Morris family into the nineteenth century. As late as 1782, the premises were still referred to as the mansion house lot (PCDB D-6:54). The dwelling erected by Morris ca.1688 was probably the same structure insured by Deborah Morris in 1788. The Morris house was far from the modern concept of a mansion. It was two stories high, built of brick, 22 feet in front on the street, and 44 feet deep. The interior was described as "very plain and mostly old." In the late eighteenth century, the property also included a brick kitchen 15 by 16 feet, two stories high. The kitchen

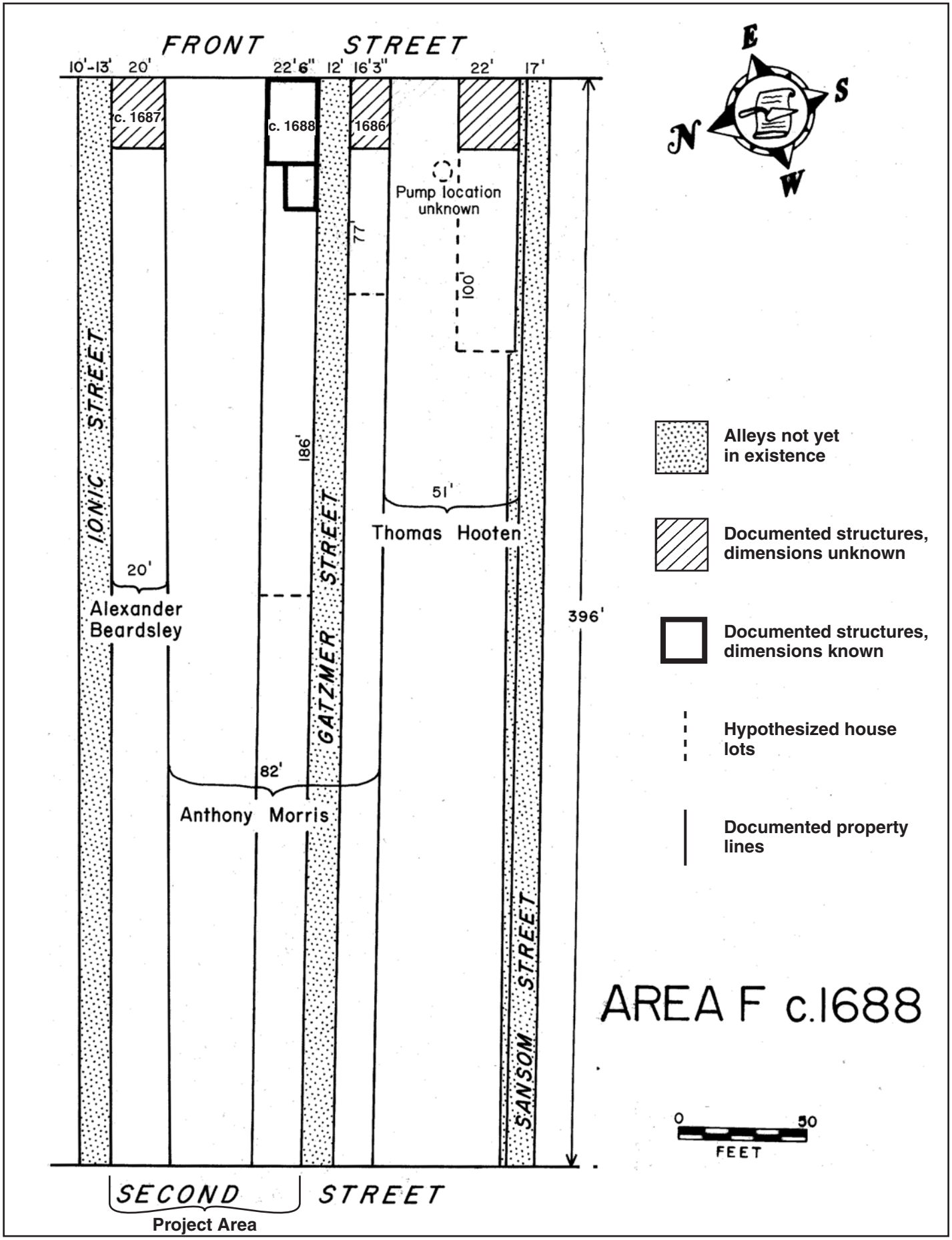


Figure 5. Area F Historic Base Map II: 1684-1692. By 1688, four houses were constructed on the Area F block facing Front Street. The project area is between Ionic and Gatzmer streets. Within four years, Morris Alley (later called Gray's Alley and Gatzmer Street) was established.

may have been added at a later date. The house lot probably extended no more than 180 feet west of Front Street.

By 1688, four houses had been built on the Area F block facing Front Street (see Figure 5). Of these four, two stood at the northern end of the block at 114 and 118 South Front Street, the dwellings of Alexander Beardsley and Anthony Morris respectively, and both were brick constructions.

> It is commonly said that the brick came to Philadelphia as ballast. Indeed, some bricks may have. But in letters, written about the time these first houses were being erected, the established trades of the new province were extolled, including "seven Master Bricklayers, (and) four Brick-Makers with Brick-kills". Penn wished to encourage the use of non-combustible brick, and suggested this mode of building in his descriptive advertisements for his growing colony (Batcheler 1978:8).

There is no surviving record of what these seventeenth-century structures looked like. However, an 1830s sketch of a house adjacent to Area F gives some idea of contemporaneous urban architecture (Figure 6).

By 1692, Anthony Morris had established Morris Alley (the future Gatzmer Street). This alley cut through his property on the Area F block, creating usable frontage on both the north and south sides of the alley. The width of this alley was established with the siting of Morris's dwelling relative to the dwelling already standing on site when he purchased the property from Lloyd. However, no references are made to the alley in deeds until 1692. At this time, Morris began subdividing the Second Street and alley frontage into small building lots. He erected at least two tenant houses on the south side of the alley (PCDB G-8:98), but all of the colonial development that took place on the north side of the alley was apparently undertaken by others on land purchased from Morris. Morris sold a few of the properties outright, but most of the alley and Second Street subdivisions were let on annual ground rents. Many of these ground rents remained in the Morris family for three generations, resulting, by rough computation, in a return of more than 10 times Morris's initial investment in the purchase of the property at no expense to himself or his heirs.

2.3 HISTORIC BASE MAP III: 1692-1740

Upon the death of Alexander Beardsley in 1696, the brick house and lot at 114 South Front Street passed to his wife, Margaret, who was granted life rights to the house and lot on Front Street, and after her death, it was to go "...to the use and behoof of George Gray, his grandson and son of his eldest daughter Mary..." (PCDB E-7 v.10:133). Apparently, Beardsley's bequest constituted an entail on the premises. By 1715, Margaret Beardsley had died, and, on 4 February 1715, the above-mentioned George Gray granted Henry Hodge the east part of the property 20 feet in breadth on Front Street by 296 feet in depth including the dwelling for life (PCDB F-4:458). Six days later, he granted Hodge the rest of the property consisting of a vacant lot, 20 by 100 feet on Second Street (PCDB E-7 v.10:133). Thirteen years later, Hodge granted the messuage and two lots to George Gray's eldest son, also George Gray (PCDB F-4-458). The second George Gray also died, leaving the property to his eldest son, the third George Gray (PCDB H-20:118). It would seem that the entail placed on the property by Beardsley was probably the reason this property was not more intensively developed at an earlier date. It was not until 1761 that the third George Gray finally broke the entail placed on the property by his great-great-grandfather and

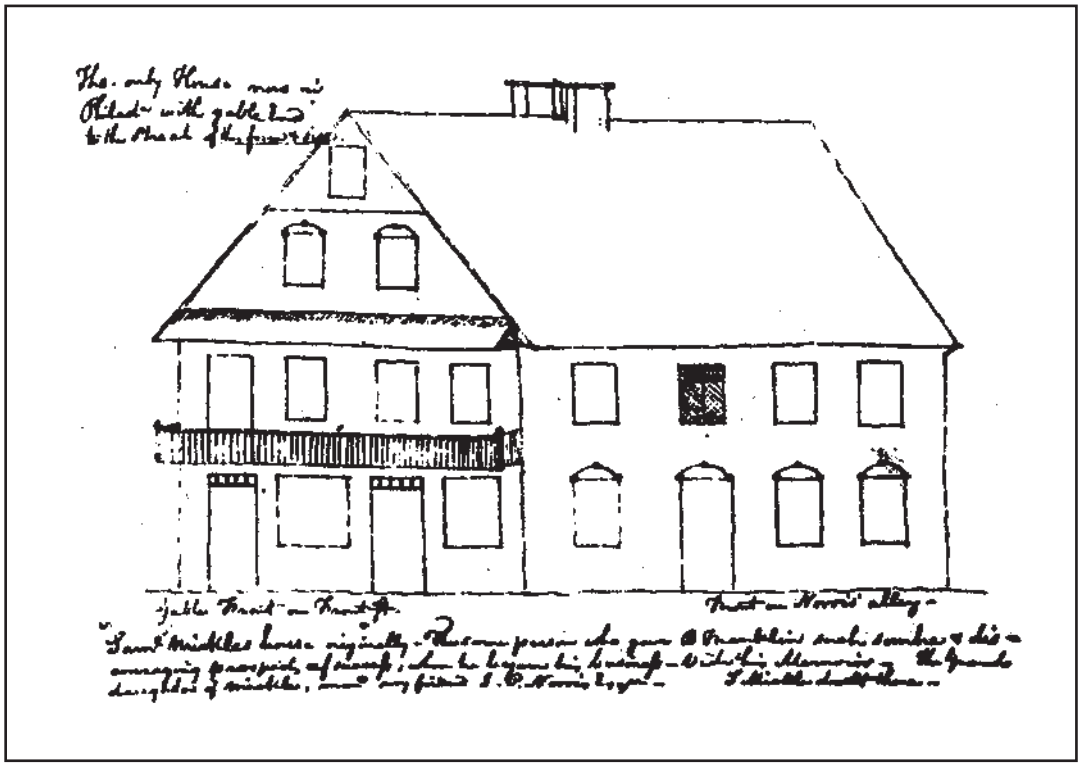


Figure 6. 1830 drawing, by John F. Watson, of the late-17th-century house that stood at the southwest corner of Front and Sansom streets with its gabled end facing onto Front Street.

sold the Second Street front of the lot to James James, who immediately undertook its development (PCDB G-20:118).

Until 1740, development of the Area F block centered on the Morris property. Before his death in 1721, Anthony Morris erected two small, 15-feet-front tenant houses on the north side of his dwelling at 116 South Front Street (Figure 7, Lot 1). These two tenant houses together with a lot 31 by 205 feet were left to his eldest son, Anthony Morris (the second), in 1729. This property remained in the Morris family until 1777 (PCDB D-6:533,536).

Subdivision of Morris's property off Front Street began on Second Street and was then extended eastward along the alley. There are documentary gaps in the succession of titles for the inner block due in part to the failure to record deeds for properties actually sold and by the fact that most of the properties were let on ground rents. The following is an account of the subdivision of Morris's properties on the north side of Morris Alley (see Figure 7 and lot numbers referred to in text).

The first subdivision on the north side of Morris Alley was to Thomas Wharton, who in 1692 purchased a lot fronting 20 feet on Second Street and 46 feet on the north side of Morris Alley (PCDB F-4:480; Figure 7, Lot 3). By 1697, Wharton erected a brick house on this property (123 South Second Street; PCDB H-13:407) and in 1701 sold the house and its property to Thomas Everdon (Figure 8).

During the next 27 years, the property passed by inheritance to Nathaniel Everdon, his sister Martha Kinnerly, and, finally, to her eldest son, William Kinnerly, who sold the property to sea captain Stephen Anthony on October 29, 1728 (PCDB F-5:24). The property remained in the Anthony family for the rest of the eighteenth century. The brick house erected by Thomas Wharton was probably the same small brick house that Widow Anthony insured in 1765. According to her insurance survey, the house was 20 by 28 feet, two stories, with a back building 18 by 18 feet, three stories, almost new. Apparently the back building was added. At the time the insurance survey was made, a dram shop was kept on the premises.

The second subdivision on the north side of Morris Alley consisted of two lots (Figure 7, Lots 4a & 4b). On March 5, 1696/7, Morris sold John Redman a lot on the east side of Wharton's lot extending 50 feet in breadth on the north side of Morris Alley and 20 feet in depth (PCDB F-1:110, Lot 4a). Sometime before 1700, Redman also acquired a lot on the north side of this lot measuring 36 by 30 feet. This lot was probably sold to Redman after Lot 5 was sold to John Fleckney. On January 4, 1700, John Redman sold both lots to Margaret Cook. Two years later, Margaret Cook sold the lots to Joshua Carpenter (PCDB F-1:110). By 1702, at least one house was standing on the property. When John Budd purchased a lot on Morris Alley in that year, it was described as beginning 40 feet east of Mary Cook's house (PCDB F-4:480). On November 4, 1717, Morris extinguished the ground rents (PCDB F-1:110). No trace of the property could be found after 1717.

The third lot to be sold by Morris was located on Second Street, north of Wharton's lot (Figure 7, Lot 5). On February 1, 1697, Anthony Morris sold John Fleckney a lot 30 feet 9 inches in breadth on Second Street by 60 feet in depth (PCDB H-13:407). Fleckney erected a framed dwelling on this lot (121 South Second Street; PCDB H-13:407). By 1699, Fleckney was dead. His wife conveyed the premises to their daughter, Elizabeth, then widow of Thomas Hooten and soon-to-be wife of Alexander Paxton (PCDB H-13:407). On December 26, 1701, Alexander Paxton and Elizabeth, his wife, conveyed the property to Barsheba Bowers, who conveyed the

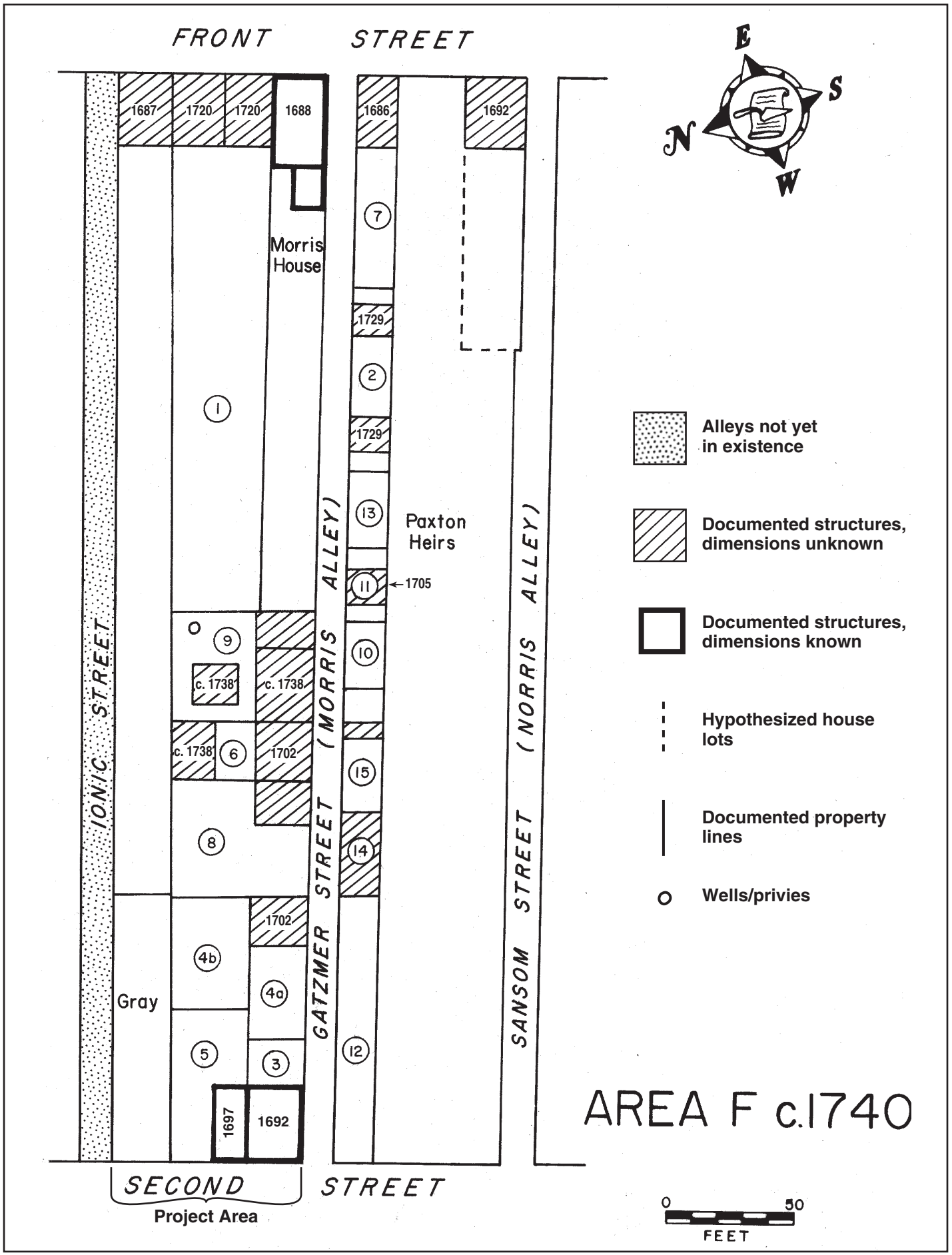


Figure 7. Area F Historic Base Map III: 1692-1740. Until 1740, the impetus for development centered on the Morris property. Morris's subdivisions are numbered in chronological sequence.

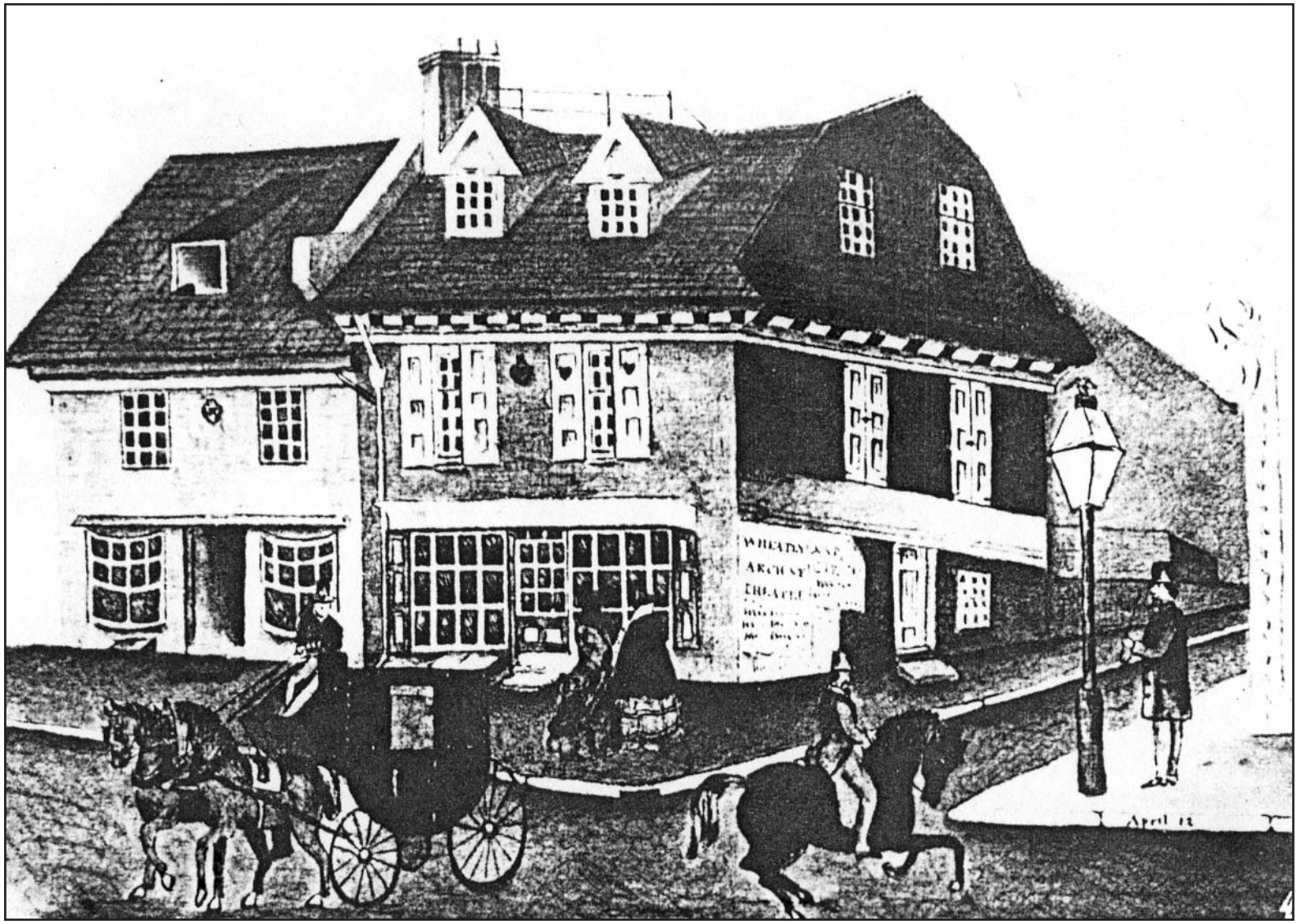


Figure 8. Undated watercolor of 77 and 79 South Second Street (Green :112). The corner house (79 later 123) with the gambrel roof, occupied by sea captain Stephen Anthony, was the third to be built (c.1692) on the Area F site. The house next door (77 later 121) was built next c.1697.

property back to Paxton on December 5, 1705 (PCDB H-13:407). The property remained in the Paxton family until April 17, 1741, when Elizabeth Paxton's heirs sold the property to George Gray (the second), who also owned the property on the north side of this lot (PCDB H-13:407). On March 12, 1761, George Gray (the third) sold both Fleckney's lot and the Second Street front of his own lot to James James (PCDB H-20:118).

Three months later, James subdivided the property and sold Stephen Anthony a dwelling and lot 15 feet 11 inches in breadth on Second Street by 60 feet in depth (121 South Second Street). This property was located on the north side of the Wharton lot that Anthony already owned (PCDB H-17:40). This dwelling was apparently the same house that Fleckney built in 1697-99. In 1765, Widow Anthony also insured this building. It was described in her survey as frame and plastered, 14 feet by 30 feet, two stories, with a kitchen 15 feet by 9 feet, one story. Again, it is quite possible the kitchen was added at a later date. This house, together with its neighbor at 123 South Second Street, is depicted in a historic watercolor (see Figure 8).

The fourth lot Morris sold was located on the north side of Morris Alley, 40 feet east of Mary Cook's house (see Figure 7, Lot 6). This lot was granted to John Budd on the 21st of December 1702 (PCDB F-4:480). A dwelling was standing on the property by 1704 (PCDB F-1:70). This property was not picked up again in the deed records for nearly 50 years until William Gray sold both this property and the lot next east in 1750-51 (see Figure 7, Lot 9).

The sixth lot sold by Morris was located on the north side of Morris Alley, east of Redman's lots (see Figure 7, Lot 8). On March 1, 1704, Morris sold Richard Hill a lot 40 feet in breadth on Morris Alley by 50 feet in depth, bounded to the east by John Budd (PCDB F-1:70). In 1717, Morris sold the rent on this lot to Hill (PCDB F-1:23). There is no trace of this property in the deed records until 1749. In 1748, Thomas Broadgate died seized of a dwelling and lot on the north side of Morris Alley, 20 feet in breadth by 50 feet deep, which he left to his daughters Mary Snow and Sarah Green. The bounds of this property (John Budd east and Richard Hill west) confirm that this was, indeed, the east half of Hill's 40-foot lot. On September 13, 1749, Peter Snow and Mary, his wife, conveyed their half interest in the property to Mary's sister, Sarah (PCDB H-9:64). No further record was found for this property or for the west half of the lot still called Richard Hill's in 1749.

During 1705, Morris sold five lots on Morris Alley (one on the north side and four on the south side). On October 8, 1705, Morris sold Thomas England a lot extending 38 feet on the north side of Morris Alley by 50 feet in depth, located on the east side of Budd's lot (PCDB F-4:480; see Figure 7, Lot 9). On April 20, 1720, John Wilson sold the same lot with a dwelling to William Gray (PCDB H-3:31). No link could be found between England and Gray, and no evidence that Morris had recovered the property and sold or let it to someone else. Eight years later, on June 29, 1738, Gray mortgaged the dwelling and lot to George Sharswood for 150£ (PCDB F-10:229). On October 8, 1750, and August 17, 1751, Gray sold not only the 38-foot lot but also the 20-foot lot next west, formerly the property of John Budd (PCDB H-2:88 and H-3:131). There is no record of when or how Gray obtained the second property. However, at some time after 1738, Gray erected a substantial commercial bakery on the two lots. Perhaps the mortgage money received in 1738 financed this enterprise. In 1750, Gray sold Mary Weyman all of the 38-foot lot and the north or rear half of the 20-foot lot formerly belonging to John Budd. The 38-foot lot included a brick dwelling and a smaller frame dwelling fronting the alley with a brick bake house behind. The back end of the 20-foot lot included a wooden granary and "free use of a certain house of ease or necessary house on the east side of the first described lot" (PCDB H-3:31). This is one of the few instances where access to a privy on another property was granted by deed. The following

year, Gray sold the front part of the 20-foot lot to John Dixon. This lot included "a certain brick building or cooper's shop," probably the same structure erected ca.1702 by John Budd (PCDB H-2:88).

2.4 HISTORIC BASE MAP IV: 1740-1776

By mid-century, the name "Morris Alley" was replaced by the name "Gray's Alley" (Figure 9). There were probably two factors influencing this change in name. First, William Gray had established a fairly substantial light industrial complex on his land on the north side of the alley. Second, about the same time the term "Morris Alley" was replaced by the term "Gray's Alley," the alley on the south side of Area F (Sansom Street) formerly called "Paxton's Alley" had been renamed "Norris Alley." Having a "Morris Alley" and a "Norris Alley" on the same block running in the same direction was undoubtedly confusing and, if not responsible for the renaming of Morris Alley, at least hastened the process of the name change.

Ionic Street (Taylor's Alley) forms the northern boundary of Area F and, historically, was the north bound of Morris's property created out of the property adjoining Morris to the north. Unlike Morris Alley, which was deliberately established to create income-producing frontage, Taylor's Alley was first mentioned in 1743 (PCDB G-11:290). In 1761, it was described as "crooked and somewhat circular at the east end" (PCDB H-15:200). This is the kind of configuration one would expect in a passageway established by custom as traffic skirted low spots, bushes, and tree stumps. Throughout most of the eighteenth century, there was very little development of the frontage along Taylor's Alley. For example, only two structures were listed for Taylor's Alley in the 1798 Direct Tax for Walnut Ward, both of which were probably located on the north side of the alley outside of Area F (U.S. Direct Tax Assessment 1798).

The remaining area to be developed on the north side of the Area F site in the period 1740-1776 was the Second Street front of the Beardsley/Gray property purchased by James James in 1761 (Figure 9, Lot 5). The combined lots (117, 119, and 121 South Second Street) fronted 50 feet 9 inches on Second Street and continued at that width for 60 feet, at which point it narrowed to 20 feet and continued at that width for another 57 feet. As described above, James sold the Fleckney house (121 South Second Street) to Stephen Anthony three months later. On the vacant portion of James's property, he erected two brick dwellings, at 117 and 119 South Second Street (see Figure 9, Lot 5). Both houses were insured in 1763. The southernmost house was 15 feet by 38 feet, three stories, and was described as new. There was no mention of back buildings or a basement kitchen. This house was sold on April 16, 1764, to James Stewart.

On the adjacent corner lot, 117 feet deep along Taylor's Alley by 20 feet fronting Second Street (117 South Second Street), James built an elaborate brick house described as 19½ by 36 feet, three stories, with a staircase 14 feet by 9 feet, three stories; and a kitchen 22 feet by 13 feet, two stories (see Figure 9). Some time before 1764, this house was sold to John Rielly.

A minor change occurred on November 22, 1775, when an alley was established between the north side of the Morris tenements on Front Street and George Gray's house (see Figure 9, next to Lot 1).

2.5 HISTORIC BASE MAP V: 1776-1800

The initial development of the Area F site was completed by 1776; few open spaces remained.

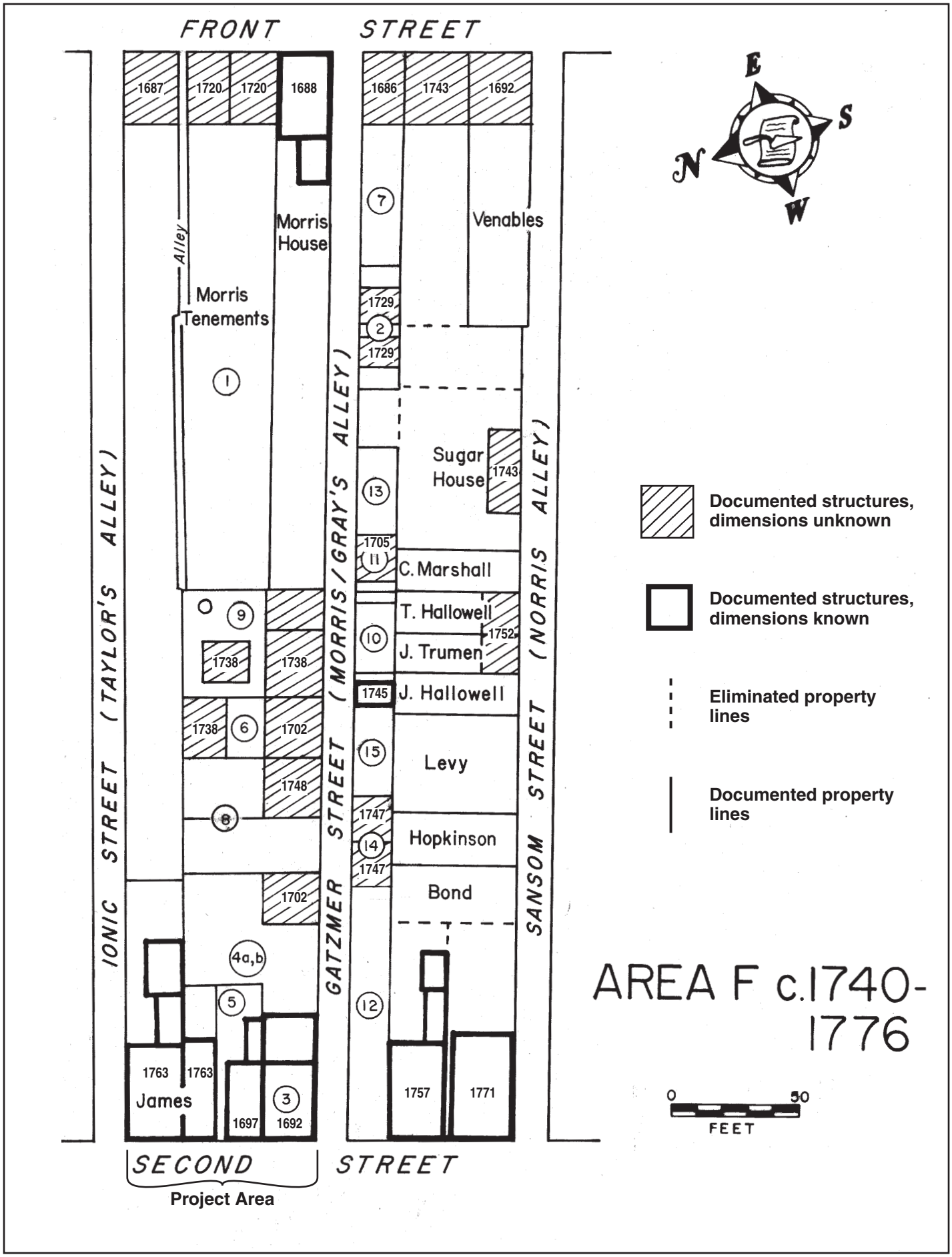


Figure 9. Area F Historic Base Map IV: 1740-1776. Between 1740-1776, development concentrated on the southern half of Area F and on the south side of Taylor's Alley, first mentioned in 1743.

The first property to undergo redevelopment was the Morris tenements at 116 South Front Street (Figure 10, John Elliott). This property had been in the Morris family since 1687. In 1729, the depth of the lot was described as 205 feet. It was also hypothesized that the depth of the Morris dwelling house lot just to the south was 180 feet. This difference was really unimportant as long as the land remained in the Morris family. Once the family contemplated disposal of the property, it was necessary to confirm the lot's western boundary.

On July 23, 1777, Ann Gibbs purchased the northernmost half of the lot on the north side of the Morris dwelling from the heirs of the third Anthony Morris (PCDB D-6:533). The lot purchased by Ann Gibbs was 17 feet 9 inches in breadth on Front Street and 180 feet deep. It also included the alley on the north side, created in 1775. A week later, Ann Gibbs purchased the south half of this property from Samuel Morris (PCDB D-6:536). This lot was 13 feet 3 inches in breadth by 180 feet in depth and included rights to a small piece of ground 8 feet wide running across the back end of the Morris house lot. Seven years later, on July 19, 1782, Ann Gibbs sold both properties to John Elliott (PCDB D-6:539). Elliott apparently took down the two old tenements (built c.1720) and erected a new house on the property. On October 17, 1782, Deborah Morris also conveyed to Elliott the eight-foot strip of land across the back end of the dwelling house lot (PCDB D-6:541).

However, establishing the rear or west line of the Morris properties at 180 feet from Front Street left a surplus of approximately 20 feet between this property line and the first subdivision on the north side of Morris Alley. Apparently this was a case of unrecorded deeds in the historical context. It seems that the 20-foot lot had been granted to William Gray, who later died seized of the premises. On the 4th of September 1782, Martha Gray sold this 20 foot vacant lot on Morris Alley to Benjamin Rush (PCDB D-9:340). A year later, on August 16, 1783, Rush sold the property to John Elliott (PCDB D-8:530).

A description of John Elliott's house was published in *Philadelphia and Her Merchants* in 1860 (Ritter 1860:173).

> This No.60 [later 116 S. Front Street] is a domain of some dignity, at least, for its dimensions. The house is of old style, but extensive in front and rear, the lot being about thirty-one feet front by over two hundred feet in depth, and widening in the rear from Gray's to Taylor's alley, having a front on each: the lot thus forming a T.

The second property to undergo redevelopment was the George Gray property at 114 South Front Street (Figure 10), when it was sold to Robert Smith in 1791. Smith tore down the Beardsley house and built a larger one with a carriage house behind it facing onto Taylor's Alley. According to an 1807 insurance survey, the new house was described as a three-story brick house, 20 feet front by 42 feet deep, with adjoining piazza (stairhall) 10 feet by 19 feet 6 inches, three stories high, a kitchen back building 14 feet by 39 feet 6 inches, three stories high, wash house 13 feet by 14 feet, two stories high, and a two-story stable and carriage house 22 feet front by 20 feet deep (Mutual Assurance Company 1808:217-218).

> The house in plan with its piazza and back kitchen building, was similar to the surviving 1787 Bishop William White House at 309 Walnut Street. However, the first floor front, outfitted as "a store shelved and occupied as a dry goods store," relates to the combination shop/houses built in 1787 by Benjamin Franklin at his Court facing Market Street (Batcheler 1978:219).

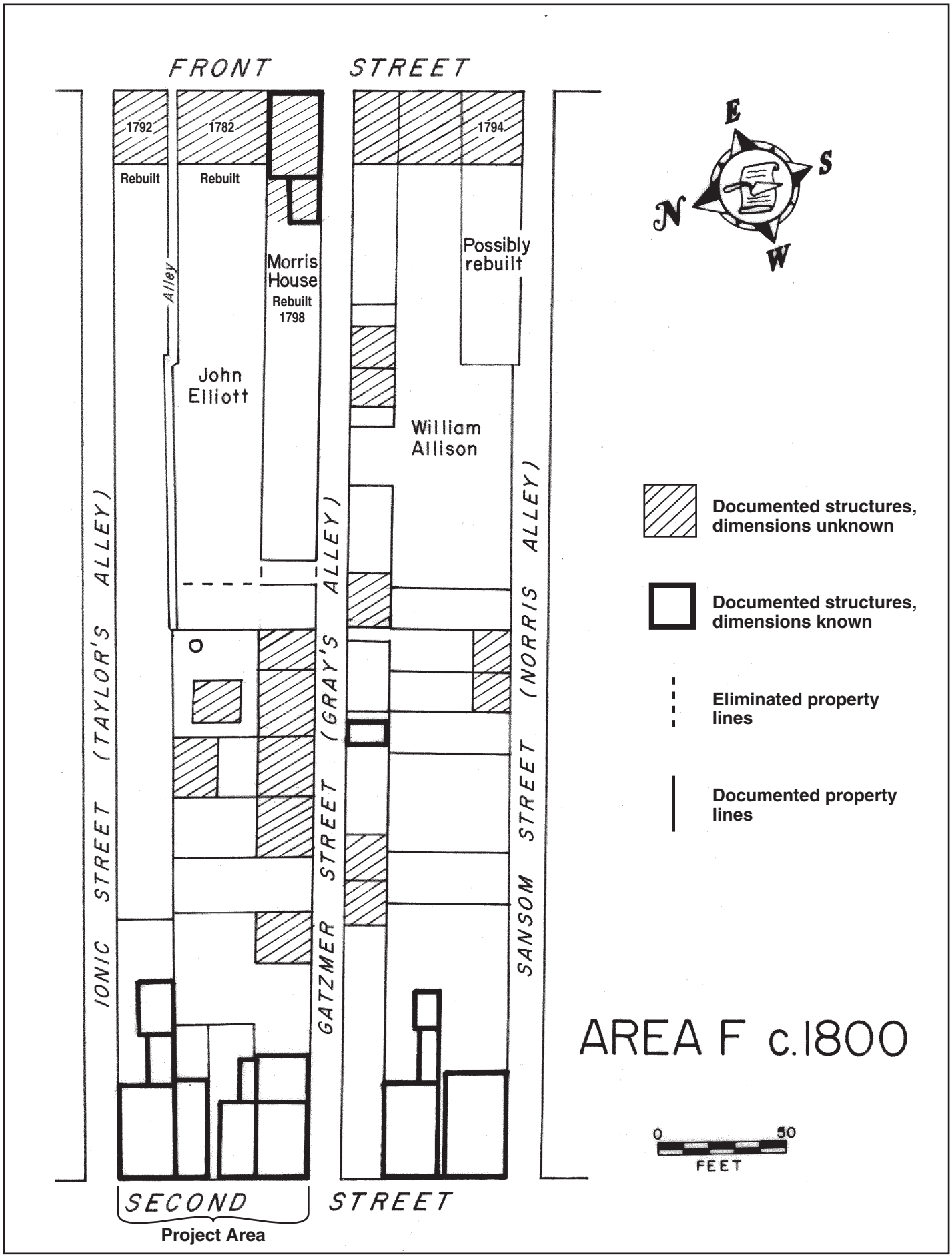


Figure 10. Area F Historic Base Map V: 1776-1800. The period 1776-1800 produced the first evidence of rebuilding and reuse of the land.

The chain of title research for the Area F block was traced up to 1800. Subsequent research on the lots with shaft features unearthed an original survey map of the Area F site c.1792 (Figure 11). Although owners and in the case of Mary Pristet, occupant, are listed, the bake house and a framed shop are the only structures identified on this survey map.

2.6 AREA F IN THE NINETEENTH CENTURY

The 1860 Hexamer and Locher map of the Area F block indicates that most of the property lines existing in 1800 still existed (Figure 12). Also, many eighteenth-century buildings were probably standing, especially on the north side of Sansom Street and on both sides of Gatzmer Street (the former Gray's Alley and before that, Morris Alley). The most substantial area of new development by 1860, was the development along the south side of Taylor's Alley.

The history of the redevelopment of the property at 114 South Front Street in this period was documented in a Historic Structure Report (Batcheler 1978:221-223). The report documents that the second house on this lot, built by Robert Smith in 1792, was a combination home and store to the Smith family into the 1820s. The address at this time was 58 South Front Street. Under Robert Smith the lot size was increased to 194 feet along Taylor's Alley. The property changed hands a few times before being bought September 20, 1826, by another Philadelphia merchant, Joseph Solms. In the 20-year period that Solms owned the lot, he tore down the Smith house/store and sometime before 1847, when he went bankrupt, replaced it with a four-story brick store with two four-story brick warehouses on the back end of the lot fronting Taylor's Alley. The property again changed hands several times before its purchase in 1855 by Hugh Catherwood, a liquor merchant. He was listed in city directories as "H. Wilson Catherwood, Merchant" and "H. & H.W. Catherwood wines & liquors." The street number was changed in this period from 58 to 114 South Front Street. In 1856, Catherwood added a one-story counting house between the two four-story buildings. Catherwood produced liquor from a still in one of the rear buildings, packaged and warehoused it in the upper floors of the front building, and sold it from the storefront on Front Street. The liquor business was carried on by Alfred Tucker until 1911.

By the middle of the nineteenth century, the value of the land on the Area F block pressed for greater commercial use of the Area F properties. William Richardson purchased six lots in the Area F block, four fronting on the east side of Second Street (numbers 73, 75, 77, and 79, later changed to 117, 119, 121, and 123) and two on Gatzmer Street. These properties were consolidated under the ownership of William Richardson prior to his death in 1857.

By 1874, the Atlas of Philadelphia (Figure 13) for the north side of Area F shows that land coverage had reached 90 percent (Batcheler 1978:11). The first large warehouse to appear on the Area F site was a wool warehouse built c.1896 on the double lot at 116 (old 60) South Front Street (Batcheler 1978:12).

Until 1896 (Figure 14), the north side of Area F still retained the small lot sizes created by late-seventeenth- and eighteenth-century subdivisions of the originally granted front lots. The block of properties purchased by William Richardson was conveyed by his heirs to Thomas Roberts between 1898 and 1908. By 1908, Thomas Roberts owned nearly all of the property between Gatzmer Street and Ionic Street in Area F excepting the lot at the northwest corner of Front and Gaztmer streets which remained in the Morris family and the property at the southwest corner of Front and Ionic streets which was owned by Hugh Catherwood.

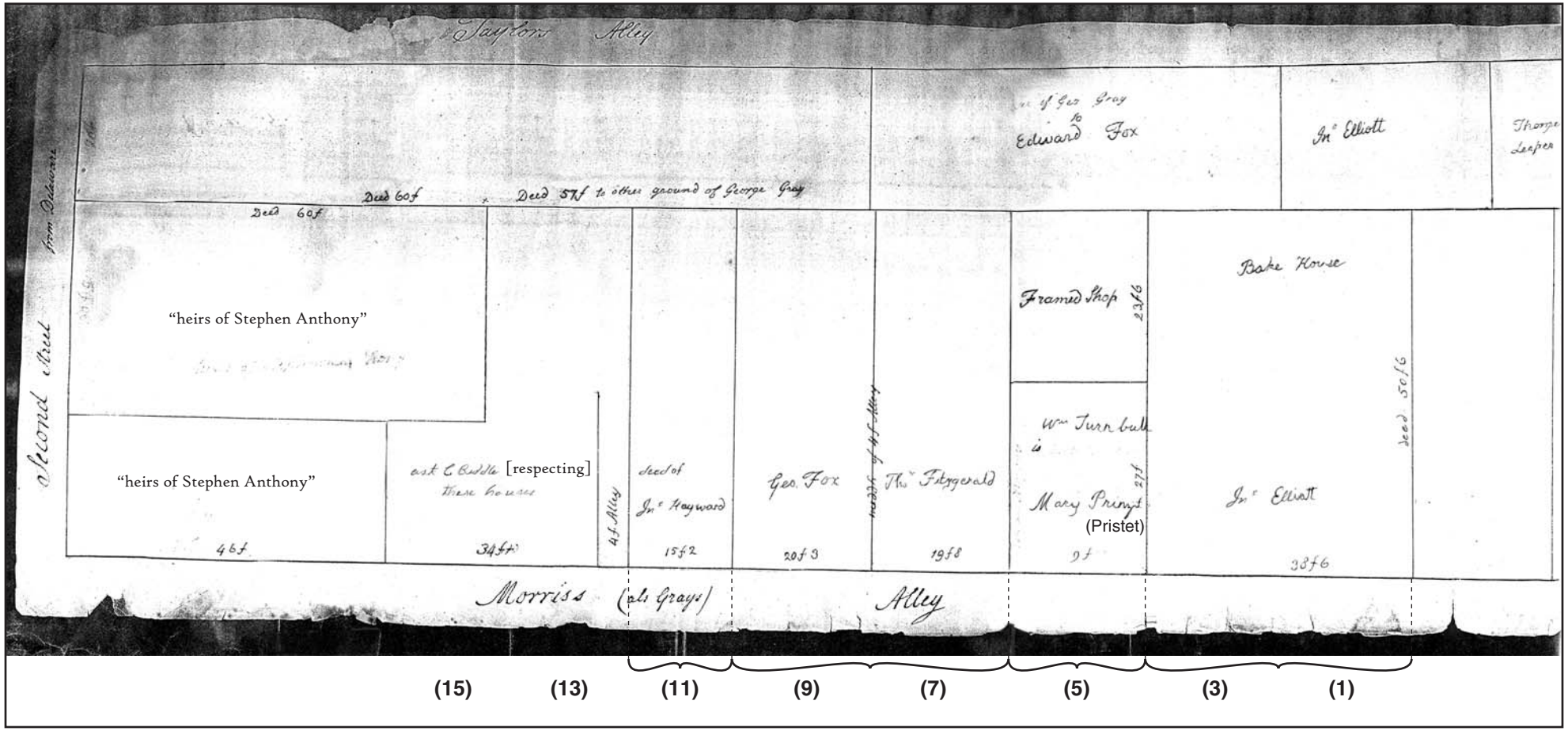


Figure 11. Unidentified survey map of the Area F site c.1792 (Records of Third Survey District, City of Philadelphia). The numbers in brackets refer to addresses on Gray's Alley.

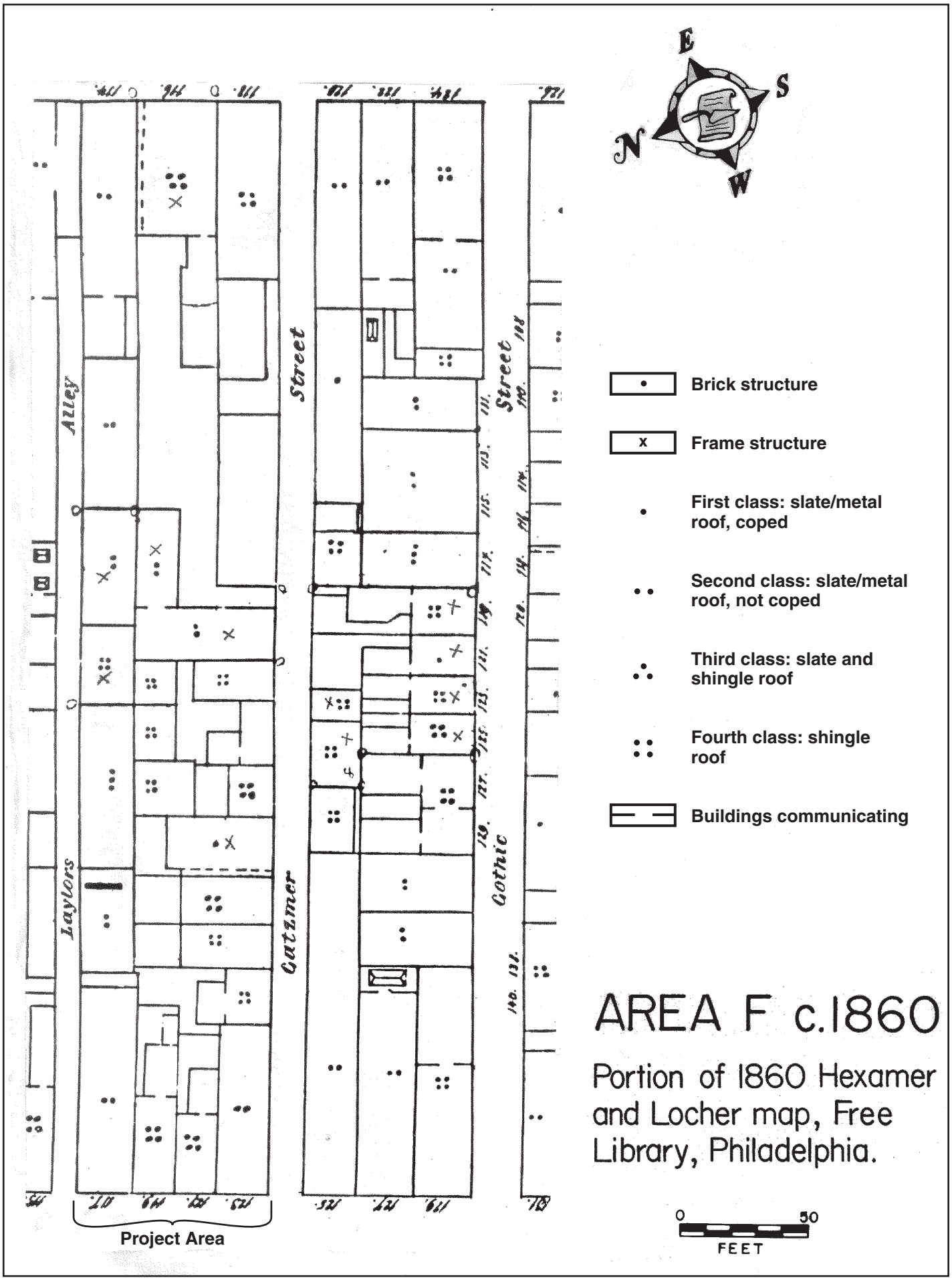


Figure 12. Portion of 1860 Hexamer and Locher map showing Area F. Note the infill of buildings along the south side of Taylor's Alley in this period.

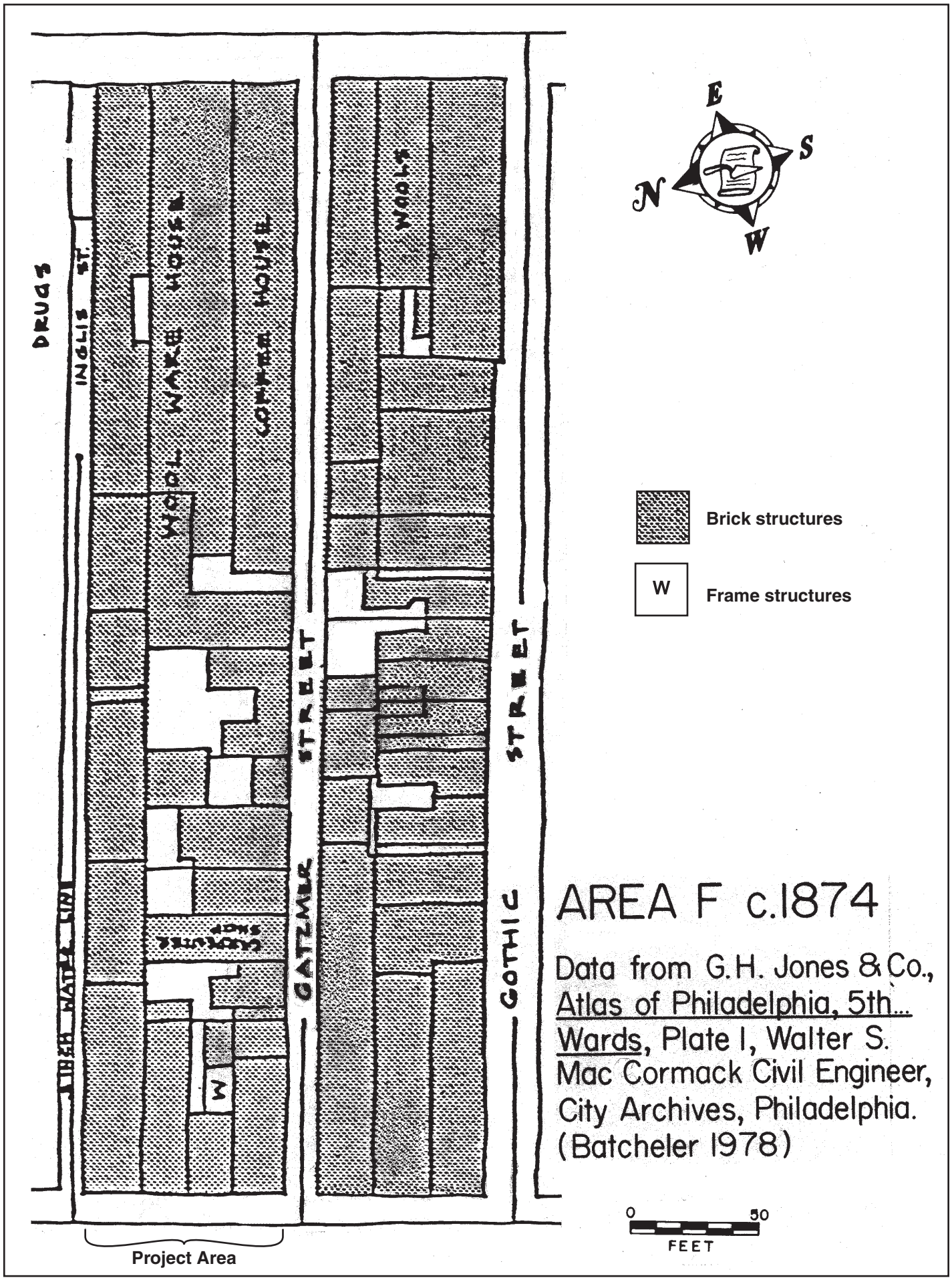


Figure 13. Portion of the 1874 Atlas of Philadelphia showing Area F. Note the appearance of warehouses.

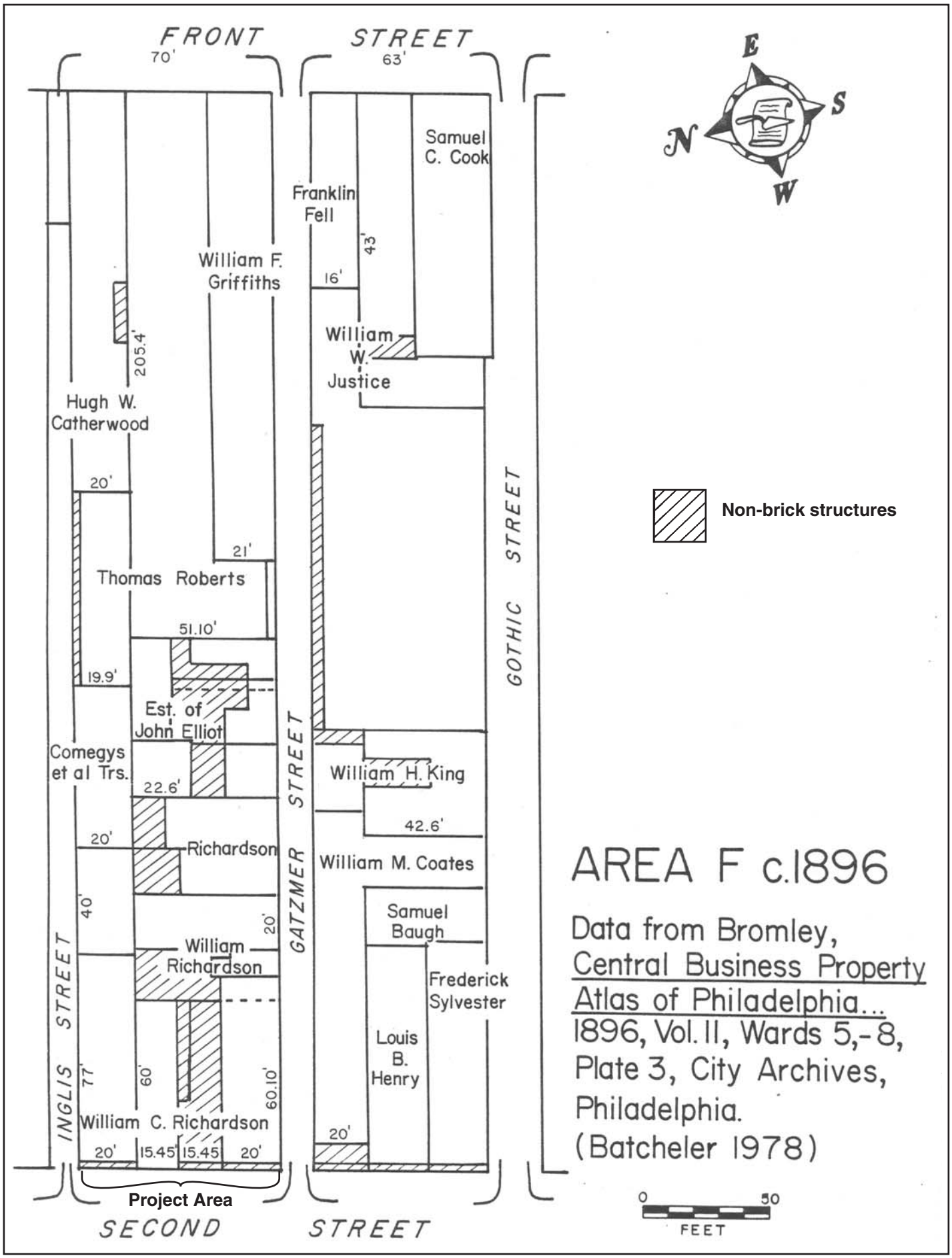


Figure 14. Portion of the 1896 Central Business Property Atlas of Philadelphia showing ownership of Area F.

The acquisition of large lots in the Area F block made way for the construction of warehouses in the period between 1896-1908, including a cigar factory at 117-123 South Second Street (see Plate 2). These large buildings, under the ownership of Thomas Roberts, subsumed all the eighteenth-century properties on the north side of Gatzmer Street (Morris/Gray's Alley) – No. 101, 103, 105, 107, and 109 as well as the properties at 117, 119, 121, and 123 South Second Street and 116 South Front Street (Figures 15-16). The properties at the corners of Front and Ionic streets and Front and Gatzmer streets (114 and 118 South Front Street) were the same lots purchased by Alexander Beardsley and Anthony Morris in the seventeenth century.

Fifty years later, the cigar factory had been converted into offices and renamed the Yoh Building, and the north side of Area F was the site of four large five- and six-story buildings that occupied the entire west side of the area fronting Second Street and extended on an irregular line to Front Street between two smaller, commercial buildings standing at the southwest and northwest corners (Figure 17).

It is now the site of the parking garage, the construction of which led to the investigation in the first place, and the popular Ritz East movie theater. From the top of the parking garage you can look down on the vestiges of the colonial city and to the Delaware River beyond.

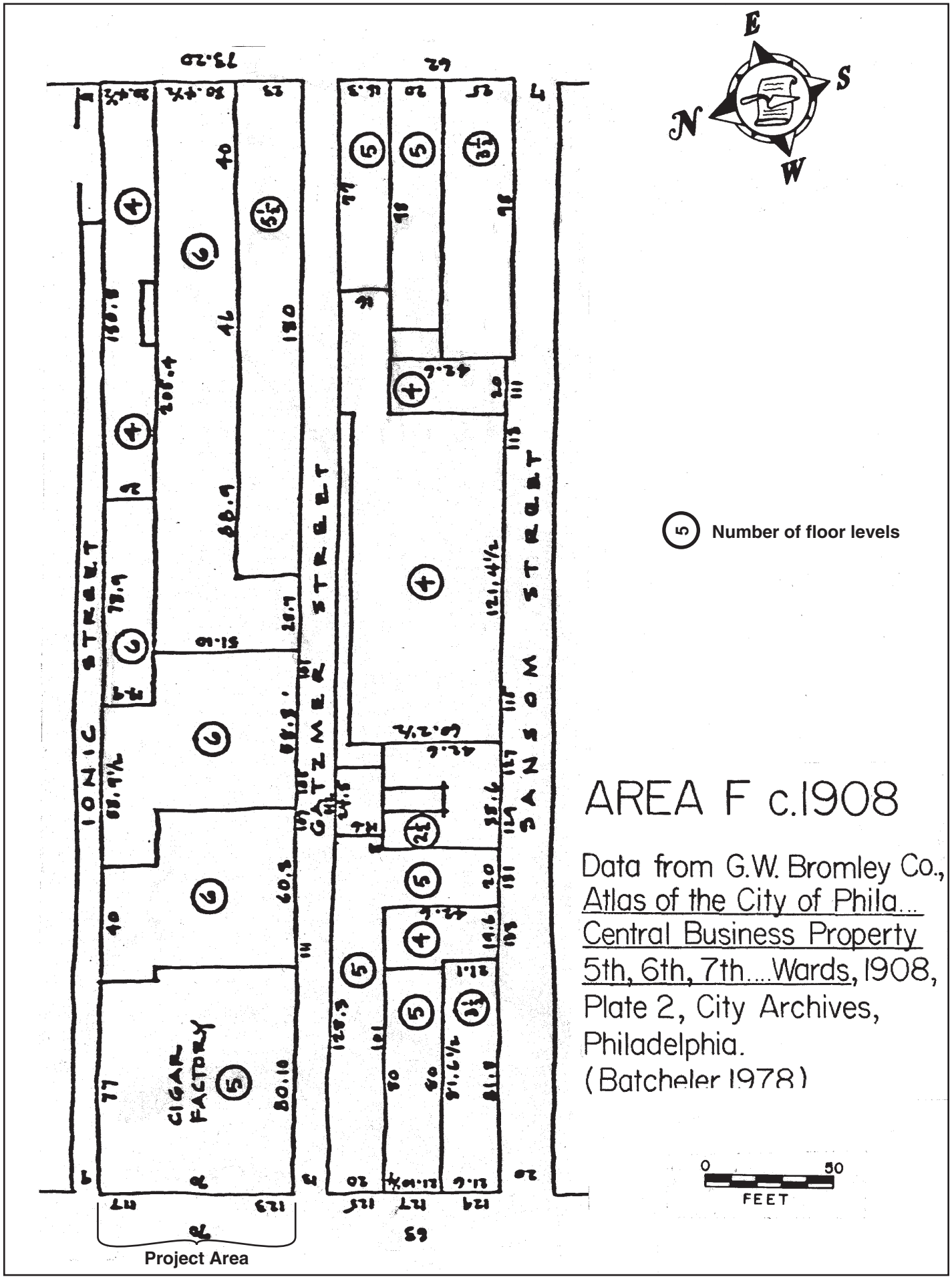


Figure 15. Portion of the 1908 Central Business Property Atlas of Philadelphia showing ownership of Area F.

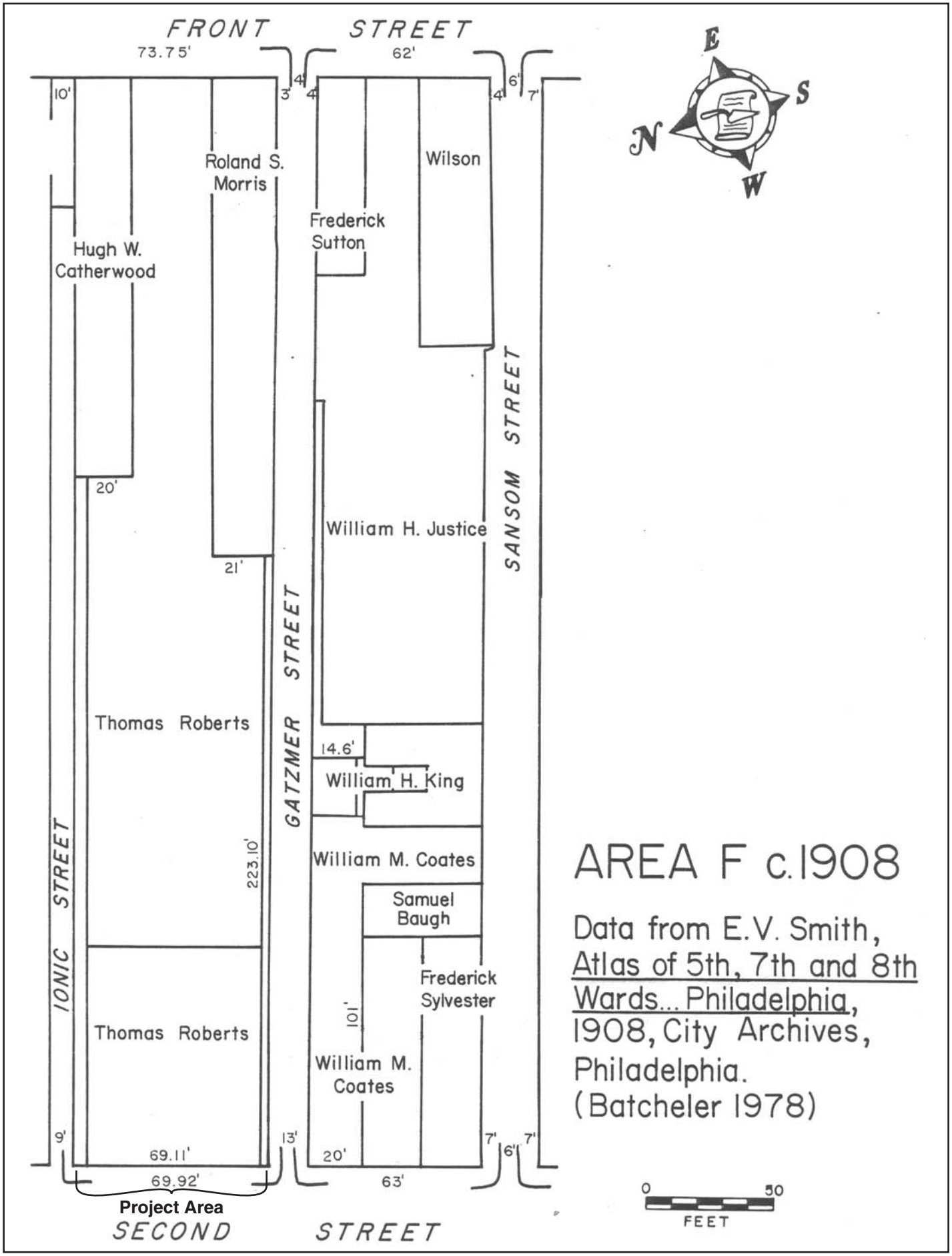


Figure 16. Portion of the 1908 Atlas of the 5th, 7th, and 8th Wards, Philadelphia showing ownership of Area F.

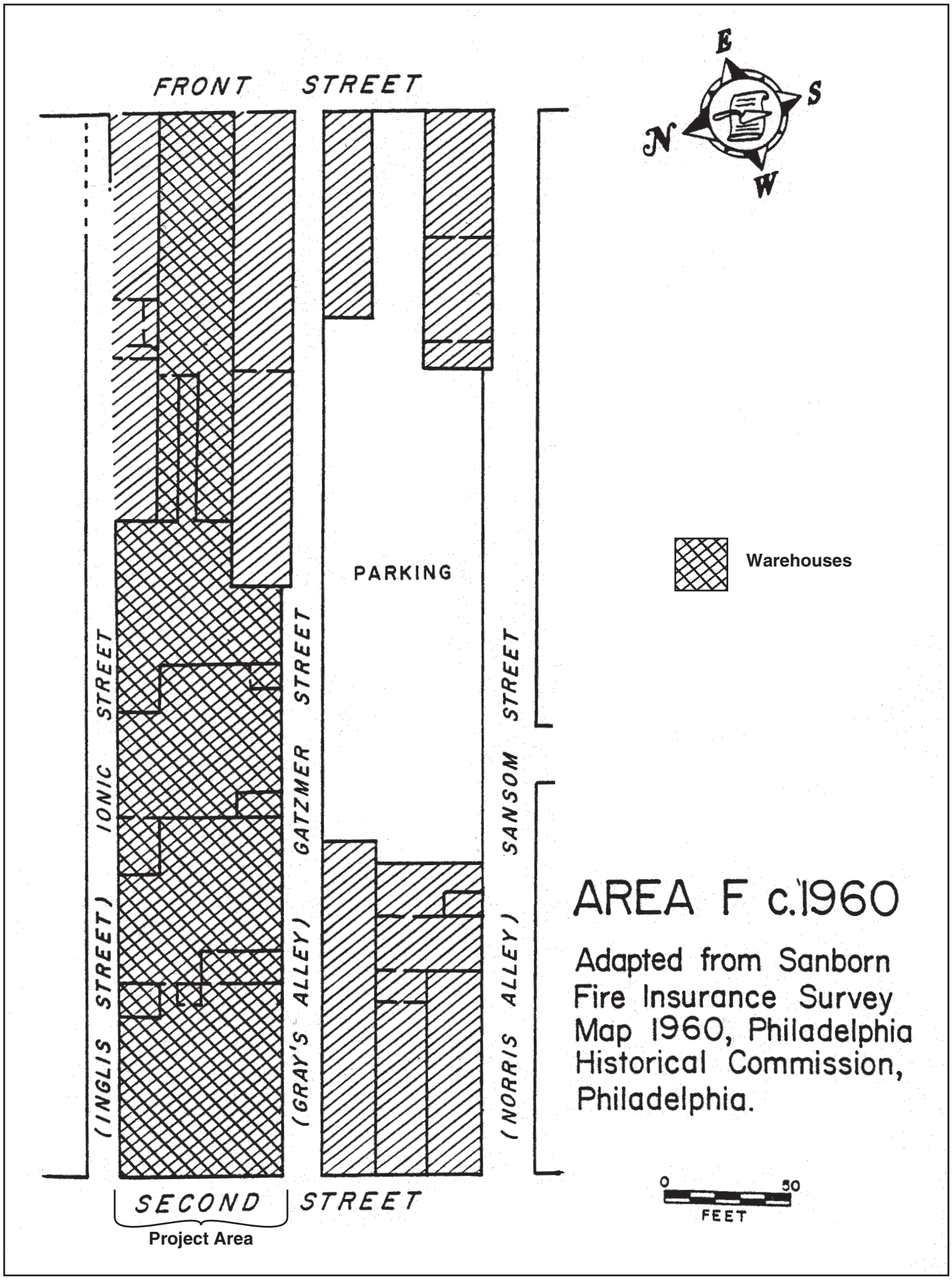


Figure 17. Portion of the 1960 Sanborn Fire Insurance Survey Map showing area occupied by warehouses.

3.0 ARCHEOLOGICAL INVESTIGATION OF THE YOH BUILDING, 117-123 SOUTH SECOND STREET

The archeological investigation of the Yoh Building was conducted in four of the six cellar Rooms: A, B, C, and F. Rooms A and B at the front of the building occupied four historic lots on Second Street: 117, 119, 121, and 123, while Room C approximated the historic lot at 113 Gatzmer Street. Room F, extending between Gatzmer and Ionic streets at the center of the site, comprised all of the historic lot at 101-103 Gatzmer and a portion of the original subdivision at 114 South Front Street. Although the basement level of the Yoh Building was 10 feet 6 inches below grade, remnants of historic features survived beneath the cellar floors of the Yoh Building. The following description and analysis focuses on the undisturbed eighteenth-century features present in the Yoh Building. The features for Rooms A, B, and C of the Yoh Building are recorded in plan on Figure 18 and are summarized in Table 1. The features were numbered consecutively by room, which resulted in several features having the same number. Consequently, to avoid confusion, features are identified in the text in an abbreviated format as follows: YohA1 or YohA2, shorthand for Yoh Building, Room A, Feature 1; Yoh Building, Room A, Feature 2, etc. The individual rooms in the cellar and the specific excavation procedures in each of them are described in Appendix I.

3.1 YOH BUILDING, ROOM A, FEATURE 1 (BRICK-LINED PRIVY)

Feature 1 (hereafter YohA1) was a circular brick-lined privy pit located in the southeast corner of Room A (see Figure 18) at an elevation of 9.56 ft. ASL. The inside diameter of the shaft was 4.14 ft.; a portion of its south wall had collapsed (Figure 19, Plate 4). The feature was sectioned and the west half excavated to a depth of 1.60 ft. below sea level (BSL), .40 ft. below the base of the brick wall of the pit. At a depth of 4.75 ft. ASL, the fill in the east half of the feature appeared unstable and was removed. Below this depth only the west half was excavated.

Down to approximately 5.50 ft., the shaft was filled with brick rubble, probably resulting from the collapsed privy wall. The fill below was a dark brown soil mixed with ash, more brick rubble, and mortar. Due to the thickness of this deposit, it was excavated in arbitrary levels: 5.50-3.00 ft. ASL, 3.00-1.10 ft. ASL, and 1.10 ft. ASL to 0.90 ft. BSL. At this depth, the fill was wet and clayey. The base of the privy wall terminated at 1.20 ft. BSL, and by 1.60 ft. BSL, the feature was deemed too dangerous to continue excavation.

The glass and ceramic vessel analysis of the YohA1 privy shaft identified the presence of two distinct analytical strata, a primary deposit (AS I) and a deposit of brick rubble (AS II) resulting from the collapse of the shaft. The few artifacts excavated within the brick rubble are probably from the underlying stratum, but they were not considered in the analysis since AS II postdates the actual use of the feature c. 1860. The primary deposit, AS I, had a TPQ date of 1825 and is discussed below.

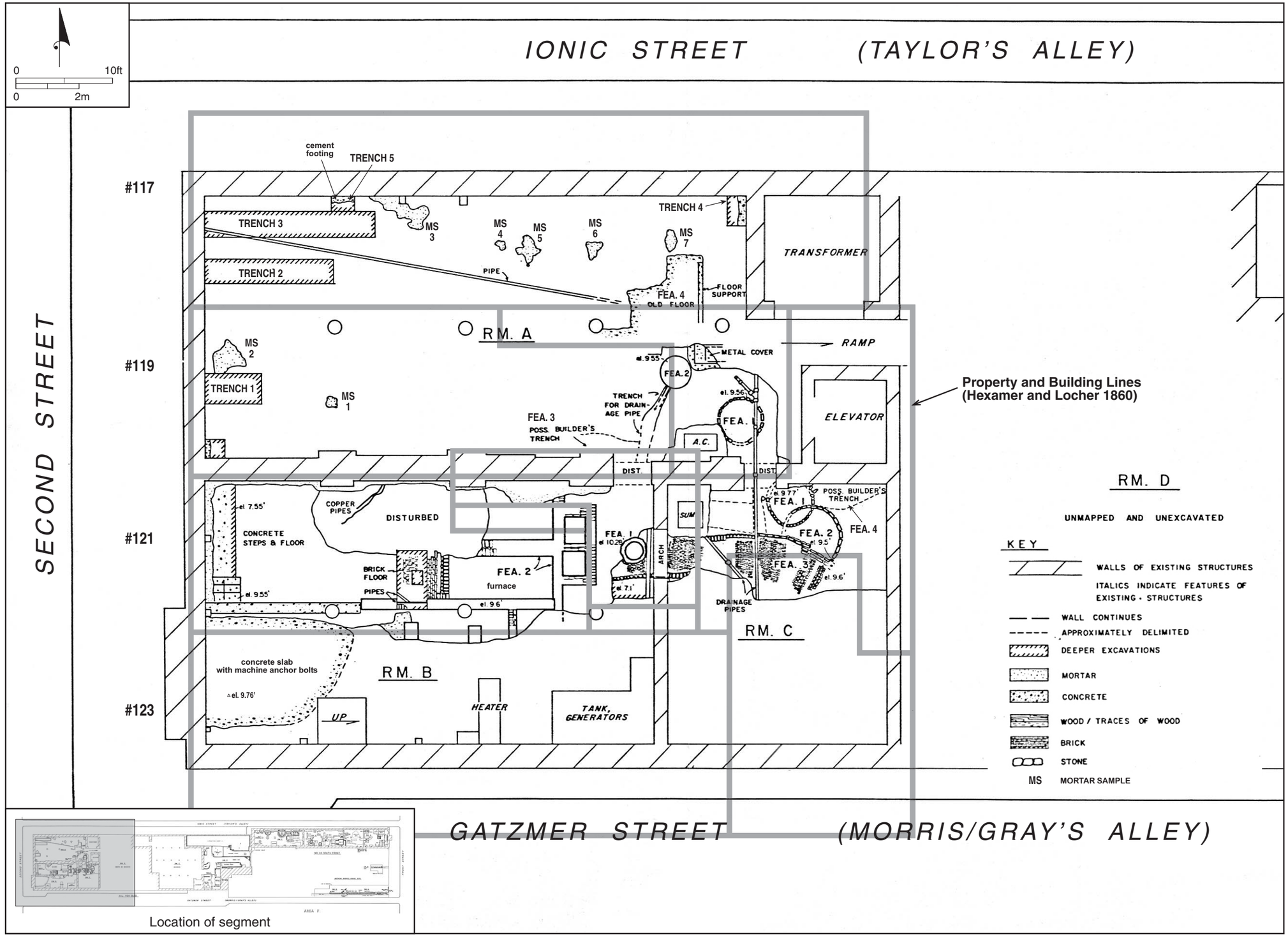
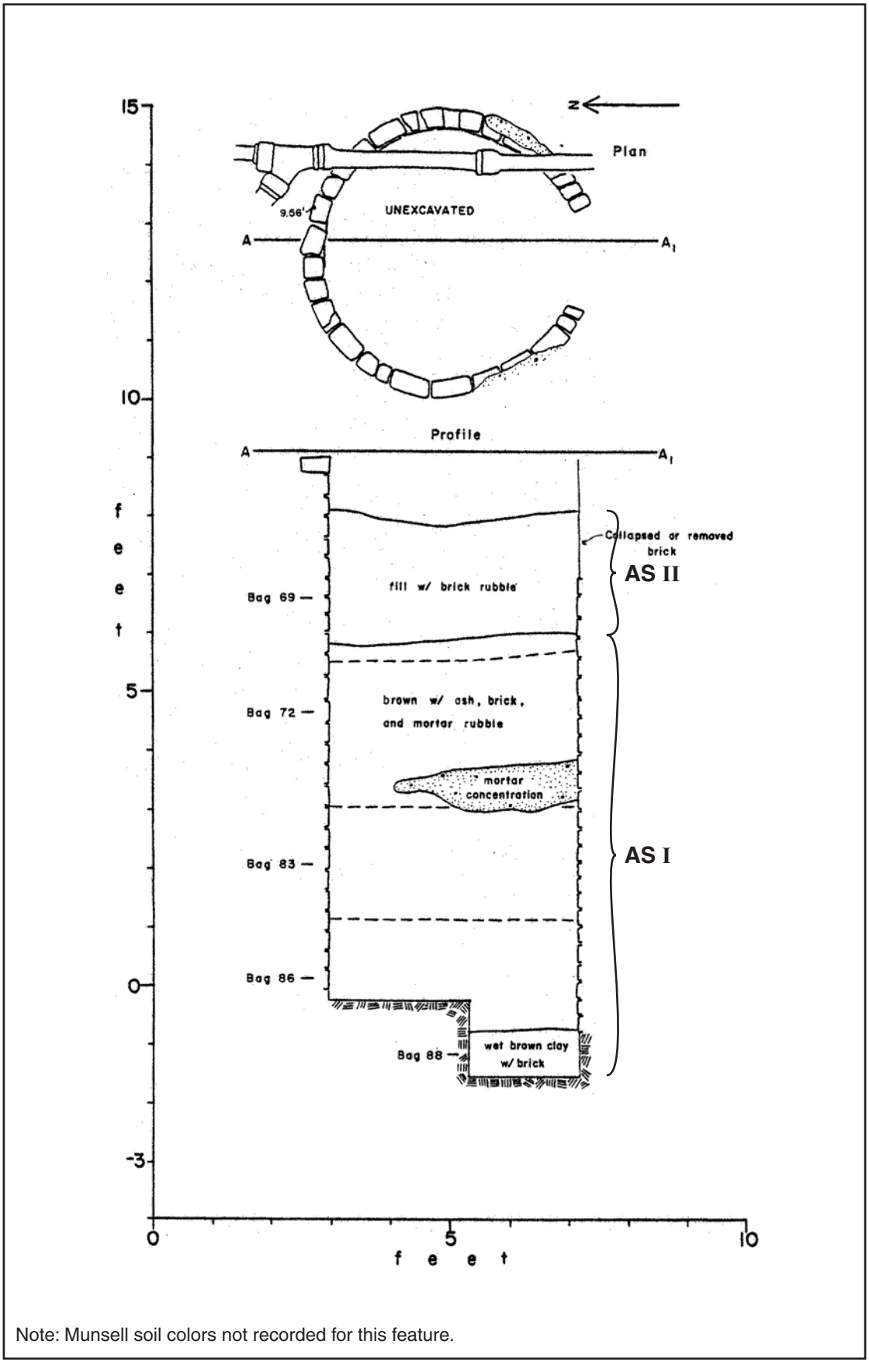


Figure 18. Plan of excavated trenches and exposed features in Rooms A, B, and C of the Yoh Building, Area F site.



Note: Munsell soil colors not recorded for this feature.

Figure 19. Area F, Yoh Building, Room A, Feature 1 (YohA1) plan and profile. One-half of the feature was excavated and one-half preserved in situ.

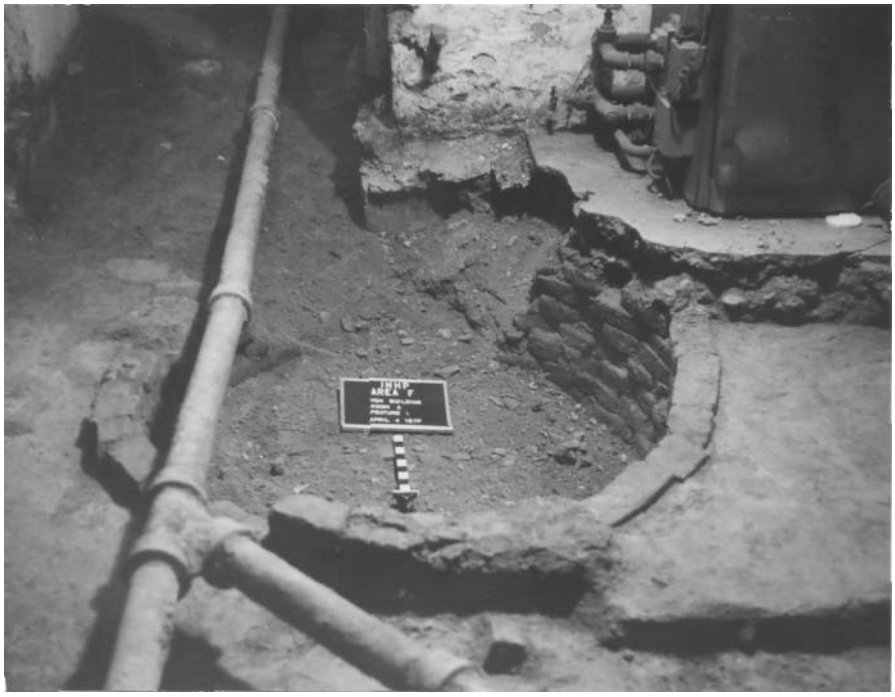


Plate 4. Area F, Yoh Building, Room A, Feature 1; circular brick-lined privy; view south.

Table 1. Summary of Features in the Yoh Building, Area F.

LOCATION	RM	FEA	DIA (ft)	ELEVATION (ft)		DEPTH (ft)	DESCRIPTION	%	FUNCTIONAL INTERPRETATION	TPQ	ASSOC
75 (119) S. 2nd St	A	1	4.80	9.56	-1.20	10.76	Brick lined shaft	50	Privy	AS II 1860 AS I 1825	AS I: William Richardson optician 1790-1803; Robert Swan silversmith 1815-1831
75 (119) S. 2nd St	A	2	3.40-3.70	9.55	6.60	2.95	Unlined shaft	50	Base of Privy	c.1800	
75 (119) S. 2nd St	A	3	-	-	-	-	Linear stain along south wall	0	Possible Builder's Trench	c. 1905	Cigar Factory
73 (117) S. 2nd St	A	4	7 x 7	-	-	-	Mortar floor	Exposed	Kitchen Cellar?	c.1761?	James James' brick house?
117-123 S. 2nd St	B	1	2.60	10.28	-	-	Brick-lined shaft w/ metal cover	0	Associated w/ Fea 3 Rm C	c. 1905	Cigar Factory
117-123 S. 2nd St	B	2	-	9.80	9.60		Rectangular brick/ concrete feature	0	Furnace foundation	c. 1905	Cigar Factory
13 Gray's Alley	C	1	5.20	9.77	-1.02	10.79	Brick lined shaft	50	Privy	1750	Wm & Patience Annis
13 Gray's Alley	C	2	6.60	9.59	5.80	3.79	Brick-lined shaft	100	Privy	AS II 1865 AS I 1830	AS I: Robert Swan silversmith 1800-1831
117-123 S. 2nd St	C	3	?	9.60	?	?	Brick vaulted	0	Drainage conduit	c. 1905	Cigar Factory
117-123 S. 2nd St	C	4	-	-	-	-	Linear stain along north wall	0	Possible Builder's Trench	c. 1905	Cigar Factory
1-3 Gray's Alley	F	1	4.80-5.80	14.81	-1.07	15.88	Wood-lined shaft mentioned in 1750 deed	100	Privy	AS III 1825 AS II 1783 AS I 1769	AS I: Bake House Wm Gray 1738-1751; Mary Weyman 1751-c.1760); AS II: tenants of Thomas Bond Jr. c.1760-1792/5
1-3 Gray's Alley	F	2	2.80	15.00	14.25	0.75	Unlined pit	100	Northern edge of Fea 1 (privy)	c.1825	Fill following use of privy
103 Gatzmer St	F	3/3A	.50	15.02	14.70	.32	Circular stone/mortar & brick rubble	Tested	Post? Support	20th C.	Warehouse
Taylor's Alley	F	4	6.23	15.50	?	?	Brick concentration	0	Foundation?	Mid 19th C.	Stable/warehouse
103 Gatzmer St	F	5		15.10	14.60	.50	Patch of lime mortar	Sampled	Mortar spill?	20th C.	Warehouse
58 (114) S. Front St	F	6	-	15.06	13.65	1.41	Mortared stone & brick walls	Exposed	SW corner/foundation of carriage house/stable	c.1792	Robert Smith, Merchant 1791-1822
103 Gatzmer St	F	7	-	14.93	12.82	2.11	Brick footing w/ wooden beam	Exposed	Trough-like brick footing w/ possible drain, possible seating for coal furnace	19th-20th C.	Warehouse
103 Gatzmer St	F	8	1.80	14.60	?	?	Brick-lined shaft w/ pipes draining into it & concrete manhole cover	Exposed	Cesspool/cistern	c.1896	Warehouse
103 Gatzmer St	F	9	-	14.93	?	?	Solid brick (6 courses) platform	Exposed	Machinery support platform, SW corner Rm F	20th C.	Warehouse
Taylor's Alley	F	10		15.02	13.20	1.92	North-South brick & stone wall	Exposed in Tr. 1	Foundation	Mid 19th C.	Stable/warehouse

Table 2. Ceramic Vessels in Yoh Building, Room A, Feature 1, AS I. The highlighted cells indicate matched sets.

FUNCTION			TEA											BEVERAGE							TABLE												KITCHEN								HYGIENE					G		
SUBFUNCTION			DRINKING						SERVING												PLATES						SERVING					EATING		PREPARATION														
ORIGIN	WARE	FORM	TEABOWL	CHILD'S TEABOWL	COFFEE CAN	HANDLED CUP	SAUCER	CHILD'S SAUCER	SLOP BOWL	CREAMER	SUGAR BOWL	LID	TEAPOT	TANKARD	CHILD'S TANKARD	SYLLABUB CUP	POSSET CUP	PUNCH BOWL	JUG	WATER BOTTLE	MUFFIN	SOUP	PLATE	SUPPER	TABLE	TWIFFLER	SERVING DISH	SAUCER DISH	PLATTER	MUSTARD POT	TUREEN/ BASKET	PORRINGER	BOWL	MIXING BOWL	BUTTER POT	MILK PAN	PIE PAN	PUDDING PAN	JAR/BOTTLE	CHAMBER POT	CP LID	CHILDS CHAMBER POT	STOOL POT	DRUG JAR/POT	FLOWER POT/TRAY	SHERD/OTHER	TOTALS
PHL	**Redware**	*Unglazed*																																										8		8
		Lead Glazed											3	1	`				2													3	1		2	2			7							21
		Slip Decorated																										1				3				7	7								18
	Yellowware																		1																			2				1			4
ENGLAND	**TGEW**					1	1		2						1			2					1									1													9
	Yellowware	*Slipped, Trailed, Dot*															1		1																										2
	Creamware	*Plain **(Set 5)***	2	1			4	3	7		1			2					2					3								1	2					6	1			1		36
		*Royal **(Set 4)***																				2	1	3	1	2			1																10
		Painted	1						1															1																					3
		Edge decoration																					1																						1
		Printed																			1																								1
	Pearlware	*Painted, polychrome*	7			3	10		2			1																																23
		Painted, blue				2	4		1																																				7
		*Edged, blue **(Set 6)***																			2	1	4		1	5	3			1															17
		Edged, green																				1			1		1																		3
		Printed	1			2	13						2						3		2																		3						26
		Dipt/Molded												1					1								1					3												6
	Stoneware	*White salt-glzed **(Set 1)***	1				4							1	1																							1						8
		Basaltware/Other								1										1																									2
	Porcelain	*Bone China*				3	1																																						4
CEP	**Porcelain**	*Underglaze blue **(Set 2)***	3				1																				1	1																	6
		*Overglaze dec. **(Set 3)***	7		1	1	4					1						2																											16
TOTALS			22	1	1	12	42	3	13	1	1	2	5	5	2	0	1	4	10	1	5	4	7	7	3	7	6	1	2	1	0	3	9	2	2	2	7	7	0	19	1	0	0	2	8	0	231

The ceramic analysis of YohA1 identified 237 ceramic vessels. Almost all of the ceramics (97%, 232) were deposited in the lower stratum, with only five occurring in AS II. While the artifacts recovered in AS I range in date from the early seventeenth century to 1825, the ceramics produced a mean date of 1796 (Plate 5). Teawares (103) made up almost half of the ceramic vessels found in AS I (total 232). The remaining ceramic vessels were classified as tablewares (43), kitchen (32), hygiene (22), beverage (23), and gardening (9). The most common vessel forms were saucers (41), teabowls (22), and slop bowls (13) in the teawares, chamber pots (19) in hygiene, and jugs (10) in the beverage group (Table 2). The majority (68%) of the ceramics were imported from England/Europe (157) and China (23), while 22 percent (51) were made locally in Philadelphia. Pearlware (81) was the most abundant ceramic type, followed by creamware (51), local redware (46), and Chinese Export porcelain (23).

Remnants of six matching sets, three tea sets and three table sets, comprising 46 vessels constituted 20 percent of the assemblage. One of the tea sets (Set #1, scratch blue stoneware) and two of the table sets (both creamware, Set #5 Royal pattern and Set #6 plain) were imported from England. Two tea sets (Set #2, painted underglaze blue and Set #3 overglaze red) were imported from China.

Plain creamware (36) was used at tea (18), for beverages (4), at the table (3), in the kitchen (3), and for hygiene (8). There were no maker's marks on the creamware dishes. Three plain creamware supper plates and an assortment of teabowls (3), saucers (7), slop bowls (7) and a sugar bowl were identified as a matched set (Set #5), and 10 pieces of Royal-patterned creamware constituted Set #4: one table plate, three supper plates, two twifflers, two soup plates, and two platters – one small and one large. One table plate was made by the Herculaneum Pottery, 1793-1810, and one platter was made at the Wedgwood Factory, 1765-1810 (Godden 1964), indicating the set was assembled from separate purchases. Set 5 included child-sized vessels. There were sixteen pieces of blue-edged pearlware dishes, of which five were precisely matching (Set #6)—one table plate, two twifflers, one soup plate, and one vegetable dish. The rest of the blue-edged dishes were compatible with Set #6 and probably used together.

Most of the teawares were pearlware, painted polychrome (23), printed (18), or blue painted (7). Two matched sets, one underglaze blue (Set #2: 2 teabowls and 1 saucer) and one overglaze decorated (Set #3: 3 teabowls and 1 saucer), were among the eighteen Chinese Export Porcelain tea vessels. Three bone china cups with handles and one saucer, three scratch-blue stoneware saucers (Set #1), and one basalt creamer were among the finer English teawares.

Of 231 ceramic vessels recovered in AS I of YohA1, 23 vessels were reconstructible to half or nearly whole (50-90%), 70 were reconstructible to a quarter or half (25-49%), and 70 were reconstructed to less than a quarter (under 25%) of the vessel. Since only slightly more than half of this feature was excavated, these figures are merely an estimate of vessel completeness at the time of discard.

Moderate quantities of glass were excavated in YohA1. A total of 135 glass vessels from AS I were reconstructed (Table 3); none was found in AS II. Of these vessels, 61 were bottles, most of which contained alcohol. These included case gin bottles (3), miscellaneous beverage bottles (10), wine (12), and liquor bottles (1). A few (5) condiment bottles were also found. The remainder of the glass bottles included medicine bottles, which consisted of patent medicine bottles (3) and generic/unidentifiable medicine bottles (15), as well as 12 of unknown function

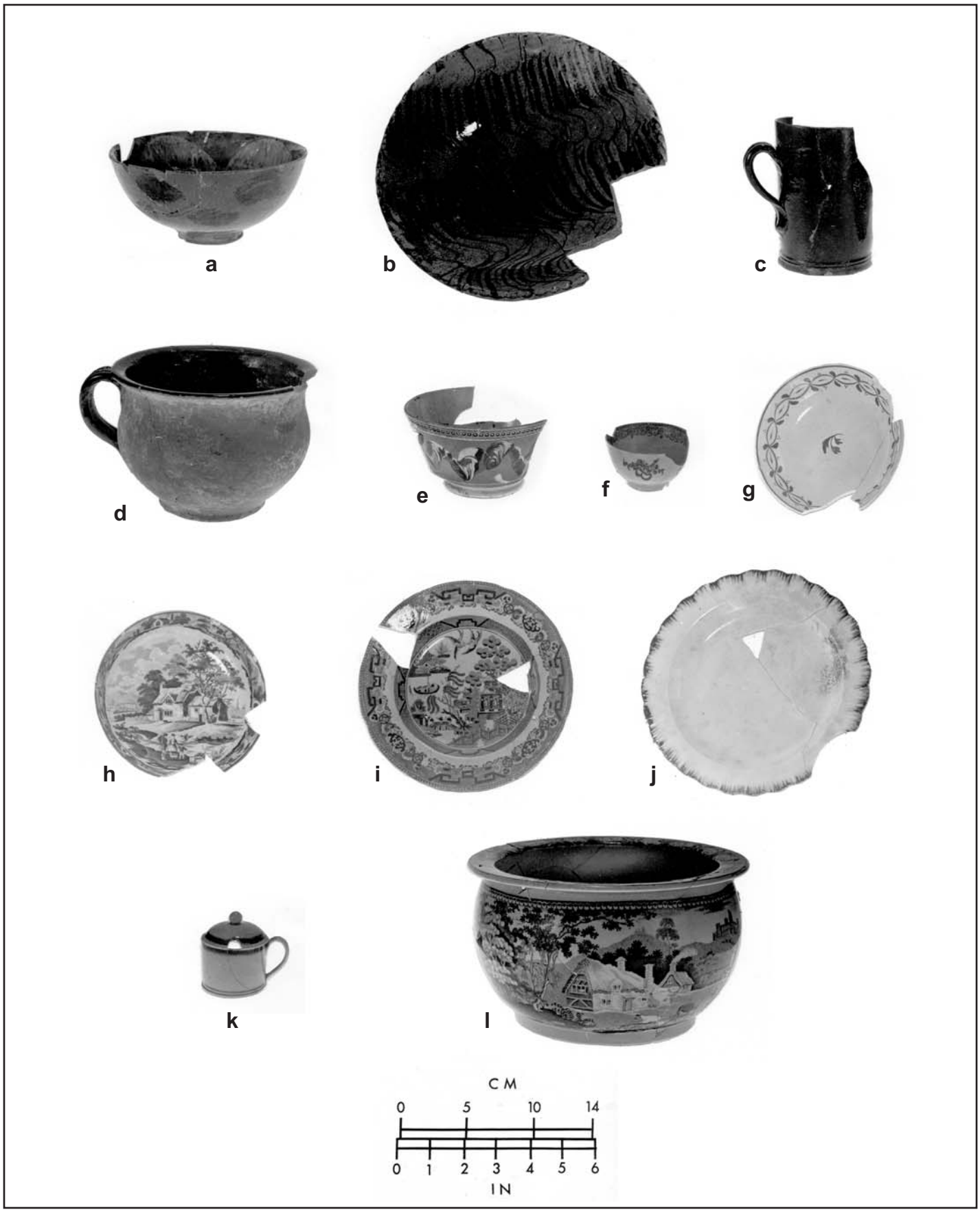


Plate 5. Sample of ceramic dishes from Yoh Building, Room A, Feature 1: a-d, Philadelphia redware "tulip" bowl, pie pan, tankard and chamber pot; e-l, English imported teawares, tablewares and hygieneware: e, pearlware bowl; f-g, hand-painted pearlware teabowl and saucer; h, blue transfer-printed saucer; i, blue transfer-printed muffin plate, Willow pattern; j, blue-edged pearlware twiffler; k, blue-edged pearlware mustard pot; and l, blue transfer-printed pearlware chamber pot.

(12) (Plate 6). Similar quantities of glass tableware were excavated from the feature. The tableware consisted in large part of drinking vessels, of which the majority were tumblers (42). Also found within AS I were wine glasses (17), drinking glasses (2), and a single shot glass. Serving vessels included a decanter, case bottles (2), a castor, and a cruet. Two additional vessels would have been used at the table, but their specific function is unknown.

Table 3. Glass Vessels in Yoh Building Room A, Feature 1 (AS I).

Functional/Subfunctional Group	**Yoh A 1 AS I**	
BOTTLES	**#**	**%**
Alcohol		
Case Gin	3	4.9
Beverage	10	16.4
Wine	12	19.7
Liquor	1	1.6
Food		
Condiment	5	8.2
Medicine		
Patent	3	4.9
Medicine	15	24.6
Unidentified Bottle	12	19.7
Total Bottle	61	100.0
TABLEWARE		
Drinking		
Tumbler	42	60.8
Wine Glass	17	24.6
Drinking Glass	2	2.9
Shot Glass	1	1.4
Flip Glass	0	0
Serving		
Decanter	1	1.4
Case Bottle	2	2.9
Castor	1	1.4
Cruet	1	1.4
Unidentified Tableware	2	2.9
Total Tableware	69	50.6
Total Bottle	61	45.5
Total Tableware	69	50.6
Total Unidentified	5	3.6
Total Vessels	135	99.7

The small finds in YohA1 provided the strongest evidence linking the contents to specific owners. A large number of glass lenses (249) near the bottom of AS I almost certainly belonged to optician William Richardson, who lived at this address circa 1795 to 1803. Several tools—two crucibles, a chisel, a file, and two copper funnels—indicate heating and shaping activities associated with Richardson, or the later (1815-1831) owner, silversmith Robert Swan. Fragments of worked bone, antler, and horn (57) are likely residual materials associated with the production of knife or fork handles made by Swan. Watchmaking was a compatible occupation to silversmithing and may also have been one of Swan's pursuits, though there is no documentation to this effect. Pieces of a pocket watch and three knives, two with bone handles and one with an antler handle, may have been Swan's products or personal belongings (see Plate 6).

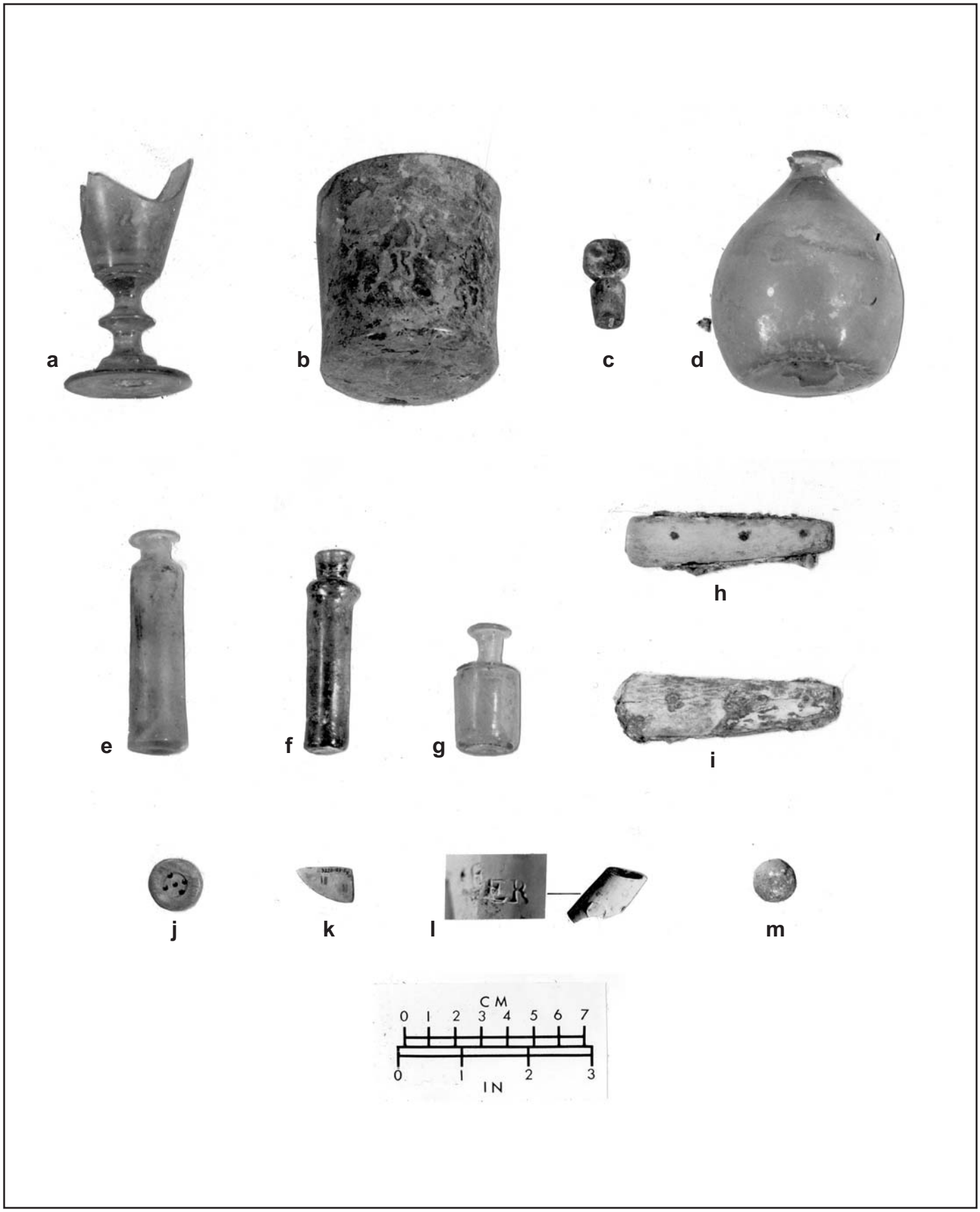


Plate 6. Glass and small find artifacts from Yoh Building, Room A, Feature 1: a, wine glass; b, tumbler; c, decanter stopper; d, baby (?) bottle; c-g, medicine phials; h-i, bone and antler knife handles; j, bone button; k, clock face; l, kaolin pipe stem; and m, clay marble.

Other discarded items included four combs—two Lady's hair combs and one lice comb, a pair of eyeglasses, a folding pocket knife, 12 buttons (10 brass, 1 faceted glass, 1 bone), two bone rings, possibly for an umbrella, and 30 tobacco pipe fragments. Several children's toys—a redware money box and jug, earthenware bird figurine, and several marbles along with child-sized tankards, porringers, teabowls, and saucers—are evidence that children were present in at least one of the households represented.

Indications of interior household furnishing are scant—a few delft tile fragments that may have been part of a fireplace surround, lamp glass, and odd bits of brass hardware. A piece of coral may have been collected as a curiosity or for ornamental value.

3.2 YOH BUILDING, ROOM C, FEATURE 1 (BRICK-LINED PRIVY)

At the time of its discovery, Feature 1 (YohC1), a circular brick shaft, had been disturbed by two later features (see Figure 18). First, a larger privy shaft, Feature 2, cut the southeast edge of YohC1 down to a depth of 5.65 ft. ASL, and then a c.1908 builder's trench (Feature 4), excavated during construction of the north wall of Room C, removed the northern edge of the shaft. Less than half of the feature remained for excavation (Plate 7). Its reconstructed inside diameter was an estimated 4.15 ft. The surface elevation of YohC1 was 9.77 ft. ASL, and its fill was excavated to a depth of 1.02 ft. BSL and probed further to a depth of 4.57 ft. BSL The base of the brick shaft was not exposed.

The surface of the feature fill contained lenses of red and orange clays overlying a very dark brown clayey soil to a depth of 8.25 ft. ASL (Figure 20). Below this, pockets of compact yellow clay and sand were mixed with gray sand, brown to yellow-brown soils, and building rubble composed of brickbats and mortar to a depth of 7.55 ft. ASL. From 7.55–5.67 ft. ASL, or roughly the base of Feature 2, the fill consisted of a more homogeneous, fine-textured gray clay. Artifacts recovered from the gray clay below the Feature 2 intrusion were separated into Bag 87. At depths of 4.27 ft. and 4.55 ft. ASL, the artifact content increased as the gray clay graded to orange-brown with gray mottles. Below this, a reddish soil with high organic content was encountered at the center and lipped up against the sides of the shaft. Artifacts were concentrated in this layer, the base of which ranged from 2.85 ft. ASL at the sides to 2.32 ft. ASL in the center. The underlying layer was an orange-gray, mottled sand that became increasingly wetter with depth. A few artifacts were embedded in the top of this layer but it was otherwise sterile. A column of this sand was removed with a post-hole digger to a depth of 1.02 ft. BSL. Wet gray sand containing a few artifacts—one gray salt-glazed stoneware sherd and a few fragments of glass and bone, was reached at 0.5 ft. BSL. The feature was further probed to a depth of 4.57 ft. BSL. Water was reached at 4.02 ft. BSL, and an obstruction that might have been a brick ledge was encountered at 4.45 ft. BSL.

The artifact and stratigraphic analysis of YohC1 identified two periods of deposition, AS I and AS II. The top layers of Feature 1 contained a mixture of nineteenth- and twentieth-century artifacts that included plastic, electric wires, and a green soda bottle c.1940. This later episode of fill appears to have been associated with construction of the north wall of Room C and later activity (see Figure 20). A TPQ of 1940 dates AS II to activities that postdate the original fill of the feature (AS I) by 200 years.

AS I includes the nightsoil deposits at the base of the privy and its fill. The construction of Feature 2 over the edge of the lower shaft predated AS II but disturbed the earlier feature's fill to

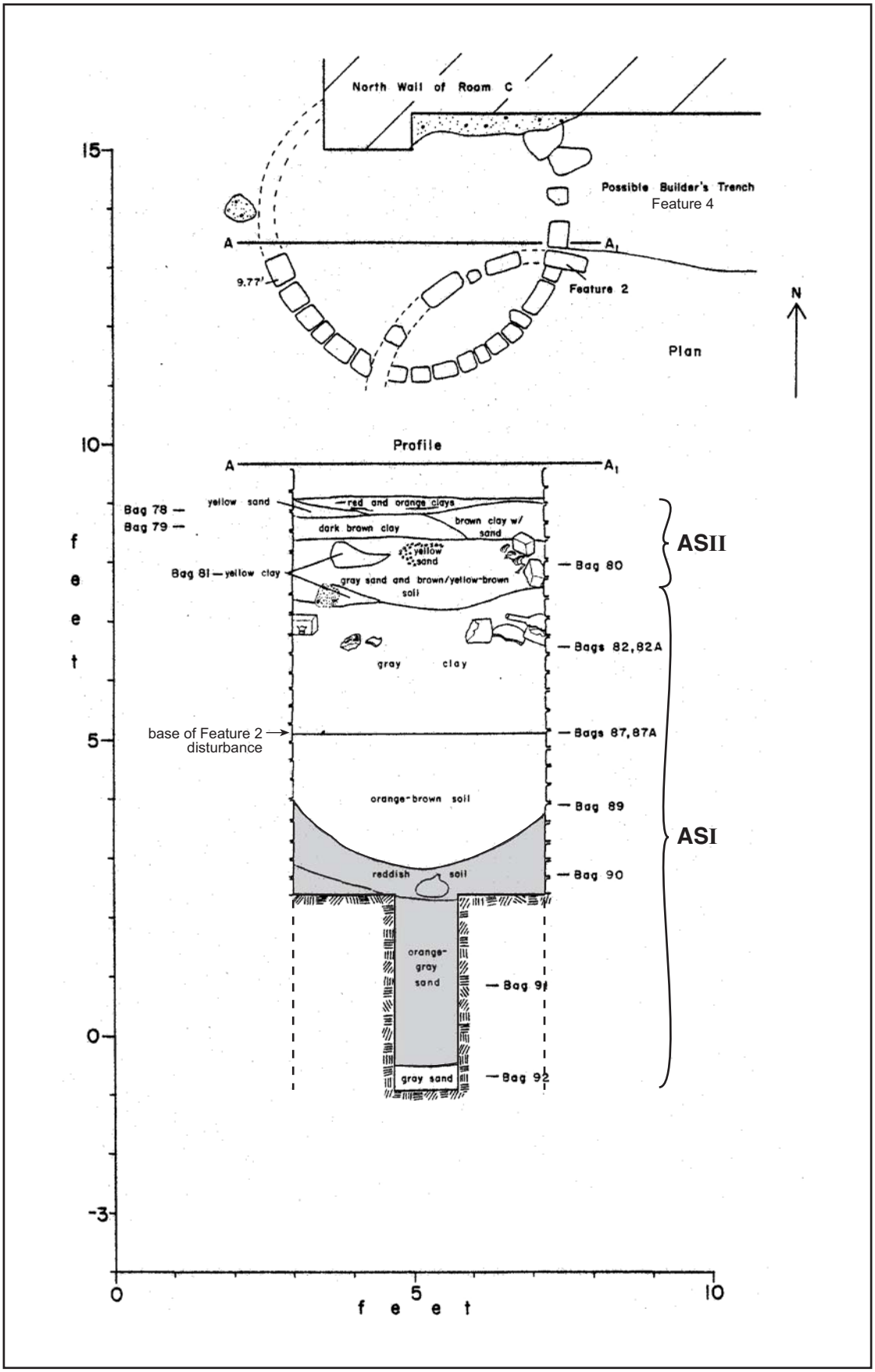


Figure 20. Area F, Yoh Building, Room C, Feature 1 (Yoh C1) plan and profile. One-half of YohC1 was excavated and the other half preserved in situ.

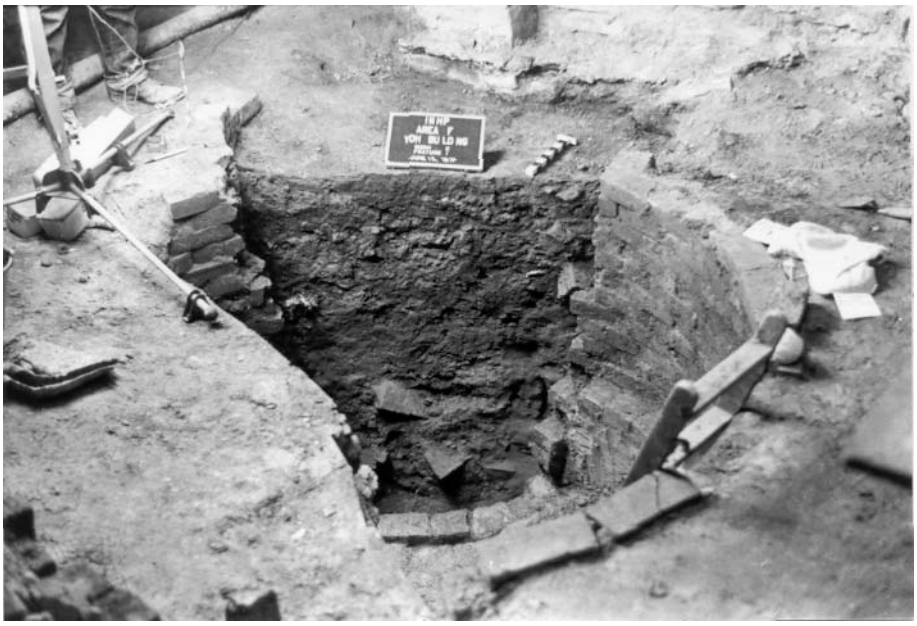


Plate 7. Area F, Yoh Building, Room C: Feature 1 profile top center. Note Feature 2, excavated, in the foreground; view northwest.

a depth of 5.67 ft. ASL. Glass and ceramic vessels in AS I produced a TPQ of 1750. An assortment of the artifacts from AS I are illustrated in Plate 8; the discussion that follows focuses on AS I.

A minimum of 145 ceramic vessels were identified in YohC1, one in AS II and 144 in AS I (Table 4). With the exception of one small creamware sherd attributed to excavation error, the ceramic analysis of AS I revealed a homogeneous deposit of whole or nearly whole (37%) eighteenth-century vessels. The mean ceramic date for AS I is 1735. Over a third (57) of the vessels were of English and European origin, including 26 tin-glazed earthenware, 10 white salt-glazed stoneware, 10 Staffordshire yellowware, and seven English and German stonewares. There were an equal number of Chinese Export porcelain (44) and local Philadelphia (44) wares. The functional breakdown of the YohC1 AS I ceramic assemblage consisted of 40 teawares, 35 beverage, 29 tablewares, 23 kitchen, and 17 hygiene.

Remnants of seven matched sets were identified in these ceramic groups. There were more dishes used for drinking and serving tea than any other type, and teawares were almost exclusively Chinese Export porcelain. The teawares were composed of 15 teabowls, 12 saucers, 10 slop bowls, and one each of the following: coffee can, creamer, and teapot. All were Chinese Export porcelain except for four white salt-glazed stoneware vessels—a teapot, creamer, two slop bowls, and one saucer, and one tin-glazed earthenware slop bowl. The presence of two identifiable Chinese Export porcelain sets included three matching teabowls and a saucer decorated in an overglaze polychrome floral motif (Set #2), and three matching saucers in an underglaze blue floral motif (Set 3; see Plate 8g).

All of the tablewares were imported; the majority were tin-glazed earthenware (16), Chinese Export porcelain (11), and white salt-glazed stoneware (2). The tablewares consisted of plates (19) in various sizes, seven rice bowls (five matching [Set 4], two compatible), two dishes, and one bowl strainer. It is uncertain if the white salt-glazed stoneware strainer was used at the dinner or tea table (see Plate 8h). Remnants of three sets included five Chinese Export porcelain rice bowls (Set #4) decorated with an underglaze blue landscape pattern, three Chinese Export underglaze blue porcelain plates with a pineapple motif (Set #5, see Plate 8j), and three polychrome decorated tin-glazed earthenware plates with geometric borders (Set #6). Two tin-glazed earthenware plates were Spanish Majolica and another one was decorated with a cherub (see Plate 8i).

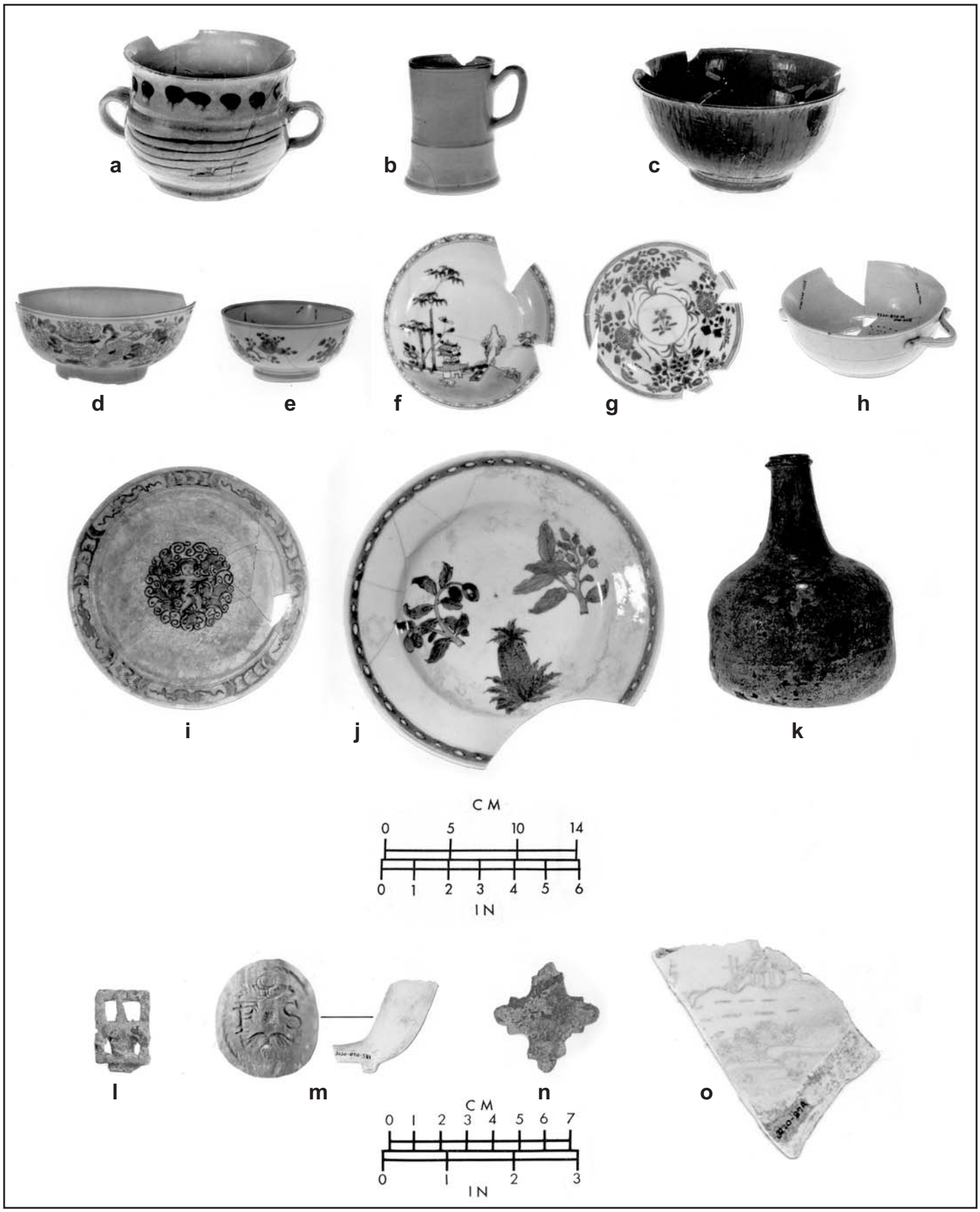


Plate 8. Artifacts from Yoh Building, Room C, Feature 1: a-c beverage, a, yellowware posset pot from Set #1; b, English stoneware tankard from Set #7; c, Philadelphia redware punch bowl; d-g Chinese Export porcelain teawares, d, slop bowl; e, tea bowl with pair of fish on base; f, saucer; g, saucer from Set #3. h-j tablewares, h, white salt-glaze stoneware strainer; i, tin-glaze earthenware plate; j, Chinese Export porcelain plate from Set #5; k, onion wine bottle; l, brass shoe buckle; m, kaolin pipe; n, brass escutcheon; o, delft tile.

Table 4. Ceramic Vessels in Yoh Building, Room C, Feature 1, AS I. The highlighted cells indicate matched sets.

FUNCTION			TEA						BEVERAGE				TABLE														HYG		U	
SUBFUNCTION			DRINK			SERVING							PLATES					SERVING				PREPARATION								
ORIGIN	WARE	FORM	TEABOWL	COFFEE CAN	SAUCER	SLOP BOWL	CREAMER	TEAPOT	TANKARD	POSSET CUP	PUNCH BOWL	JUG	MUFFIN	PLATE	SUPPER	RICE BOWL	TWIFFLER	PLATTER	STRAINER	DISH	BOWL	JAR	BUTTER POT	MILK PAN	PIE PAN	BEAN POT	CHAMBER POT	DRUG JAR/POT	SHERD	TOTALS
PHL	**Redware**	*Biscuit Fired*										3																		3
		Lead Glazed							2		2										1	1	9	3		1	10	1	1	31
		Slip Decorated																		1	1				4					6
	Stoneware	*Anthony Duché 1730-50*																									2		1	3
ENG	**TGEW**	(Set 6)				1					5	1	2	4	4		3	1		2							3			26
	Redware	*Refined*							1		1																			2
	Yellowware	*Slipped, Trailed, Dot (Set 1)*							2	6		2																		10
	Creamware	*Plain*							1																					1
	Stoneware	*White salt-glazed*			1	2	1	1	2					1					1									1		10
		Other (Set 7)							6			1																		7
CEP	**Porcelain**	*Underglaze blue (Sets 3-5)*	12	1	9	2								1	3	7														35
		Overglaze dec. (Set 2)	3		2	5																								10
TOTALS			15	1	12	10	1	1	14	6	8	7	2	6	7	7	3	1	1	3	2	1	9	3	4	1	15	2	2	144

The large number of beverage vessels in this assemblage is striking: 14 tankards, eight punch bowls, six posset cups, and seven jugs. Eight vessels in this group were locally made: two redware tankards, two refined redware punch bowls (see Plate 8c), and four biscuit-fired redware jugs. The only tin-glazed earthenware vessels in this group were punch bowls and one double-handled Spanish Majolica jug. One of the tin-glazed punch bowls bore a jovial but incomplete inscription "One good more will….", no doubt an inducement to refill the bowl once emptied. Nine vessels in this group were stoneware, three from Germany and six from England that included a set of tankards (Set #7) (Plate 8b). The majority of the beverage group was Staffordshire yellowware, including five matching posset cups (Set #1) (see Plate 8a).

The kitchen assemblage was entirely composed of local products and showed more variety than the other functional groups: eight crocks, four pie plates, three identical milk pans, two bowls, two unidentified sherds, and one each of the following: bean pot, dish, jar, and pot.

Fifteen chamber pots were discarded, twelve of which were locally made, 10 redware and two stoneware made by Anthony Duché c.1730-1750, and three tin-glazed earthenware.

Ninety glass vessels were identified in AS I and three in AS II (Table 5). Of the 90 vessels in AS I, most contained either alcoholic beverages or medicine. The alcohol bottles held wine (26) (see Plate 8k), gin (9), or miscellaneous spirits that probably included hard liquor (6). The functional group represented by the most vessels was medicine, with numerous chemical bottles (18) represented. Other miscellaneous vessels included an ink bottle (1) and a snuff bottle (1). A small quantity of bottles (14) could not readily be associated with any functional or subfunctional group. Small quantities of glass tableware were also present in this feature, most associated with drinking. These included four tumblers, a set of six wine glasses with cut panels, and two champagne glasses. Scant quantities of serving vessels—a cruet (1) and a case bottle (1)—were also identified.

Table 5. Glass Vessels from the Yoh Building, Room C, Feature 1.

Functional/Subfunctional Group	AS I	%	AS II	%	Total	%
			Bottles			
Alcohol						
Case Gin	9	12.0	0	0.0	9	11.5
Wine	26	34.7	2	0.0	28	35.9
Liquor	6	8.0	0	0.0	6	7.7
Beverage	0	0.0	1	33.3	1	1.3
Medicine						
Chemical	18	24.0	0	0.0	18	23.1
Household						
Ink	1	1.3	0	0.0	1	1.3
Tobacco						
Snuff	1	1.3	0	0.0	1	1.3
Unidentified Bottle	14	18.7	0	0.0	14	17.9
Total Bottle	75	100.0	3	100.0	78	100.0
			Tableware			
Drinking						
Tumbler	4	26.7	0	0.0	4	26.7
Glass, Wine	6	40.0	0	0.0	6	40.0
Glass, Champagne	2	13.3	0	0.0	2	13.3
Serving						
Case Bottle	1	6.7	0	0.0	1	6.7
Cruet	1	6.7	0	0.0	1	6.7
Unidentified Tableware	1	6.7	0	0.0	1	6.7
Total Tableware	15	100.1	0	0.0	15	100.1
Total Bottle	75	83.3	3	100.0	78	83.9
Total Tableware	15	16.7	0	0.0	15	16.1
TOTAL VESSELS	**90**	**100.0**	**3**	**100.0**	**93**	**100.0**

A small collection of personal items was recovered from AS I, including fragments of two pocket watches, beads (2), a bone fan, a worn coin, two brass buttons, a brass buckle, 16 straight pins, two thimbles, and twelve marbles. Fragments of twelve kaolin tobacco pipes were also found (see Plate 8m). A brass escutcheon (see Plate 8n), a mauve-painted, tin-glazed tile for a fireplace surround (see Plate 8o), brass hinge, a mirror fragment, and a bone utensil handle were the only

household items recovered. A lead weight and a piece of sea coral were also found. Concentrations of bone, wood, charcoal, oyster shells, and architectural debris were also recovered from AS I.

3.3 YOH BUILDING, ROOM F, FEATURE 1 (UNLINED PRIVY)

Feature 1 (YohF1) was an oblong-shaped pit located near the stairway along the west wall of Room F (Figure 21). The feature was discovered after breaking through a hollow-sounding spot in a portion of the floor covered by concrete in Room F (Plate 9). At first sight, it was a rubble-filled hole without a liner at an elevation of 14.60 ft. ASL. It was abutted to the north by Feature 2, a dark circular stain, later identified as the upper edge of Feature 1 (Plate 10).

When the rubble was cleared, a pit 4.80 ft. by 5.80 ft. was revealed (Figure 22). The surface of its fill rested at an elevation of 12.35 ft. ASL, leaving a void of nearly two feet, and the base of the pit was reached at 1.07 ft. BSL, although it was further probed to a depth of 2.60 ft. BSL. The pit, approximately 15 feet deep, was funnel shaped in cross section. The presence of decayed wood along the sides and throughout the fill of the pit suggests it may originally have been lined with wood.

Almost all of feature YohF1 was excavated. The fill began approximately two feet below the surface of the cellar floor. The surface of the pit was littered with artifacts. Below this, at an elevation of 12.35-9.80 ft. ASL, was a deposit of brick rubble mixed with ash, wood, bone, shell, bottles and a large quantity of stoneware wasters in a matrix of yellow-brown soil. The concentration of stoneware lay against the southern half of the pit above a layer of brick resting on a bed of sterile sand between 10.34-9.80 ft. ASL. The yellow-brown soil continued below, but with fewer artifacts.

At an elevation of 8.45 ft. ASL, a darker brown soil was encountered. It contained a heavy concentration of mortar, artifacts, and a large number of bones. A layer of clam shells separated this from the layer below, a dark humic soil excavated between 7.00-4.70 ft. ASL. Heaped up against the south side of the pit was a gray silt clay excavated between 6.00-3.63 ft. ASL. This deposit filled the base of the feature but was excavated in arbitrary levels: 3.63-0.73 ft. ASL, and 0.73 ft. ASL to 1.07 ft. BSL. The concentrations of bone, glass, ceramics, and, to a lesser extent, shell continued in these layers filling the bottom of the privy. Soil and mortar samples were collected throughout YohF1. The soil from 1.07 to 2.60 ft. BSL, removed with a post-hole digger, was sterile.

The glass and ceramic analyses of YohF1 identified three discrete depositional events. The two lower strata, AS I and AS II, were nightsoil deposits. A TPQ of 1769 dates the earliest deposit, AS I. AS II produced a TPQ of 1783, the approximate date after which the privy was closed. Fill, AS III, consisting of building rubble and stoneware wasters, was dumped into the privy after 1825. A total of 259 ceramic and 183 glass vessels were cataloged in YohF1; 86 ceramic and 60 glass vessels in AS I, 94 ceramic and 115 glass vessels in AS II, and 79 ceramic and 6 glass vessels in AS III.

YohF1, AS I

The 86 ceramic vessels in AS I consisted of 28 teaware, 21 kitchen, 14 tableware, 16 beverage, and seven hygiene (Table 6). The mean date of the ceramic assemblage was 1747, though a later TPQ of 1769 for AS I was based on two Stiegel-type flip glasses (Plate 11h-i). Teawares

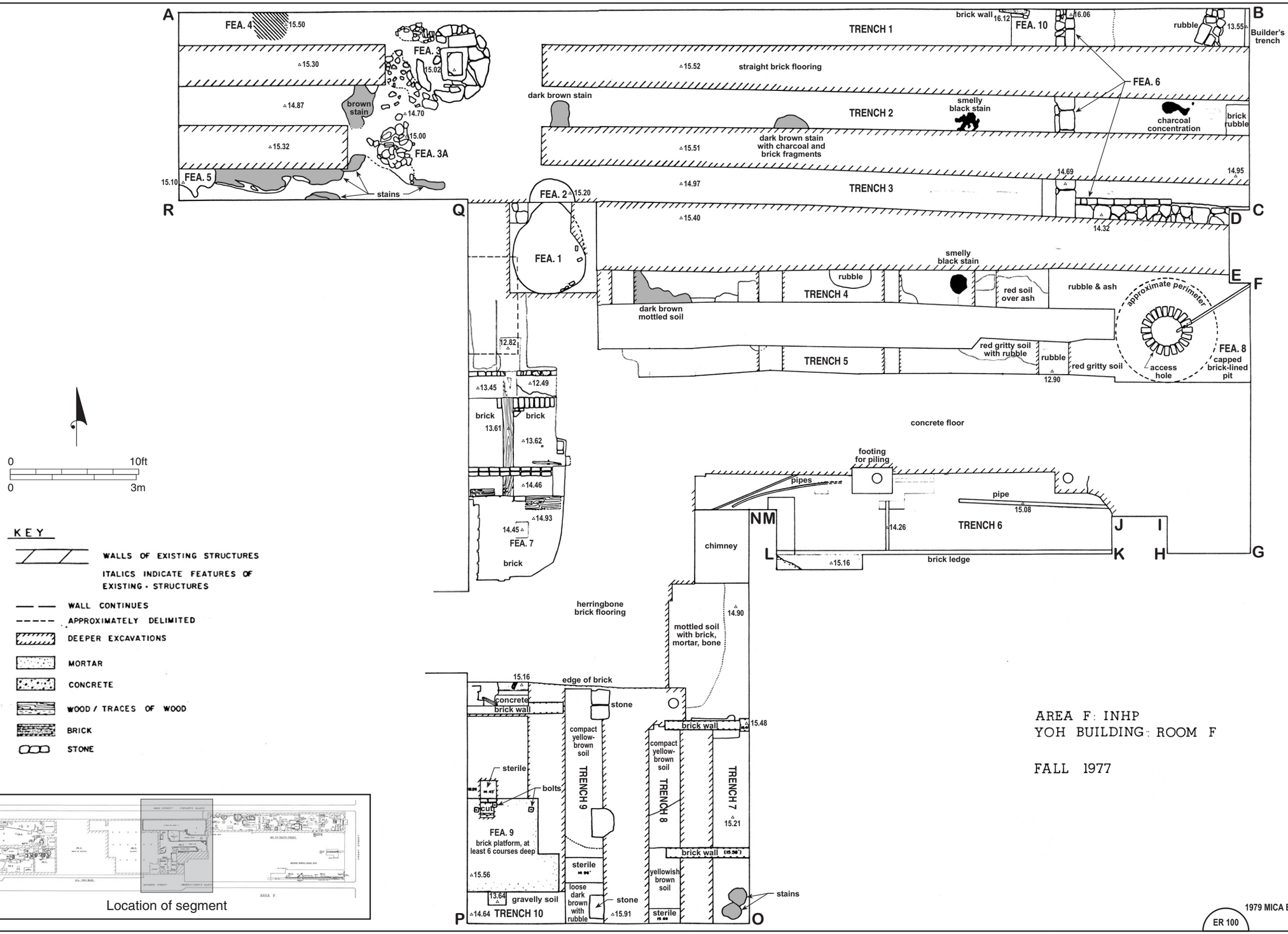


Figure 21. Plan of excavated trenches and exposed features in Room F of the Yoh Building, Area F site.

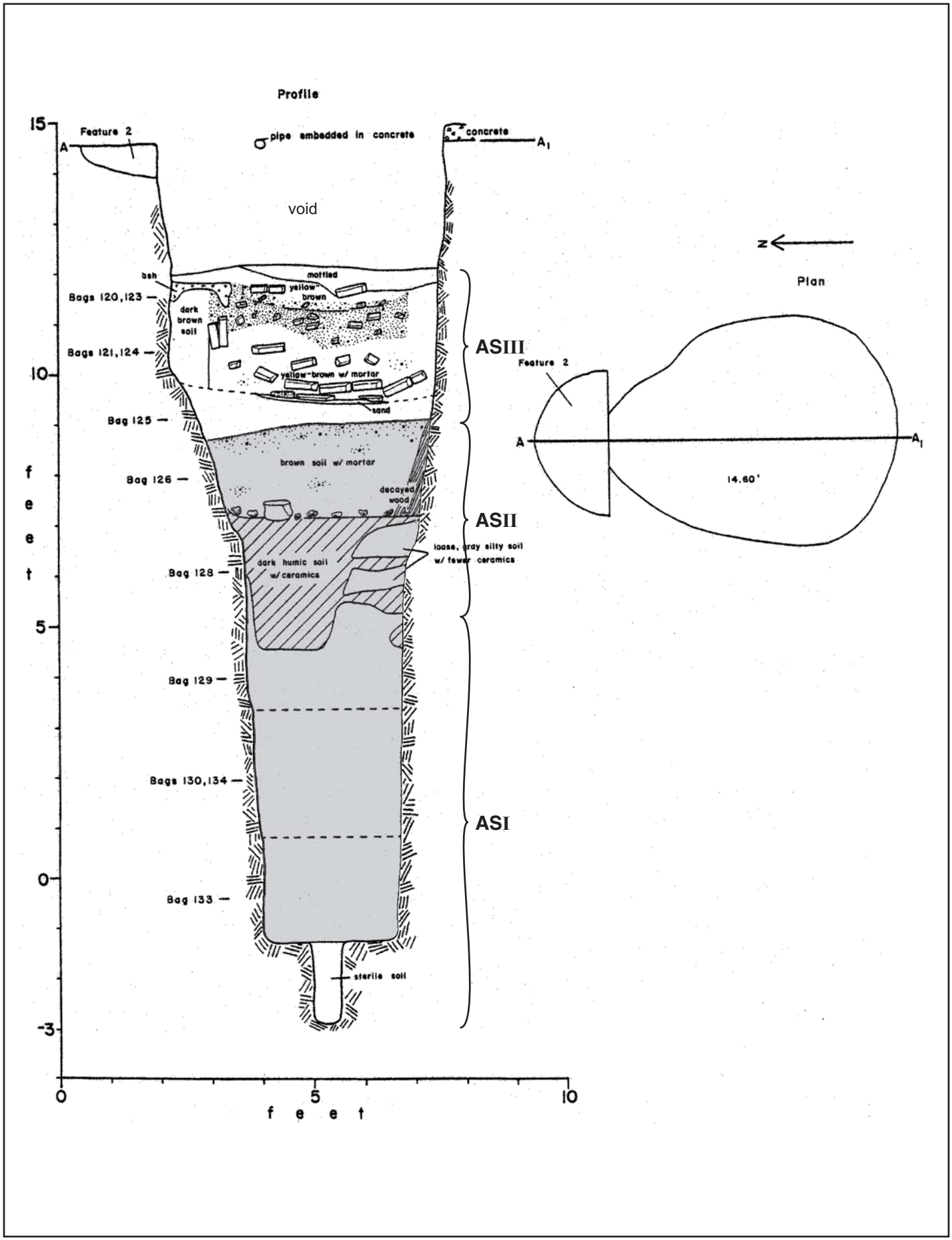


Figure 22. Area F, Yoh Building, Room F, Feature 1 (YohF1) plan and profile. The entire feature was excavated.

Plate 9. Area F, Yoh Building, Room F, Feature 1, background, excavation in progress and Feature 2, unexcavated, in foreground; view south.

Plate 10. Area F, Yoh Building, Room F, Feature 2; view north. Feature 2 was later identified as the northern edge of Feature 1.

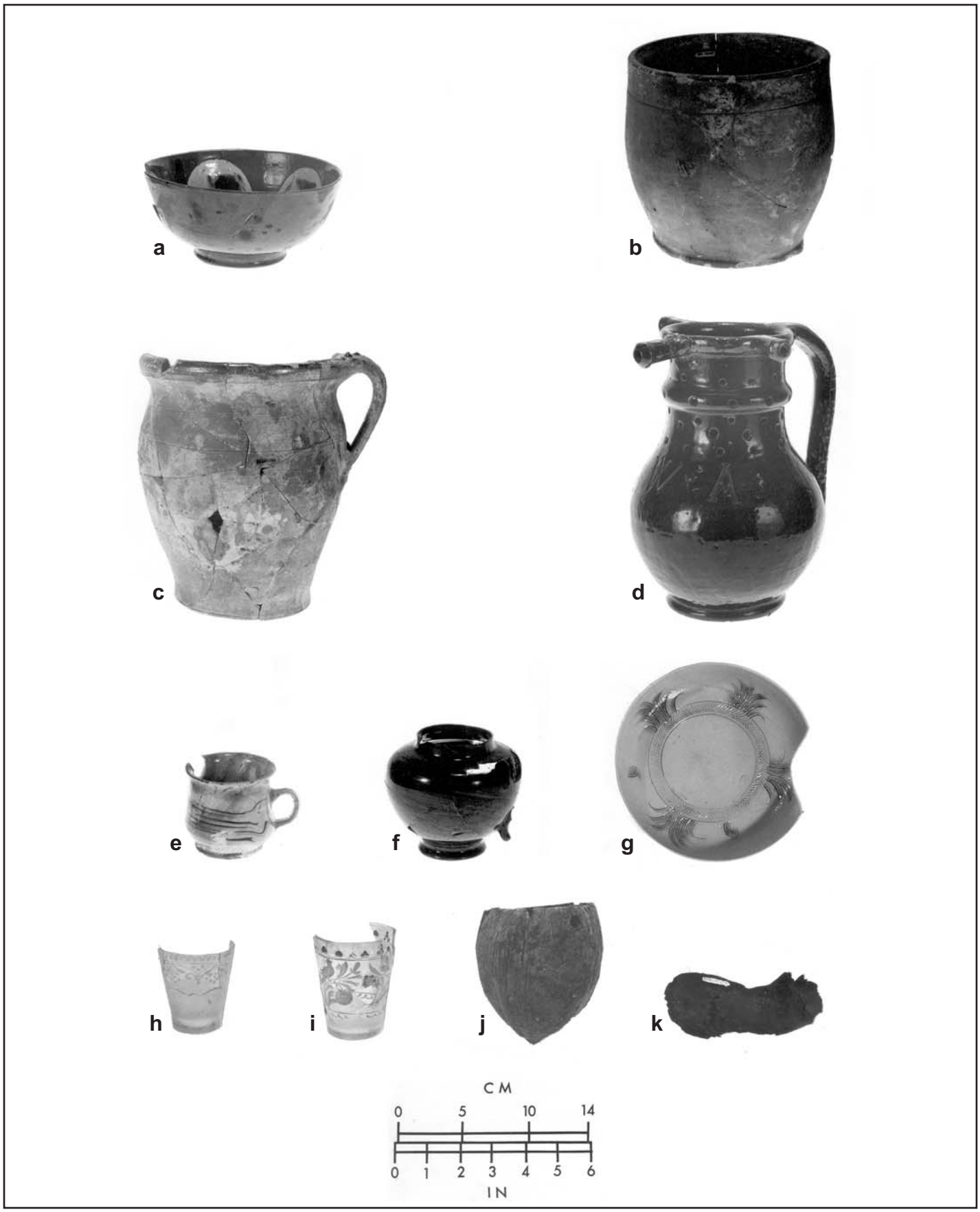


Plate 11. Artifacts from Yoh Building, Room F, Feature 1, AS I: a, Philadelphia slip-decorated tulip bowl; b-c, Philadelphia redware butter pots; d, Philadelphia redware puzzle jug incised "WA"; e, yellowware posset cup; f, English agateware teapot; g, scratch blue stoneware saucer; h-I Stiegel flip glasses; j, coconut shell cup; k, leather shoe sole.

constituted the largest functional group, with Chinese Export porcelain (18) preferred over white salt-glazed stoneware (7) (Plate 11g), tin-glazed earthenware (2), and agateware (1). There were three ceramic teapots, two of white salt-glazed stoneware and one of finely potted agateware (Plate 11f). The only matching set in AS I was represented by two teabowls and one saucer of underglaze blue Chinese Export porcelain in a blue weeping willow and peony pattern (Set #2).

Table 6. Ceramic Vessels in Yoh Building, Room F, Feature 1, AS I. The highlighted cells indicate matched sets.

FUNCTION			TEA				BEVERAGE											KITCHEN								HYG	
SUBFUNCTION			DRINK		SERV											SERV		EATING									
ORIGIN	WARE	FORM	TEABOWL	SAUCER	SLOP BOWL	TEAPOT	TANKARD	POSSET CUP	PUZZLE JUG	PUNCH BOWL	JUG	BOTTLE	PLATE	TABLE	TWIFFLER	SALT CELLAR	SERVING DISH	PORRINGER	DISH	CHARGER	BOWL	JAR	BUTTER POT	MILK PAN	PIE PAN	CHAMBER POT	TOTALS
PH	**Redware**	*Lead Glazed*					3		1		1	1						1	1		2	2	8	1		5	26
		Slip Decorated																		1	1				4		6
ENG/ EUR	**TGEW**		1		1					2			9		1		1										15
	Redware	*Refined*				1										1											2
	Yellowware	*Slipped, Trailed, Dot*						3																			3
	Stoneware	*White salt-glazed*	2	2	1	2	2				1															1	11
		Other					1				1															1	3
CEP	**Porcelain**	*Underglaze blue* ***(Set 2)***	7	6	3									2													18
		Overglaze dec.	1	1																							2
TOTALS			11	9	5	3	6	3	1	2	3	1	9	2	1	1	1	1	1	1	3	2	8	1	4	7	86

The second largest group of vessels was kitchen related and made up entirely of local Philadelphia redwares: six for eating (Plate 11a) and 15 for food preparation, cooking, and storage. Butter pots or crocks (8) (Plate 11b-c) and pie pans (4) were the predominant forms. All but one of the pie pans were charred from repeated use and showed interior wear. With the exception of a single redware charger and two Chinese Export porcelain plates, the AS I flatwares were almost entirely of tin-glazed earthenware (12).

The beverage group included six tankards, three posset cups (Plate 11e), four jugs, two punch bowls, and one bottle. Within this group, six vessels were locally made Philadelphia redware—three tankards, two jugs, and one bottle. One of the redware tankards was marked with an "X" on the base, and a puzzle jug was inscribed with the initials "WA" on the shoulder (Plate 11d). The initials match neighbor William Annis, or the vessel could have been intended for owner William Gray and mistakenly inscribed. The jug was probably discarded whole (one of the mouthpieces

was broken off). Although one of the mouthpieces was heavily worn, an imperfection may have prevented it from "working" properly.

The most frequently occurring vessel forms were plates in various sizes (12), followed by teabowls (11), saucers (9), bowls (8), butter pots or crocks (8), and chamber pots (7). Approximately a third of the ceramics in AS I were locally made Philadelphia redwares (32). The remainder were Chinese Export porcelain (20), tin-glazed earthenware (15), white salt-glazed stoneware (11), and miscellaneous (8).

Six whole ceramic vessels were recovered at the bottom of the feature, and a total of 32 vessels could be reconstructed to 75 percent or greater. Twenty vessels were 50-70 percent reconstructible and 34 were under 45 percent.

Sixty glass vessels were recovered in AS I: 42 bottles, 15 tableware, and three unidentified (Table 7). The majority of the bottles contained alcoholic beverages: 8 case gin and 24 wine with a smaller assortment containing medicine (4), chemical (4), capers (1), and snuff (1). The identifiable glass tablewares (15) included four tumblers, two flip, and three wine glasses. The flip glasses, cited above, were of the type manufactured at the Stiegel Glassworks in Manheim, Pennsylvania, 1769-1800 (McKearin and McKearin 1948:48).

Table 7. Glass Vessels from Yoh Building, Room F, Feature 1.

Functional/Subfunctional Group	AS I	%	AS II	%	AS III	%	Total	%
			Bottles					
Alcohol								
Case Gin	8	19.0	9	9.9	0	0.0	17	12.2
Wine	24	40.0	41	45.1	0	0.0	65	46.7
Spirits	0	0.0	3	3.3	0	0.0	3	2.2
Flask	0	0.0	1	1.1	0	0.0	1	0.7
Total Alcohol	32	76.1	54	59.3	0	0.0	86	61.8
Medicine	4	9.5	7	7.7	0	0.0	11	7.9
Chemical	4	9.5	14	15.4	1	16.7	19	13.7
Food								
Capers	1	2.4	1	1.1	0	0.0	2	1.4
Tobacco								
Snuff	1	2.4	6	6.6	1	16.7	8	5.8
Miscellaneous Bottle	0	0.0	2	2.2	0	0.0	2	1.4
Unidentified Bottle	0	0.0	7	7.7	4	66.7	11	7.9
Total Bottle	42	99.9	91	100.1	6	0.0	139	99.9
			Tableware					
Drinking								
Tumbler	6	40.0	10	41.6	0	0.0	16	41.0
Wine Glass	3	20.0	8	33.3	0	0.0	11	28.2
Total Drinking	9	60.0	18	74.9	0	0.0	27	67.5
Serving								
Cruet	0	0.0	1	4.2	0	0.0	1	2.6
Stopper	0	0.0	1	4.2	0	0.0	1	2.6

Unidentified Tableware	6	40.0	4	16.7	0	0.0	10	25.6
Total Tableware	15	100.0	24	100.0	0	0.0	39	21.3
Furnishing								
Vase	0	0.0	2	100.0	0	0.0	2	1.1
Total Bottle	42	70.0	91	77.8	6	100.0	139	76.0
Total Tableware	15	25.0	24	20.5	0	0.0	39	21.3
Total Furnishing	0	0.0	2	1.7	0	0.0	2	1.1
Total Unidentified	3	5.0	0	0.0	0	0.0	3	1.6
Total Vessels	60	100.0	117	100.0	6	100.0	183	100.0

The small finds in AS I were scant: an ornamental piece of bone or ivory, a lice comb, a brass button and buckle, a leather shoe (Plate 11k), fragments of a mirror, a lead weight, a brass padlock, fragments of 13 tobacco pipes, and a coconut shell shaped into a cup (Plate 11j). Twelve slivers of bone recovered in a flotation sample were carefully shaped into objects resembling toothpicks in size and shape. Another interpretation is that they were used as cake testers by the bakers on this lot. Objects belonging to children included three marbles and two redware toy vessels.

YohF1, AS II

AS II consisted of the final nightsoil deposit in YohF1, separated from a mortar fill by a layer of oyster shell, probably deposited in the privy as an odor inhibitor. AS II was packed with a minimum of 94 ceramic vessels having a mean ceramic date of 1766. The TPQ of 1783 for this analytical stratum was based on a Pitkin flask, made in Connecticut between 1783-1830 (McKearin and Wilson 1978:328). The AS II ceramic vessels consisted of 30 teaware, 29 kitchen, 16 beverage, 10 tableware, and nine hygiene (Table 8).

The majority of the ceramic vessels in AS II were made of Philadelphia redware (35), followed by white salt-glazed stoneware (15), creamware (16), tin-glazed earthenware (9), Chinese Export porcelain (9), and minute amounts of other wares (10). There was much less Chinese Export porcelain in AS II (10%) than in AS I (23%).

A cup and saucer from a teaset (Set #1) of the earliest-made American porcelain, made at the Philadelphia factory of Bonnin and Morris, 1770-1773, was recovered from AS II (Hood 1972). The sherd to a third vessel belonging to this set was recovered in AS III. The majority of teawares in AS II were creamware, including a Whieldon-type teabowl, slop bowl, and teapot that may have been part of a second set.

The AS II kitchen assemblage was large and heavier on the preparation end, with three times as many cooking/baking vessels as eating vessels. Pudding (8) and pie (6) pans were the most numerous types and may be related to the operation of the bake house on this lot. A fragment of a Spanish olive jar was among the kitchen group of ceramics.

Table 8. Ceramic Vessels in Yoh Building, Room F, Feature I, AS II. The highlighted cells indicate matched sets.

FUNCTION			TEA							BEVERAGE						KITCHEN												HYG			
SUBFUNCTION			DRINKING				SERVING						PLT		S	EATING				PREPARATION											
ORIGIN	WARE	FORM	TEABOWL	COFFEE CAN	HANDLED CUP	SAUCER	SLOP BOWL	LID	TEAPOT	TANKARD	PUNCH BOWL	JUG	PLATE	TABLE	SERVING DISH	PORRINGER	DISH	CHARGER	BOWL	OLIVE JAR	JAR	BUTTER POT	MILK PAN	PIE PAN	PUDDING PAN	PIPKIN	CHAMBER POT	STOOL POT	DRUG JAR/POT	TOTALS
PHIL	**Redware**	*Lead Glazed*								2	1	3				2	1		1		1	1	2			1	4	1		20
		Slip Decorated																1						5	8					14
		Mottled																	1											1
	Porcelain	*Bonnin & Morris 1770-1773 (**Set 1**)*	1			1																								2
ENGLAND/ EUROPE	**TGEW**						1				3		1		1				1								1		1	9
	Redware	*Refined*								1									1											2
		Other																		1										1
	Yellowware	*Slipped, Trailed, Dot*																						1						1
	Creamware	*Plain /Beaded Rim*	1			1	1	1	1				1																	6
		Queensware												2																2
		Whieldon	1				1		1	2																				5
		Painted					1		2																					3
		Sponged																												0
	Stoneware	*White salt-glazed*	4			1	2			1			5														2			15
		Other								1		1										1								3
	Porcelain	*Bone China*			1																									1
CEP	**Porcelain**	*Underglaze blue*	1	1		2					1																			5
		Overglaze dec.	3			1																								4
TOTALS			11	1	1	6	6	1	4	7	5	4	7	2	1	2	1	1	4	1	1	2	2	6	8	1	7	1	1	94

Unlike the kitchen assemblage, the AS II beverage group comprised more imported vessels than local—nine English or European, one Chinese, and six from Philadelphia. All five imported tankards were English, two stoneware—one Nottingham and one white salt-glazed stoneware, and three earthenware–two Whieldon-type, and one Jackfield-type. There were two very worn, Philadelphia redware tankards (Plate 12a), three jugs (Plate 12b), and one punch bowl. Of the three tin-glazed earthenware punch bowls, one was inscribed on the interior "This makes my heart Merry, while love makes it Sad, what think you to Marry, then sure you are Mad" (Plate 12c) and another "Success to the Brave."

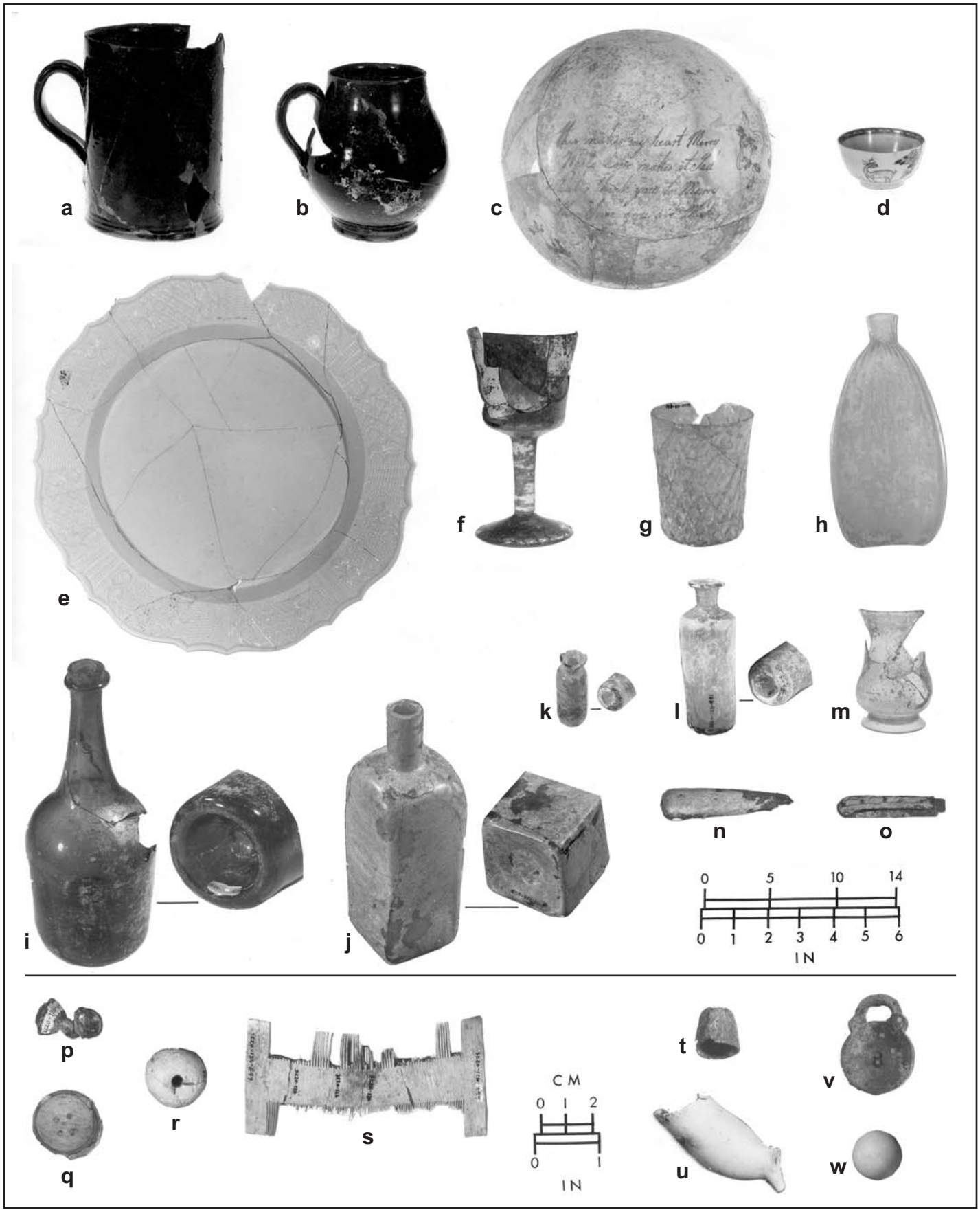


Plate 12. Artifacts from Yoh Building, Room F, Feature 1, AS II: a-b, Philadelphia redware tankards; c, tin-glazed earthenware punch bowl "This makes my heart Merry, While love makes it Sad, What think you to Marry, then sure you are Mad"; d, Chinese Export porcelain tea bowl; e, white salt-glazed stoneware table plate; f, water goblet; g, molded tumbler; h, Pitkin flask; k-l, medicine phials; m, vase; i, wine bottle; j, case bottle; n, bone knife handle; o, bone folding knife; p, cuff links; q, mother-of-pearl button; r, glass bead; s, bone lice comb; t, brass thimble; u, kaolin pipe bowl; v, brass padlock; w, clay marble.

The AS II tablewares included nine plates and one serving vessel, all imported—five white salt-glazed stoneware (one plain and four molded in various patterns) (Plate 12e), three molded creamware (one feather edged, and two Queensware), and two tin-glazed earthenware.

Overall, bowls (15), teabowls (11), plates (9), pudding pans (8), and tankards (7) were the most predominant ceramic vessel forms in AS II. Almost a third (29%) of the vessels were nearly whole or whole (greater than 75%), 27 percent were 25 to 70 percent reconstructible, and 45 percent were less than a quarter reconstructible.

The majority of the glass vessels excavated from this feature were found in AS II (see Table 7). Of the 115 glass vessels, there were 91 bottles and 24 tablewares. Nearly half (47%) of the bottles contained alcoholic beverages: 41 wine (Plate 12i), nine case gin (Plate 12j), three miscellaneous spirits, and one flask manufactured by the Pitkin Glassworks in East Manchester, Connecticut c.1783-1830 (McKearin and Wilson 1978:328; Plate 12h). The remaining bottles included seven medicine, 14 chemical (Plate 12k-l), six snuff, and one capers, two fire extinguishers, and seven unidentified.

There were also 10 tumblers (Plate 12g), eight wine glasses (Plate 12f), one cruet, one stopper for a decanter or similar serving vessel, and four unidentified vessels in the AS II assemblage. Four matching mold-blown tumblers with a quilted motif were from a set.

There were considerably more small finds in AS II than in AS I. Personal artifacts included fragments of a pocket watch, a folding knife (Plate 12o), two lice combs (Plate 12s), an assortment of buttons (9 brass, 4 bone, 2 mother of pearl; Plate 12q), a brass buckle, two cuff links (Plate 12p), and nine coins. Interestingly, eight of the coins were counterfeits; that is, copper over a lead center. Household objects included two glass vases (Plate 12m), a brass padlock (Plate 12v), a lead weight, a scrub brush, several bone utensil handles (Plate 12n), and one copper spoon. The presence of straight pins (2) and a brass thimble (1) (Plate 12t) reflect sewing activities, while lumps of lead and yellow resin may be the residue of some type of light industry. The presence of children is indicated by toy artifacts—six marbles (Plate 12w) and six miniature redware vessels. Fifteen kaolin pipe fragments (Plate 12u) and six snuff bottles indicate tobacco use. Armaments are minimally represented by two gunflints.

YohF1, AS III

AS III is fill added after the privy was closed. A TPQ of 1825 came from two whiteware vessels found in this uppermost stratum. The AS III fill was largely architectural, with a deposit of stoneware wasters (359) that were dumped in to fill the open space within the privy shaft, and smaller amounts of ceramic (41) and glass (6) vessels, many of which likely belonged to the lower stratum. The stoneware wasters consisted of fragments of at least 38 jugs and two crocks. This small collection of stoneware that failed in the kiln had buff to gray bodies with gray (16), tan (15), brown (8), and maroon (1) salt glazed exteriors. Many were marked with punctated circles or triangles on the shoulders of the jugs and sometimes the punctated or drawn numerals "3" or "4." Unfortunately, none have maker's marks and no known residents were potters. Although there are no known stoneware manufacturers in the vicinity of the Area F site, a number of Philadelphia potters were making stoneware in this period, and likely sources are Branch Green's factory 1809-1827, or Thomas Haig 1810-1831 (Myers 1980:15,61-63).

The AS III ceramics consisted of kitchenwares (13), teawares (10), beverages (8), tablewares (7), and hygiene (1; Table 9). Most notable in this assemblage were the two Spanish olive jars, both approximately 60 percent complete, one with the initials "AV" carved on the shoulder found on

the surface of AS II. The discovery of another olive jar deeper in the shaft may indicate an earlier association. Altogether three olive jars were discarded in this privy. The presence of a Bonnin and Morris teabowl in AS III, belonging to the set (Set #1) discarded in AS II, may indicate some degree of excavation error in the separation of these layers. A nearly whole stoneware salve jar comprised the single vessel in the hygiene category.

Table 9. Ceramic Vessels in Yoh Building, Room F, Feature I, AS III. The highlighted cells indicate matched sets.

FUNCTION			TEA				BEVERAGE									PREPARATION									TOTALS
SUBFUNCTION			DRINK			S																			
ORIGIN	WARE	FORM	TEABOWL	HANDLED CUP	SAUCER	SLOP BOWL	TANKARD	MUG	PUNCH BOWL	JUG	BOTTLE	PLATE	TABLE	BOWL	OLIVE JAR	JAR	BUTTER POT	CROCK	PIE PAN	PUDDING PAN	SALVE JAR	SHERD	
PHIL	**Redware**	*Lead Glazed*								1	1			1			1	1					5
		Slip Decorated												2					1	2			5
	Stoneware	*Wasters are bolded*								**38**						1		**2**			1		42
	Porcelain	*Bonnin & Morris 1770-1773 (**Set 1**)*	1																				1
	Redware	*Other*													2								2
	Yellowware	*Slipped, Trailed, Dot*						1															1
	Creamware	*Plain /Molded*	1				1					1											3
		Whieldon							1														1
		Painted										1											1
		Painted, blue				1																	1
		Edged, blue										3											3
		Printed		2	1																		3
		Dipt					1																1
	Whiteware	*Printed*																				1	1
		Dipt																				1	1
	Stoneware	*White salt-glazed*											1										1
		Other								3													3
CEP	**Porcelain**	*Underglaze blue*			1																		1
		Overglaze dec.	1		2																		3
TOTALS			3	2	4	1	2	1	1	42	1	5	1	3	2	1	1	3	1	2	1	2	79

Very little glassware was identified in AS III: a single chemical bottle, a snuff bottle, and four bottles of unknown function (see Table 7). A stoneware ink bottle was among the small finds from this stratum.

3.4 YOH BUILDING, ROOM F, FEATURE 6

Feature 6 was a complex of walls and rubble exposed in Trenches 1, 2, and 3 in the northeast portion of Room F (see Figure 21). The walls were encountered beneath a shallow, .20-ft.-deep stain underlying the brick floor in Room F at an elevation of 16.06 ft. ASL. The discoloration was largely filled with rubble and a few redware and creamware sherds. The north-south wall of the structure was mortared stone and ran beneath the north wall of Room F. The east-west wall, of mortared stone with an interior brick facing, abutted it, forming the southwest corner of the structure (Plates 13 and 14).

Feature 6 is a stone foundation with an interior brick facing that represents the southwest corner of a building fronting Taylor's Alley but associated with 114 S. Front Street. Feature 6 is most likely the foundation of the carriage house and stable built at the back of Robert Smith's lot c.1792.

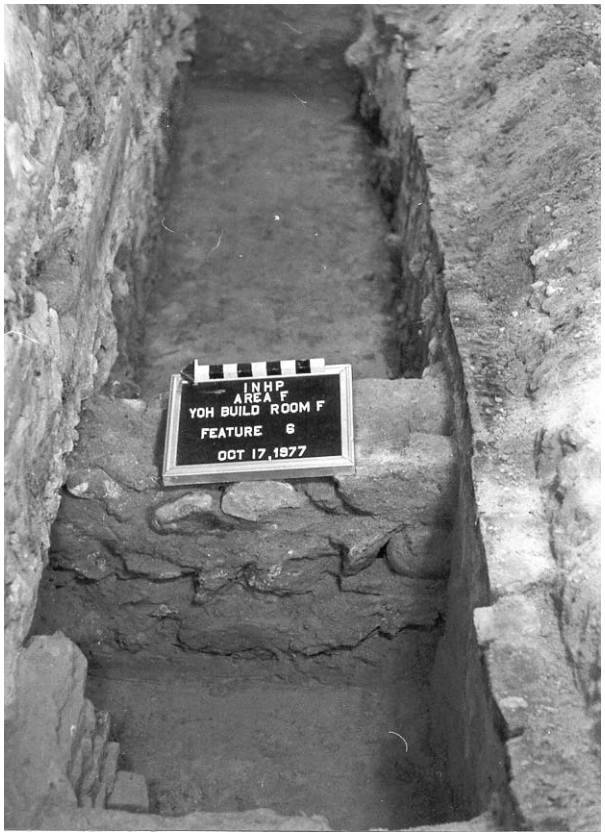


Plate 13. Area F, Yoh Building, Room F, west wall of Feature 6 in Trench 1; view east. Stone foundation runs under wall A-B and is probably a remnant of Robert Smith's stable/carriage house built c. 1792. Note brick wall fragment, Feature 10, in bottom left corner of photograph.

Plate 14. Area F, Yoh Building, Room F, west and south walls of Feature 6 in Trench 3, view east. Note brick facing on interior of stable/carriage house.

4.0 ARCHEOLOGICAL INVESTIGATION OF COMMERCIAL BUILDING AT 114 SOUTH FRONT STREET

The archeological investigation of 114 South Front Street was conducted in three adjoining cellar rooms designated Rooms A, B, and C. Room A was the cellar room beneath the four-story brick store fronting onto Front Street. Room B, west of Room A, was below the c.1856 counting house that was, between c.1847-1856, an enclosed exterior yard. Room C, west of Room B, was the cellar room beneath the four-story brick warehouse behind the 114 South Front Street store and facing onto Ionic Street (Taylor's Alley). The following is a description and analyses of selected features. The features for Rooms A, B, and C of the 114 South Front Street building are recorded in plan on Figure 23 and are summarized in Table 10. As in the Yoh Building, features were numbered consecutively by room, resulting in several features with the same number. Consequently, to avoid confusion the same abbreviated format employed in the Yoh Building was used at 114 South Front Street: 114A1 or 114A2, shorthand for 114 South Front Street, Room A, Feature 1, and 114 South Front Street, Room A, Feature 2, etc.

4.1 114 SOUTH FRONT STREET, ROOM A, FEATURE 3

Feature 3 was a fragment of a mortar-covered stone wall running east-west through the center of Room A (see Figure 23, Plate 15). Encountered at an elevation of 15.32 ft. ASL, this wall is likely a remnant of the piazza foundation of Robert Smith's house constructed c. 1792. It is the only eighteenth-century feature in Room A.

4.2 114 SOUTH FRONT STREET, ROOM B, FEATURE 1 (BRICK-LINED WELL)

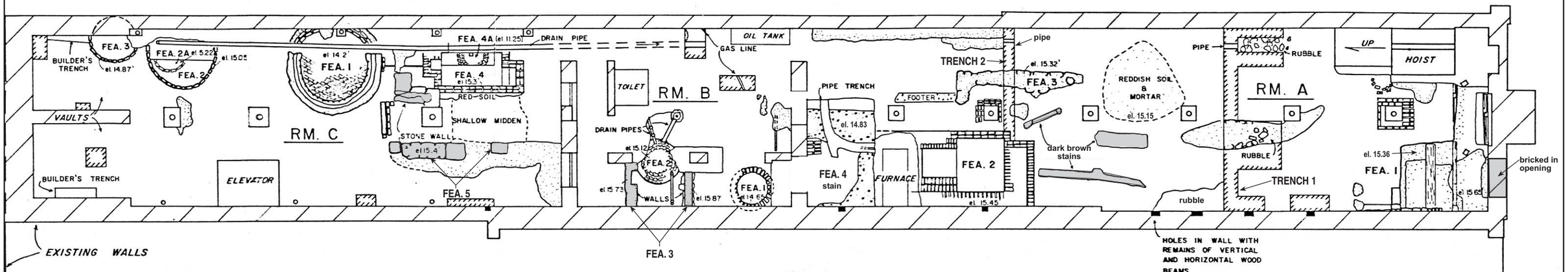
Feature 1 (114B1) was a small, brick-lined shaft located in the southeast corner of Room B at an elevation of 14.65 ft. ASL (see Figure 23). Portions of the upper perimeter of Feature 1 were missing, probably due to truncation of the well during the c.1847 construction activities (Plate 16). Otherwise, the shaft contents were undisturbed. Due to the narrowness of the shaft, with an inside diameter of 3.12 ft., contents of the entire feature were excavated. Fill was removed and screened, to a depth of .65 ft. ASL; below this, it was probed to a depth of 4.95 ft. BSL (Figure 24).

Except for a patch of gray clay collected in the southeast corner of the pit, the fill began at an elevation of 13.98 ft. ASL. At this depth, there was a loose, light brown soil that graded at 12.55 ft. ASL into a mottled light brown and dark gray sandy soil. At 11.10 ft. ASL this changed to a dark gray soil containing charcoal, ash, and a concentration of shell to a depth of 10.30 ft. ASL. During excavation of this layer, the center of the fill suddenly gave way and revealed a circular void, .65 ft. in diameter. The void began at 10.65 ft. ASL and extended to below 2.65 ft. ASL, where a brick floor was laid around what presumably had been a wooden pipe anchored in the center of the feature at its base. Outside of the void, the shaft was filled with a loose, light brown soil. Only a small section of the brick floor was removed. Beneath it, the soil was mixed with mortar to a depth of 1.85 ft. ASL. Excavation terminated at the base of the pipe, .65 ft. ASL.

The upper part of the shaft was constructed of a double row of headers. The seventh row from the top, at an elevation of 12.20 ft. ASL, was a row of stretchers, and below this, the shaft lining was constructed of headers and brick bats. Glazed headers were used throughout. The total depth of the 114B1 shaft was approximately 12 feet. The void at the center of the shaft resulted from the decay of the wooden pump.

IONIC STREET (TAYLOR'S ALLEY)

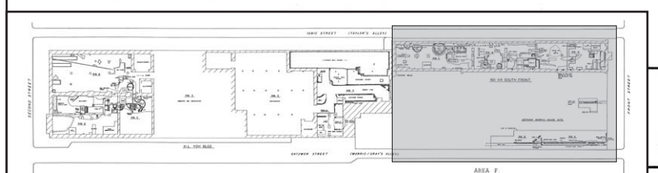
PRE 1847 FOUR STORY BRICK STOREHOUSE | c. 1856 COUNTING HOUSE | PRE 1847 FOUR-STORY BRICK STORE



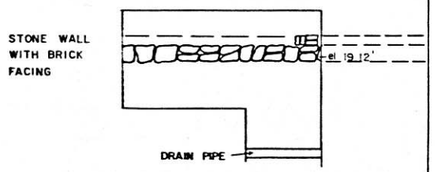
NO. 114 SOUTH FRONT

KEY

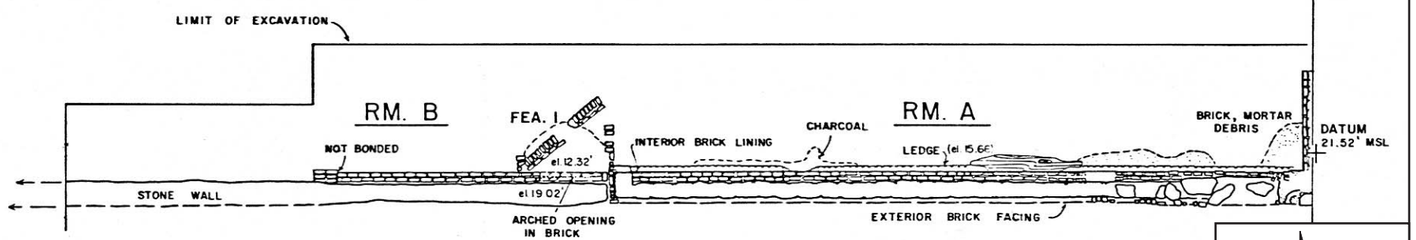
- WALLS OF EXISTING STRUCTURES
- *ITALICS INDICATE FEATURES OF EXISTING STRUCTURES*
- WALL CONTINUES
- APPROXIMATELY DELIMITED
- DEEPER EXCAVATIONS
- MORTAR
- CONCRETE
- WOOD / TRACES OF WOOD
- BRICK
- STONE



Location of segment



ANTHONY MORRIS HOUSE SITE



GATZMER STREET (MORRIS/GRAY'S ALLEY)

0 10ft
0 2m

Figure 23. Plan of excavated trenches and exposed features at 114 South Front Street and the Anthony Morris House site (118 South Front Street).

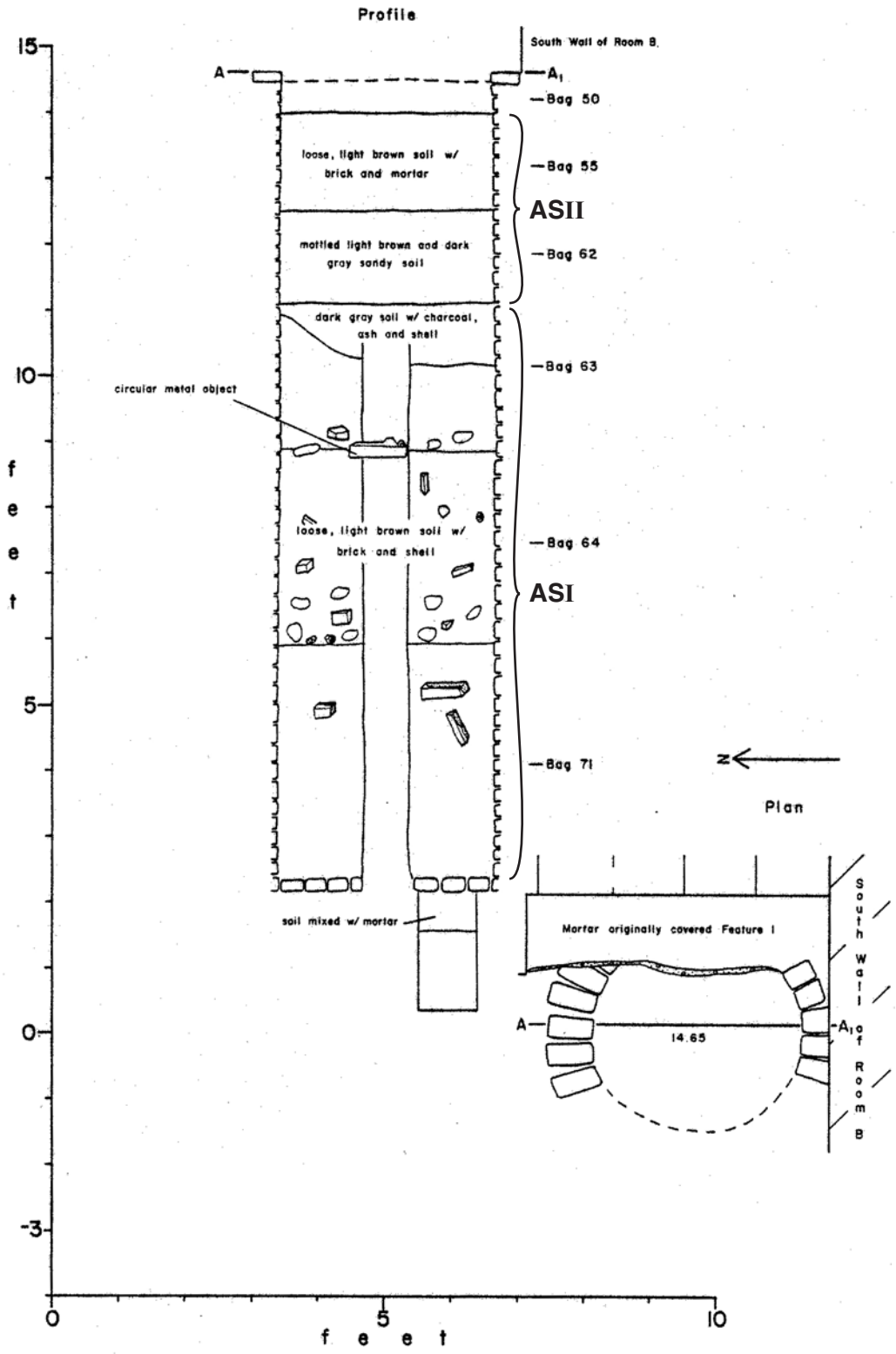


Figure 24. Area F, 114 S. Front Street, Room B, Feature 1 (114B1) plan and profile. The entire feature was excavated.

Plate 15. Area F, 114 S. Front Street, Room A, Feature 3, mortar-covered stone wall that is probably a remnant of Robert Smith's piazza foundation, c.1792; view west. Note section of north wall of Room A at right.

Plate 16. Area F, 114 S. Front Street, Room B, Feature 1, circular brick-lined well; view south.

Table 10. Summary of Features at 114 and 116 South Front Street, Area F.

S. FRONT ST	RM	FEA	DIM (ft)	ELEVATION (ft)		DEPTH (ft)	DESCRIPTION	%	FUNCTIONAL INTERPRETATION	TPQ	ASSOC
58 (114)	A	1	-	15.65	?	?	Mortar, stone & wooden beams	Tested	Floor Support	c.1856	Hugh Catherwood
58 (114)	A	2	-	15.45	?	?	Brick paving	Exposed	Foundation of brick furnace	Post 1847	Associated w/ building erected by Joseph Solms
58 (114)	A	3	5.0+	15.32	?	?	Mortared stone wall segment	Exposed	Piazza foundation	1792	Robert Smith, Merchant 1791-1826
58 (114)	A	4	1.5 x 2.5	15.00	?	?	Dark stain & brick support	Sampled	Midden	18th C.	Robert Smith or earlier
58 (114)	B	1	4.56	14.65	-1.35	16.00	Brick-lined shaft	100	Well	1792 or earlier	Robert Smith, Merchant ?
58 (114)	B	2	4.50	15.12	11.35	3.77	Brick-lined shaft w/ domed brick cap	Probed	Cesspool/privy	Mid 19th C.	Joseph Solms
58 (114)	B	3	-	15.87			Parallel mortared stone walls	Exposed	Original water closet foundation over Fea 2	Mid 19th C.	Joseph Solms
58 (114)	C	1	4.20	15.00	14.20	0.80	Circular brick-lined feature	100	Ice pit assoc w/ Fea 4/4A	1792	Robert Smith, Merchant
58 (114)	C	2	7.30	15.05	5.22	9.83	Brick-lined shaft	100	Double shaft privy (half salvaged by MICA 1979)	AS II 1870 AS I 1823	AS I: Robert Smith, Merchant 1791-1822
58 (114)	C	2A	3.00	5.22	1.20	4.02	Brick-lined shaft	100			
58 (114)	C	3	5.00	14.87	2.60	12.27	Brick & stone-lined shaft	50	Privy	AS II 1870 AS I 1783	AS I: Tavernkeepers Hercules Courtney 1769-1784 or Samuel Green 1784-1786
58 (114)	C	4	6.20 x 3.40	15.30	11.80	3.50	Brick & marble tank	100	Cold storage sub-cellar	1792	Robert Smith, Merchant
58 (114)	C	4A	3.20	11.25	1.85	9.40	Brick-lined shaft below Fea 4	Exposed	Drainage below sub-cellar	1792	Robert Smith, Merchant
58 (114)	C	5		15.4			Mortared brick & stone walls	100	SW corner of brick wash house	1792	Robert Smith, Merchant
62 (118)	B	1	7.10 x 7.30	12.32	2.0	10.32	Unlined shaft	50	Unknown, possible elevator shaft	19th C.	Coffee Warehouse?

The glass and ceramic vessel analyses of 114B1 identified two analytical strata. The lower 9 feet of the shaft formed AS I. A buff earthenware sherd of Rockingham type 1812-1920 produced the TPQ of 1812 for AS I. A fragment of a mold-blown flask dated the upper fill, AS II, to after 1900.

A total of 81 ceramic and 14 glass vessels were identified in 114B1. Over 80 percent of the ceramic vessels were reconstructible to 10 percent or less, and all of the glass vessels were less than 35 percent reconstructible. Most of the vessels were represented by small, single sherds or fragments. The distribution of identified ceramic vessel forms is listed in Tables 11 and 12. In both AS I and AS II, the vessels were predominantly kitchenwares, accounting for 40 percent of AS I and 58 percent of AS II. Nearly half (42%) of the ceramic vessels were locally made Philadelphia wares, and the majority of these were redware. The ceramics in AS I produced a mean ceramic date of 1774.

Table 11. Ceramic Vessels in 114 S. Front Street, Room B, Feature 1, AS I.

FUNCTION			TEA					BEVERAGE				KITCHEN							TOTALS
ORIGIN	WARE	FORM	TEABOWL	SAUCER	SLOP BOWL	LID	TEAPOT	TANKARD	POSSET CUP	BOTTLE	PLATE	PORRINGER	DISH	BOWL	BUTTER POT	PIE PAN	PUDDING PAN		
PHIL	**Redware**	*Lead Glazed*								1			1	4	2			1	9
		Manganese Mottled												1					1
		Slip Decorated										2		3		1	4		10
	Buff EW									1								1	2
ENGLAND/ EUROPE	**TGEW**		1								1			3				1	6
	Redware	*Refined*				1	1												2
	Yellowware	*Slipped, Trailed, Dot*							2										2
	Creamware	*Plain*			2	2													4
		Painted Overglaze	1	1															2
		Royal, Feather-Edge									3								3
	Pearlware	*Painted, blue*	1																1
		Edged, blue									1								1
	Stoneware	*White salt-glazed*	2		1			1											4
		Other						2						2				2	6
CEP	**Porcelain**	*Underglaze blue*	1	1			1												3
		Overglaze dec.	1																1
TOTALS			7	2	3	3	2	3	2	2	5	2	1	13	2	1	4	5	57

Table 12. Ceramic Vessels in 114 S. Front Street, Room B, Feature 1, AS II.

FUNCTION			TABLE												
ORIGIN	WARE	FORM	SLOP BOWL	LID	PUNCH BOWL	MUFFIN	PLATE	DISH	BOWL	BUTTER POT	BOWL	PIE PAN	PUDDING PAN	SHERD	TOTALS
PH	**Redware**	*Lead Glazed*							2	5	1				8
		Slip Decorated						1				1	2		4
	Redware	*Other*						1							1
	Yellowware	*Slipped, Trailed, Dot*		1											1
	Creamware	*Royal, Feather-Edge*				1	1								2
	Pearlware	*Painted, blue*												1	1
		Printed					1								1
	Whiteware	*Printed*												1	1
		Dipt							1					1	2
	Stoneware	*Other*			1										1
CEP	**Porcelain**	*Underglaze blue*												1	1
		Overglaze dec.	1												1
TOTALS			1	1	1	1	2	2	3	5	1	1	2	4	24

A total of 14 glass vessels were identified in Feature 1 (Table 13). Of these, nine were associated with AS I. These vessels included one case gin bottle, three alcoholic beverage bottles, a wine bottle, a medicine bottle, and three unidentifiable bottles. The second and shallower of the two analytical strata (AS II) contained only five vessels. These included two wine bottles, one of which was an onion wine bottle, two miscellaneous beverage bottles, and a flask made c.1900.

Aside from the architectural debris and quantities of oyster shell already noted in 114B1, small finds in AS I included fragments of a barrel hoop, a small brass bell, a file, a lead seal, and several kaolin pipe fragments. The remains of two cats were identified among the bone discarded in the AS I fill.

4.3 114 SOUTH FRONT STREET, ROOM C, FEATURE 1

Feature 1 was a large, 8.50-ft.-diameter circular brick feature located along the north wall of Room C (see Figure 23). It was lined with several courses of brick and stone, 1.0 ft. thick, and thickly mortared (Plate 17). Feature 1 was encountered at an elevation of 15.00 ft. ASL and was filled with brick and mortar rubble. Excavation revealed a brick-paved floor .80 ft. below the rim (Plate 18). A lead pipe extended from the east side of this feature dropping down into Feature 4, approximately 5 feet away.

Plate 17. Area F, 114 S. Front Street, Room C, Feature 1; mortar floor or base of a large stone/brick-lined shaft; view north.

Plate 18. Area F, 114 S. Front Street, Room C, Feature 1; mortar removed revealing the underlying brick floor. Note lead drain upper center; view east.

Table 13. Glass Vessels from 114 S. Front Street, Room B, Feature 1.

Functional/Subfunctional Group	AS I	%	AS II	%	Total	%
	BOTTLES					
ALCOHOL						
Case Gin	1	11.0	0	0.0	1	7.1
Wine	1	11.0	2	40.0	3	21.4
Liquor	0	0.0	0	0.0	0	0.0
Carboy	0	0.0	0	0.0	0	0.0
Beverage	3	33.0	0	0.0	3	21.4
Flask	0	0.0	1	20.0	1	7.1
BEVERAGE						
Beverage	0	0.0	2	40.0	2	14.3
Mineral Water	0	0.0	0	0.0	0	0.0
MEDICINE						
Chemical	1	11.0	0	0.0	1	7.1
UNIDENTIFIED BOTTLE	3	33.0	0	0.0	3	21.4
TOTAL BOTTLE	9	99.0	5	100.0	14	99.8
TOTAL VESSELS	9	99.0	5	100.0	14	99.8

Feature 1 represents the base of a large, truncated shaft that functioned in conjunction with Feature 4 to the east. The thickness of its heavily mortared walls suggests its function was to insulate its contents. Feature 1 likely functioned as an ice pit.

4.4 114 SOUTH FRONT STREET, ROOM C, FEATURE 2/2A (BRICK-LINED DOUBLE-SHAFT PRIVY)

Feature 2 (114C2) was a circular, brick-lined privy located partly under the north wall of Room C (see Figure 23). Feature 114C2 lay west of Feature 1, east of Feature 3, and under a drain pipe that ran east-west across the room (Plate 19). A smaller circular, brick-lined shaft, Feature 2A (114C2A), was found below 114C2 (Plate 20). The inside diameter of the upper shaft was 6.55 ft., nearly double that of the lower shaft, with an estimated inside diameter of 3.30 ft. The top elevation of 114C2 was 15.05 ft. ASL, and the top elevation of 114C2A was 5.22 ft. ASL. The south half of 114C2 was excavated to the top of 114C2A, and then only a column of soil was excavated to the base of the lower shaft. The remainder of both shafts was excavated in 1979 in a salvage operation by MICA. MICA designated the salvaged feature "104" (114C2) and assigned letters to the various strata. Artifacts recovered from the lower shaft (114C2A) were designated "2A" (Parrington 1980:6). MICA turned over the artifacts to Temple to process with the rest of the artifacts from the feature, and the entire feature was analyzed together.

Beginning at 14.95 ft. ASL, the top of the uppermost shaft was filled with alternating bands of yellow-brown soil, decayed wood, and sand down to a layer of unmortared brick that formed a floor across the surface of the shaft at 12.85 ft. ASL (Figure 25). Below the brick floor, lenses of yellow-brown soil, sand, and decayed wood continued to a depth of 11.00 ft. ASL. At this depth the shaft was filled with a relatively clean, three-foot-thick deposit of fine yellowish brown sandy soil. At 7.85 ft. ASL, the shaft was filled with a wet, light olive nightsoil that was densely packed with

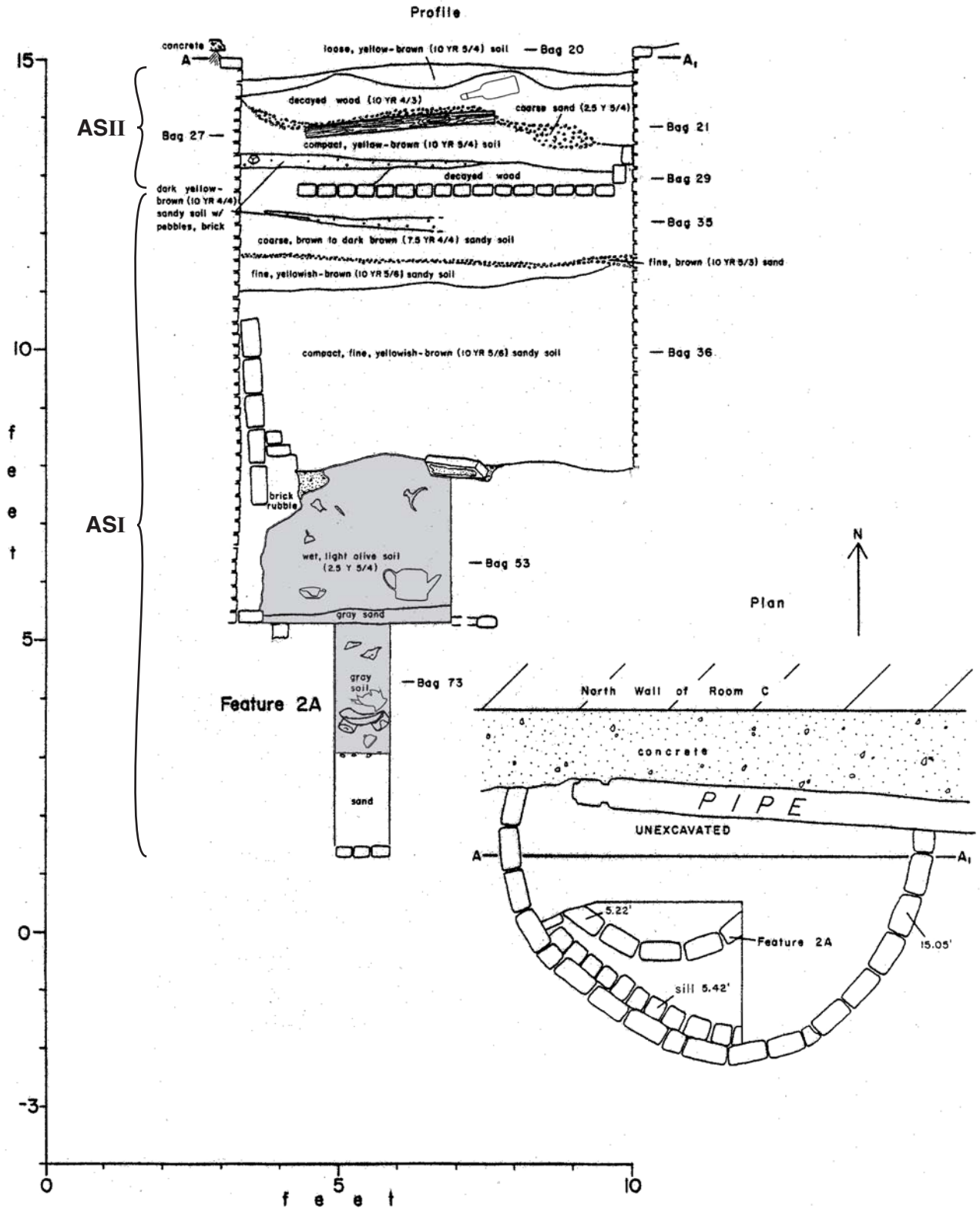


Figure 25. Area F, 114 S. Front Street, Room C, Feature 2 and 2A (114C2 and C2A) plan and profile. One half of this feature was excavated by the Temple team in 1977 and the other half was salvaged by MICA in 1979 so that this feature was excavated in its entirety.

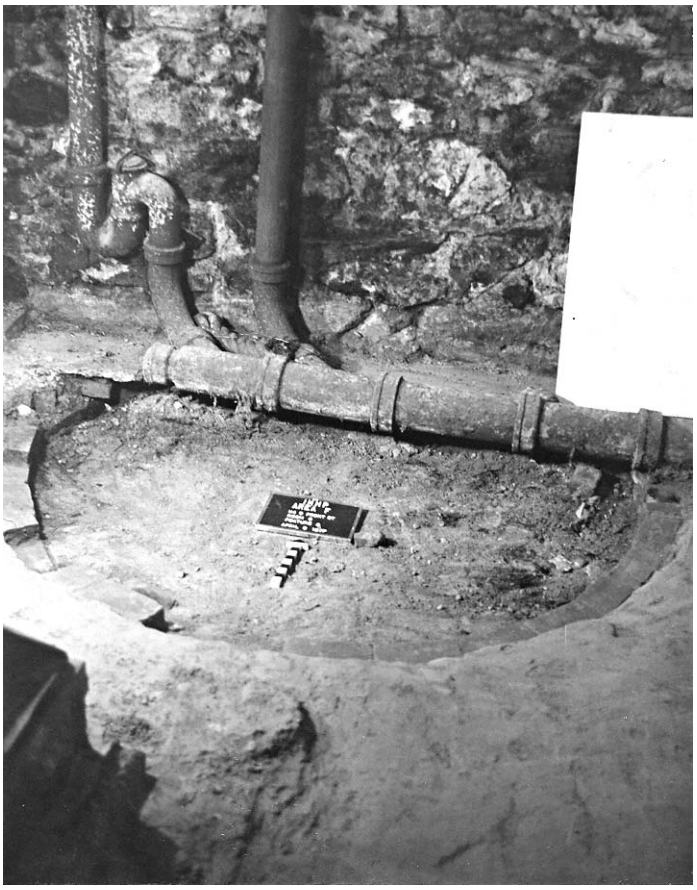


Plate 19. Area F, 114 S. Front Street, Room C, Feature 2; brick-lined privy, view north.

Plate 20. Area F, 114 S. Front Street, Room C, Feature 2 and Feature 2A. Note smaller brick-lined Feature 2A below Feature 2 shaft, center. One-half of Feature 2 and one-quarter of Feature 2A were excavated by the Temple team in 1977, and the rest was salvaged by MICA two years later.

artifacts, brick, and mortar rubble. The rubble was concentrated along the west wall of the shaft and included a section of brick walling, 5 bricks deep, that was dumped in when the privy was abandoned. At the base of the shaft, there was a thin layer of gray sand. Here the wall of the pit stepped in forming a sill, elevation 5.45 ft. ASL, below which was discovered another smaller, brick-lined pit, 114C2A.

The lower shaft, 114C2A was filled with a gray soil that changed to sand at 2.97 ft. ASL. The artifact concentration continued, less densely, in the upper part of the lower shaft to an elevation of 3.00 ft. ASL, below which the base of the shaft contained approximately two feet of sterile sand. A brick floor, encountered at 1.42 ft. ASL, lined the bottom of the lower shaft, 114C2A.

There were two analytical strata filling this double-shaft privy, AS I, consisting of everything below the brick floor in the upper shaft and all of the lower shaft. The artifacts that were most concentrated at the bottom of the upper shaft, and less densely in the upper part of the lower shaft, produced a TPQ of 1823. This date coincides with the death of Robert Smith and the sale of his house/store in 1826. Feature 114C2/2A was the second privy on this lot, most probably dug at the time Robert Smith built his new house and store in 1791. The lower shaft most likely originally served as a well associated with the first house on this lot. A similar double-shaft privy in which the lower shaft formerly served as a well was Cistern3/3A at Independence Hall (Gell 1968). The uppermost strata, AS II, comprised the fill overlying the brick floor at 12.85 ft. ASL. Except for some more recent brown bottle glass and lightbulbs on the surface, the uppermost layers were predominantly filled with building rubble and bottle glass postdating 1870, some of it identifiable to distiller Hugh Catherwood who owned the building from 1855-1886.

114C2 AS I

Six hundred and fifty-four (654) ceramic and 493 glass vessels were found in AS I: the bottom three feet of the upper shaft (Feature 2) and all of the lower shaft (Feature 2A). A pearlware serving bowl with a beaded, embossed feather edge made in England by James and Ralph Clews, c.1823-1835, provided the TPQ of 1823 for the AS I deposit. AS I has a mean ceramic date of 1803.

Ceramic vessels in AS I were distributed in the following functional groups: 55 kitchen, 241 tableware, 228 teaware, 53 beverage, 10 gardening, 66 hygiene, and one furnishing (Table 14; Plate 21). The gardening and furnishing ceramics are described with the small finds.

Almost half (287) of the vessels were parts of matched sets, most belonging to dinner settings (179) or tea sets (107), and one set of beverage vessels. Over half of the tea (66%) and table (55%) wares belonged to discarded sets. Ten pieces of a porcelain tea set (Set 17) with the monogram “RS” linked the contents of this privy to owner Robert Smith.

Nineteen tea sets were identified in the AS I ceramic assemblage, 13 English sets accounting for 58 vessels and six Chinese porcelain sets accounting for 49 vessels (Table 15). All of the Chinese Export porcelain sets were the more expensive overglaze painted kind, and there was even a more expensive commissioned set. One set (18) had very small saucers, and one miniature-sized, squat tea bowl form, that were not typical for the American market. An additional 29 Chinese porcelain tea vessels belonged in matched dinner sets (Table 16). The number of Chinese porcelain tea vessels (78) indicates this was the preferred ware for drinking tea.

Plate 21. Ceramic artifacts from 114 S. Front Street, Room C, Feature 2/2A: a, stoneware mineral water bottle; b, Philadelphia redware stool pot; c, engine-turned redware teapot and d, coffee pot; e, china glaze pearlware slop bowl; f, Chinese Export porcelain overglaze painted saucer; g, blue printed pearlware sweetmeat dish; h-k Chinese Export porcelain tablewares, h, twiffler from Set #21; i, supper plate from Set #35; j, table plate from Set #20; k, platter; l, blue Willow pearlware chamber pot.

Table 14. Ceramic Vessels from 114 S. Front Street, Room C, Feature 2/2A, AS I.

FUNCTION			TEA												BEVERAGE						TABLE																				KITCHEN									HYGIENE							
SUBFUNCTION			DRINKING					SERVING													PLATES							SERVING											EAT			PREPARATION												
ORIGIN	WARE	FORM	TEABOWL	BREAKFAST CUP	COFFEE CAN	HANDLED CUP	SAUCER	SLOP BOWL	CREAMER	SUGAR BOWL	COFFEE POT	TEA CADDY	TEAPOT TRAY/LID	TEAPOT	TANKARD	SYLLABUB CUP	POSSET CUP	PUNCH BOWL	JUG	BOTTLE / BEAKER	MUFFIN	SOUP	PLATE	SUPPER	TABLE	DESSERT BOWL	TWIFFLER	SERVING DISH	FRUIT BASKET	SALT CELLAR	CONDIMENT DISH	SAUCEBOAT	PLATTER	TUREEN	TUREEN LID	LADLE	MUSTARD POT	PORRINGER	TRENCHER	BOWL	MOLD	PRESERVING JAR	BUTTER POT	MILK PAN	PIE PAN	PUDDING PAN	CHAMBER POT	STOOL POT	BOURDALOU	EWER	BASIN	DRUG JAR LID	DRUG JAR/GALLEY POT	TOTALS
PHILA	**Redware**	*Lead Glazed*																	2																		1		2		3	10	12			15	10						55
		Slip Decorated																																				1	2					4	5								12
		Engine-turned								1	2		1	4																																							8
	Yellowware														3																								1					2										6
	Stoneware																		1																							1										3	5
ENGLAND	**TGEW**							2																																												1				1		5	9
	Yellowware	*Slip, Trailed, Dot*															2																							2					1										5
	Creamware	*Plain*	11				11	11					3	1	5	2		6	2				3					4													1								16		1	1	1	1	5	85
		Molded, Oct'l Rim																			1														1																				2
		Royal																			2	7		1	2								5																				17
		Edge decoration														1															1		1																				3
	Pearlware	*Painted, poly*	5				8	9						1					1																																			24
		Painted, blue	8				4	3											1																																			16
		Edged, blue														4			2		22	15		6	26		21	5	1		1	4	13	2	4	1																1			128
		Edged, green																			1	1	1	2			1																											6
		Printed	11			7	16	4		1				2					6											1	1																							49
		Printed, Willow																			7			1	1			1					1																		1			1	1			14
		Molded																																1																				1
		Dipt/Banded	1					1							5			2	1																					5															15
	Stoneware	*White salt-glazed*	2				2						1		4								2					1																									1	13
		Basaltware							1				1																																									2
		Other									1									1																																			3
	Porcelain	*Bone China*			1																																																		1
CEP	**Porcelain**	*Ug blue*	2	1		1	2	1					1	1						1	2	6		25	1	9	10	3	1				6	1	1		4																	79
		Ug blue, og	10	1			13	2						1																																									27
		Og dec.	17	1	1	3	30		1			1						1												1																								56
TOTALS			67	3	2	11	86	33	2	2	3	1	7	10	17	7	2	9	16	2	35	29	6	35	30	9	32	14	2	1	3	5	26	3	7	1	4	1	1	12	1	4	10	12	7	5	34	10	1	3	3	1	14	641

Overall, the teawares were represented by 170 drinking vessels for tea and coffee, including an oversized cup used at breakfast time and 58 serving vessels for serving tea and coffee. In addition to the teapots (10) and coffeepots (3), there were slop bowls (33), creamers (2), sugar bowls (2), a tea caddy (1), and a tray (1). The teawares were predominantly Chinese porcelain (40%), pearlware (35%), and creamware (16%), with smaller quantities of refined redware (8), white salt-glazed stoneware (5), dry-bodied stoneware (3), tin-glazed earthenware (2), and English porcelain (1). The majority of the slop bowls were pearlware (17) (Plate 21e), most often painted in polychrome floral motifs (13). Engine-turned redware, made in England and America, was popular, perhaps for less formal occasions. The assemblage includes four teapots, two coffeepots, one sugar bowl, and one lid of this type (Plate 21c).

Table 15. Tea Sets Identified in 114 S. Front Street, Room C, Feature 2/2A, As I. Compatible sets are grouped together to show how they were likely used.

SET	DESCRIPTION	DATE	COFFEE CAN	TEA BOWL	BREAKFAST CUP	HANDLED CUP	SAUCER	SLOP BOWL	MILK JUG	SHERD	**TOTALS**
	ENGLISH TEA SETS										
1-3	Creamware, plain	*1770-1820*		7			10	4			**21**
4	Pearlware, Painted Blue Chinoiserie	*1775-1812*		2			1				**3**
5	Pearlware, Painted Polychrome Floral Border	*1795-1830*		2			1		1		**4**
6	Pearlware, Painted Polychrome Floral Basket	*1795-1830*		1			3				**4**
7	Pearlware, Printed Blue Chinoiserie w/ Fitzhugh Border	*1784-1840*		1			2				**3**
8	Pearlware, Printed Blue Chinoiserie w/ Fitzhugh-like Border	*1784-1840*		1			3				**4**
9	Pearlware, Printed Blue Chinoiserie w/ Fitzhugh-like Border	*1784-1840*		3							**3**
10	Pearlware, Printed Dark Blue Chinoiserie w/ Stylized Border Motif	*1784-1840*		3							**3**
11	Pearlware, Printed Dark Blue Floral Ground	*1784-1840*		2			3				**5**
12	Pearlware, Printed Dark Blue Floral Ground w/ Chinoiserie Medallion	*1784-1840*				1	2				**3**
13	Pearlware, Printed Black Genre w/ Geometric Border	*1790-1830*				2	3				**5**
	CHINESE PORCELAIN TEA SETS										**0**
14	Painted Polychrome Overglaze Floral	*1750-1825*		3			1				**4**
15	Painted Polychrome Overglaze Floral Swag	*1750-1825*		2			1				**3**
16	Painted Black & Gilt Overglaze Floral	*1750-1825*		4			5				**9**
17	Painted Black & Gilt Overglaze "RS" Mongram w/ Plow	*1750-1825*		2			7			**1**	**10**
18	Painted Polychrome Overglaze Floral	*1750-1825*	1	1			5				**7**
19	Painted Polychrome Overglaze Floral Swag	*1750-1825*		2			2				**4**
	TOTALS		**1**	**36**	**0**	**3**	**49**	**4**	**1**	**1**	**95**

Table 16. Dinner Sets Identified in 114 S. Front Street, Room C, Feature 2/2A, AS I. Compatible sets are grouped together to illustrate how they were likely used.

				TEAWARE					TABLEWARE												
SET	DESCRIPTION	DATE	JUG	COFFEE CAN	TEABOWL	BREAKFAST CUP	SAUCER	TEAPOT	MUFFIN	TWIFFLER	DESSERT BOWL	SOUP PLATE	SUPPER PLATE	TABLE PLATE	PLATTER	TUREEN	MUSTARD POT	CONDIMENT DISH	SALAD DISH	SERVING DISH	**TOTALS**
	DINNER SETS																				
20	Hard-Paste Porcelain, Painted Blue Underglaze & Gilt Overglaze, Landscape w/ Nanking Border	*1800-1830*			2	1	6	1	1			1		1					1		**14**
21	Hard-Paste Porcelain, Painted Blue Underglaze & Gilt Overglaze, Willow Adaptation w/ Fitzhugh Border	*1800-1830*			7		3			9		1				1					**21**
22	Hard-Paste Porcelain, Painted Blue Underglaze, Willow w/ Canton Border	*1800-1830*				1	2			1			7								**11**
23	Hard-Paste Porcelain, Painted Blue Underglaze, Willow w/ Canton-like Border	*1800-1830*		1	1		1														**3**
24	Hard-Paste Porcelain, Painted Blue Underglaze & Gilt Overglaze, Willow w/ Fitzhugh Border	*1800-1830*			1		2														**3**
	BEVERAGE																				
25	Pearlware, Printed Blue Chinoiserie w/ Geometric Border	*1784-1840*	*3*																		**3**
	TABLE SETS																				
26	Creamware, Scalloped Rim	1770-1820							1			3	1	1	3			1			**10**
27	Creamware, Royal Rim	*1765-1810*							1			4		1	2						**8**
28	Pearlware, Printed Dark Blue Willow	*1790-1840*							5											1	**6**
29	Pearlware, Printed Blue Willow	*1790-1840*							1				1	1	1						**4**
30	Pearlware, Blue Edged (Even Scallop/Curved Lines)	*1802-1832*							4	3		1		6	3					1	**18**
31	Pearlware, Blue Edged (Even Scallop/Straight Lines)	*1809-1831*							1	8		2		10						1	**22**
32	Pearlware, Blue Edged (Even Scallop, Impressed Bud)	*1813-1834*								2				3	1						**6**
33	Pearlware, Blue Shell Edge (Octagonal)	*1780-1800*							3												**3**
34	Hard-Paste Porcelain, Underglaze Blue Painted Floral Center w/ Butterfly Border	*1800-1830*										2	10								**12**
35	Hard-Paste Porcelain, Underglaze Blue Painted Three Trees on a Rocky Island w Fitzhugh-like Border	*1800-1830*											7		2						**9**

36	Hard-Paste Porcelain, Underglaze Blue Painted Willow w/ Scroll, Diamond & Diaper Border	*1800-1830*									7											**7**
37	Hard-Paste Porcelain, Underglaze Blue Painted Garden Scene w/ Scroll, Diamond & Diaper Border	*1800-1830*															4					**4**
	TOTALS		**3**	**1**	**11**	**2**	**14**	**1**	**17**	**23**	**7**	**14**	**26**	**23**	**12**	**1**	**4**	**1**	**1**	**3**	**164**

Among the English tea sets, a plain creamware tea set (21 vessels) outnumbered pearlware with chinoiserie (19), floral (13), and genre (5) motifs. This pattern suggests that plain creamware and chinoiserie pearlware teas were no longer the fashion at the time of discard c.1823. The scarcity of earthenware serving vessels, particularly in the sets, may mean that it was not important that the serving vessels match the drinking vessels or that a material superior to earthenware, such as silver, was used for company. Coffee was less popular than tea, although three cups, two cans, and three coffee pots were identified in this assemblage (Plate 21d).

Tablewares (241) consisted of serving (27%) and dining (73%) vessel forms. There was a great variety of forms in the serving vessels, while dining vessels consisted of variously sized plates. The large numbers of muffins and twifflers suggest these small plates were used at teatime as well as at dinnertime (Plate 21g). This is confirmed by the presence of matched sets that contain matching tea and dining forms (see Table 16). Separating the tablewares into English and Chinese shows subtle differences in form and preferences. In this assemblage, there are fewer porcelain serving dishes and no sauceboats. Bowls in the form of soup plates, though much smaller, were found in porcelain only and may have been used for a dessert such as ice cream. Also, the Chinese porcelain plates were slightly smaller, in the nine-inch diameter range, while the English plates were generally the larger 10-inch table size.

Platters (26) (Plate 21k), vegetable dishes (14), tureens (7), and sauceboats (5) were the most common serving vessels. Present in fewer numbers were fruit baskets (2) including one pearlware twig fruit basket, condiment dishes (3) (Plate 21g), a salt cellar (1), and a ladle (1).

There were remnants of 17 sets of dishes, nine of which were the typical underglaze blue, Chinese Export porcelain comprising a total of 84 vessels. These patterns were all complementary and were likely used together or in combination. Five of the Chinese Export porcelain sets contained vessels for serving tea as well as dinner (referred to here as dinner sets). A set of seven dessert bowls, Set #36, suggests the owners invited guests in for dessert and needed a special service for this purpose. Also, a matched set of four unique barrel-shaped vessels, Set #37, that may have been used as containers for mustard or relish were unusual in America and were probably intended for the Asian market.

Of the remaining eight sets, two were creamware and six were pearlware (see Table 16). Four sets (Sets #30-33) of blue-edged pearlware dishes comprising 49 vessels were purchased in the period from 1802-1813. These sets were certainly compatible and were probably used together. Although few serving vessels were identified in the sets, there was a vast assortment of serving dishes in this pattern that included 13 platters, five serving dishes, four sauceboats and tureens, one fruit dish, one pickle or sweetmeat dish, and one ladle. Beverages and desserts in matching patterns included two jugs and four syllabub cups, and a ewer in the hygiene group. Willow tablewares (Sets #28-29), comprising 10 vessels, offered an alternative to daily dining. As in the tea sets, the relatively few serving vessels in the matched sets indicate silver as a possible alternative for formal occasions.

The large number of Chinese porcelain dishes indicates formal dining with the use of the less expensive earthenwares, in edged or Willow patterns, for everyday use. Creamware dishes with scalloped (Set #26) and Royal (Set #27) rim patterns were older sets replaced later by the more up-to-date edgewares.

Tankards (17) and jugs (16) formed the bulk of the beverage (53) group of vessels, followed by nine punch bowls, seven syllabub cups, two posset cups, one mineral water bottle, and one stemcup or beaker. Nearly half (42%) of the beverage vessels were pearlware and 31 percent were creamware, with lesser quantities of stoneware, Chinese porcelain, English yellowware, and Philadelphia redware or yellowware.

The majority (89%) of the kitchen ceramics were for food preparation: 13 bowls in various sizes, 12 milk pans, 9 butter pots, 5 pudding pans, 4 pie plates, 4 preserving jars, 1 pot, and 1 mold. Eighty percent of the kitchen ceramics were redware. Five bowls were pearlware and the mold was creamware; otherwise the local redwares fulfilled the kitchen needs. Very few vessels were for informal dining—three plates, one porringer, and one trencher, all local products except one Staffordshire yellowware plate.

Of the 66 vessels in the hygiene group, 34 were chamber pots, 10 were stool pots, and one was a bourdalou, a ladies' urinal. Most of the chamberware was either redware—15 chamber pots and 10 stool pots (Plate 21b), or creamware (16). Matching toiletry sets that included wash basins and ewers were present in Willow as well as in creamware (Plate 21l). The creamware chamber pots may have been viewed as more sanitary than redware, and they were lighter in weight. A tin-glazed earthenware wash basin and chamber pot and a blue shell-edge ewer were among the discarded toiletries.

Fifteen vessels in the hygiene group were for storing or administering medicinal powders or ointments: nine drug or medicine jars, one lid for a drug or medicine jar, and five galley or ointment pots. These vessels were plain and undecorated: six creamware, five tin-glazed earthenware, and four stoneware.

A total of 325 glass bottles were excavated from AS I (Table 17). The vast majority (202) of bottles contained alcohol, with beer, porter, or ale (168) predominating. Other alcoholic beverages were represented in much lesser quantities: wine bottles (17), miscellaneous liquor bottles (8), flasks (2), champagne bottles (2), carboys (2), and case gin bottles (3). The only food bottles in this assemblage were mustard bottles (22). Moderate quantities of miscellaneous chemical bottles (53) were also present. Bottles from other functional groups included a scent bottle (1) and an ink bottle (1). There were some quantities of bottles for which no function or subfunction could readily be assigned (28).

Several dipped beer, porter, or ale bottles had quatrefoil marks on their bases. These + shaped marks were made when a pontil rod was split at the functioning end into four sections and was affixed to the base of the bottle to allow for the finishing of the neck. The earliest known dated bottle exhibiting this process carried a seal with a date of 1714. There is no known end date of manufacture for these English or European imports.

Table 17. Glass Vessels from 114 S. Front Street, Room C, Feature 2/2A.

Functional/Subfunctional Group	AS I	%	AS II	%	Total	%
			Bottles			
Alcohol						
Case Gin	3	1.0	0	0.0	3	0.6
Wine	17	5.4	1	0.6	18	3.8
Beer, Porter and Ale	168	53.8	4	2.6	172	36.7
Whiskey and Rye	0	0.0	97	62.2	97	20.7
Miscellaneous Liquor	8	2.6	2	1.3	10	2.1
Flask	2	0.6	44	28.2	46	9.8
Champagne	2	0.6	0	0.0	2	0.4
Carboy	2	0.6	0	0.0	2	0.4
Total Alcohol	202	64.6	148	94.9	350	74.5
Food						
Mustard	22	7.1	0	0.0	22	4.7
Medicine						
Chemical	53	17.0	0	0.0	53	11.3
Patent	3	1.0	0	0.0	3	0.6
Prescription	0	0.0	3	1.9	3	0.6
Total Medicine	56	18.0	3	1.9	59	12.5
Cosmetic						
Scent	1	0.3	0	0.0	1	0.2
Household						
Ink	1	0.3	0	0.0	1	0.2
Tobacco						
Snuff	2	0.3	0	0.0	2	0.4
Unidentified Bottle	28	8.9	5	3.2	33	7.0
Total Bottle	312	99.5	156	100.0	468	99.5
			Tableware			
Drinking						
Tumbler	79	44.4	2	100.0	81	45.0
Shot Glass	10	5.6	0	0.0	10	5.5
Goblet	3	1.7	0	0.0	3	1.7
Wine Glass	46	25.8	0	0.0	46	25.6
Cup	3	1.7	0	0.0	3	1.7
Generic	8	4.5	0	0.0	8	4.4
Total Drinking	149	83.7	2	100.0	151	83.9
Serving						
Cruet	3	1.7	0	0.0	3	1.7
Decanter	5	2.8	0	0.0	5	2.8
Case Bottle	3	1.7	0	0.0	3	1.7
Salt Dish	3	1.7	0	0.0	3	1.7
Dish	1	0.6	0	0.0	1	0.6
Salt Shaker	1	0.6	0	0.0	1	0.6
Total Serving	16	9.1	0	0.0	16	9.1
Furnishing						
Vase	2	1.1	0	0.0	2	1.1
Unidentified Tableware	11	6.2	0	0.0	11	6.1
Total Tableware	178	100.1	2	100.0	180	100.2
Unidentified Glass	3	100.0	0	0.0	3	100.0

Total Bottle	312	63.3	156	98.7	468	71.9
Total Tableware	178	36.1	2	1.3	180	27.6
Total Unidentified	3	0.6	0	0.0	3	0.5
Total Vessels	493	75.7	158	24.2	651	100.0

Not surprisingly, given the large quantities of glass liquor bottles in AS I, one would expect a corresponding number of drinking vessels. This was indeed the case. Of a total of 178 tableware vessels found in AS I, 149 were drinking vessels: tumblers (79), wine glasses (46), shot glasses (10), generic drinking glasses, etc. (8), goblets (3), and cups (3). Among these were two sets of tumblers and two sets of wine glasses, all with compatible patterns of cut arched panels. Serving vessels (16) were also found. These consisted of decanters (5), flint glass case bottles (3), a set of matching cruets (3), a set of matching salt dishes (3), a miscellaneous dish (1), and a salt shaker (1). Finally, some vessels were definitely associated with tableware, but a function or subfunction could not readily be attributed to any of them (9). Included in this category, but more appropriately for household use, were two glass vases.

Two vessels in the glass assemblage showed evidence of being mended. A crack in the neck of a cut glass decanter was carefully drilled and threaded closed with copper or brass wires, and the chipped foot of a wine glass had been ground smooth and polished. The mending of glass vessels is highly unusual, and the repair of these vessels indicates their value to the owners.

Architectural debris aside, the small finds from AS I consisted of an assortment of clothing, personal, hygiene, household, and kitchen objects associated with daily life. Fragments of household furnishing in the form of mirror fragments, brass furniture hardware—a backplate, an escutcheon, and a drawer pull, as well as a wooden finial and delft tiles give but a glimpse of the interior of the house. The presence of several vases—one in Chinese Export porcelain, the two in glass mentioned above, and a black basalt bulb vase, suggest an air of refinement to the interior, while flower pots (7) and their trays (2) indicate gardening outside the house.

Practical household refuse included corks (2), bone or antler utensil handles (13), a pewter spoon and cup handle, bone knobs (4), an iron file and pry bar, a lead bale seal marked “B & Co,” and a scrub brush. Carriage-related hardware included one harness part and one wheel hub.

Clues about the pastimes of the occupants included pencil leads (7), an ink bottle, quantities of straight pins, kaolin pipe fragments (42), a musket ball, gun flints (2), a ceramic bird whistle (or figurine), and a child’s marbles (3). Less easy to explain is a prehistoric hammerstone.

Not everything in a privy was discarded; some artifacts such as personal items and clothing were probably lost. A number of buttons (98) were found in AS I: bone (64) for undergarments, large brass buttons (6) for outer garments such as coats, and 28 assorted buttons. Other articles of clothing included two buckles, four beads, one cuff link, and 13 shoe fragments. Personal items included coins (2), bone fans (2), bone accessory handles (2), a folding knife, a watch lens, a small, ornate copper case that was probably silver plate, combs (20), toothbrushes (5) including one for a child, and one glass scent bottle.

114C2 AS II

The majority of artifacts in AS II were glass bottles (158; see Table 17). Most of these were vessels that contained alcoholic beverages (148). Of these, the vast majority contained whiskey or rye (97). Flasks (44) were also fairly heavily represented, followed by beer, porter or ale bottles (4), miscellaneous liquor bottles (2), and a single wine bottle (1). Most of these alcohol bottles

were represented by a single kind of bottle, a two- or three-piece molded amber vessel of similar volume (Plate 22). Almost all of the flasks were identical to one another; they were clear, oval, and had a threaded cap. Very few other bottles were found: three prescription and five unidentified bottles. Interestingly, two tumblers were the only tableware vessels excavated in AS II.

A whole flint glass decanter was recovered from AS II (Plate 22, far right). This turn-molded decanter dates to approximately 1890 and is inscribed in Gothic letters "Catherwood's/ Upper Ten/ Whiskey/ Blend." The decanter is of a very high quality and was probably intended for commercial use in a bar or similar establishment to be stored prominently, where the patrons could see it. It may have been thrown out after Alfred Tucker sold the business in 1911.

Of the four ceramic vessels recovered in AS II, only the nearly whole shell-edge ewer and serving bowl are worth mentioning. The few ceramic vessels and absence of personal items indicate this was a commercial deposit. In addition to architectural debris—window glass, nails, brick, decayed wood, pipes, slate roofing, and fragments of toilets in AS II, there were fragments of three glass advertising signs. One nearly whole, rectangular sign, 2.5 by almost 2 ft., was painted in red and gold leaf:

PEERLESS
DOUBLE DISTILLED
RYE GIN
T…FLEISCHMANN CO NEW YORK

This sign in association with so many whiskey bottles links this deposit to the Catherwood Distillery, 1855-1886, or later (post 1886) when the distillery was purchased from Hugh Catherwood's estate by Alfred Tucker. Tucker ran the business until 1911. Although this deposit had a TPQ of 1870, many of the vessels seemed to date to a later period, perhaps 1890. This would likely associate this deposit with Alfred Tucker's tenure. Similar vessels were identified in the top of 114C3, indicating these old privies were uncovered, perhaps when the cellar floor was lowered in the late nineteenth century.

4.5 114 SOUTH FRONT STREET, ROOM C, FEATURE 3 (STONE-LINED PRIVY)

Feature 3 (114C3) was a circular brick- and stone-lined pit located halfway under a vault along the north wall of Room C at 114 South Front Street (see Figure 23, Plate 23). Feature 114C2/2A lay a short distance east of 114C3. The feature was discovered beneath the concrete floor covering the room at an elevation of 14.87 ft. ASL. The inside diameter of the pit was 4.40 ft. The upper portion of Feature 3 was constructed of brick, changing at 13.10 ft. ASL to stone. Below a depth of 4.60 ft. ASL, the pit was unlined; its base was reached at 2.60 ft. ASL. The south half of 114C3, i.e. that portion lying inside the north wall of Room C, was excavated. Portions of collapsed fill from the north half of the feature were also salvaged.

The top of 114C3 down to the base of the brick liner, 13.10 ft. ASL, was filled with large stone slabs, bricks, bottles, and some loose, very dark gray brown soil (Figure 26). Beginning with the stone lining, 114C3 was filled with an olive brown soil mixed with brick, stone, mortar rubble, and ash to a depth of 10.63 ft. ASL. At this depth, the layer was sandier and mixed with mortar. Artifacts in the upper strata were fragmentary.

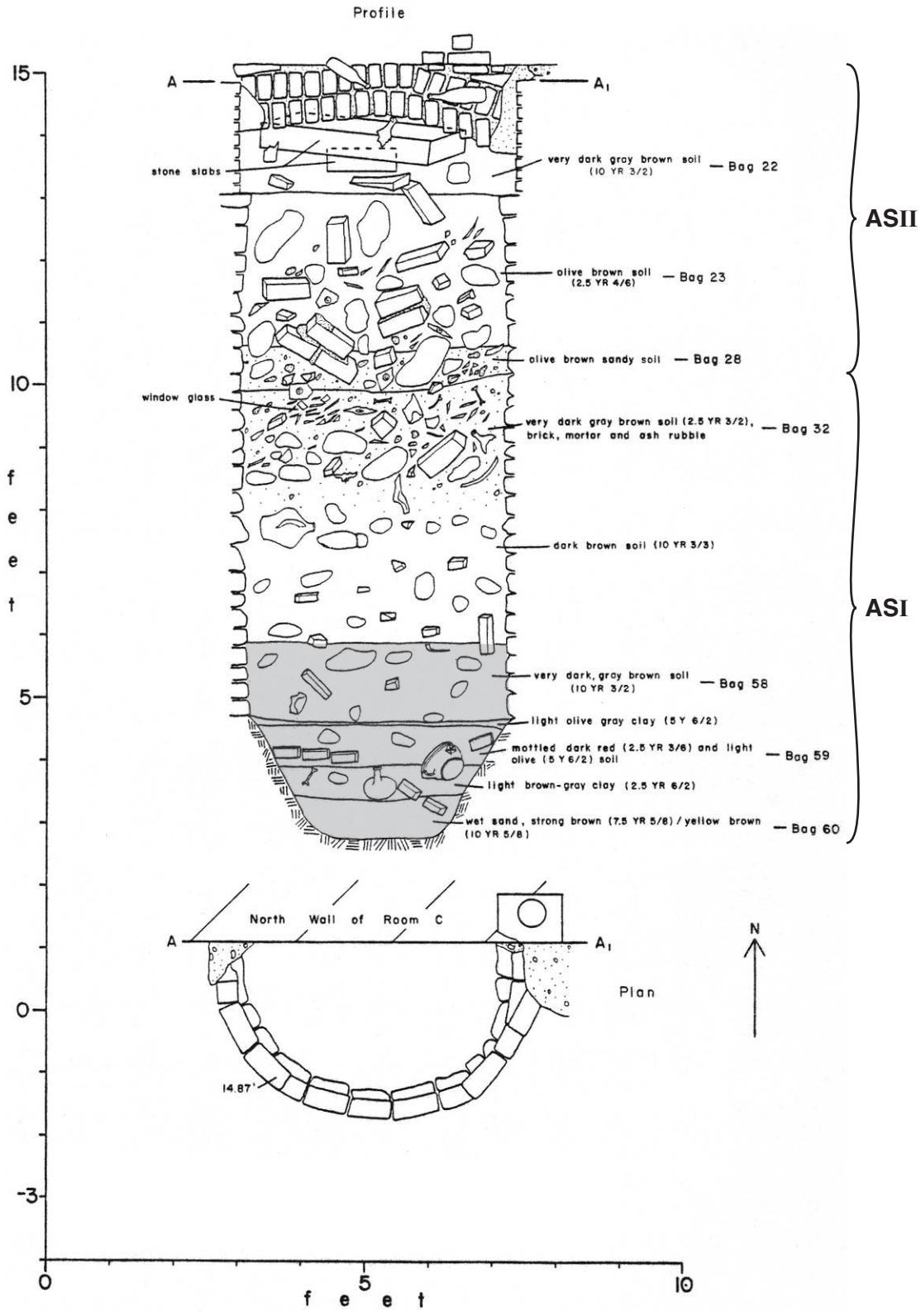


Figure 26. Area F, 114 S. Front Street, Room C, Feature 3 (114C3) plan and profile. One-half of 114C3 was excavated, and the other half is preserved in situ.

Plate 22. Concentration of alcohol bottles found at the top of 114 S. Front Street, Room C, Feature 2 associated with the distilling operation run by Hugh Catherwood (1855-1886) and later Alfred Tucker. The cut glass decanter at the far right is engraved "Catherwood's Upper Ten Whisky Blend."s

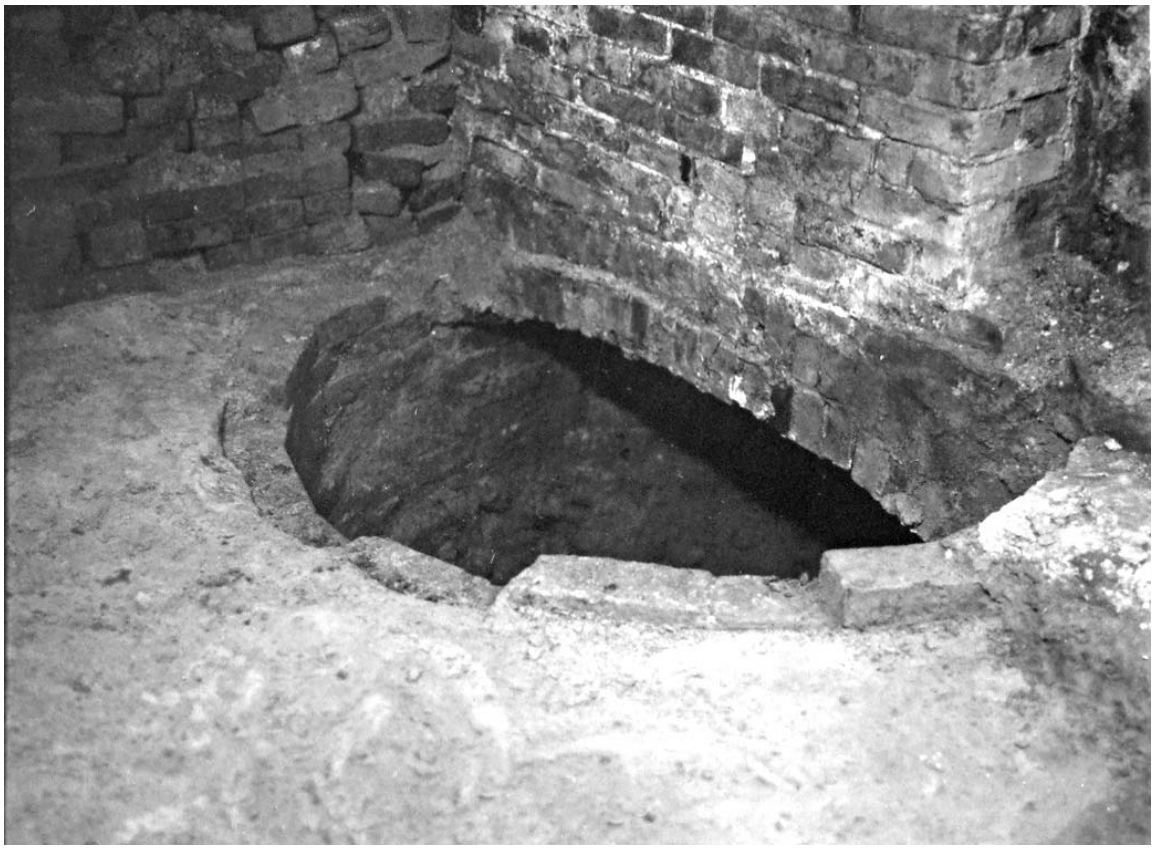


Plate 23. Area F, 114 S. Front Street, Room C, Feature 3; north wall of building straddling the upper brick lining of this stone-lined shaft. View northwest.

An increase in the number, size, and variety of artifacts occurred in the lower half of the shaft beginning with the very dark gray brown soil mixed with brick, mortar, and ash rubble occurring between 9.80-8.72 ft. ASL. Below this, the gray brown soil continued, although lighter and with less rubble. At 5.60 ft. ASL, the pit was filled with a very dark gray brown nightsoil to a depth of 4.60 ft. ASL. A lens of light olive gray clay lay at the base of the stone lining of the pit. Below it, in the unlined portion of the pit, was a layer of mottled dark red and light olive soil, .65 ft. thick, that graded into a light brown-gray clay. At 3.20 ft. ASL, a wet sand filled the base of the pit. A nearly whole tin-glazed earthenware plate was found embedded in the surface of the wet sand below (Plate 24e).

AS I was assigned to the nightsoil and refuse in the lower half of the privy. Glass artifacts from AS I produced a TPQ of 1783, the closing of the privy. The upper, shallower deposit, AS II, characterized by large quantities of building rubble and window glass, had a TPQ of 1870. This building debris must have been thrown into the re-exposed shaft in the final quarter of the nineteenth century, when it once again served as a receptacle for trash, specifically whiskey bottles.

114C3 AS I

A minimum of 101 ceramic vessels were recovered from 114C3: 96 vessels in the lower deposit, AS I, and five vessels in AS II. The 96 ceramic vessels in AS I belonged to the following functional groups: 36 kitchen, 21 teaware, 17 beverage, 12 tableware, 8 hygiene, 1 gardening, and 1 unidentified (Table 18). The AS I ceramic assemblage was comprised of a large percentage of Philadelphia manufactures (33 redware, 7 stoneware), creamware (15), Chinese Export porcelain (12), tin-glazed earthenware (10), pearlware (9), and assorted English wares (3 stoneware, 2 refined redware, 5 yellowware).

The largest ceramic group, kitchenwares, comprised 10 dishes for eating and serving and 26 for food preparation and storage. Except for two yellowware vessels, a charger and trencher, four tin-glazed earthenware bowls, and one creamware mixing bowl, all of the kitchenwares were local manufactures, 24 redware and five stoneware. The most common forms were butter pots or crocks (including two lids: 10), pudding pans (6), and pie pans (5). The charred bases and cut and stir marks on the interiors of these utilitarian vessels indicate heavy wear.

The teawares in 114C3 were English (14) and Chinese (7), mostly teabowls (11) and saucers (6). A matching plain, creamware teabowl and saucer, and overglaze-painted pearlware slop bowl and saucer (Plate 24c), may have been remnants of two tea services. Except for three slop bowls and one engine-turned redware lid that may have belonged to a teapot, there were no serving vessels. Most of the interiors of the teabowls and slop bowls were scratched from stirring.

A preference for English wares was demonstrated in the beverage and tablewares. The modest assortment of ceramic vessels for drinking and serving beverages included seven tankards, four jugs, two posset cups, one punch bowl, and two bottles. Only a redware tankard and storage jug and two stoneware bottles were from Philadelphia.

There was at least one set of matching tablewares, a Royal creamware set (Set #1) consisting of two plates and one platter. A scalloped creamware tureen would have been a compatible serving piece for this set. Otherwise there was an assortment of plates in tin-glazed earthenware (3) (Plate 24d) and Chinese Export porcelain (2) (Plate 24f). Two Chinese Export porcelain saucer dishes in an underglaze blue dragon motif were stylistically earlier, c.1610-1620, and may have been intended for the Asian market.

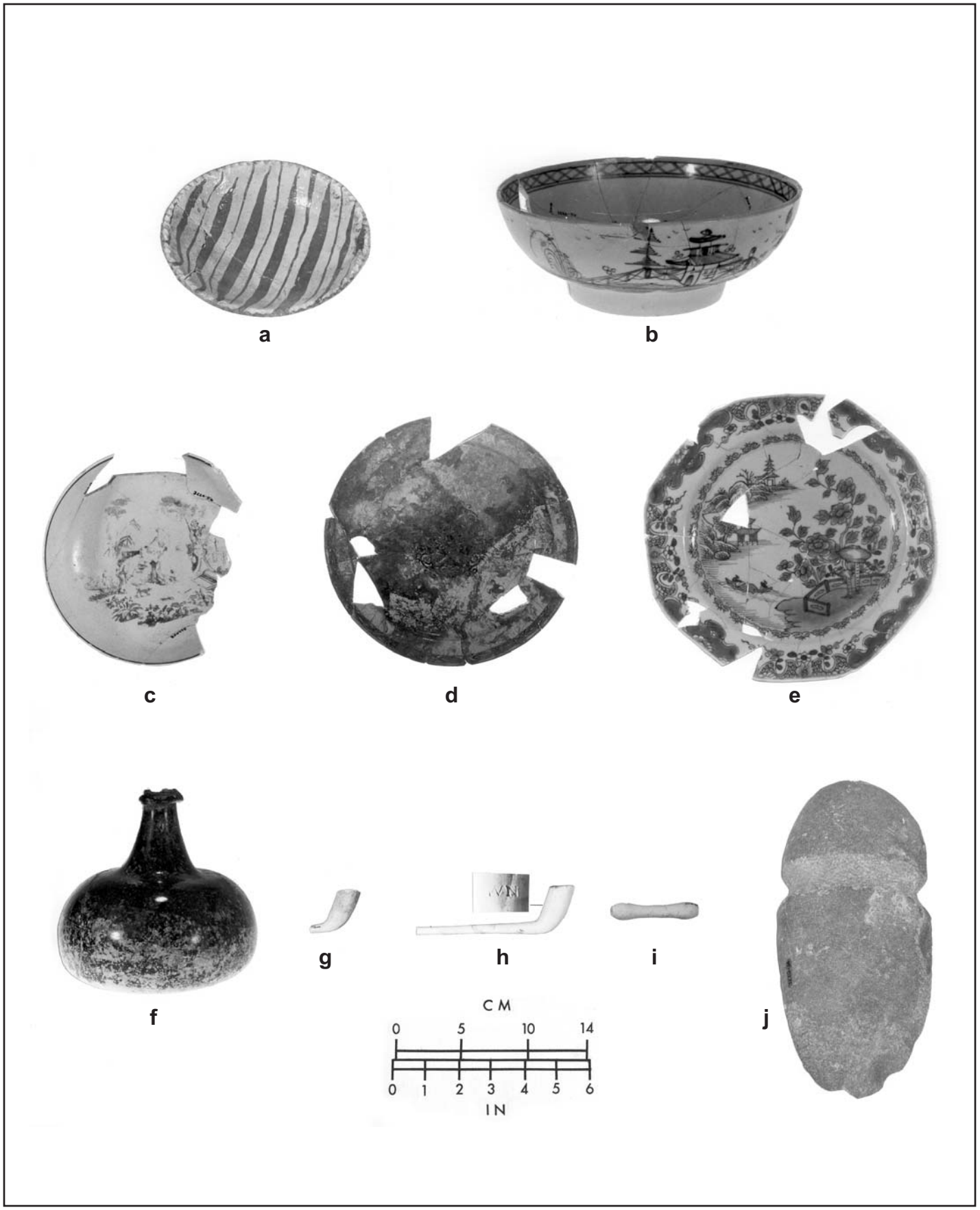


Plate 24. Artifacts from 114 S. Front Street, Room C, Feature 3: a, Philadelphia slip-decorated redware pie pan; b, china glaze pearlware punch bowl; c, overglaze painted pearlware saucer; d, blue painted tin-glazed earthenware plate; e, Chinese Export porcelain octagonal supper plate; f, onion wine bottle; g-h, kaolin pipe fragments; i, kaolin wig curler; j, Native American ground stone axe.

Table 18. Ceramic Vessels from 114 S. Front Street, Room C, Feature 3, AS I. The highlighted cells indicate matched sets.

FUNCTION			TEA					BEVERAGE					TABLE						KITCHEN															HYGIENE			G	U	
SUBFUNCTION			DRNK		SERVING														EATING				PREPARATION															
ORIGIN	WARE	FORM	TEABOWL	SAUCER	SLOP BOWL	LID	TEAPOT	TANKARD	WATER BOTTLE	POSSET CUP	PUNCH BOWL	JUG	BOTTLE	PLATE	SUPPER	TABLE	SAUCER DISH	PLATTER	TURERN	PORRINGER	DISH	TRENCHER	BOWL	JAR	MIXING BOWL	LID	BUTTER POT	MILK PAN	PIE PAN	PUDDING PAN	BEAN POT	CHAMBER POT	STOOL POT	BOURDALOU	FLOWER POT	SHERD	TOTALS
PHILA	**Redware**	*Unglazed*																								1									1		2
		Lead Glazed						1				1								2	2			1			6	2			1	3	1				20
		Slip Decorated																											5	6							11
	Stoneware												2													1	2										5
		Anthony Duche 1730-1750																													2						2
ENGLAND	**TGEW**		1		1			1						3									4														10
	Redware											1																										1
		Engine Turned				1																																1
	Yellowware	*Slipped, Trailed, Dot*								2											1	1														1		5
	Creamware	*Plain*	1	1				2											1						1						1		1				8
		Queensware												1																								1
		*Royal **(Set 1)***												1		1		1																				3
		Painted Overglaze	2																																			2
		Dipt						1																														1
	Pearlware	*Plain*	1																																			1
		Painted Overglaze		1	1																																	2
		Painted, blue	1	1	1						1																											4
	Stoneware	*White salt-glazed*						2																														2
		Other	1									2																										3
CEP	**Porcelain**	*Underglaze blue*	4	2					1						2		2																					11
		Overglaze dec.		1																																		1
TOTALS			11	6	3	1	0	7	1	2	1	4	2	5	2	1	2	1	1	2	3	1	4	1	1	2	8	2	5	6	1	6	1	1	1	1	96

Among the local wares were two nearly whole Anthony Duché chamber pots produced c.1730-1750, indicating a rather long usage of these vessels (Plate 25). Anthony Duché's pottery factory was located a few blocks away on Chestnut Street, between Fourth and Fifth streets (Giannini 1981:200). Four other chamber pots, four redware and one creamware, one redware stool pot, and a creamware bourdalou were also found.

The total number of glass bottles associated with AS I was 51 (Table 19). Of these bottles, the vast majority (39) were associated with the consumption of alcohol. Most of the alcohol bottles were used for wine (15) (Plate 24f), in addition to six case gin bottles, six beer, porter, or ale bottles, two whiskey and rum bottles, two Pitkin flasks, and a single chestnut bottle. There were seven unidentified alcohol bottles. Other bottles included three chemical bottles, a single snuff bottle, a perfume bottle, and seven bottles of unknown function. A small assortment of glass tableware vessels included tumblers (6), wine glasses (3), a dessert glass, and a salt cellar.

Among the small finds found in AS I was a prehistoric grooved stone ax (Plate 24j). Found at the bottom of the privy, one must wonder if it was inadvertently picked up by the workmen building the stone-lined shaft or a collected curio discarded by one of the house's early occupants. Ground stone axes of this type were used for chopping down trees sometime during the Late Archaic period, 5000-2500 years BP, and are commonly found along the eastern seaboard of the United States.

More typical were the household items, including two redware flowerpots and two tin-glazed earthenware tile fragments, one plain and one painted. The blue-painted tile was made in the Netherlands in the second half of the seventeenth century.

Personal items were sparse: a bone fan blade, a clay wig curler (Plate 24i), a fragment of a lice comb, a bone toothbrush, and two buttons—one bone and one brass. Sewing (two thimbles), smoking (13 kaolin pipe fragments, one marked "R Tippet" and the other "WN," Plate 24g-h), playing (two marbles), and shooting (one gunflint) were evidence of more leisurely activities.

A graphite mortar, a wedge, an antler utensil handle, and three stones—one amber, one polishing stone, and one worked stone with drill holes—may have been materials used by tenant Hercules Courtney, a carver and gilder, who lived at this address from 1769-1785.

114C3 AS II

Five ceramic vessels, each represented by single sherds of small size, were found in AS II: fragments of a redware butter pot, two slip-decorated redware pie pans, a yellowware cup, and a Royal creamware plate belonging to Set 1. It is likely that these fragments were on the surface of AS I and may belong with the lower stratum.

Glass in AS II, c.1870, appears to be a secondary deposit associated with the Catherwood Distillery, 1855-1886, or Alfred Tucker, who purchased the Catherwood Distillery and ran it until 1911. This analytical stratum contained almost exclusively bottles (33), 29 of which were used for the consumption of alcohol (see Table 19). Of the alcohol bottles, one contained wine, one contained beer, porter, or ale, six contained whiskey or rum, two were used for case gin, and 20 were used for miscellaneous liquors and/or unidentifiable alcohol. The four bottles not associated with alcohol contained substances of unknown functions. A single tableware vessel, a tumbler, was excavated in AS II. Although the TPQ for this feature was 1870, most of the bottles associated with AS II appear to be from the mid-1880s, coinciding with Alfred Tucker's purchase of the Catherwood Distillery.

Plate 25. Gray salt-glazed stoneware chamber pots made by Anthony Duche 1730 -1750 from 114 S. Front Street, Room C, Feature 3.

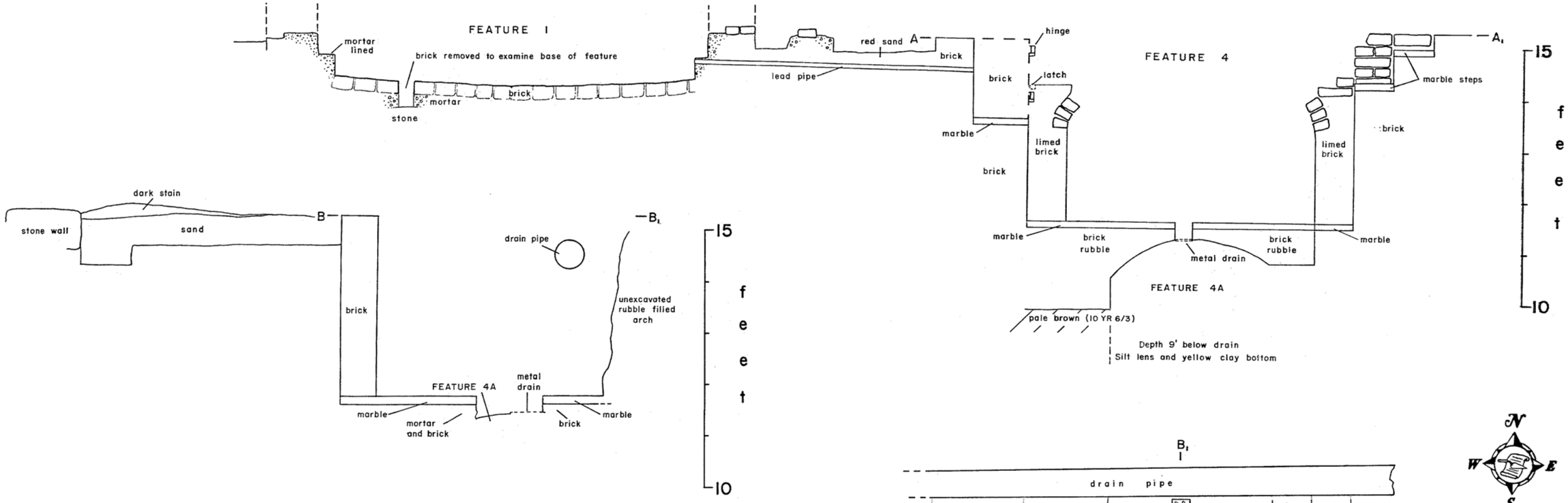
Table 19. Glass Vessels from 114 South Front Street, Room C, Feature 3 AS I and II.

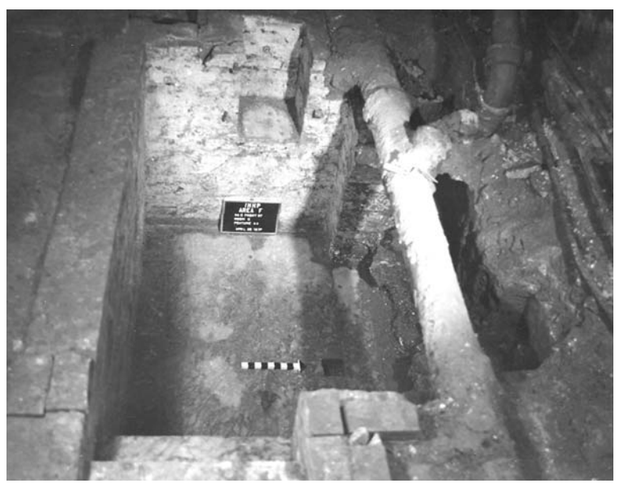
Functional/Subfunctional Group	AS I	%	AS II	%	Total	%
		Bottles				
Alcohol						
Case Gin	6	11.8	2	6.1	8	10.5
Wine	15	29.4	1	3.0	16	19.1
Beer, Porter and Ale	6	11.8	1	3.0	7	8.3
Whiskey and Rum	2	3.9	6	18.8	8	10.5
Miscellaneous Liquor	0	0.0	17	51.5	17	20.2
Flask	2	3.9	0	0.0	2	2.4
Chestnut	1	1.9	0	0.0	1	11.9
Unidentified	7	13.7	2	6.1	9	10.7
Total Alcohol	39	76.4	29	88.5	68	81.0
Medicine						
Chemical	3	5.9	0	0.0	3	3.6
Cosmetic						
Perfume	1	1.9	0	0.0	1	1.2
Tobacco						
Snuff	1	1.9	0	0.0	1	1.2
Unidentified Bottle	7	13.7	4	12.1	11	13.1
Total Bottle	51	99.8	33	100.6	84	100.1
		Tableware				
Drinking						
Tumbler	6	54.5	1	100.0	7	58.3
Wine Glass	3	27.2	0	0.0	3	25.0
Total Drinking	9	81.7	1	100.0	10	83.3
Serving						
Desert Glass	1	9.1	0	0.0	1	8.3
Salt Cellar	1	9.1	0	0.0	1	8.3
Total Serving	2	18.2	0	0.0	2	16.6
Total Tableware	11	99.9	1	100.0	12	99.9
Total Bottle	51	81.0	33	97.1	84	86.6
Total Tableware	11	17.4	1	2.9	12	12.3
Total Unidentified	1	1.5	0	0.0	1	1.0
Total Vessels	63	99.9	34	100.0	97	99.9

In general, AS II of 114C3 has characteristics quite similar in nature to those found in AS II of 114C2. Both features contained a commercial deposit associated with the Catherwood Distillery, or with that of its successor, Alfred Tucker. It is likely these upper deposits in shafts 114C2 and 114C3 were deposited simultaneously, or nearly so.

4.6 114 SOUTH FRONT STREET, ROOM C, FEATURE 4/4A

Feature 4 was a rectangular, brick structure located along the north wall of Room C at 114 South Front Street at an elevation of 15.30 ft. ASL (see Figure 23). It had a central bath-like chamber, 6.20 ft. by 3.40 ft. by 4.0 ft. deep, with its long axis oriented east-west (Figure 27). Feature 4 had white-washed, brick walls with marble slabs covering the surfaces of the floor and steps (Figure





Marble-floored sub-cellar (Feature 4) with arched opening to right.

Cut at the base of Feature 4 exposing domed shaft of Feature 4A below.

Figure 27. Area F, 114 S. Front Street, Room C, Features 1, 4, and 4A plan and cross sections.

27a). On the north side was a brick arch, the top of which had been broken away for the placement of a sewer pipe that ran the length of the building. There was a small, square opening in the floor just under the arch covered by a metal drain. On the east wall of the chamber were two steps near the top of the chamber at 15.00 ft. and 14.30 ft. ASL respectively, and hinges, possibly for a folding wooden ladder that would have reached the floor of the main chamber, at 11.80 ft. ASL (Figure 27b). Opposite, on the west wall of the chamber, was a narrow box-like feature, the bottom of which rested at an elevation of 13.60 ft. ASL; it was also lined with marble. This box-like feature must have been separated from the main chamber by a door, since there were still hinges and a latch intact. A lead pipe in the west wall of this box-like feature sloped upward, connecting it to 114C1, as mentioned above (see Plate 18). Sixty-two artifacts, principally brick rubble and other architectural debris, raw lime, calcined bone, and a few fragments of ceramic and glass, filled the main chamber of Feature 4. Aside from chunks of Portland cement c.1880 in the feature fill, a pearlware sherd suggested a TPQ of 1810 for the fill.

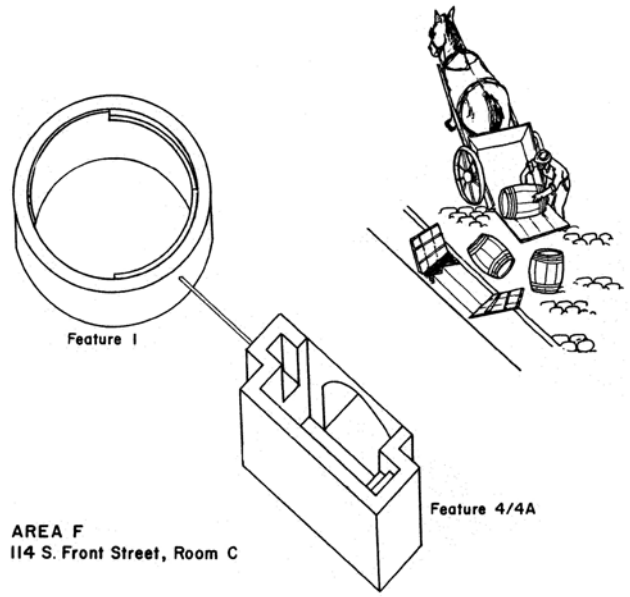
A few of the marble slabs, and underlying brick floor, of Feature 4 were removed in the area around the drain, and a domed, brick-lined shaft, Feature 4A (Figure 27c), was exposed at 11.25 ft. ASL. This feature was empty except for a lens of sterile silt and yellow clay at the bottom (1.85 ft. ASL), approximately 9 ft. below the floor of Feature 4. The inside diameter of Feature 4A was an estimated 3.20 ft.

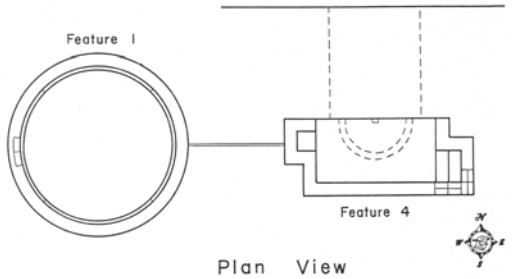
The interpretation of the function of Features 1, 4, and 4A was a subject of much debate at the time of its discovery. Various theories were considered, including that of 1) a mikveh or Jewish ritual bath, 2) a distillery, and 3) a cold storage sub-cellar. Unfortunately the lack of artifacts did little to advance any of these theories.

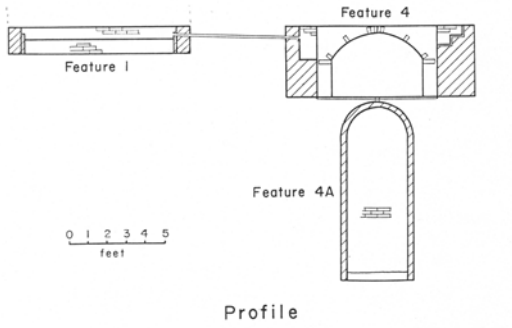
Several attributes of this cluster of features supported the interpretation of its use as a mikveh. To begin with, Feature 1 could be interpreted as a place where water could be purified. Water entering a mikveh could not be placed directly into the mikveh; it had to enter this intermediate area first. From there, it would be transferred into the mikveh in its purified state. Feature 4 would have needed to hold approximately 1000 gallons of water, a requirement for a mikveh. Another attribute that both Feature 4 and some mikvehs share is that the area is enclosed by an arch. This interpretation called for an association with a Jewish owner, and none was found, though owner Joseph Solms was hypothesized as possibly Jewish. His name was not found in any synagogue records (Spiegel 1978).

The possibility that this feature complex was related to a distillery was also plausible given that owners Hugh Catherwood, H. Wilson Catherwood, and Alfred Tucker operated a liquor business at this location from 1855 to 1911 (Figure 28). The architectural analysis of the building identified the location of a still on the first floor at the back of the storehouse (Batcheler 1978). The north end of Feature 4 was arched over with brick. The opening created by the arch led underneath Ionic Street and appeared to communicate with the southern wall of 112 South Front Street. The feature was not excavated any farther to the north, as doing so would have potentially undermined the south wall of 112 South Front Street. Therefore, it is not positively known whether this feature communicates with this building. Common owners between 112 and 114 South Front Street in the period between 1847-1855 indicate the features could have been used to transport various products back and forth between the 112 and 114 South Front Street basements.

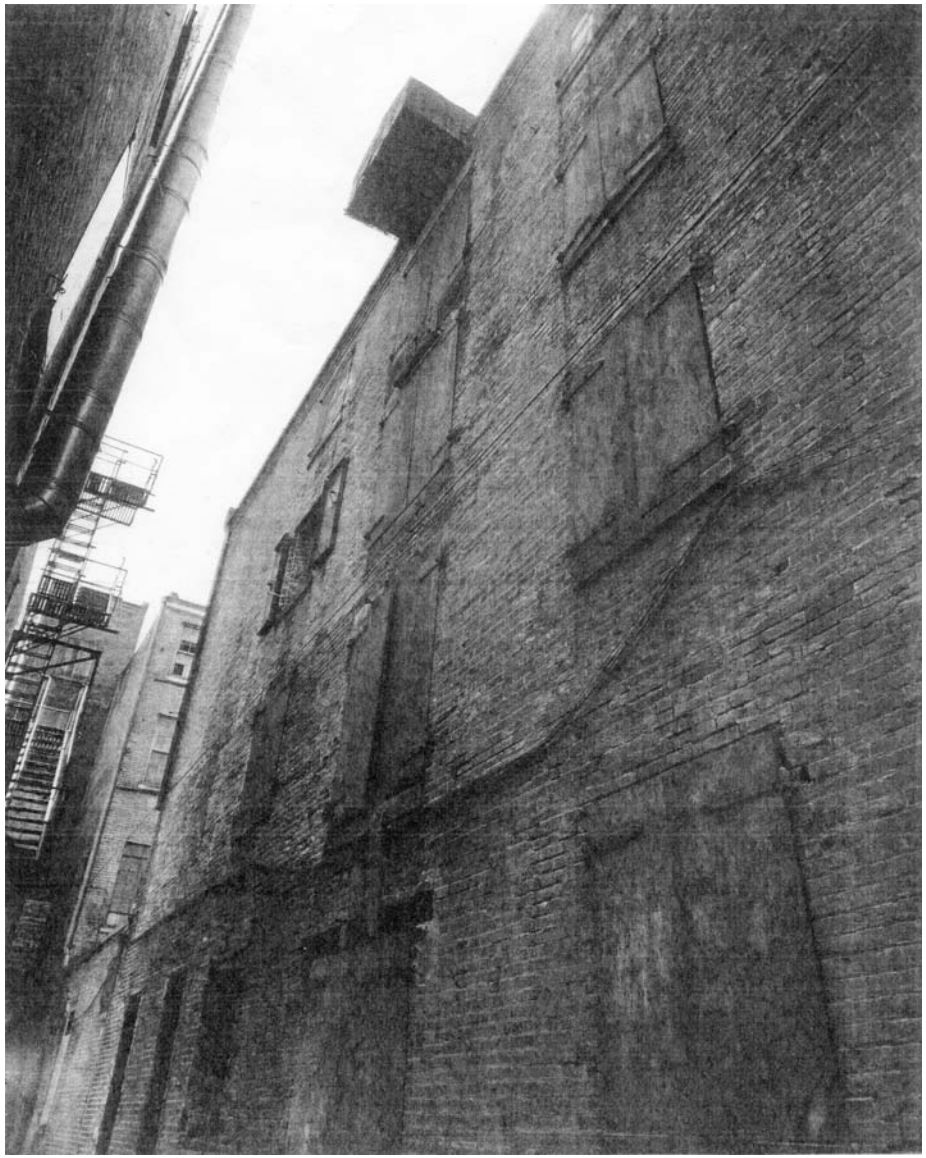
The third interpretation of these features argues for an earlier association and suggests the features were truncated with the construction of Solms' store house c.1847. This interpretation, proposed by historical architect Penny Batcheler (1978; Figure 29), suggests Features 1/4/4A







AREA F: 114 S. Front Street, Room C



1977 view of rear building at Catherwood's Liquor Distillery on Taylor's Alley (photo courtesy of James L. Dillon and Co. Inc.)

Figure 28. Elevation drawings of Feature Complex 1, 4, and 4A in 114 S. Front Street, Room C.

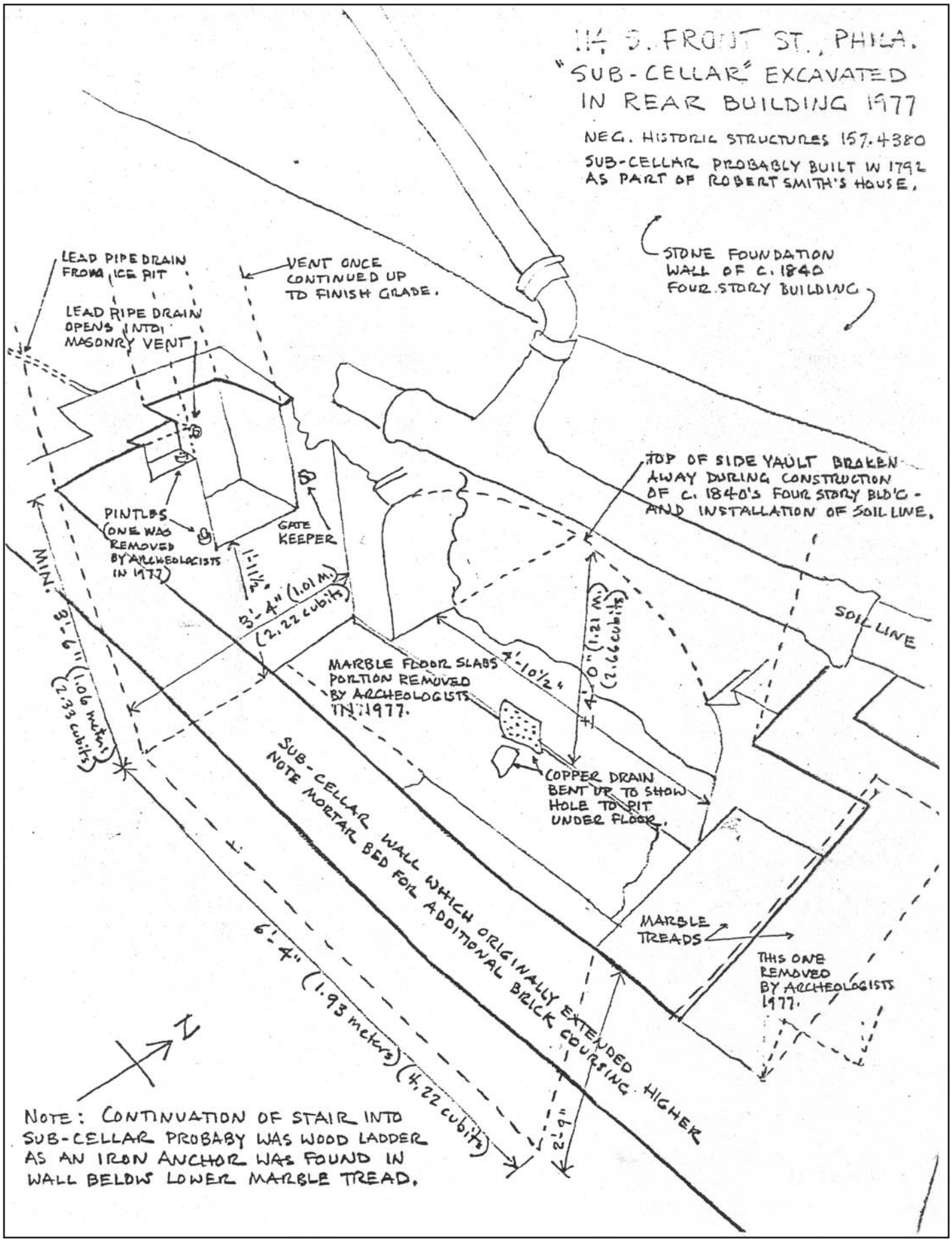


Figure 29. Architectural rendering of Feature 4 by Penny Batcheler (1978) illustrating its interpretation as a sub-cellar for cold storage built by Robert Smith c.1792. The sub-cellar was truncated by Solms' c.1847 building and perhaps readapted for use when the building was used as a liquor distillery.

functioned as a cold food-storage system installed by Robert Smith c.1792. In this interpretation, 114C1 functioned as a subterranean ice pit that was at the exterior back of Robert Smith's wash house. Ice-cold melt water from the ice pit (Feature 1) would have drained via the lead pipe into a sub-cellar (Feature 4) below the wash house. In this scenario, Feature 4 operated as a kind of refrigerator with stored food cooled by the water draining into it from the ice pit. The marble floor of Feature 4 would have provided a clean, sterile surface for its contents. A cubicle at one end of the structure served as an air vent. As the water warmed, it could be drained into the lower pit, Feature 4A. A similar belowground food cellar with a ventilation shaft and ice pit below was built into the Bishop White House (INHP 1958:Ch.III:2-3). Entry into this food cellar was through a trap door in the kitchen floor with access by a ship's ladder.

The four-story building constructed on this spot c.1847 truncated the feature, and the side vault may have been added at that time or later to provide access to the alley (see Figure 28). Bulkhead doors on the north side of the building, from the alley, afforded access into the basement when it functioned as a distillery. The arched brick opening was disturbed by the installation of the drain pipe in the twentieth century.

4.7 114 SOUTH FRONT STREET, ROOM C, FEATURE 5

A complex of mortared stone and brick walls were exposed in the eastern portion of Room C in the area south and west of Feature 4 (see Figure 23). There are two segments of stone wall, the longer one running east-west and the shorter one aligned north-south. The two walls are separated by a north-south alignment of brick that may be a remnant of a brick façade.

Feature 5 is a stone foundation, probably the southwest corner of Robert Smith's wash house built in 1792.

5.0 THE THINGS THEY LEFT BEHIND: LINKING THE ARTIFACTS TO THE PEOPLE

The assemblage of 67,894 objects recovered from the Area F site is but a small sample of the material culture of some of the block's earliest settlers. Most of the artifacts were discarded as trash thrown down the privies and wells in back yards. Except perhaps for the small percentage of items that were lost or accidentally broken, this sample is not what people saved and treasured. What was valued and passed down through generations is what survives as heirlooms in family homes, artifacts in museums, or expensive objects in antique shops, long since removed from its owners.

Nine shaft features were excavated at the Area F site: seven privies, one well (114B1), and one of unknown function (118B1). Five of the shafts were brick lined, one was stone lined with an upper brick liner, and three were unlined (Figure 30). At least one unlined shaft, YohF1, was originally wood lined. Six of the nine shaft features were selected for in-depth analysis based on their location, integrity, type of construction, and date range. The selected shafts included one well (114B1) and five privies (YohA1, YohC1, YohF1, 114C2/2A, and 114C3). These features were associated with four historic lots, YohA1 at 75 (later 119) South Second Street, occupied by two artisans 1790-1831; 114C2/2A and 114C3 at 58 (later 114) South Front Street; YohC1 at 13 (later 113); and YohF1 at 1-3 (later 103) Gray's Alley, renamed Gatzmer Street in the mid-nineteenth century. The privy (114C3) at 58 South Front Street was associated with the first house to be built on the Area F site in 1687, and the two privies (YohC1 and YohF1) on Gray's Alley were associated with houses built in 1702 (#13) and c.1720 or earlier (#1-3). These three privies were in use during the Colonial period and filled in during the middle to late eighteenth century. The three remaining features, a privy (114C2/2A) and well (114B1) at 58 South Front Street associated with the second house built on this lot in 1792, and a privy (YohA1) at 75 South Second Street associated with a house built in 1763, were filled in during the first quarter of the nineteenth century and represent the Federal to post-Federal occupation at the site. Of this sample, two privies and one well were fully excavated—YohF1, 114C2/2A, and 114B1—while three privies—114C3, YohA1, and YohC1—were only half excavated.

Three of the seven privy shafts in the Area F sample exceeded the depths prescribed by the 1763 privy regulations that were made into law and enforced with fines by 1769 (Benedict 2004:11-13). These privy shafts—Features YohA1, YohC1, and YohF1—were associated with lots on Second Street (YohA1) and Morris/Gray's Alley (YohC1 and YohF1). The fill (AS I) of Feature YohF1, with a TPQ of 1769, appears to have been deposited in response to the privy depth regulation of 1763 but possibly not until the threat of fines was published in the Pennsylvania *Gazette* in 1769. The fill (AS I) of YohC1 coincides with the regulated depth, as does the bottom depth of the later privy (YohC2), suggesting the filling and digging of the two privies occurred around 1763. However, the TPQ of 1750 for the fill of YohC1 coincides with the death of owner William Annis and suggests a lapse in occupancy between this event and the construction of the new privy c.1763 at this address. The later privy (YohC2) was considerably larger, 5.90 ft. diameter (over 4.16 ft. for YohC1), to compensate for its decreased depth. The third privy, in YohA1, is behind the c.1763 house built at 75 S. Second Street; the depth of this privy suggests it was dug at an earlier period, closer to c.1697, when the house next door at #77 was built and this was a combined lot (see Figures 7-9). This privy was filled c.1825 to the regulated depth but not until the death of its owner, Robert Swan, suggesting this privy was in violation of the 1763 Act of Assembly.

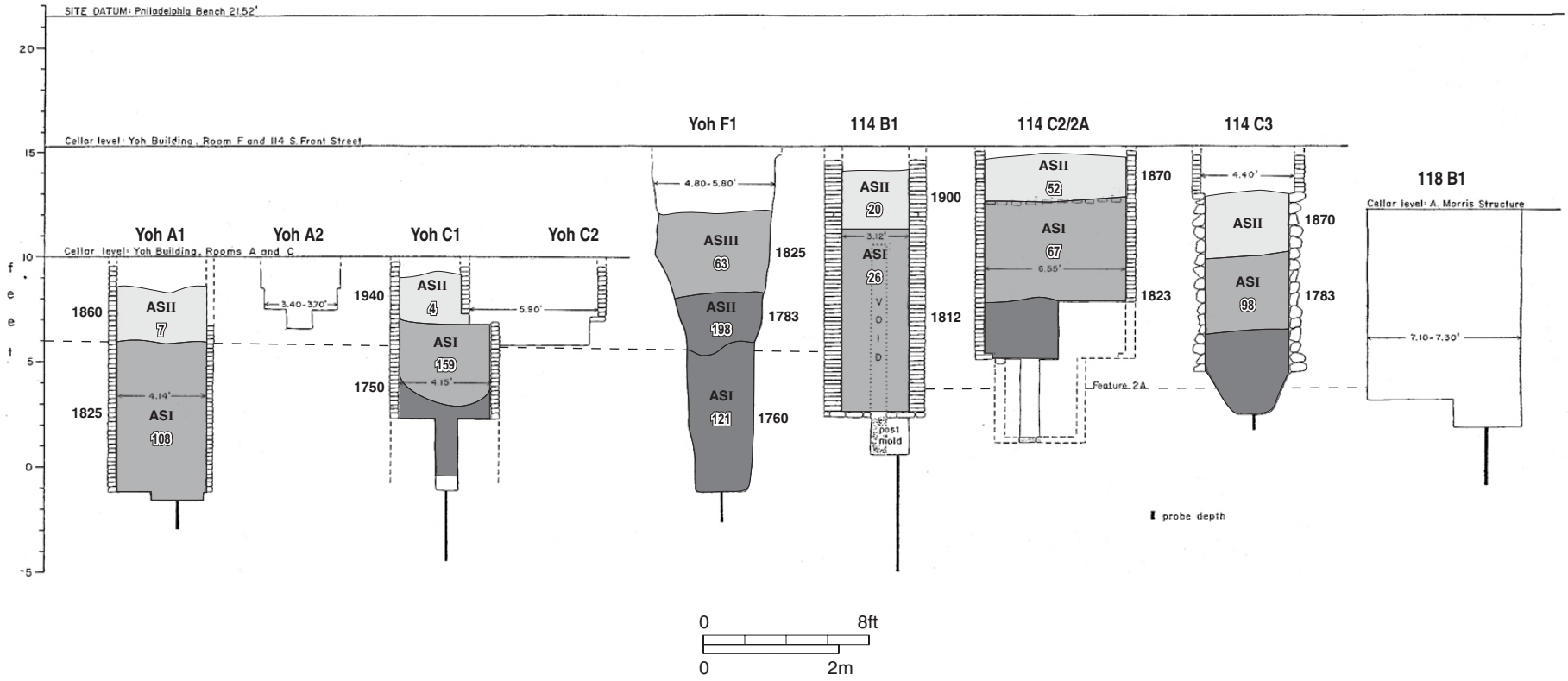


Figure 30. Area F, shaft feature profiles in relation to street/cellar levels.

The Area F privies show the range in privy construction existing in the city from the Colonial to Federal periods, with two unlined privies (YohA2 and YohF1), one stone-lined privy (114C30), three brick-lined privies (YohA1, YohC1, and YohC2), and one double-shaft brick-lined privy (114C2/2A). The double-shaft privy construction has been identified as a nineteenth-century innovation in Philadelphia that incorporated artifactual material as percolation fill on a wooden plank that separated the upper and lower shafts (Roberts and Barrett 1984:111). The extremely large concentration of artifacts in the double-shaft privy belonging to Robert Smith at Area F indicates it was purposefully placed. Since Robert Smith was engaged in trade, possibly with China, and ceramics may have been part of the inventory in his dry goods store, it seems likely that some of the many vessels found may have resulted from sets damaged in shipment that were recycled to his privy. Unfortunately, because of the durability of Chinese Export porcelain, it was not possible to distinguish new and used vessels in the Smith assemblage. While the construction type of the Smith privy and its fill make a strong case for percolation fill, there is other evidence that indicates that the contents derived from both Smith's home and business. Table 20 gives an idea of the quantity of material recovered from six of the shaft features.

5.1 SITE RELATEDNESS

As Table 20 demonstrates, these shaft features, like most Philadelphia privies, held concentrated deposits of artifacts that may be interpreted as 1) trash deposits associated with moves and the closing of a privy, or 2) percolation fill, purposeful deposits associated with the functioning of the privy. Philadelphia archeologists have long debated whether these fills represent household trash specific to the lot or fill brought in from outside the historic lot (Cosans 1975; Liggett 1981; McCarthy, Cosans-Zebooker, and Henry 1985). Those who have interpreted privy deposits as percolation fill argue that the quantities of objects are too great to represent the household trash of a single owner (Liggett 1981:118-119). These scholars and others have found compelling documentary evidence concerning nineteenth-century sanitation practices in Philadelphia that helps in understanding the use and problems inherent in the interpretation of these features (Roberts and Cosans 1980; Roberts and Barrett 1984). It has been proposed that site relatedness of privy contents can be assessed from a consideration of the following criteria:

- presence or absence of identifiable elements of the artifacts linking them to specific occupants,
- presence or absence of nearly complete reconstructible or whole vessels or faunal remains,
- presence or absence of matched sets of dishes and/or less diversity in the number of decorative patterns present in an assemblage, and
- the number of cross-mends between layers indicating a single episode of dumping of large quantities of ceramic and glass.

These factors were considered in the analysis of selected features in the Area F artifact assemblage.

Table 20. Summary of Contents of Selected Area F Shaft Features by Artifact Type.

	50% Excavated						100% Excavated							
FUNCTIONAL GROUP	YohA1, AS I		YohC1, AS I		114C3, AS I		114B1, AS I		114C2/2A, AS I		Yoh F1, AS I		Yoh F1, AS II	
	Ct	%	Ct	%	Ct	%	Ct	%	Ct	%	Ct	%	Ct	%
KITCHEN	3095	57%	2911	48%	1716	38%	613	36%	16204	80%	2060	37%	2565	33%
ARCHITECTURE	1621	30%	325	5%	671	15%	164	10%	2763	14%	479	9%	1419	18%
FURNITURE	20	0%	5	0%	2	0%	1	0%	29	0%	2	0%	9	0%
ARMS	0	0%	0	0%	1	0%	0	0%	3	0%	0	0%	2	0%
CLOTHING	18	0%	26	0%	6	0%	1	0%	196	1%	48	1%	34	0%
PERSONAL	10	0%	7	0%	5	0%	5	0%	37	0%	5	0%	20	0%
TOBACCO PIPES	30	1%	53	1%	33	1%	82	5%	36	0%	41	1%	27	0%
ACTIVITIES	326	6%	24	0%	13	0%	97	6%	20	0%	17	0%	18	0%
Subtotal	5120	94%	3351	55%	2447	54%	963	56%	19288	95%	2652	48%	4094	53%
BONE	105	2%	2473	40%	1308	29%	227	13%	678	3%	1835	33%	2694	35%
OYSTER SHELL	116	2%	141	2%	435	10%	445	26%	254	1%	171	3%	187	2%
CLAM SHELL	14	0%	6	0%	59	1%	81	5%	74	0%	8	0%	161	2%
SHELL, OTHER	0	0%	2	0%	0	0%	0	0%	22	0%	1	0%	2	0%
FLORAL	79	1%	152	2%	261	6%	3	0%	50	0%	894	16%	564	7%
Subtotal	314	6%	2774	45%	2063	46%	756	44%	1078	5%	2909	52%	3608	47%
TOTAL	5434	100%	6125	100%	4510	100%	1719	100%	20366	100%	5561	100%	7702	100%

Presence of Identifiable elements

Cataloging and analysis of the Area F site artifacts was the first step in the process of assigning dates to the privy fills and linking the artifacts to specific occupants. In the case of the Area F site, the necessary background research was conducted in advance of the excavation. Knowledge of the inhabitants and their occupations was crucial in the search for clues in the artifact assemblages. Artifacts classified as small finds were often the most important links to specific individuals (Table 21). A graphite mortar, a wedge, worked stone, and an amber stone recovered in 114C3, for instance, are likely tools associated with carving and gilding by tenant Hercules Courtney at 58 South Front Street from 1769 to 1784. The “RS” monogrammed porcelain tea set found in the later privy, 114C2, at this address surely belonged to the owner, Robert Smith, who lived there from 1790 to 1822. A lead bale seal associated with the textile trade was further evidence of a link to Smith. At the other end of the block, a concentration of glass lenses and a sphere holder recovered in YohA1 undoubtedly belonged to the optician and maker of scientific instruments, William Richardson, who lived at 75 South Second Street from 1795 to 1803. He was succeeded at this address by umbrella maker and silversmith Robert Swan, a resident from 1815 to 1831. Tools including two crucibles, two copper funnels, a chisel, and a file could have been used in the workshops of either man, but a large quantity of worked antler, bone, and horn most likely represent the residue of Robert Swan’s activities.

Table 21. Activity-related Artifacts from Selected Area F Features.

ACTIVITIES	SMALL FINDS	YohA1 AS I	YohC1, AS I	114C3, AS I	114B, AS I	114C2/2A, AS I	YohF1, AS I	YohF1, AS II	**Total**
GILDING CARVING	Wedge			1					1
	Mortar, graphite			1					1
	Worked stone (drill holes)			1					1
	Amber resin			1					1
	Subtotal	*0*	*0*	*4*	*0*	*0*	*0*	*0*	4
SILVER SMITH	Crucible	2							2
	Chisel, iron	1							1
	File, iron	1			1				2
	Funnel, copper	1							1
	Tool, unidentified (iron)	1							1
	Wire, copper	3							3
	Antler, worked	24							24
	Bone, worked	27	10			10			47
	Horn, worked	6							6
	Subtotal	*66*	*10*	*0*	*1*	*10*	*0*	*0*	87
OPTICIAN	Lens, mold blown	249							249
	Sphere holder, wood stand	1							5
	Subtotal	*250*	*0*	*0*	*0*	*0*	*0*	*0*	254
BAKER	Glass Fire Extinguisher							2	2
MERCHANT	Carved bone, cake tester						12		12
	Bale seal, lead				1	1			2
	Weight		1				1	1	3
	Padlock, brass						1	1	2
GENERAL	Pry bar					1			1
	Scrub brush					1		1	2
	Barrel Parts				3				3
	Rope							1	1
	Lead, unidentified		1	3				4	8
	Resin, yellow							2	2
	Subtotal	*0*	*2*	*3*	*4*	*3*	*14*	*12*	*38*
STABLE	Harness					1			1
	Bell				1				1
	Wheel hub					1			1
	Subtotal	*0*	*0*	*0*	*1*	*2*	*0*	*0*	3
ARMS	Gunflint			1		2		2	5
	Musket ball, lead					1			1
	Subtotal	*0*	*0*	*1*	*0*	*3*	*0*	*2*	6
TOBACCO	Kaolin pipe bowls	10	12	10	10	10	13	15	80
	Kaolin pipe stems	20	41	23	52	26	27	12	201
	Subtotal	*30*	*53*	*33*	*62*	*36*	*40*	*27*	281
TOYS	Money box, redware	1							1
	Bird figurine/whistle	1				1			2
	Jug, redware	2							2
	Marble	6	12	3		3	3	6	33
	Subtotal	*10*	*12*	*3*	*0*	*4*	*3*	*6*	38
PREHISTORIC	Hammerstone					1			1
	Stone ax			1					1
	Flake/tested cobble/FCR			2				2	4
	Subtotal	*0*	*0*	*3*	*0*	*1*	*0*	*2*	6
	TOTAL	**356**	**77**	**47**	**68**	**59**	**57**	**49**	**717**

Presence of Nearly Complete Reconstructible or Whole Vessels

An estimation of a ceramic vessel's completeness was part of the information recorded in the process of vessel analysis conducted on the Area F artifact assemblage. This information was quantified for each feature and is presented for the selected Area F features in Table 22. Among the six features, 18 ceramic vessels and 33 glass vessels were discarded whole and survived intact. Within the privies, Table 22 demonstrates that the majority (52%) of the ceramic vessels were reconstructible to half or nearly whole vessels (50-100%), a pattern indicative of primary deposition. Keeping in mind that three of the six selected features were only half excavated, YohA1, YohC1, and 114C3, these percentages would undoubtedly climb if the features were completely excavated. The fragmentary condition of the vessels found in the well suggests that this feature, unlike the privies, was not used as a receptacle for trash until after its abandonment, and then it was a secondary deposition.

Table 22. Percentage Complete of Ceramic Vessels from Selected Area F Features.

	50 % Excavated						100% Excavated							
Percent Complete	YohA1, AS I		YohC1, AS I		114C3, AS I		114B1, AS I		114C2/2A, AS I		YohF1, AS I		YohF1, AS II	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
96-100	0	0%	4	3%	2	2%	0	0%	3	0%	6	7%	3	3%
75-95	23	10%	48	33%	13	14%	1	1%	164	25%	27	31%	25	25%
50-74	68	29%	35	24%	22	23%	0	0%	211	32%	20	23%	12	12%
25-49	70	30%	21	14%	9	9%	5	6%	168	26%	11	13%	18	18%
0-24	*70*	30%	*37*	26%	*50*	52%	*75*	93%	*107*	16%	*24*	27%	*42*	42%
Total	231	100%	145	100%	96	100%	81	100%	653	100%	88	100%	100	100%

Presence of Matched Sets of Dishes

Among the criteria suggested to aid in the determination of site relatedness of an assemblage is the presence of matched sets of dishes or glassware. Although the concept of matching sets of dishes did not come into common practice until the end of the eighteenth century, matching dishes, at least in the early period, may have been an indicator of higher social status. Sets were identified based on a minimum of three matching vessels or three different vessel forms of the same ware with identical decoration. Compatibility was noted for vessels of the same ware but with one or two slightly different elements present in the decoration.

At the Area F site, the earliest assemblage came from the home of William and Patience Annis, who lived at 13 Gray's Alley from 1729-1748. Seven sets of ceramic dishes amounting to 25 vessels, and one set of six wine glasses with cut panels, were owned by this family (Table 23). The Annises' dishes consisted of a set of posset cups (5 Staffordshire yellowware); a set of tankards (3 gray salt-glazed stoneware); two tea sets, both Chinese Export porcelain (altogether 6 vessels); three table settings—a set of rice bowls and a set of plates, both Chinese Export porcelain (together accounting for 8 vessels); and a set of tin-glazed earthenware plates (3).

The shared privy (YohF1) at 1-3 Gray's Alley contained three sets—two tea sets amounting to six vessels, one in AS I (c.1747) and one in AS II (c.1766)—and one set of mold-blown tumblers amounting to four vessels in AS II. The earliest deposit (AS I) associated with owner William Gray, who built the bake house, contained three pieces of a Chinese Export porcelain tea set. The

soft-paste porcelain tea set purchased nearby at the Philadelphia factory of Bonnin and Morris (1770-1773) belonged to one of the tenants at this address and was discarded in AS II.

Only three vessels, two plates and one platter of Royal creamware, were identified as part of a matched set at George Gray's house at 58 S. Front Street (114C3), rented to tenant Hercules Courtney who lived there with his family and conducted business as a carver and graver while simultaneously running a tavern out of the house.

Six sets of dishes, three for tea and three for dining, were found at 75 S. Second Street (YohA1). The tea sets consisted of three scratch-blue stoneware saucers, three underglaze blue Chinese Export porcelain cups and saucers, and four overglaze-painted Chinese Export porcelain cups and saucers. Table settings included 10 Royal creamware dishes, three plain creamware dishes, and five blue shell-edge pearlware dishes. Only the blue shell-edge set included serving vessels. The assemblage from this privy is associated with owners William Richardson (1790-1815) and Robert Swan (1815-1831).

Nearly half of the ceramic assemblage associated with merchant Robert Smith consisted of large sets of dishes, with some favored patterns such as Willow used for tea, table, and hygiene purposes. Thirty-seven sets were identified, but as Tables 19 and 20 show, many of the sets were very similar, separated by slight differences in border motif or molded decoration, and were most likely used together. Grouped by ware and pattern, there were pieces of six English tea sets—a plain creamware set (#1-3), a blue-painted chinoiserie set (#4), a polychrome painted floral set (#5-6), a blue printed chinoiserie set (#7-10), a blue painted floral set (#11-12), and a black printed genre set (#13)—and one large set of overglaze-painted Chinese Export porcelain (#14-19) that included the monogrammed set (#17). A set of blue-printed, chinoiserie jugs (#25) matched Sets #7-10 of the tea sets. There were three sets of English tablewares, one in creamware with scalloped (#26) and Royal (#27) rims, one pearlware set in a blue-printed Willow (#28-29), and a large set of blue edgeware (#30-33). There was also a very large dinner service of underglaze blue Chinese Export porcelain, most featuring a Willow adaptation (#21-24 and #36) or slightly different but compatible Chinese landscapes (#20, 34-35, 37). There were also at least six sets of glassware in this household, two sets of compatible tumblers with cut arched panels, two sets of wine glasses, also with cut arched panels, a set of cruet bottles, and a set of salt dishes.

Cross-mends

Vessel analysis for both ceramics and glass included reconstruction of vessels and recording of crossmending data that, together with the stratigraphic data, were used in the analysis and interpretation of the feature deposits. Several layers were combined into analytical strata, referred to throughout as AS I, AS II, and so on, based on cross-mending vessels among layers.

Table 23. Correlation of Features, Occupants, and Sets of Dishes and Glassware for Selected Area F Features.

Location	Feature	MCD	TPQ	Occupant Association	Occupation	Ceramic			Glass		
						# Sets	# V	% Sets	# Sets	# V	% Sets
13 Gray's	YohC1, AS I	1735	1750	Owners Wm & Patience Annis 1729-1748	Mariner	7	25	17%	1	6	4%
1-3 Gray's	YohF1, AS I	1747	1769	Owner William Gray c.1738-1751, Mary Weyman 1751-c.1760	Bake House/Coopers	1	3	3%	0	0	0
1-3 Gray's	YohF1, AS II	1766	1783	Tenants (Owner Thomas Bond Jr.) c.1760-c.1792	Bake House, Coopers	1	3	3%	1	4	6%
58 S. Front	114C3, AS I	1779	1783	Tenant Hercules Courtney 1769-1784	Carver/Graver/Tavern	1	3	3%	0	0	0
75 S. 2nd	YohA1, AS I	1796	1825	Owners Wm Richardson 1790-1815; Robert Swan 1815-1831	Optician; Silversmith	6	46	20%	0	0	0
58 S. Front	114C2/2A, AS I	1803	1823	Owner Robert Smith 1790-1822	Textile Merchant	37	287	44%	6	38	21%

At the Area F site, the concentration of artifacts was most dense in the nightsoil deposits at the bottoms of the privies. Although it is documented that privy maintenance was regulated within the city, it is clear from the sample of privies at the Area F site that privies were not always cleaned and filled with clean soil at the time of abandonment. The citywide archeological evidence indicates that filling abandoned shafts was both desirable and a necessity for safety reasons. The stratigraphy within privies indicates that sand and lime were added, to reduce odor, and bulky material such as building rubble was conveniently disposed of along with all of the unwanted trash associated with daily life and/or moving a household. Fragments of bottles and dishes thrown in with the fill undoubtedly filtered down into the lower nightsoil deposit, accounting for some cross mends and, in some cases, the inclusion of the fill in analysis with the nightsoil deposits at the bottom.

Nightsoil deposits most likely represent an accumulation of vessels discarded over the lifetime of the privy. While part of privy maintenance included periodic cleaning, it is unlikely that the build up at the bottom would have been removed entirely, especially if the broken glass and ceramic objects were considered beneficial to the functioning of the privy.

5.2 TRASH VERSUS FILL AT THE AREA F SITE

Differences between the privies and well at the Area F site were evident in the low density of artifacts (Figure 31) and the absence of reconstructible vessels in the well (Table 22). These distinguishing factors add weight to the theory that whole or nearly whole glass and ceramic vessels served a known function as percolation fill in privies. No doubt the well shaft also served as a convenient receptacle for trash once it was abandoned, but it appears that its fill reflects a different set of behaviors than for the filling of privies. If the use of broken or recycled dishes and bottles was recognized as beneficial to privy maintenance, then it is likely that the Colonial housekeeper disposed of dishes and bottles directly into the backyard privy on a regular basis. In the early Colonial period, garbage disposal was the problem of the individual, and the backyard privy appears to have been one solution. The practical housekeeper might have collected trash in a barrel at the back of the house to be periodically added to the privy with a few scoops of lime. Stockpiling of nonbiodegradable household refuse for use in the privy as percolation fill has been proposed by other archeologists (Roberts and Cosans 1980:111; LeeDecker 1991). Distinguishing whether these fills represent long-term accumulation or rapid deposition of direct household refuse must be determined on a feature-by-feature basis. For obvious reasons, wells would not have been filled while they were in use.

The Area F well had a relatively small number of artifacts (1,719) recovered in its fill compared with the privies, and a low percentage of bone (see Table 24). In contrast, the Smith privy (114C2/2A) contained the largest overall number of artifacts (20,366). The significantly lower numbers of food bone in the later privy assemblages (YohA1 and 114C2/2A) are probably the result of a system of garbage collection begun in the city c.1768 (Roberts and Cosans 1980:111).

Another factor influencing the disposal of trash into backyard privies was their maintenance. Most privies were cleaned periodically, and, as mentioned above, sand or lime was thrown down the shafts to combat or control noxious odors. While these actions are preserved in the archeological record, they are difficult, if not impossible, to isolate. One possibility is that periodic cleaning of the privy might have purposefully skimmed the top of the bulkier deposits,

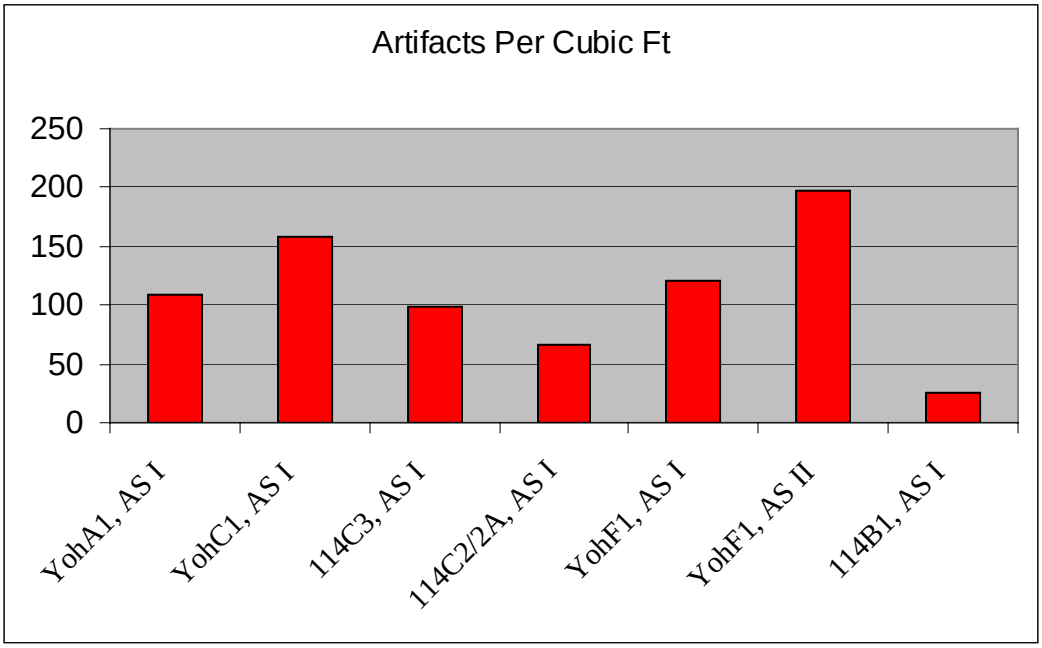


Figure 31. Variation in density of artifacts per cubic feet from selected Area F shaft features. All are privies except for one well, 114B1.

allowing them to collect on the bottom of the privy over time. Therefore, this gradual accumulation at the base of a privy is likely to represent a succession of occupants up to the time of the *terminus post quem.* This interpretation is suggested by Feature YohA1, which had small find artifacts associated with two owners.

In the same way that old privies were abandoned and their purpose changed from waste disposal to trash disposal, much later deposits in several of the Area F features indicate this pattern was repeated long after the initial filling, when they were re-exposed during later construction events in the late nineteenth and early twentieth centuries. Once again voids created by the settling of fills in these deep shafts presented structural dangers that needed filling and so the shafts again served as receptacles for trash. In most instances where there were later strata, these fills contained few ceramics and mostly architectural debris and commercial trash that reflect the overall change from residential to commercial use of the Area F site. The single instance of non-site-related fill at the Area F site was the dump of stoneware wasters thrown into the privy at 1-3 Gray's Alley (YohF1 AS III) after 1825, a deposit that was unlikely to have originated on this lot (Plate 26). In another instance, Robert Smith's privy (114C2/2A) was exposed in the last quarter of the nineteenth century during construction activity in the basement of Hugh Catherwood's warehouse, and the cavity was filled with bottles and old signs from Catherwood's liquor business (Plate 27).

Plate 26. Stoneware wasters, fragments of 38 jugs and two crocks, probably brought in from off site to fill the abandoned shaft of Yoh Building, Room F, Feature 1.

Plate 27. Glass sign advertising rye gin from one of two distilleries at 114 S. Front Street, Hugh Catherwood 1855-1886 or Alfred Tucker 1886-1911.

6.0 LIFE ON PHILADELPHIA'S RIVERFRONT: ANTHONY MORRIS'S INVESTMENT, THE AREA F SITE

Anthony Morris was the architect of the development and settlement of the Area F site, so the story begins with him. Six years after William Penn's land grant of the Province of Pennsylvania and four years before Penn granted the charter establishing Philadelphia as a city and port, Anthony Morris arrived in Philadelphia and purchased the land near the Delaware River that would eventually be known as the Area F site.

6.1 ANTHONY MORRIS, QUAKER ENTREPRENEUR

Anthony Morris emigrated from London at the age of 28, arriving first in Burlington, New Jersey, c.1682. Morris brought with him his wife, Mary, and their one-year-old son, Anthony, three of their young children having perished before journeying to America (Moon 1898:37). Another child was born in Burlington and two more after the move to Philadelphia which coincided with the purchase of two city lots that together formed the Area F site. He bought a portion of his city lot from the influential Quaker, Thomas Lloyd, keeper of the Great Seal and later acting governor of the province (Dunn and Dunn 1982:22). By 1687, Anthony Morris owned all of the undeveloped land within the Area F project area. There Morris would have a say in the economic leadership of Philadelphia with other prominent Quaker merchants Isaac Norris and Edward Shippen and neighbors Humphrey Morrey and Samuel Carpenter.

Anthony Morris chose a prominent location on Front Street to build his house in 1688. This spot, high on the riverbank, had a commanding view of the Delaware River and a garden that stretched half way to Second Street (Figure 32). The typical Philadelphia house of the period was a modest sized, plain, brick structure, two or three stories with a garret (Thayer 1982:100). Written descriptions of Morris's house survive, but there are no images; however, Letitia Penn's house, originally sited a few blocks away, is typical of the period and fits the descriptions of Anthony Morris's "mansion house" (Figure 33).

Morris's house at #60 (later 118) South Front Street was not the first in the project area. When he first arrived he lived in the house built by Thomas Lloyd at the southeast corner of the property, #62 (later 120) South Front Street, and in what was the first subdivision of his property, Morris sold a lot to Alexander Beardsley, a glover by trade, who built a house in 1687 at what became #58 (later 114) South Front Street. The Morris house at #60 (later 118) and the Beardsley house at #58 were similar; both were brick and two stories high, though Morris's house was two feet wider (22 ft. wide and 44 ft. deep). Models of Quaker simplicity, these "brave Brick Houses" were typical of the young city.

Morris's wife, Mary, died two years later after the birth of their seventh child in 1689. Later that year, he married Agnes Bom, the widow of a Dutch baker, at Philadelphia Friends Meeting, but this second marriage was short lived. Agnes died in 1692 without producing any children. In 1693, Morris married Mary Howard Coddington, a widow from Newport, Rhode Island, with whom he had three children, William, Elizabeth, and Joseph. This wife and their youngest son, Joseph, both died in 1699, and the following year Morris married yet again, this time to Elizabeth Watson, with whom he had five more children.

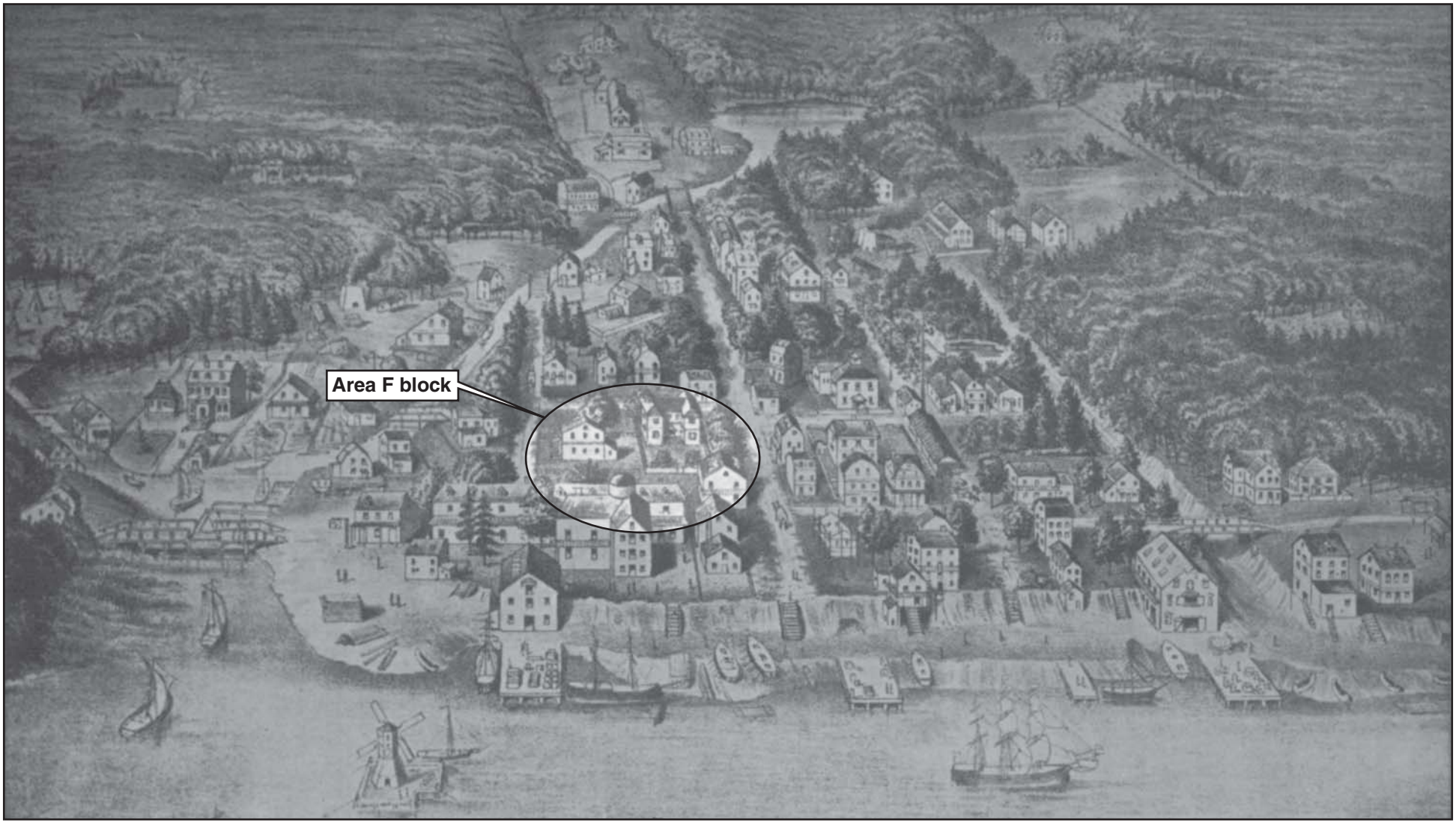


Figure 32. Conjectural sketch of Philadelphia c.1702 by F.J. Wade from an 1876 lithograph (The Welcome Society of Pennsylvania n.d.), the Area F block circled. Although not exact, the Slate Roof House occupied by William Penn 1699-1701 is depicted. The project area is on the north side of the Slate Roof House.

Figure 33. The Letitia Penn house built on Letitia Court c.1713, a short distance from Morris Alley, that fits the description of the house built by Anthony Morris c.1688 on Front Street. The top view is a drawing of the house from Watson 1870 and the lower view is a nineteenth-century photograph of the house.

Anthony Morris described himself as a baker on the 1687 deed from Joseph Wood, although he quickly established himself as a brewer. He built a brewery on Water Street east of his house, and in the 1693 tax his properties were rated at 800£, among the highest in the city (Figure 34). Morris had become an active member of the Society of Friends upon his arrival in Philadelphia and together with Samuel Carpenter and Edward Shippen he helped find and purchase ground for their meeting house. In 1691, he was appointed an alderman of the city and commissioned as Justice of the Peace the following year. He was instrumental in establishing the first public school, William Penn Charter, and was later elected to the Provincial Council where he served as a representative in the Assembly (William Penn Charter School 1989). As a member of many committees, meetings were held in Anthony Morris's house on Front Street, and he worked with William Penn on the formation of the charter of the city in 1699-1701. In a letter to Penn on October 1, 1702, James Logan wrote "A. Morris behaves as well as possibly his temper can let him; he seems much brought off from that busy humor, and sometimes speaks in a meeting" (Moon 1898:95).

Throughout his active life, Anthony Morris was engaged in buying and selling real estate. His house was built 12 feet north of the house that Thomas Lloyd built c.1686, a distance planned by Morris for the creation of an alley (Morris Alley) through the middle of his property, extending to Second Street. With the creation of this alley, Anthony Morris maximized his real estate investment, an approach that was typical of the development of the early city by many of the "First Purchasers":

> It proved very easy to cut a twenty-foot alley lengthwise along the edge of a 102- by 396-foot property, and to face this alley with a row of narrow tenements. In this manner a lot designed for a single house could be converted into as many as twenty lots of row housing, each twenty by eighty-two feet. By 1698 nine lanes or alleys had already been cut through from Front to Second Street, and several had rows of narrow two-story workmen's houses on them. Soon dozens of other alleys appeared throughout the city, making Philadelphia one of the most congested communities in America, in utter violation of Penn's dream of a green country town (Dunn and Dunn 1982:16).

By the turn of the seventeenth century, there were now five houses standing in the Area F project area, two on Front Street, two on Second Street, and one on Morris Alley, out of an estimated 400 houses in Philadelphia (Dunn and Dunn 1982:11). Although Philadelphia was experiencing rapid growth, a 1703 petition signed by Anthony Morris to stop swine from running at large illustrates that it was still a "green country town" (HSP 1703) (Figure 35).

Over the course of 34 years, Anthony Morris subdivided the Area F site property, selling five lots outright and the ground rents to ten lots. Most of the lots on the interior of the block were restricted in size, particularly the narrow strip on the south side of the alley that dictated that lot sizes be shallow. As a consequence, these lots attracted craftsmen, such as coopers and printers, catering to the seaport and its trade. By the time of his death in 1721, Morris owned three lots within the original parcel, his house at the corner of Front Street and Morris Alley, the two tenements he built just before his death on the north side of his house on Front Street, and a lot on the south side of the alley, where he had also recently built two small houses. The mansion house was passed down through the Morris family. The tenements on the north side of the Morris

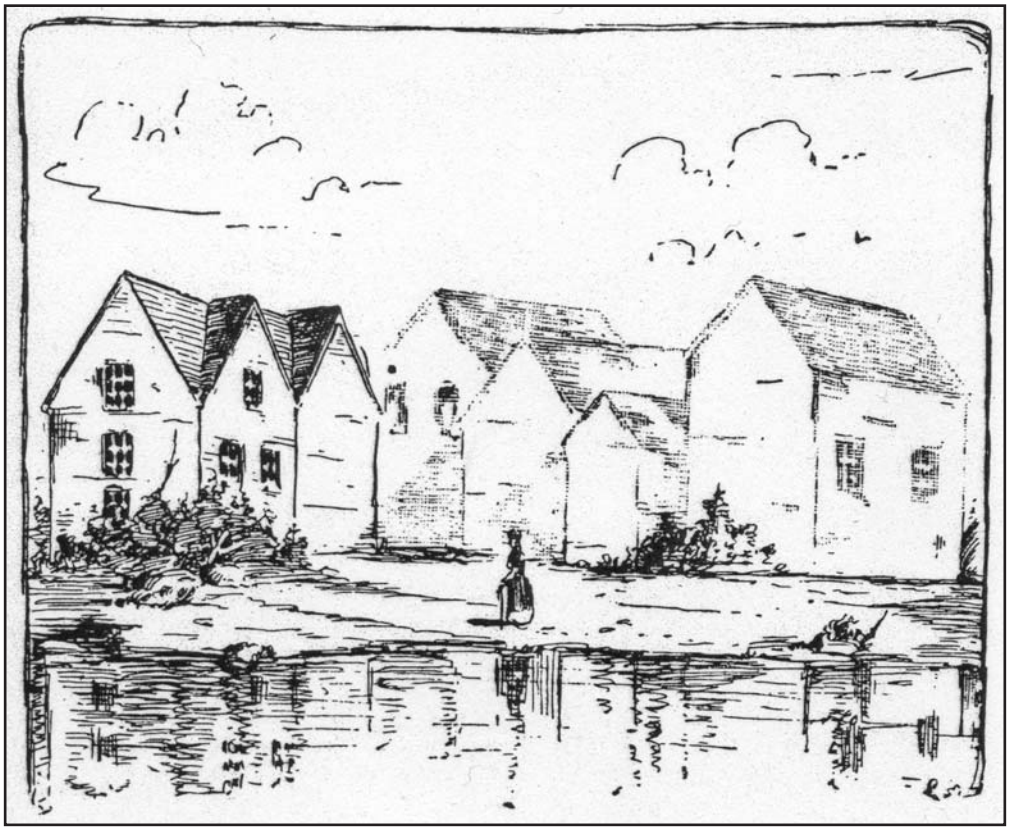


Figure 34. Drawing of Anthony Morris's Brew House on Water Street, Philadelphia riverfront (Moon 1898:220).

Figure 35. Painting of the Philadelphia waterfront by Peter Cooper c.1720 with several buildings identified including the brew house of Anthony Morris (#4) and the house of Captain (Stephen) Anthony (#8). Stephen Anthony's house was on the corner of Second Street and Morris Alley. The approximate location of the Area F site is circled.

mansion house went to his son, Anthony Morris, and the tenements on the south side of the alley went to his daughter Sarah Morris.

6.1.1 THE ARCHEOLOGY OF THE MORRIS HOUSE SITE

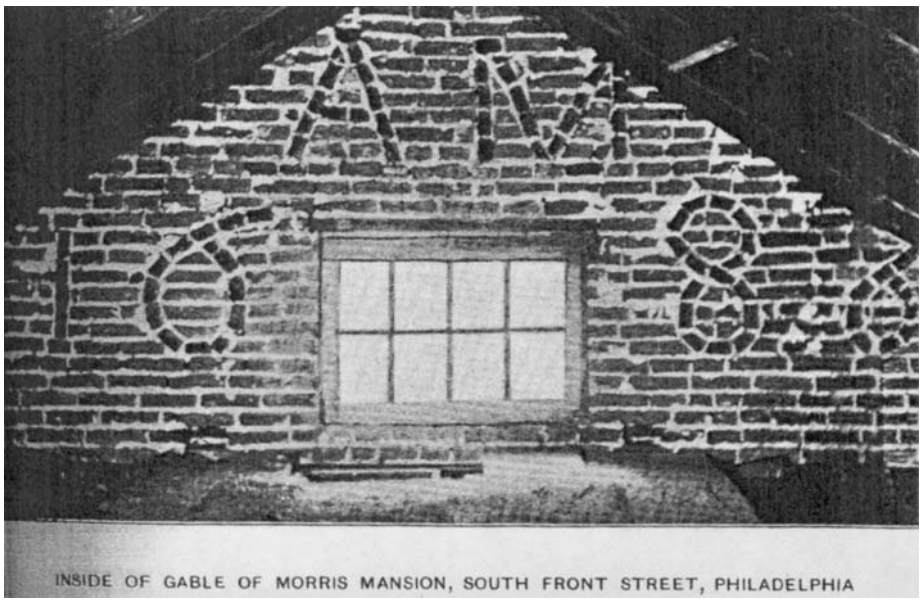
The archeological investigation of the Morris house site consisted of a backhoe trench that exposed the southeast corner of a house foundation and remnant of a shaft feature (118B1) (see Appendix I, Section 2.2). Virtually all of the artifactual material within this foundation dated to its demolition. The shaft feature was highly disturbed, and the discovery of a mold blown bottle c.1877 at the base indicates the fill dated to the late nineteenth century. Confusion over a discrepancy between the three-story brick house that was demolished on this site in the 1960s and the eighteenth-century descriptions of Morris's mansion house as two stories was cleared up by the following extract in Deborah Morris's will. On March 16, 1793, she instructed her heir, niece Abigail Griffiths,

> to erect a good but plain three-story brick house, keeping as near as possible to the old foundation, and also a brick wall on the southside of the garden, and when this shall be done, I direct the following words and figures, viz: A.M. 1686 to be affixed in blue bricks at one of the gable ends of the house, that being about the time my worthy Grandfather built the present house.

Following the death of Abigail Griffiths in 1797, the house passed to Dr. Samuel Powel Griffiths and his heirs according to the terms of the will for 99 years. Dr. Griffiths rebuilt the house c.1798 as directed (Figure 36).

A brick privy (ER 100) excavated during salvage archeology conducted on the Area F site in April 1979 was on the Anthony Morris house lot. The privy, which was 9 feet 6 inches deep, measured 7 feet in diameter at the top and narrowed to 6 feet at the bottom (Parrington 1980:4-6). The artifacts recovered dated from c.1830, when Dr. Samuel Griffiths was the owner of the property (Parrington 1980:30-50). The privy was probably dug by one of Anthony Morris's descendents in the late eighteenth century.

The archeology of the Morris house site identified the brick and stone remains of Anthony Morris's c. 1688 house or the c. 1798 house rebuilt on that spot by his descendants. Neither the shaft feature (114B1) excavated by Temple nor the privy excavated in 1979 are contemporaneous with its original owner. While there were no artifact deposits that related to Anthony Morris's occupation in the late seventeenth to early eighteenth century, the configuration of the lots on Front and Second streets and along the alley that eventually became Gatzmer Street remained unchanged until the end of the nineteenth century. Morris left his mark on the landscape, and the owners and tenants who came after him left remnants of their lives as well.



INSIDE OF GABLE OF MORRIS MANSION, SOUTH FRONT STREET, PHILADELPHIA

"MORRIS MANSION," SOUTH FRONT STREET, PHILADELPHIA

Figure 36. C.1895 photograph of the rebuilt Morris House showing initials of Anthony Morris and date added in the gable end c.1798 and visible from the inside only (Moon 1898). At the time of the photograph the house was owned by a coffee importer and converted into a warehouse to which a counting house was added to the rear. View northwest down Gatzmer Street (once Gray's Alley).

7.0 MORRIS/GRAY'S ALLEY

The earliest assemblages from the Area F site belonged to residents of Morris Alley, a name that changed to Gray's Alley and finally Gatzmer Street. At the end of the seventeenth century, Morris Alley was occupied by descendants of Anthony Morris's friends and fellow Quakers, Samuel Carpenter and Alexander Beardsley. They built modest houses on what was then a quiet alley tucked behind the fenced yards of the larger houses facing Front and Second streets (Figure 37). Alleys

> were at first chosen and dwelt in, in preference to wide main streets; because [they were] free from general travel, and therefore not able to be cut up, by wheels; and they were easier swept clean, at a period, before the existence of paved streets (Watson 1927:618-619).

Philadelphia was then a country town, and though the seaport was becoming a busy place, Second Street was close enough to afford a nice view but far enough to be the place where the wealthy merchants chose to live. Objects associated with the Annis household, on the alley, show a degree of prosperity and refinement not expected, but that is because this was not a typical worker household.

By the middle of the eighteenth century, conditions became more crowded with the increase in port traffic and flood of immigrants seeking religious freedom and promise of the New World. With the infill of houses along the interior of the block, the character changed to commercial and tenanted. The restricted size of the sub-lots of the inner block resulted in smaller houses that in the second half of the eighteenth century were occupied by more transient tradesmen and widows (Batcheler 1978:9). These craftsmen's dwellings were probably similar to those surviving today on Elfreth's Alley.

7.1 A MARINER'S FAMILY ON MORRIS/GRAY'S ALLEY, WILLIAM AND PATIENCE ANNIS, C.1729-1748

The Annis family lived in one of the earliest houses on Morris Alley until c.1750, when the house was sold as part of the estate of Patience Annis. The Annis family occupied an L-shaped lot at the west end of the block behind Stephen Anthony's. It was near this spot, according to nineteenth-century lore, that a pirate's buried treasure, a pot of money, was found when digging the cellar of Stephen Anthony's house (Watson 1870:272). These houses were described in an 1870 edition of Watson's Annals, beginning with Stephen Anthony's house on the corner of Second Street and Gray's Alley and among the rest the house of William and Patience Annis:

> In contemplating the House, we must mark its superiority in its early day, because it is ornamented with drops under its eaves–and its superior form of dormer windows.–As a dwelling house, it shows the marks of where once ranged an entire extension all round it, of pent house we must remove present store windows, and set before the house its former street porch.–The bricks too, now all painted red, were originally regularly intermixed with the blue glazed bricks,–a token, only belonging to the grades of best houses. All the three first houses in the Alley, were also marked with the drops under the eves, and were also built with /the alternate intermixture of blue glazed bricks (Watson 1927:618).

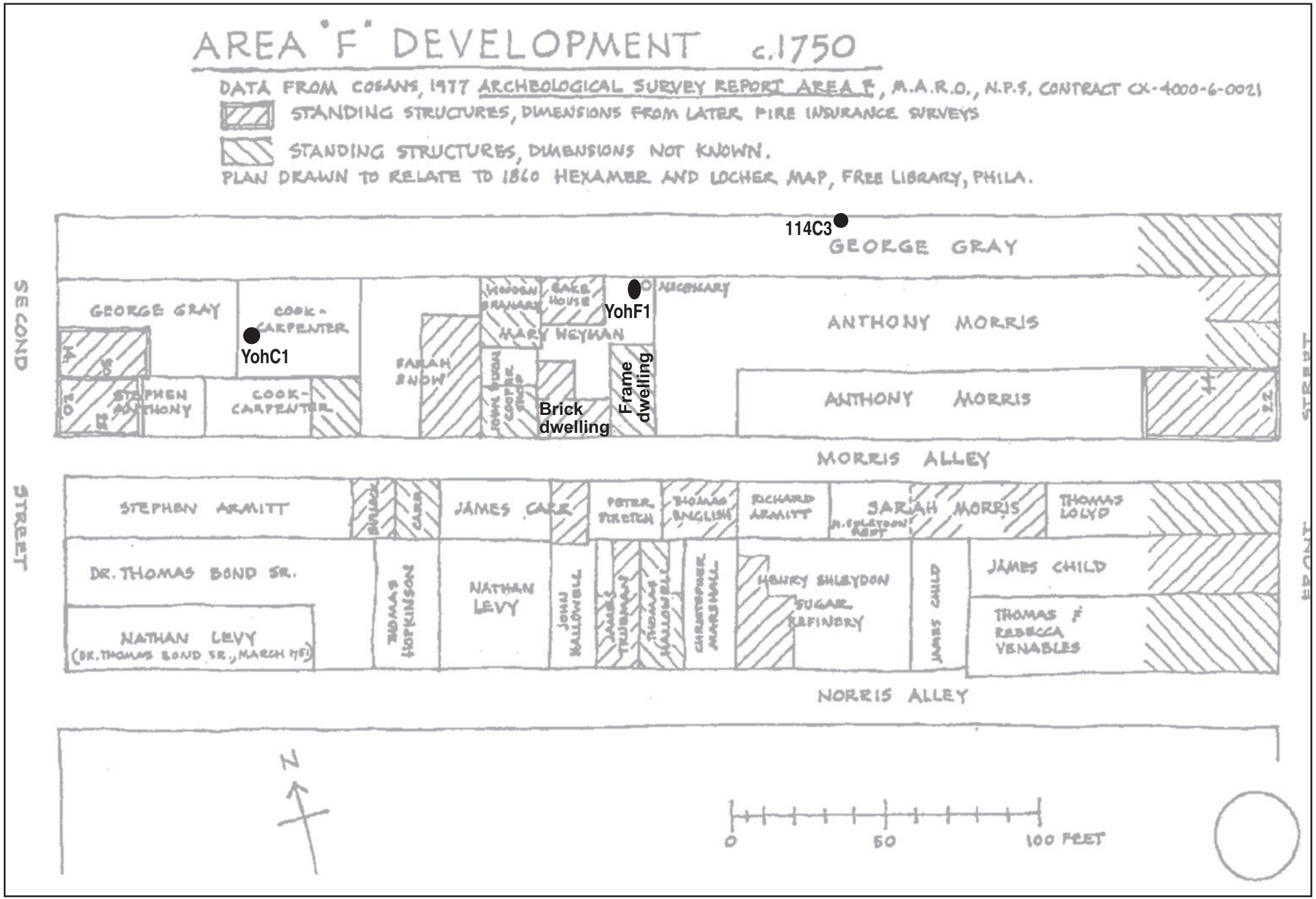


Figure 37. Plan of Area F Development c.1750 showing what is known about owners, occupants, and types of buildings at this date (Batcheler 1978) with associated features added.

The Annises lived in a tiny 16-ft.-square, two-story brick dwelling (Figure 38 and 39) inherited from Patience's grandfather, Joshua Carpenter, a brewer and brother of Samuel Carpenter, who had been a friend of Anthony Morris. Samuel Carpenter was one of Penn's First Purchasers, who owned the adjoining lot to the south, part of which he sold to his brother Joshua. Originally Quakers, Joshua Carpenter converted to the Church of England soon after his arrival in Philadelphia (Thompson 1999:28). On her father's side, Patience Story Annis was related through marriage to Thomas Lloyd, the successful merchant and influential Welsh Quaker from whom Anthony Morris had originally purchased his property (Dunn and Dunn 1982: 26).

So, perhaps, it was not surprising that Patience Story married a young mariner in 1729. In October of the previous year, James Logan arranged with Captain William Annis, whom he referred to as "my dear friend," to purchase him a copy of Chambers Dictionary on one of his voyages and deliver some personal letters (HSP 1728). At the time of their marriage, Patience was 19 and her husband William was 18. Shortly after the marriage, her grandmother, Elizabeth Carpenter, died and left her a large amount of material suitable for a home (Figure 40). In addition to several pieces of furniture and linens, Patience inherited a silver tankard, seven silver spoons, six silver forks, a great copper kettle, one dozen new pewter plates, three dishes, and a metal skillet (Philadelphia County Will 1729).

Over the next 11 years, William Annis made 21 voyages to various ports in Great Britain, Europe, the West Indies, and the coast of America—London, Lisbon, Dublin, Madeira, Jamaica, Antigua, Bonavista, Porto Port, Maryland, and South Carolina. He was the master of five ships—the Hannah Hope, the Flaxney, the Betty Hope, the Vigor, and the last ship, perhaps his own, the William. His last voyage was in 1740. As a sea captain, and perhaps through marriage, William Annis prospered. He invested in several city lots, owned two houses on Gray's Alley in addition to the one in which he lived, and was among 48 subscribers of a fire engine and bell for Walnut Ward, his home ward (HSP 1738).

Patience and William had three daughters, all of them baptized at Christ Church, before Patience's death sometime before 1748. William married again, to Susanna Mason, and in 1748 had a son, John William Annis. Later that year, William died, two months after writing his will, at the age of 37. In his will he cited his dwelling place as one of three houses he owned on the north side of Morris Alley, and the inventory of his estate describes room by room the furnishings of his little house (Philadelphia County Will 1748). According to the inventory, the first floor of the house consisted of a front and back parlor with a kitchen behind, front and back chambers on the second floor, and a front and back garret above (Figure 41). It is interesting to compare the items inherited from Elizabeth Carpenter to those listed in the inventory and to those thrown out in their privy. It was a home of modest size but comfortably furnished.

7.1.1 THE ARCHEOLOGY OF THE ANNIS PRIVY (YOHC1, AS I, C.1750)

In addition to a dozen inherited pewter plates, most of the Annises' tablewares were imported from England or Europe (38%) and China (31%). Local redware (29%) was used in the kitchen. What stands out about the archeological assemblage is the presence of several matching sets of dishes, for dining and serving tea. They also owned some exotic pieces—a set of Chinese Export porcelain rice bowls made for the Asian market and pieces of Spanish Majolica—that may have come from William Annis's voyages (Plate 28).

Figure 38. Etching of Captain Stephen Anthony's house at 123 South Second Street with 121 and 119 to the left and a romanticized view of Morris/Gray's Alley to the right (Watson 1927:618). The home of William and Patience Annis was the second house from Anthony's down Gray's Alley.

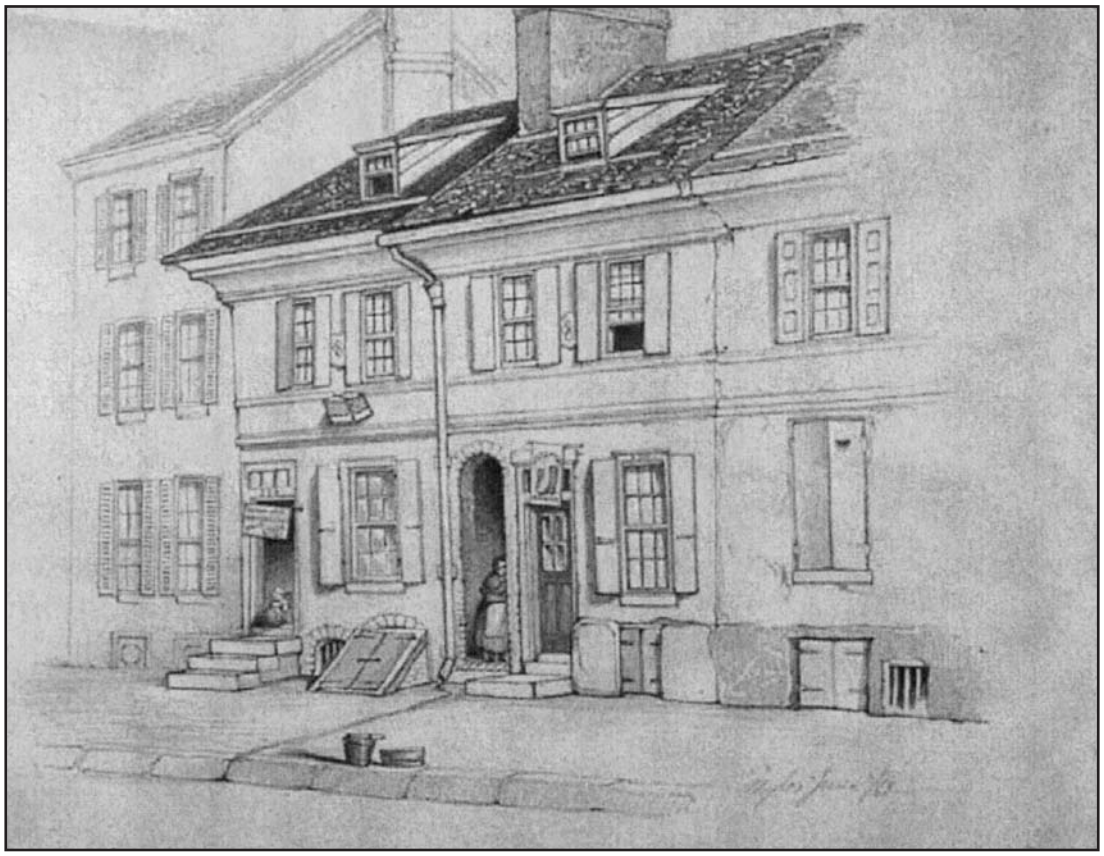
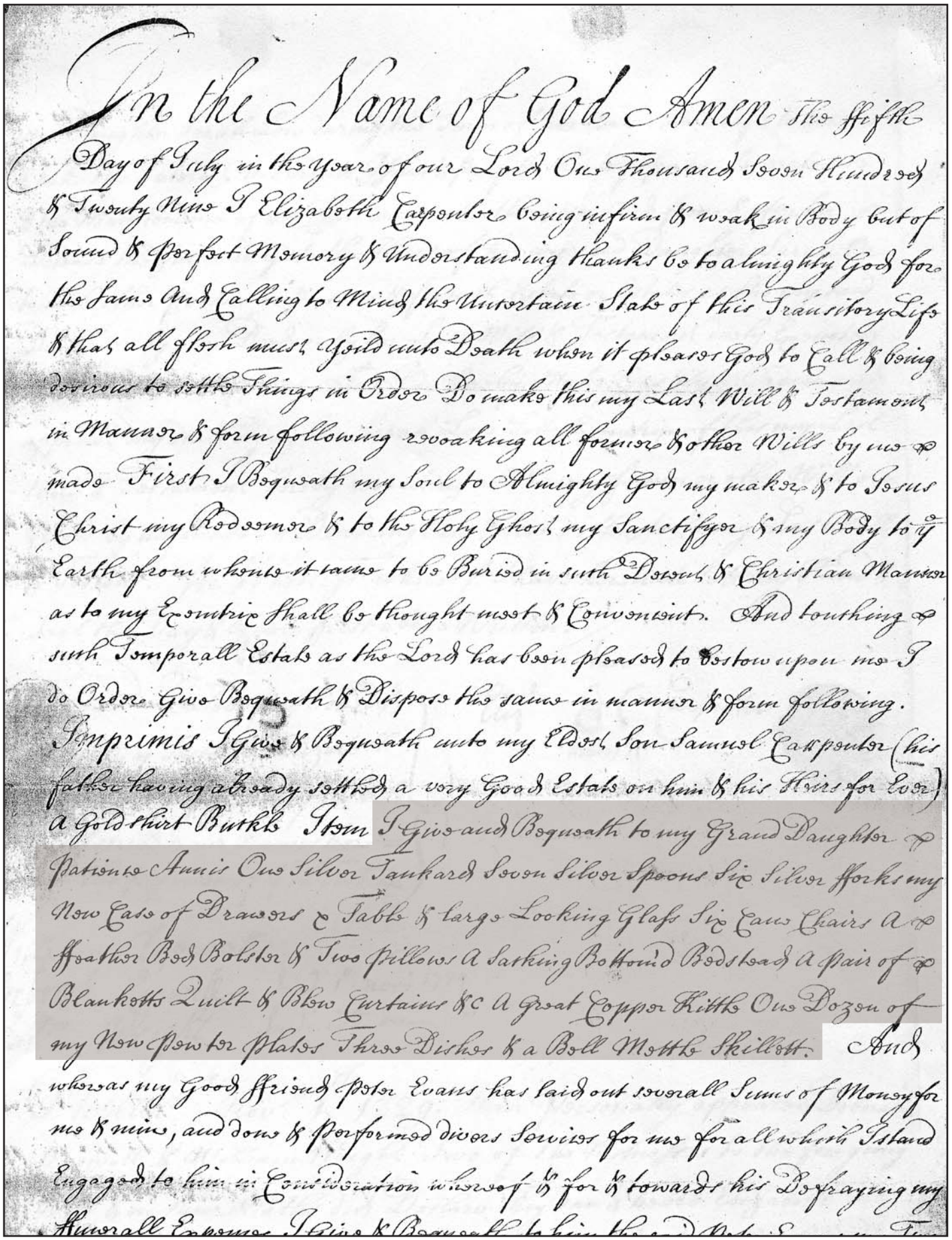
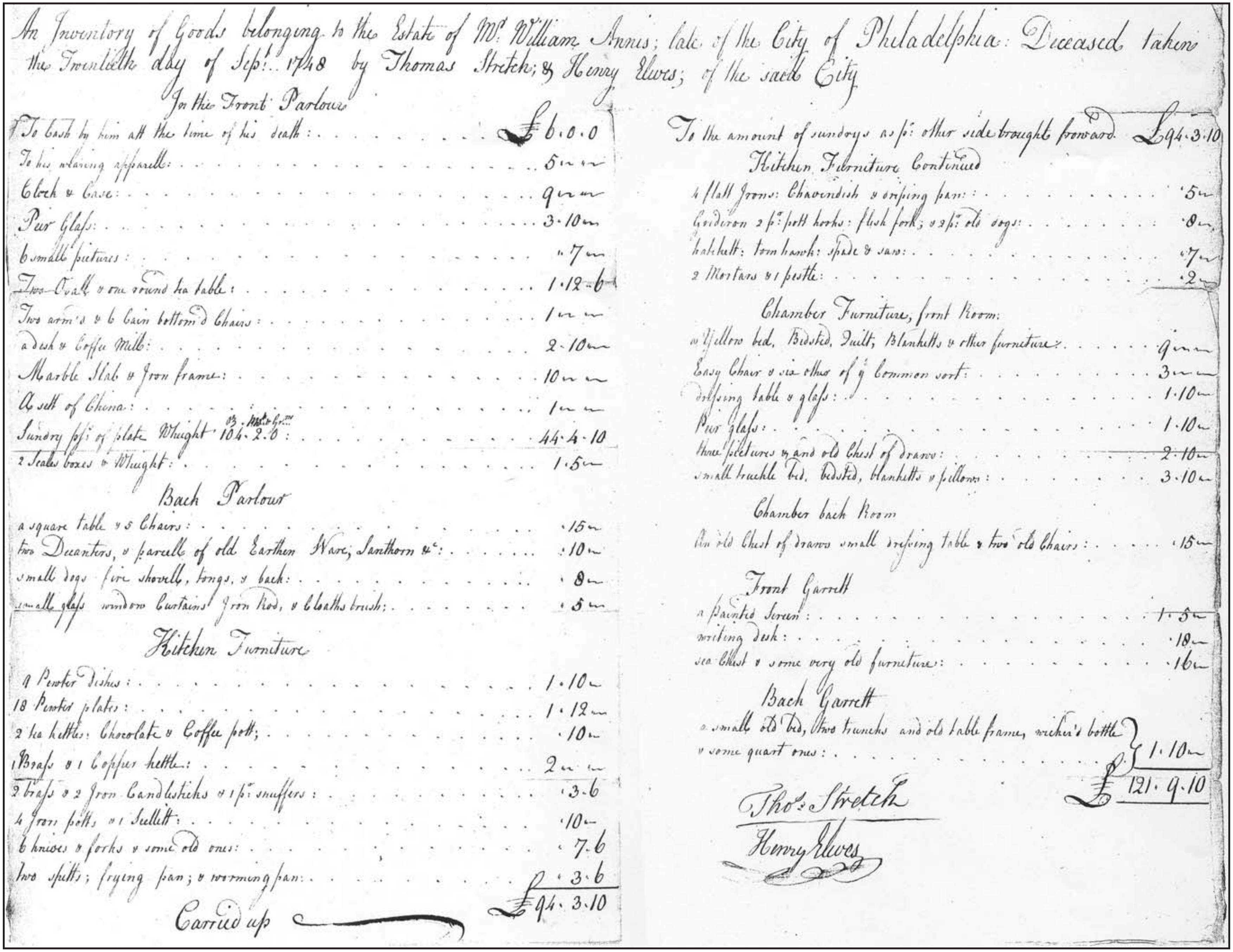


Figure 39. Typical Philadelphia brick house that gives an idea of what the small houses along Gray's Alley might have looked like (Taylor 1861).



In the Name of God Amen The fifth Day of July in the Year of our Lord One Thousand Seven Hundred & Twenty Nine I Elizabeth Carpenter being infirm & weak in Body but of Sound & perfect Memory & Understanding thanks be to almighty God for the same And Calling to Mind the Uncertain State of this Transitory Life & that all flesh must yield unto Death when it pleases God to Call & being desirous to settle Things in Order Do make this my Last Will & Testament in Manner & form following revoaking all former & other Wills by me & made First I Bequeath my Soul to Almighty God my maker & to Jesus Christ my Redeemer & to the Holy Ghost my Sanctifyer & my Body to ye Earth from whence it came to be Buried in such Decent & Christian Manner as to my Executrix shall be thought most & Convenient. And touching & such Temporall Estate as the Lord has been pleased to bestow upon me I do Order Give Bequeath & Dispose the same in manner & form following. Imprimis I Give & Bequeath unto my Eldest Son Samuel Carpenter (his father having already settled a very Good Estate on him & his Heirs for Ever) a Gold shirt Buttle Item I Give and Bequeath to my Grand Daughter & Patience Annis One Silver Tankard Seven Silver Spoons Six Silver forks my New Case of Drawers & Table & large Looking Glass Six Cane Chairs a & feather Bed Bolster & Two pillows a Satking Bottomed Bedstead a pair of & Blankotts Quilt & Blew Curtains &c a great Copper Kettle One Dozen of my New Pewter plates Three Dishes & a Bell Mettle Skillett. And whereas my Good friend Peter Evans has laid out several Sums of Money for me & mine, and done & performed divers Services for me for all which I stand Engaged to him in Consideration whereof & for & towards his Defraying my Funerall Expenses I Give & Bequeath to him the

Figure 40. Excerpt from the will of Elizabeth Carpenter showing the list of items she bequeathed to her granddaughter, Patience Annis, following her marriage to William Annis and move to Gray's Alley (Philadelphia County Will 1729).



An Inventory of Goods belonging to the Estate of Mr. William Annis; late of the City of Philadelphia: Deceased taken the Twentieth day of Sept. 1748 by Thomas Stretch; & Henry Elwes; of the said City

In the Front Parlour

To Cash by him att the time of his death: £6.0.0
To his wearing apparrell: 5..
Clock & Case: 9..
Peir Glass: 3.10
6 small pictures: .7
Two Ovall & one round tea table: 1.12.6
Two arm'd & 6 Cain bottom'd Chairs: 1..
a desk & Coffee Mill: 2.10
Marble Slab & Iron frame: 10..
A sett of China: 1..
Sundry ps of plate Weight oz. dwt. grs. 104.2.0: 44.4.10
2 Scales boxes & Weight: 1.5

Back Parlour

a square table & 5 Chairs: .15
two Decanters, & parcell of old Earthen Ware, Lanthorn &c: .10
small dogs fire shovell, tongs, & back: .8
small glass window Curtains Iron Rod, & Cloaths brush: .5

Kitchen Furniture

9 Pewter dishes: 1.10
18 Pewter plates: 1.12
2 tea kettles: Chocolate & Coffee pott: .10
1 Brass & 1 Copper kettle: 2..
2 brass & 2 Iron Candlesticks & 1 pr snuffers: .3.6
4 Iron potts & 1 Skillett: .10
6 knives & forks & some old ones: .7.6
Two spitts; frying pan; & warming pan: .3.6
£94.3.10
Carried up

To the amount of sundrys as pr other side brought forward £94.3.10

Kitchen Furniture Continued

4 flatt Irons: Chavendish & dripping pan: .5
Gridiron 2 pr pott hooks: flesh fork; & 2 pr old dogs: .8
hatchett: tomhawk: spade & saw: .7
2 Mortars & 1 pestle: .2

Chamber Furniture, front Room:

a Yellow bed, Bedsted, Quilt, Blanketts & other furniture: 9..
Easy Chair & six other of ye common sort: 3..
dressing table & glass: 1.10
Peir glass: 1.10
three pictures & and old Chest of drawrs: 2.10
small truckle bed, bedsted, blanketts & pillows: 3.10

Chamber back Room

An old Chest of drawrs small dressing table & two old Chairs: .15

Front Garrett

a Painted Screen: 1.5
writing desk: .18
sea Chest & some very old furniture: .16

Back Garrett

a small old bed, two trunks and old table frame, wicker'd bottle & some quart ones: 1.10
£121.9.10

Thos. Stretch
Henry Elwes

Figure 41. Inventory of the estate of William Annis describes the furnishings and household goods, room by room, of his home on Gray's Alley in 1748 (Philadelphia County Will 1748).

Plate 28. Majolica dishes from the Annis household, perhaps souvenirs brought back from voyages to Spain by Captain Annis (Yoh Building, Room C, Feature 1).

The considerable amount of food bone found in the Annis privy indicates a preference for mutton, followed by beef, pork, and chicken. There was almost no fish, but a moderate amount of oyster shells suggest they were part of the diet. The preservation of mostly fruit seeds indicates a preference for black or red raspberries—that may have also been used medicinally—and fig, grape, strawberry, and elderberries.

They owned four Chinese porcelain tea sets. One teabowl was marked with a pair of fish on the base, symbolic of "connubial felicity," which might have been a wedding gift (see Plate 8e). No cost was spared for consuming this fashionable beverage, "a sett of china" kept in the front parlor, on the ready for serving guests. They also had matching Chinese Export porcelain tablewares as well as tin-glazed earthenware.

Other indications of a refined lifestyle included a white salt-glazed strainer (see Plate 8h), a cut glass cruet, a matched set of wine glasses, champagne glasses (2), and an etched and painted case-style decanter (Plate 29). Two pocket watches, a rare possession in that period, indicate a degree of prosperity in the family.

Wine bottles were abundant (26) as well as a more moderate quantity of alcohol bottles (6). The Annis family owned a set of stoneware tankards and a set of posset cups in addition to the set of wine glasses and champagne glasses. The presence of tankards suggests that beer or cider was imbibed, though no beer/cider bottles were identified. The tankards may have descended in the household from grandfather Joshua Carpenter, a brewer. This specialized assemblage of beverage vessels indicates they drank wine, champagne, beer or cider, punch, and curdled milk.

Some of the exotic pieces in the assemblage might have been collected, like the piece of sea coral (Plate 30), perhaps a bit of ship's ballast or a souvenir brought home by Captain Annis in the sea chest kept up in one of the garret rooms of the house. Other clues about their lives were the personal items—an old coin, too worn to identify, a brass buckle, and buttons (2). A snuff bottle and some kaolin pipe fragments (12) indicate a smoker, and the marbles (12) might have belonged to the Annis children.

Most of the utilitarian wares for the kitchen and hygiene were purchased from local potters. They owned the usual assortment of crocks (8), pie plates (4), milk pans (3), jars (3), pots (2), and bowls (4) for the kitchen. Not so usual were the biscuit-fired jugs (Plate 31). The majority are Philadelphia redware, but two stoneware chamber pots were made by Anthony Duché, whose pottery was a few blocks away (Plate 32).

Household furnishings were minimally represented in the archeological assemblage: a brass escutcheon and hinge, a fragment of a mirror, a bone utensil handle, an ink bottle, and a lead weight. We know from the inventory of William's estate, following his death, that the front and back parlor rooms were furnished with tables and chairs, three tea tables in the front room. A clock, looking glass, "a sett of China," and a "sundry" of silver were kept in the front parlor along with two scale boxes and weight. A table and chairs and two decanters in the back parlor where the fireplace was indicate this was the room for drinking, and perhaps meals.

Parasites were present in high numbers in the Annis privy, indicating high Ascaris infection and relatively low whipworm. Although the causes of death for Patience and William Annis are unknown, their deaths at relatively young ages may have resulted from one of the epidemics sweeping through Philadelphia in that period. The presence of a large number (18) of medicine bottles in the assemblage is physical evidence of illness in this household.

Plate 29. A sign of refined living, champagne glasses from the Annis privy (Yoh Building, Room C, Feature 1).

Plate 30. Brain coral from the home of mariner Captain William Annis on Gray's Alley (Yoh Building, Room C, Feature 1).

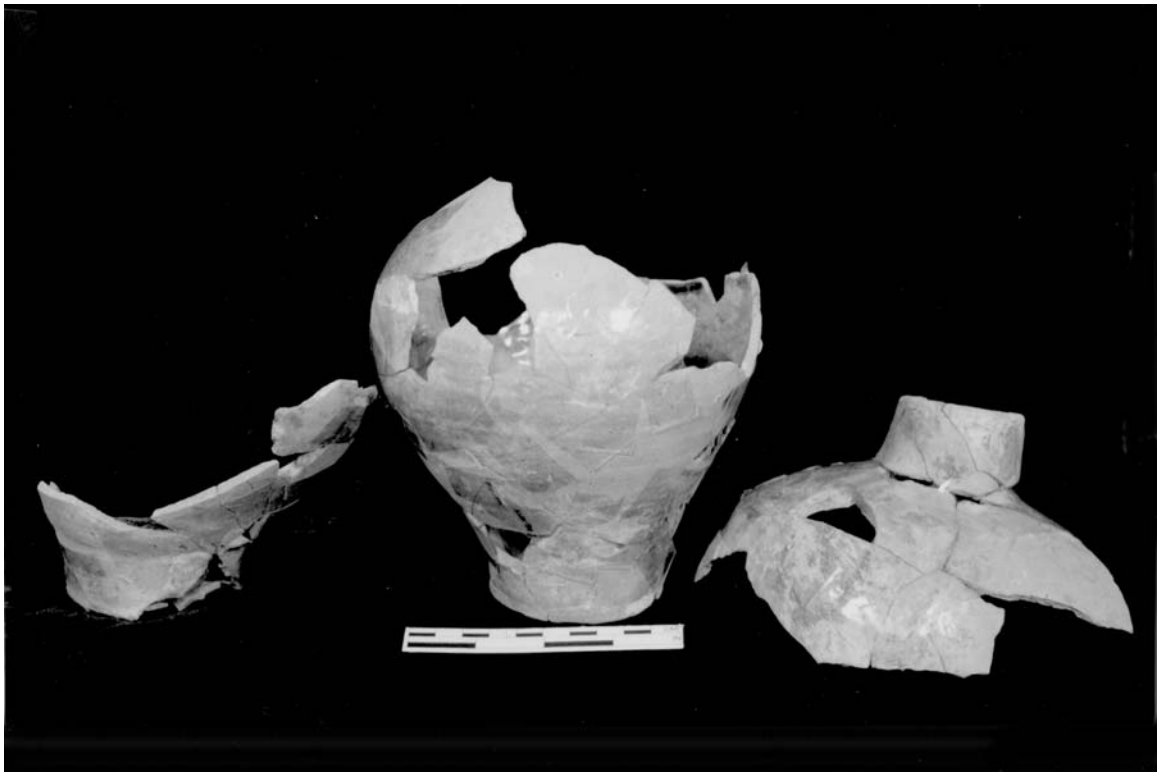


Plate 31. Three of four biscuit-fired jugs, local products in an unfinished state (Yoh Building, Room C, Feature 1).

Plate 32. Two stoneware chamber pots made by Philadelphian Anthony Duche 1730-1750, found in the Annis privy (Yoh Building, Room C, Feature 1). The pot on the right is stamped “AD” under the handle; the pot on the left is unmarked but is attributed to Anthony Duche based on stylistic similarities.

7.2 WILLIAM GRAY'S BAKE HOUSE COMPLEX, C.1738-1751; MARY WEYMAN, 1751-C.1760

A short distance up the alley from the Annis house was William Gray's bake house which sat off the alley in the middle of the block a safe distance from the surrounding houses. A little frame building attached to the west side of the bake house stored the grain, and across a small yard were two small dwellings, one brick and one frame, that faced onto the alley. Entrance to the bake house was reached through a narrow passage between these houses on Morris Alley and another passageway between George Gray's house and the Morris tenement on Front Street. Over time Morris Alley came to be known as Gray's Alley because of the impact and lasting success of William Gray's business ventures on the life of the alley.

William Gray was a member of the George Gray family that owned the neighboring lot on Front Street (#58). There were many Grays in Philadelphia in this period, and they were coopers, brewers, bakers, ferrymen, and innkeepers. George Gray (I), a cooper, inherited the house from his grandfather, Alexander Beardsley. Following the death of George Gray (I) in Barbadoes in 1718, the house on Front Street was passed down to his son, George Gray II, and after his death to his son George Gray III. In 1720, William Gray purchased the lot adjoining the south side of Beardsley/Gray's land from John Wilson, a 38-by-50 ft. lot with a dwelling and frontage on Morris Alley (PCDB H-3:31). By 1738, William Gray mortgaged this lot and the adjacent 20-ft.-wide lot with the brick cooper shop formerly owned by John Budd, whereon he built a bake house (PCDB F-10:229).

William Gray's bake house was established in a period when breadstuffs were a major Philadelphia export (Bronner 1982:37). All references to Gray's bake house indicate he made bisket or bisket bread, which according to Webster's 1828 Dictionary was a flat round bread, baked hard for seaman. This description suggests he was baking hard tack for export and maritime trade, but it is possible that he also baked goods for household consumption or, as was the custom, charged a "reasonable rate" to bake items brought in (Pennsylvania *Gazette* 1752). In a letter to William Gray from a friend, dated November 14, 1738 (HSP), concerning business matters and the negative effects of the small pox epidemic on trade in Philadelphia, he boasts to William Gray "your bisket is the best bread in town" (Figure 42a). The following notice in the Pennsylvania *Gazette* on April 12, 1744, describes a runaway employee:

> RUN away on the 2d of April from William Gray, Bisket Baker, in Philadelphia, a Servant Lad, named William Goddin, short statur'd, wears his own Hair, has but one Eye; Had on when he went away, a light coloured kearsey Coat, a thick flannel Jacket, Yarn Stockings, leather Breeches, and good Shoes. Took with him a Pair of strip'd ticken Breeches, blewish worsted Stockings, and blue and red silk Handkerchief. Whoever secures the said Servant, so that his Master may have him again shall have Forty Shillings Reward, and reasonable Charges, paid by William Gray.

After 10 years, William Gray had built a successful business but was ready to move on. A series of advertisements in the Pennsylvania *Gazette* beginning in April 1748 describe the extent of his enterprise—a bake house, granary, bolting mill [for sifting flour], two cooper shops, and two dwellings. William Gray's operation not only provided hard tack, but as the owner of two cooper shops, he manufactured the barrels to store it in.

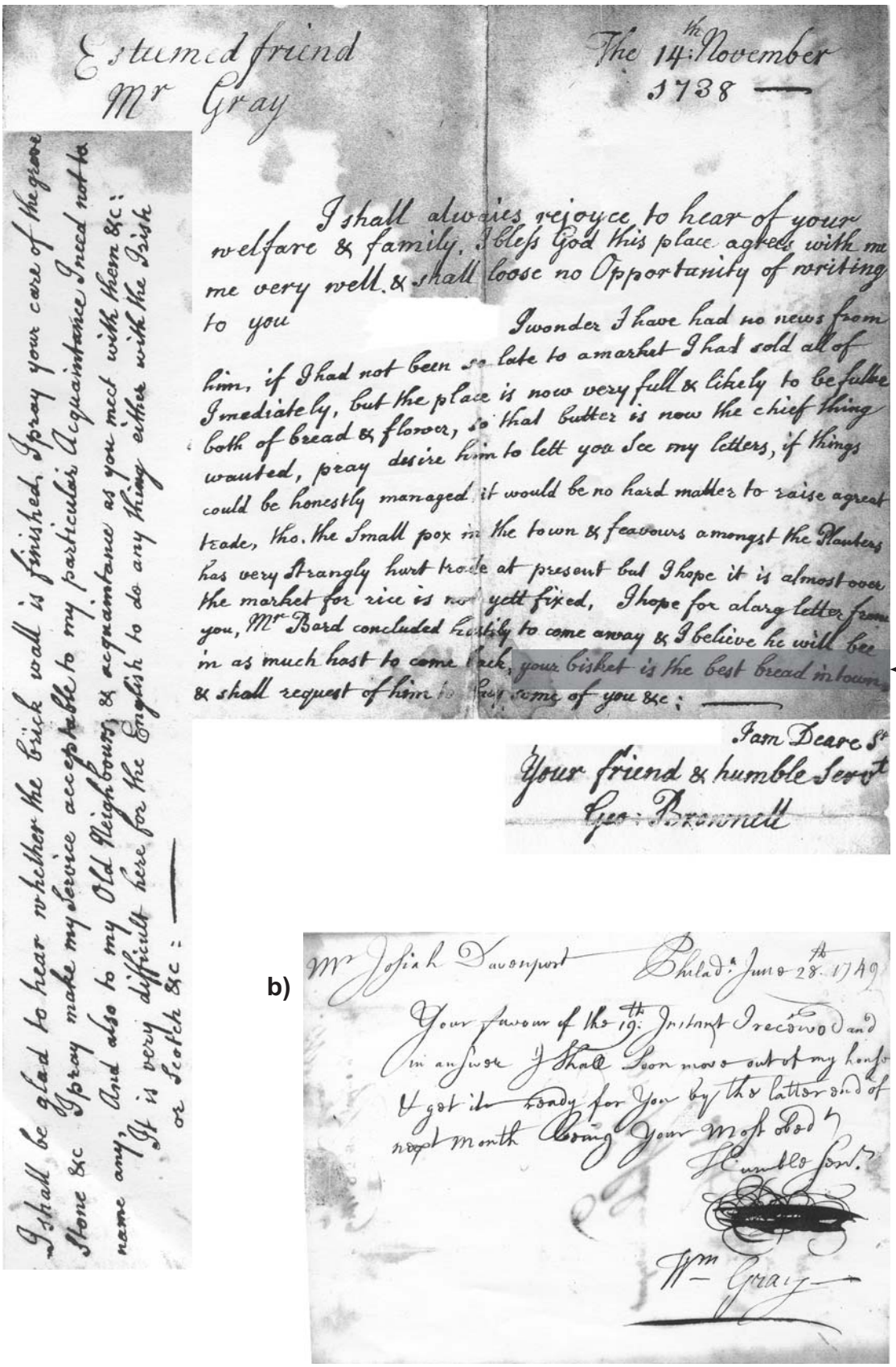


Figure 42. Excerpt from personal letters, a, one to William Gray dated 1738, and b, one from William Gray dated 1749. The letter from George Brownell concerns the "bread and flower" [flour] trade where he boasts "your bisket is the best bread in town" and asks after the progress of a brick wall and old neighbors (Historical Society of Pennsylvania).

> To be lett or sold by WILLIAM GREY, Baker, in Anthony Morris's Alley, All that messuage or tenement where he now lives, being very roomly and convenient for bisket baking, having a bakehouse, granary, and bolting mill, a beam, with weights and scales, and a sett of hands for the bakehouse; also a cooper's shop, and a negroe man at work in it, and another cooper's shop, tenanted, and two dwelling houses, also tenanted. Any person inclining to rent or purchase said place, may view the premises at their leisure. WILLIAM GREY.

A June 28, 1749 (HSP), correspondence in William Gray's hand indicates Mr. Josiah Davenport of Boston was planning to take over the business and Gray intended to "soon move out of my house and get it ready for you by the latter end of next month" (Figure 42b). A notice in the *Gazette* in April 1750 places "said Gray on the hill" and another one in October refers to "the house of William Gray, at the sign of the Conestoga Wagon in Market Street." These notices and the inventory of his goods and chattels taken following his death in 1754 show that William Gray at that time owned a tavern (Philadelphia County 1754). The Conestoga Wagon, located at 410 Market Street, was where he lived until his death. Although William Gray died intestate, probate proceedings filed by his wife, Elizabeth; George Gray; brewer, George Gray; gentleman, Captain James Coultas; and Joseph Gray, innholder, all of Philadelphia, give some picture of the closest members of his family. Elizabeth Gray, licensed as a tavernkeeper in 1763, appears to have carried on what was apparently a very profitable business after her husband's death.

A final notice in the *Gazette* (1751a) on August 15, 1751, provides a more detailed description of the bake house complex as well as indicating that by this time William Gray had succeeded in turning over operation of the bakery to Josiah Davenport.

> TO be sold by WILLIAM GRAY, Baker, at publick vendue, on Friday, the 13th of September next, A lot, on the north side of Mr. Morris's alley, about 38 feet front on said alley, and 50 feet deep, or thereabouts, with the buildings thereon erected, viz. A brick house, about 18 feet front, two stories high, having 2 rooms on a floor, with a commodious kitchen below stairs; Also a convenient brick bake house in the yard, 2 stories high, and a framed granary, about 20 by 24 feet, joining to the west end of the said bake house. Also a small brick house in the yard, 2 stories high, with a good pump, now in the occupation of Mr. Josiah Davenport, Baker, and rents for Forty Six Pounds a year. Also a small wooden tenement, on the said 38 feet lot, fronting said alley, now in the occupation of Mr. Patrick Farrel, Cooper, which rents for Five Pounds a year, **with the privilege of the necessary house [YohF1], erected on a lot adjacent, belonging to said William Gray.** The premises being subject to a yearly ground rent of Seventy Pounds, Pennsylvania currency, payable to Mr. Anthony Morris.
>
> If it does not suit the purchaser to pay ready money, he shall be allowed time, with lawful interest, as follows: One Hundred Pounds to be paid in two months time, and the remainder in twelve months time, he giving security.
>
> N.B.The vendue to be held on the premises, and the sale to begin at 4 o'clock in the afternoon.

This advertisement mentions that the adjacent lot occupied by a cooper will have the privilege of use of the necessary next door. This sale describes five buildings and appears not to include the old brick cooper shop next door. It is interesting that in both advertisements, the alley is still referred to as Morris Alley, though clearly by this time it was also commonly referred to as

Gray's Alley, as a slightly later advertisement concerning Josiah Davenport, who sold wine in addition to baking bisket, indicates:

> Choice Claret and Fontiniaque, in bottles, to be sold by JOSIAH DAVENPORT, in Gray's alley (Pennsylvania *Gazette* 1751b).

The bake house complex consisting of all of the 38-ft. lot and the north or rear half of the adjoining lot with the brick cooper shop was sold to Mary Weyman in 1751. At the time of her purchase, Mary Weyman, also known as the Widow Legay, lived on Arch Street near Third Street. She was married to Jacob Legay, a merchant with land in Barbadoes. Announcements to rent the bake house in the Pennsylvania *Gazette* indicate that within a few years she moved into William Gray's house on Gray's Alley.

> To be sold at publick vendue, on Monday next, the 20th of this instant October, all the household furniture belonging to the widow LEGAY, at the house where William Gray formerly lived in Gray's Alley. The sale to begin at Ten o'clock (Pennsylvania *Gazette* 1755).

Announcements offering to rent or sell the bake house complex ran in the Pennsylvania *Gazette* within a year of her purchase, beginning on May 28, 1752, and appeared regularly over the next eight years: August 6, 1752, October 4, 1753, January 29, 1756, January 13, 1757, November 3, 1757, December 21, 1758, June 5, 1760, and June 19, 1760.

Descriptions of the complex in this period are brief:

> A Commodious Dwelling house and Bake house, in Gray's Alley, conveniently situated for carrying on the Baking Business. For Terms, enquire of the Subscriber, residing on the Premises. MARY WEYMAN (Pennsylvania *Gazette* 1757).

With the exception of the January 13, 1757, advertisement, which states she resided in Arch Street, all indicate she was living on Gray's Alley in William Gray's old house. Owner Mary Weyman died in 1782.

Baker Josiah Davenport moved on after a year, though a notice by him in the *Gazette* in August 1754 advertising a house on Morris Alley "to lett" indicates a continued business connection there, perhaps in association with William Gray, who continued to own land on the south side of the alley until his death in 1754. Josiah Davenport eventually gave up the baking business and became the tavernkeeper for the "Bunch of Grapes" on Third Street (Thompson 1999:86). William Gray's tenant, cooper Patrick Farrel, maintained his shop on Gray's Alley from c.1751-1762, then moved across to the south side of the alley, where he was taxed in 1774 (see Figure 9 Lot 15). Beginning with John Budd in 1705, coopers played a prominent role in Morris/Gray's Alley throughout the eighteenth century and into the nineteenth (Figure 43).

Notices of lost or stolen cows and horses from residents on Gray's Alley indicate the riverfront neighborhood still retained some rural character (Pennsylvania *Gazette* 1756 and 1761).

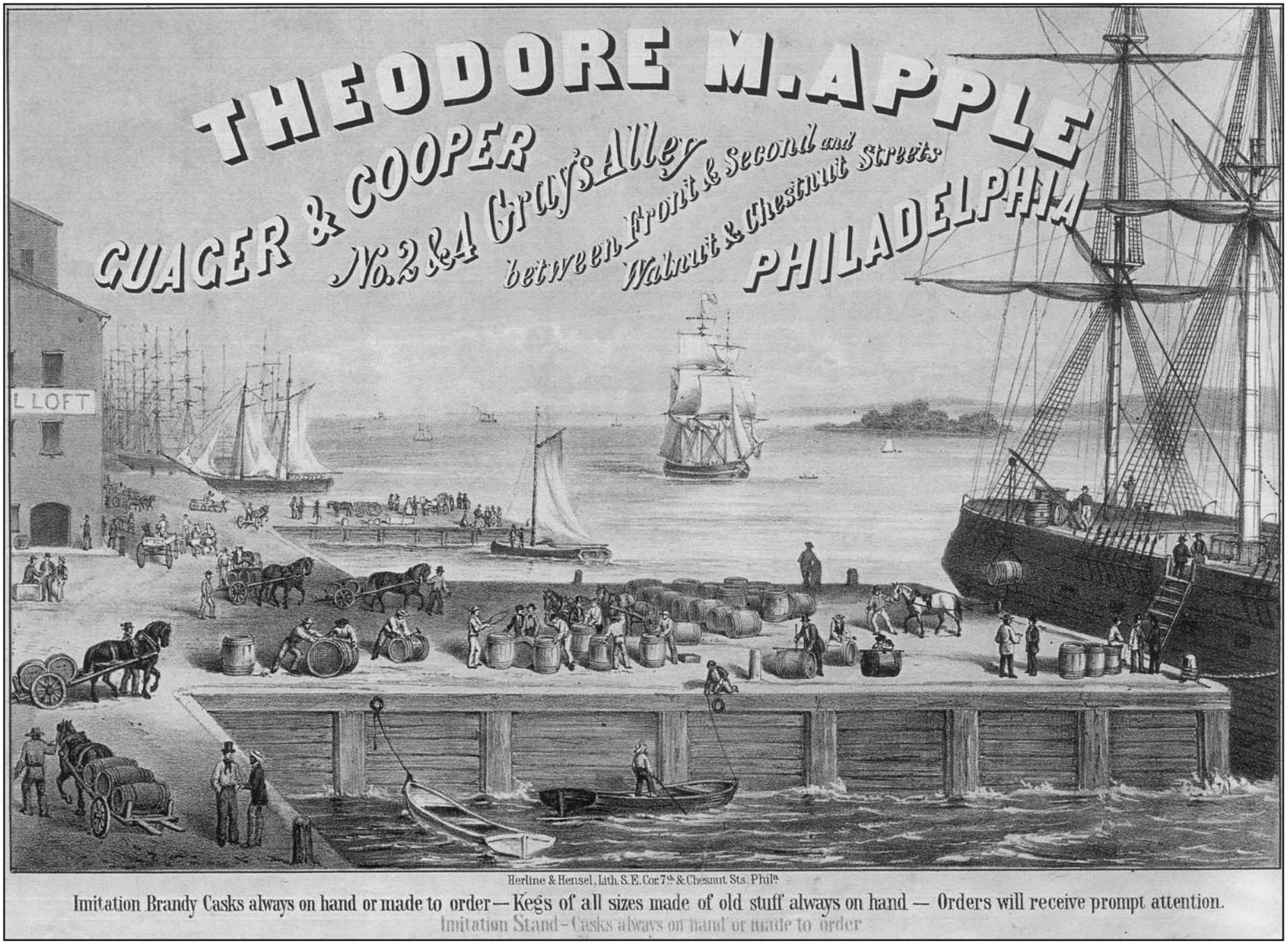


Figure 43. Lithograph advertisement of Guager and Cooper Theodore M. Apple of Gray's Alley illustrating the importance of its proximity to the wharves on the riverfront (Courtesy of The Library Company of Philadelphia).

7.2.1 THE ARCHEOLOGY OF THE BAKE HOUSE PRIVY (YOHF1, AS I, C.1769)

Throughout much of the eighteenth century the necessary (YohF1) on William Gray's lot was shared between the bakers, coopersmiths, and family living and working in what must have been close quarters on these two adjoining alley lots (#1-5). Up until 1750, owner William Gray and a servant, including the above-described William Goddin, lived in one of two houses, probably the brick house, alongside his tenants—two coopers, an unnamed "negroe man," and Patrick Farrel, who occupied the small wooden tenement. After William Gray's departure in 1750, Josiah Davenport lived there for a time, running the bake house and selling imported wine. Mary Weyman, the owner from 1751-1760/1768, also lived there for a time in William Gray's old house.

The archeological assemblage associated with these people is distinguished by the large number of liquor bottles (32), particularly wine bottles (Plate 33). Since William Gray also owned a tavern, he might have paid some of his labor force with alcohol. Josiah Davenport, who we know sold imported wines on the side, might be the source of some of the wine bottles. Glass tumblers (6), wine glasses (3), tankards (5), and mugs (3) were part of the drinking assemblage, the latter presumably for beer and cider. A more inventive vessel was the coconut shell fashioned into a cup that may have belonged to a servant, perhaps someone Mary Weyman's husband, Jacob LeGay, brought up from Barbadoes. Two punch bowls and a puzzle jug are vessel forms that reflect social drinking.

The puzzle jug, found whole, was inscribed "WA" (Plate 11d). Could this have belonged to William Annis, who lived a few steps from William Gray, and who probably was a social acquaintance? Or was the jug intended for William Gray, "WG" not "WA," a mistake by the potter that occasioned its discard? This little mystery will never be solved, but one thing is certain, the Philadelphia potter (probably commissioned) who made this party jug failed, and the imperfection that prevented it from working as intended provided a more compelling reason for tossing it down the privy. However, this did not happen before serious attempts to make it work were made by a right-handed drinker, as evidenced by the heavy wear on one of the mouthpieces. The idea behind the puzzle jug, a trick-drinking vessel made popular in England in the seventeenth century, was to figure out "*how to drink and not to spill and prove that the utmost of your skill,*" as many were inscribed. The method to be figured out was that two of the mouthpieces had to be blocked with fingers while liquid was sucked through the third mouthpiece, the liquid passing through the hollowed out handle (Godden 1995:146).

Tea was also a popular beverage, usually served in Chinese Export porcelain. There was at least one matching tea set in underglaze blue. There were three teapots—two white salt-glazed stoneware and one agateware, possibly Philadelphia—and five slop bowls—three Chinese Export porcelain, one tin-glazed earthenware, and one white salt-glazed stoneware. Tablewares consisted of nine tin-glazed earthenware and two Chinese Export porcelain plates. There were few serving vessels, one Jackfield redware saltcellar, and a tin-glazed earthenware serving dish.

William Gray and the tenants on this lot ate well, as indicated by specialized cuts of beef, mutton, and pork. Chicken and a variety of fish, particularly shad and cod, and wild fowl supplemented the diet. Fishing tackle listed in the inventory of William Gray's estate indicate he was a fisherman. Vegetables included squash and tomatoes, while mustard was the only condiment identified. Fruit in the diet included blackberries or raspberries, figs, and grapes and lesser amounts of strawberry, cherry, elderberry, peaches, plums, and watermelon. A grain of wheat, the only one on the site, is probably associated with the bake house and granary.

Plate 33. Alcohol bottles from the Bake House privy (Yoh Building, Room F, Feature 1, AS I and II).

The kitchen assemblage was large and entirely of Philadelphia redware. Although as many were found in the Annis household, the butter pots (8), four of them whole, may have been used in the bake house on this lot (Plate 34). The remaining kitchenwares—three bowls, four pie pans, two jars, one milk pan, one bottle, one dish, one porringer, and one charger—are what one would expect to find in every household, so the numbers alone do not indicate a commercial function. The pie pans were charred and reflected heavy use. Among the small finds, objects that could have served a commercial use included a lead weight for measuring ingredients, a brass padlock to lock up goods, and slivers of bone shaped into small implements that may have been used as cake testers.

Although nothing is known about the composition of households during William Gray's ownership, a child-size yellowware mug, two toy-sized redware vessels—a jug and a porringer, and three clay marbles suggest the presence of children.

7.3 THE BAKE HOUSE PROPERTY UNDER OWNER THOMAS BOND JUNIOR, C.1769-1792/5

The second nightsoil deposit in YohF1 dates to c.1783 (AS II), a time coinciding with Thomas Bond Junior's ownership. Although no deed was found transferring the bake house property, announcements in the Pennsylvania *Gazette* indicate that the property was sold to neighbor Thomas Bond Junior between 1760 and 1768. The bake house, cooper shops, and tenements were occupied by a steady stream of tenants in this period. By this time all of the lots on both sides of the alley were built on, and city directories and tax assessments give an idea of the names and occupations of the residents. The lone privy (YohF1) continued to serve the two houses fronting the alley, with the cooper shops and bake house and granary at the rear.

On September 22, 1768, Bond advertised a stocking manufactory at his house on the corner of Second and Norris' alley, and at the bottom of this notice, the following:

> To be lett, by said Thomas Bond, a good bakehouse, and two dwelling houses, in Gray's alley (Pennsylvania *Gazette* 1768).

On April 26, 1770, Bond's announcement to let "a commodious Dwelling House in Gray's Alley" does not mention the bake house, nor does the April 9, 1772, announcement of "a large and convenient Cooper's SHOP, situate on the North Side of GRAY'S ALLEY. Enquire of the PRINTERS." It is unclear who the subscriber is in the second advertisement and whether it is referring to the cooper shop built by John Budd that William Gray probably sold separately, or the one built by William Gray on his 38-ft. front lot. Another possibility is that the "commodious dwelling house" is the same structure Gray used earlier as a cooper shop. At any rate, by December 30, 1772, Bond's "commodious dwelling house" had been rented to a tailor:

> JOHN MARIE, TAYLOR, FROM PARIS, HUMBLY acquaints the Gentry and Public, that he has taken a House in Gray's alley, between Walnut and Chestnut streets, the fourth Door from Second street, and has provided good Workmen; he has had the Pleasure of pleasing some of the most respectable Gentlemen in London, and hopes, by the strictest Attention, and most particular punctuality, to give general Satisfaction (Pennsylvania *Gazette 1772).*

Plate 34. Redware butter pots and pie pans from the Bake House privy (Yoh Building, Room F, Feature 1, AS I).

> At said MARIE'S, Gentlemens Clothes, of all Colours, are cleaned, and all Spots taken out, and the Clothes made equal to new, without the tedious and disadvantageous Method of ripping or washing.

Marie ran the ad again on January 20, 1773, where he continued for another two years, followed at this address by another tailor in 1775.

> JOSEPH BROWNING, TAYLOR and HABIT MAKER, from London, DESIRES to inform the Public, that he has taken the House late John Marie's, in Gray's Alley, near Second Street;
>
> Those Ladies and Gentlemen who please to favour him with their Commands, may depend on having their Orders carefully and punctually executed, on the most reasonable Terms, and flatters himself his Abilities will be found not inferior to any of the Trade. He will likewise undertake the Cleaning of Clothes, &c (Pennsylvania *Gazette* 1775).

Two doors down was a mantua-maker from London, Mrs. Elphiston Rollo, in 1765, and in 1771 a Mr. Christoper Colles opened an evening school, though which side of the alley is unclear (Pennsylvania *Gazette* July 11, 1765, September 26, 1771). Changes in occupancy between tax assessments in 1787 and the 1790 federal census suggest a high turnover. Although house numbers were still not used, George Pfoff (#1) and Philip Kline (#3) lived in the houses in front of the bakehouse in 1787, and in 1790 Francis Jackson, a free black, lived at 1 Gray's Alley with five other persons. George Pfoff, identified as a printer and shopkeeper, was still there in 1791 (White 1791). Next door at #3 was a tobacconist, Charles Bickham, with one male over 16, four females, one 'other' free person, and one slave.

The 1787 tax assessment valued the structures at 1 and 3 Gray's Alley at 200£ each, whereas John Budd's old cooper shop was valued at 60£ (Toogood 1985). The houses along the alley, increasingly brick, were much smaller than those along Front Street, with Anthony Morris's old house appraised at 900£ and Alexander Beardsley's at #58 at 600£. The old houses at 77 and 79 South Second Street owned by Stephen Anthony's descendents were valued at slightly more, 300£ and 450£ respectively, and the two houses at 75 and 73 built by James James were valued at 650£ and 960£. By contrast, in 1787, John Elliott's new house at 60 South Front was valued at 1600£.

7.3.1 THE ARCHEOLOGY OF THE BAKE HOUSE PRIVY (YOHF1, AS II, C. 1783)

The identification of two glass fire extinguishers in this deposit may be the most convincing evidence of the bake house. Two species of edible weeds, *Portulaca oleracea* and *Solanaceae*, found throughout this privy, were used in breadstuffs and also probably came from the bakery.

While Philadelphia ceramics (46) were on a par with English or European (46) ceramics in the AS II assemblage, Chinese Export porcelain (9) had almost disappeared. As in AS I, Philadelphia redware was the predominant ware type. The amount and types of vessels were comparable except for the presence of eight pudding pans in AS II and a slight increase in the number of pie pans from four to six. As with the large number of butter pots in AS I, these vessel forms are common for household use, and it is impossible to say whether the number reflects multiple households or the commercial bakery. Another vessel form not previously seen in AS I was a Spanish olive jar. Two others found in this privy suggest a possible link with the bakery (Plate 35).

There was an increase in both the ceramic and glass beverage vessels in AS II, with wine bottles nearly doubling from 24 to 41, wine glasses increasing from three to eight, and glass tumblers from six to 10. There were nine gin bottles, one more than in AS I, three spirit bottles, and one Pitkin flask. The number of tankards remained the same (7 in AS II; 8 in AS I) while punch bowls increased in number from two in AS I to five in AS II. Inscriptions in the interiors of the punch bowls, visible only when the contents had been emptied, reflect sentiments intended to bond the company of drinkers. One bowl is social commentary—"This makes my heart Merry, while love makes it Sad, what think you to Marry, then sure you are Mad", while another "Success to the Brave" is political in nature, no doubt a Revolutionary War toast. The absence of beer or ale bottles in either AS I or AS II suggests they may have kept a cask on hand. Also associated with the consumption of alcoholic beverages was a stopper for a decanter. The high percentage of alcohol bottles in this feature indicates that drinking was frequent among the residents of this lot, but it may also suggest the use of the necessary by clientele of the neighboring tavern run by Hercules Courtney in George Gray's house on Front Street. Perhaps the passageway along Gray's property led to the necessary as well as to the bake house.

Creamware (11) outnumbered Chinese Export porcelain (8) and white salt-glazed stoneware (7) tea vessels. There were five creamware teapots, and tea was sipped from equal numbers of Chinese Export porcelain and white salt-glazed stoneware teabowls and saucers. Remnants of a blue and white porcelain tea set were made by the local firm of Bonnin and Morris (1770-1773) (Plate 36). This Morris, George Anthony Morris, a grandson of Anthony Morris, lived next door in the family home on Front Street at the time he was involved in the porcelain venture with Gousse Bonnin (Hood 1972:8).

The assortment of tablewares—white salt-glazed stoneware (5), creamware (3), and one tin-glazed earthenware plate and one serving dish—were not matching.

Food remains indicated a preference for beef and veal. Mutton, pork, and fish, particularly catfish, and chicken were also eaten. Their diet included fruit (blackberries/raspberries, figs, grapes, strawberries, cherries, apples, blueberries, plums, and watermelon), and vegetables (squash and tomatoes).

Six miniature redware vessels—two bowls, one jug, two porringers, and one tankard—and marbles (6) indicate children living on the premises. Aside from the usual assortment of small artifacts lost down the privy—lice combs, buttons, buckles, cuff links, a pocket watch, and a folding knife, the most interesting were eight counterfeit coins. The presence of such a large number of counterfeit coins is perhaps a reflection of the scarcity of legitimate currency during the Revolution.

The archeology of the bake house privy under William Gray and later owners reflects its shared use by a number of households engaged in the operation of the bake house and cooper shops. Artifacts associated with the consumption of alcoholic beverages outnumber those that can be directly associated with the pursuit of baking and making barrels. This evidence merely confirms that drinking was a popular pastime of workmen in colonial Philadelphia. The changing fortunes of the occupants of this lot are reflected in their diet, the kinds of alcoholic beverages they consumed, and in the small things they left behind such as the counterfeit coins. The punch bowl inscribed "Success to the Brave" is the only artifact in the Area F assemblage alluding to the Revolutionary War.

Plate 36. American porcelain tea set made in Philadelphia at the Bonnin and Morris Factory, 1770-1773, found in the Bake House privy (Yoh Building, Room F, Feature 1, AS II).

8.0 FRONT AND SECOND STREET LOTS

The lots between Front and Second streets along the length of the Delaware waterfront were considered prime real estate at the end of the seventeenth and into the eighteenth centuries. The lots envisioned by William Penn and drawn on the Holme Plan were to be one acre in size.

> For every one to five thousand acre country tract purchased from Penn's grant, the purchaser was to be given a city lot. The city lots in Penn's initial concept were to have houses built free standing surrounded by gardens and orchards "that it may be a green country town which will never be burnt and always be wholesome" (Batcheler 1978:7).

The very first subdivision of Anthony Morris's land to his friend Alexander Beardsley was for a narrow lot that stretched from Front to Second Street. Even the lot reserved for Anthony Morris's own house extended only half way to Second Street. All of the later subdivisions were for much smaller lots.

The first houses were built on the Front Street ends of the block overlooking the Delaware River. The Front Street lots were deeper, with room for gardens, and at the far ends of the lot, a stable. After a few years the next lots to be sold were at the Second Street end of the block. According to Watson's (1870:4) account, "the eastern side of Second street was regarded for some time as the back lots, or ends of the Front street lots." The lots on the Front Street ends of the block were deeper, allowing for gardens and a stable at the far ends of the lots.

Between 1749 and 1752 an average of 403 vessels per year cleared the Philadelphia port, up from 85 in 1723 (Thayer 1982:74). There was a flood of immigrants, with the German population outnumbering the Irish and British four to one (Thayer 1982:74). Beginning with the opening of the London Coffee House in 1754, a meeting place for merchants at the corner of Front and Market streets, the area along the Delaware waterfront emerged as a business district (Warner 1968:20; Thompson 1999:106). By 1765, Philadelphia had grown into a city of 25,000 people living in nearly 5,000 houses (Thayer 1982:79). An eyewitness account described the block between Chestnut and Walnut as an undrained sewer (Dunn and Dunn 1982:11). By the end of the eighteenth century, all of the open space within the Area F site was gone, and economic pressure on the Front Street properties produced the first evidence of rebuilding and reuse of the land (Figure 44). The newer brick houses had an added story and back additions and carriage houses that filled the back yards, reducing the green space.

8.1 CARVER/GILDER AT 58 S. FRONT STREET, HERCULES COURTNEY'S HOME, WORKSHOP, AND TAVERN, 1769-1784

Alexander Beardsley's house on Front Street, still owned by his descendents, the Grays, was rented in 1769 to Hercules Courtney (also spelled Courtenay). The house was nearly a hundred years old by the time Hercules Courtney made it his home, but it was a prime location. Courtney, of Irish descent and a carver by trade, had arrived from London only a few years earlier in 1764. By 1765, he was working in furniture maker Benjamin Randolph's shop, probably as a journeyman, and may have been living there until he paid off his travel debt (Philadelphia Museum of Art 1976:111). On May 19, 1768, he married Mary Shute at Gloria Dei (Old Swedes)

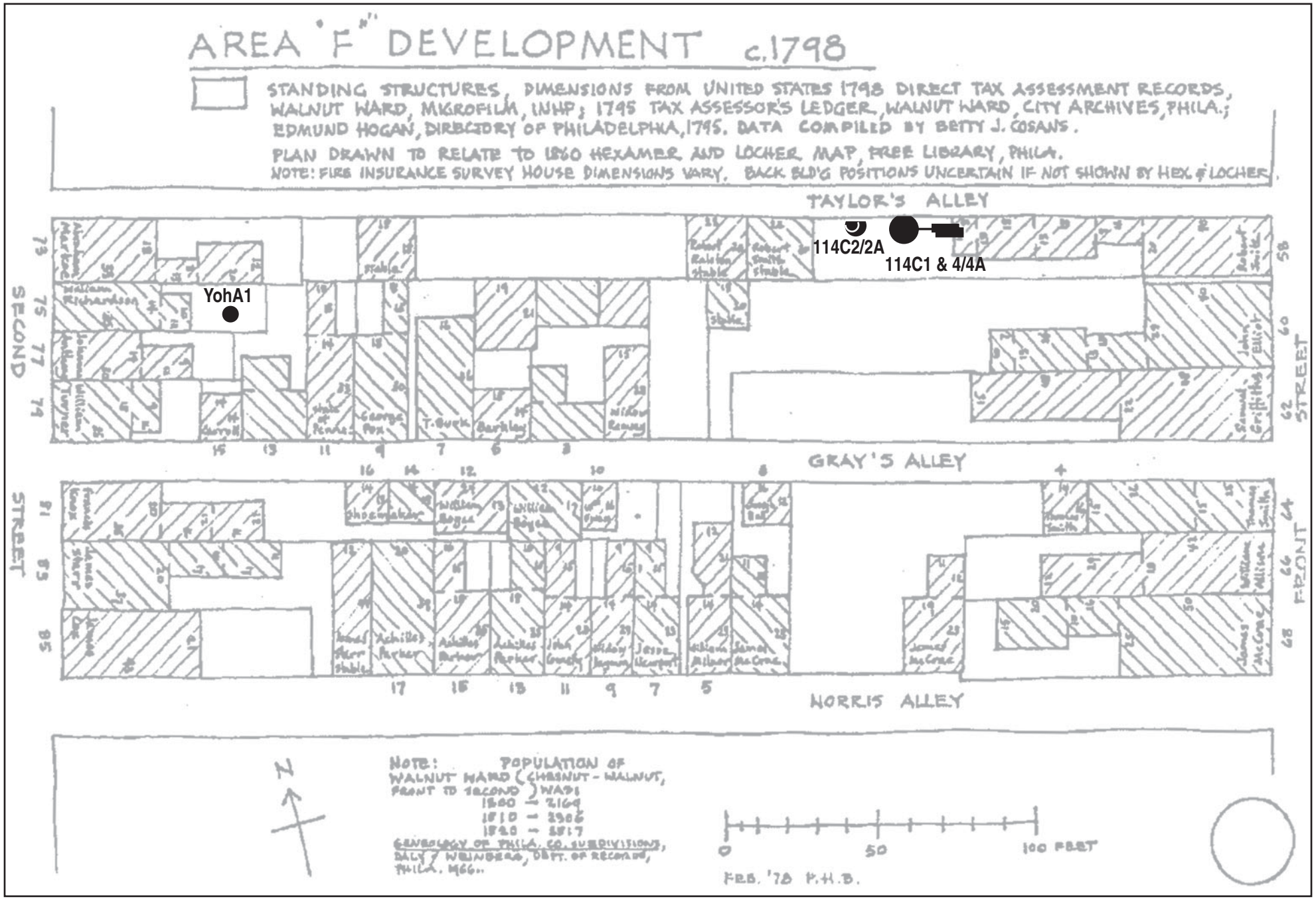


Figure 44. Area F Development c.1798 by Batcheler (1978) showing remaining open space with associated features added.

Church. They had at least three children, including a daughter born in 1767 and two sons, Daniel (died 1775) and Hercules Jr.

Courtney worked for himself after the move to Front Street, where he advertised his skills of carver and gilder from London in August 1769 (Figure 45). He had at least one apprentice, James Connolly, from Ireland in 1773. He also sold soap and candles, perhaps a side business to help make ends meet. During the Revolution, Hercules Courtney served as a captain in the Pennsylvania Regiment of Artillery under Colonel Proctor until 1778, when he was dismissed from service for leaving his howitzer in the field at Brandywine. When he returned home, he successfully petitioned for a tavern license for the years 1779-1784. Courtney ran the tavern in the front room of his rented house at #58 South Front Street until his death. Although Courtney's house was across the road from the Tun Tavern and a few blocks down from Philadelphia's most popular tavern, the London Coffee House, the traffic from the seaport was good enough to attract this sideline occupation.

Courtney, trained in England, was a talented craftsman. Examples of his furniture survive in the Philadelphia Museum of Art's collection, and carved architectural features have been identified in the interiors of some of Philadelphia's finest homes (Figure 46; Philadelphia Museum of Art 1976: Item 89 and 101). There are a number of receipts from John Cadwalader in the period from 1770 to 1773 for carving, gilding, and varnishing rooms in his house and on his coach, as well as for the purchase of candles and soap. He performed similar work for John Dickinson in 1772 and 1773.

The year before his death, Courtney was taxed 50£ for his occupation, for a dwelling valued at 900£, and 1£ for plate (Philadelphia City Tax 1779-1783). His wife, Mary, continued at Front Street for at least a year following his death on October 26, 1784, applying for and receiving a license to continue operation of the tavern. In a 1785 Philadelphia directory she was listed as "Mrs. Courtney, beerhoufe keeper, Front between Cheftnut and Walnut Ftreets" (White 1785:2).

In the seven years following the death of Hercules Courtney and transfer of the house to a new owner, Robert Smith, there were two more tenants. Samuel Greene, a vintner and possibly the husband of Mrs. Sarah Green, who inherited the land of her father, Thomas Broadgate, on Gray's Alley, briefly followed the Courtneys as a tenant in Alexander Beardsley's old house at #58 South Front. Although the house was described as empty during the 1787 tax assessment, by 1790 it was occupied by baker Henry Young. Young's household of 17 included seven males over the age of 16, four males under the age of 16, and six free white females. Young was the last to reside in the house before it was torn down by its new owner in 1791.

8.1.1 THE ARCHEOLOGY OF THE COURTNEY PRIVY (114C3, AS I, C.1783)

The TPQ of 1783 for 114C3 coincides with the death of tenant Hercules Courtney and the move, a year or two later, of his wife, Mary. The two tenants that followed Courtney, Samuel Green and baker Henry Young, lived there for approximately six years, so the assemblage to some extent may represent the belongings of these short-term tenants as well. The new owner, Robert Smith, tore down the old house and doubtless built himself a new necessary.

Fragments of Dutch tiles indicate that the fireplaces in the house were ornamented with scenes of children playing a ball game, a popular series called "kinderspelen" made in the Netherlands in the second half of the seventeenth century (Pluis 1979:35; Plate 37). Such outdoor scenes

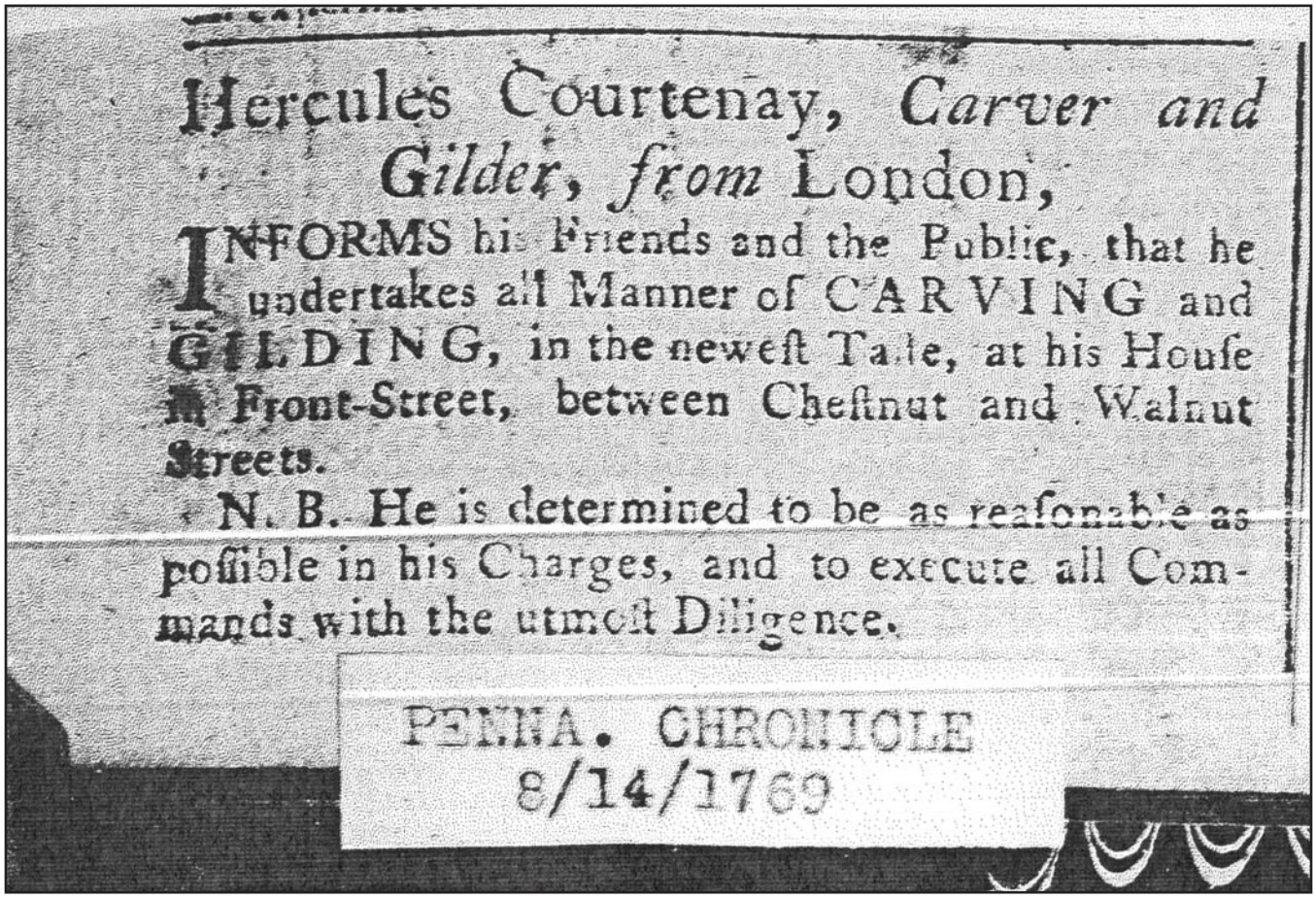


Figure 45. Advertisement in the August 14, 1769, issue of the *Pennsylvania Chronicle* announcing that Hercules Courtenay, Carver and Gilder, has set up shop on Front Street.

Figure 46. Armchair and card table made by Benjamin Randolph and carved by Hercules Courtney (Philadelphia Museum of Art 1976). The table belonged to John Cadwalader and appears in a painting by Charles Willson Peale.

Plate 37. Fragment of a blue painted delft tile that probably surrounded a fireplace in the first house built at 58 S. Front Street in 1687 by Alexander Beardsley (114 S. Front Street, Room C, Feature 3). The picture in the center of the tile shows two boys playing a ball game; the corner spider motifs identify it as Dutch. The intact tile illustrates the scene depicted on the broken tile (Pluis 1979:35).

ornamenting a fireplace surround were meant to provide amusement to those huddled around a fire on a cold winter's day.

To what extent the contents of 114C3 reflect the life and activities of the tavern keeper and gilder/carver Hercules Courtney, Samuel Greene, or the large family of baker Henry Young is unclear. Excepting a small amount of Chinese Export porcelain, the dishes in these households were evenly split between local and imported wares. This feature had the highest percentage of kitchenwares of any of the selected features. There were a few redware drinking and eating vessels, but most of the redwares were used for heavier work such as storing butter and other foods, separating milk, making puddings, and baking pies (Plate 38).

Tablewares were limited to plates, one platter, and one tureen, a few pieces from a set of Queensware. By contrast, two heirloom saucer dishes, probably intended for the Asian market, are unusual but possibly not hard to come by so near to the seaport (Plate 39).

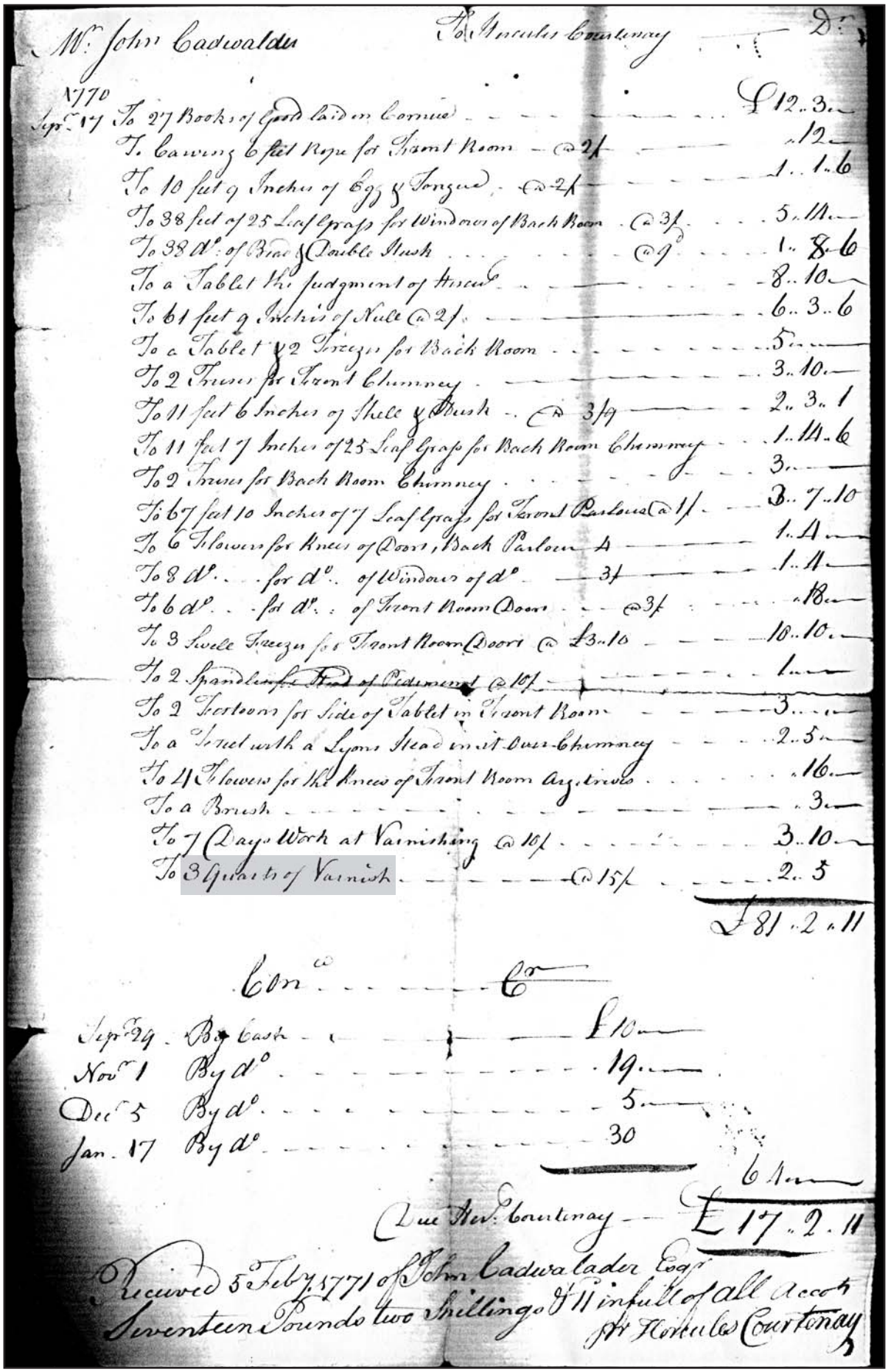
The food remains indicated a diet of mutton, pork, chicken, fish, fruit (black/raspberries, figs, grapes, strawberries, and elderberries), and one condiment (pepper). The presence of two medicinal species of wild plants used to treat fevers and yellow fever *Actaea alba* and *Euonymus atropurpureus,* suggests that some of the residents at this address may have suffered from one of the epidemics sweeping through Philadelphia in this period.

The high percentage of liquor bottles found in the privy suggest an association with the tavern Hercules Courtney ran for a five-year period. Sixty-two percent of the glass assemblage were liquor bottles: 15 wine, six case gin, six beer/porter/ale, two whisky/rum, one chestnut spirit, and seven unknown (Plate 40). The chestnut bottle is more associated with storage of alcoholic beverages. Beverages were consumed in ceramic tankards (7), tumblers (6), wine glasses (3), ceramic posset cups (2), and flasks (2). Ceramic serving vessels, jugs (4), bottles (3), and one punch bowl were also present. Considering brief use of the house as a tavern, the number of kaolin pipes (13) was not large, though perhaps the privy was not the likeliest place to find them.

The evidence for Hercules Courtney's craft was even more indisputable. A graphite mortar from his workshop was used for melting gold leaf or resins, such as the lump of yellow resinous material identified as amber resin or a copal material known as "Demerara animi" (Plate 41; Aument 2006). These resins, popular in the eighteenth century, were melted and mixed with warm oil and pigments for use as a varnish on furniture, architectural trim, and coaches (Bristow 1996:75-79). Receipts from John Cadwalader itemizing woodwork that Courntey carved included the costs of gold leaf and varnish (Figure 47). Two flint stones that may have been employed for polishing and carving were among the objects that also could have been used by Courtney.

8.2 OPTICIAN WILLIAM RICHARDSON 1790-1815, AND SILVERSMITH ROBERT SWAN, 1815-1831, AT 75 S. SECOND STREET

YohA 1 is one of two privies associated with the house that stood at 75 (later 119) South Second Street. This house, constructed in 1761 by James James, stood until the turn of the twentieth century, when it was replaced by a warehouse identified as a cigar factory on a 1908 atlas (see Figure 15). A glimpse of this three-story brick dwelling with a two-story wood kitchen behind is depicted in an etching that shows Stephen Anthony's house at the corner of Second and Gray's Alley (see Figure 38). James Stewart purchased the house in 1764 but it is not known if he lived in the house. It was rented in 1790 to a merchant named James Barr, who was taxed for one


Mr. John Cadwalder To Hercules Courtenay Dr.

1770
Sept. 17 To 27 Books of Gold laid in Cornice ... £12..3..
To Carving 6 feet Rope for Front Room @2/ ... .12..
To 10 feet 9 Inches of Egg & Tongued @2/ ... 1..1..6
To 38 feet of 25 Leaf Grass for Windows of Back Room @3/ ... 5..11..
To 38 do. of Bead & Double Rush @9d ... 1..8..6
To a Tablet the Judgment of Hercules ... 8..10..
To 61 feet 9 Inches of Rule @2/ ... 6..3..6
To a Tablet & 2 Friezes for Back Room ... 5..
To 2 Friezes for Front Chimney ... 3..10..
To 11 feet 6 Inches of Shell & Rush @3/9 ... 2..3..1
To 11 feet 7 Inches of 25 Leaf Grass for Back Room Chimney ... 1..11..6
To 2 Friezes for Back Room Chimney ... 3..
To 67 feet 10 Inches of 7 Leaf Grass for Front Parlour @1/ ... 3..7..10
To 6 Flowers for Knees of Door, Back Parlour @4 ... 1..4..
To 8 do. for do. of Windows of do. @3/ ... 1..1..
To 6 do. for do. of Front Room Door @3/ ... .18..
To 3 Swell Friezes for Front Room Doors @£3..10 ... 10..10..
To 2 Spandles for Head of Pediments @10/ ... 1..
To 2 Festoons for Side of Tablet in Front Room ... 3..
To a Scrole with a Lyons Head in it Over Chimney ... 2..5..
To 4 Flowers for the Knees of Front Room Architrave ... .16..
To a Brush ... .3..
To 7 Days Work at Varnishing @10/ ... 3..10..
To 3 Quarts of Varnish @15/ ... 2..5..
£81..2..11

Contra Cr.

Sept. 29 By Cash ... £10..
Nov. 1 By do. ... 19..
Dec. 5 By do. ... 5..
Jan. 17 By do. ... 30
64..
Due Mr. Courtenay ... £17..2..11

Recd. 5 Feb. 1771 of John Cadwalader Esqr. Seventeen Pounds two Shillings & 11 in full of all Accts
Mr Hercules Courtenay

Figure 47. September 17, 1770, receipt itemizing woodwork carved in the home of John Cadwalader and materials used including gold leaf and varnish. A lump of fossilized varnish was recovered in the Courtney privy (114C3).

Plate 38. Kitchen assemblage associated with the eighteenth-century occupants of Beardsley's house at 58 S. Front Street. Assorted Philadelphia redware, in the foreground from left to right, a black-glazed lamp, a slip-decorated bowl, harvest jug, and primitively formed lid, and in the background on the left, a large dish, and on the right, a milk pan (114 S. Front Street, Room C, Feature 3).

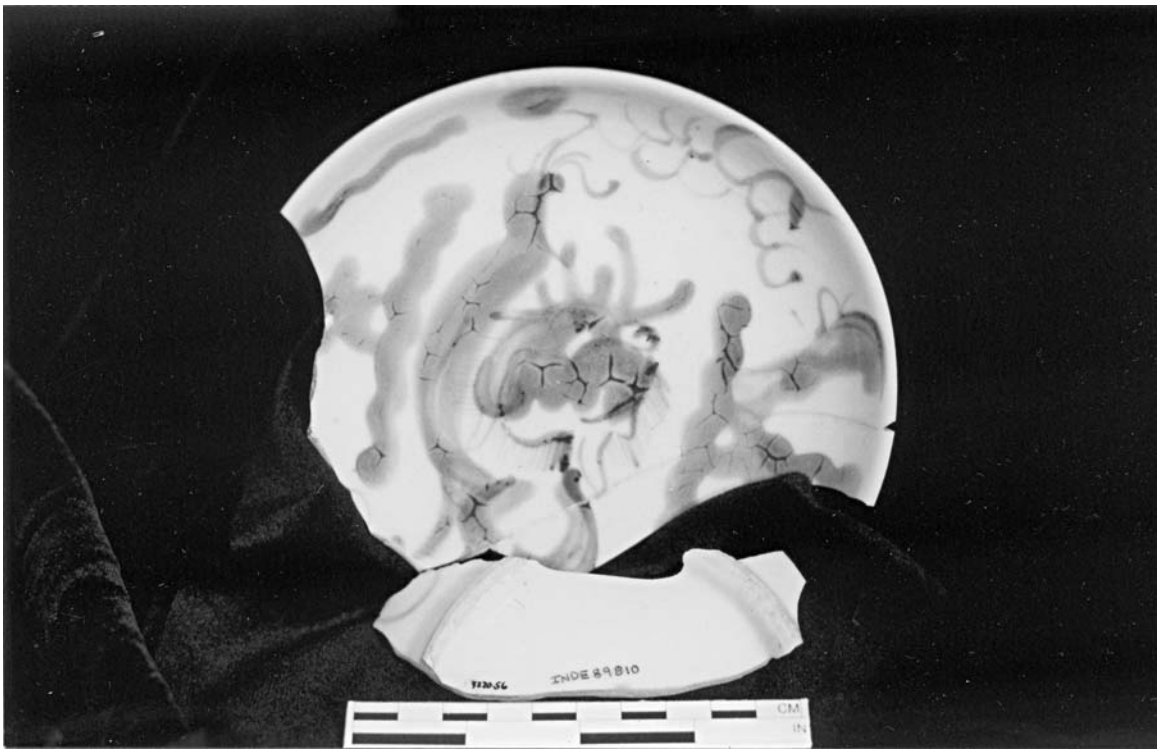


Plate 39. Fragments of two stylistically early (1610-1620) Chinese porcelain saucer dishes with dragon motifs from 114 S. Front Street, Room C, Feature 3.

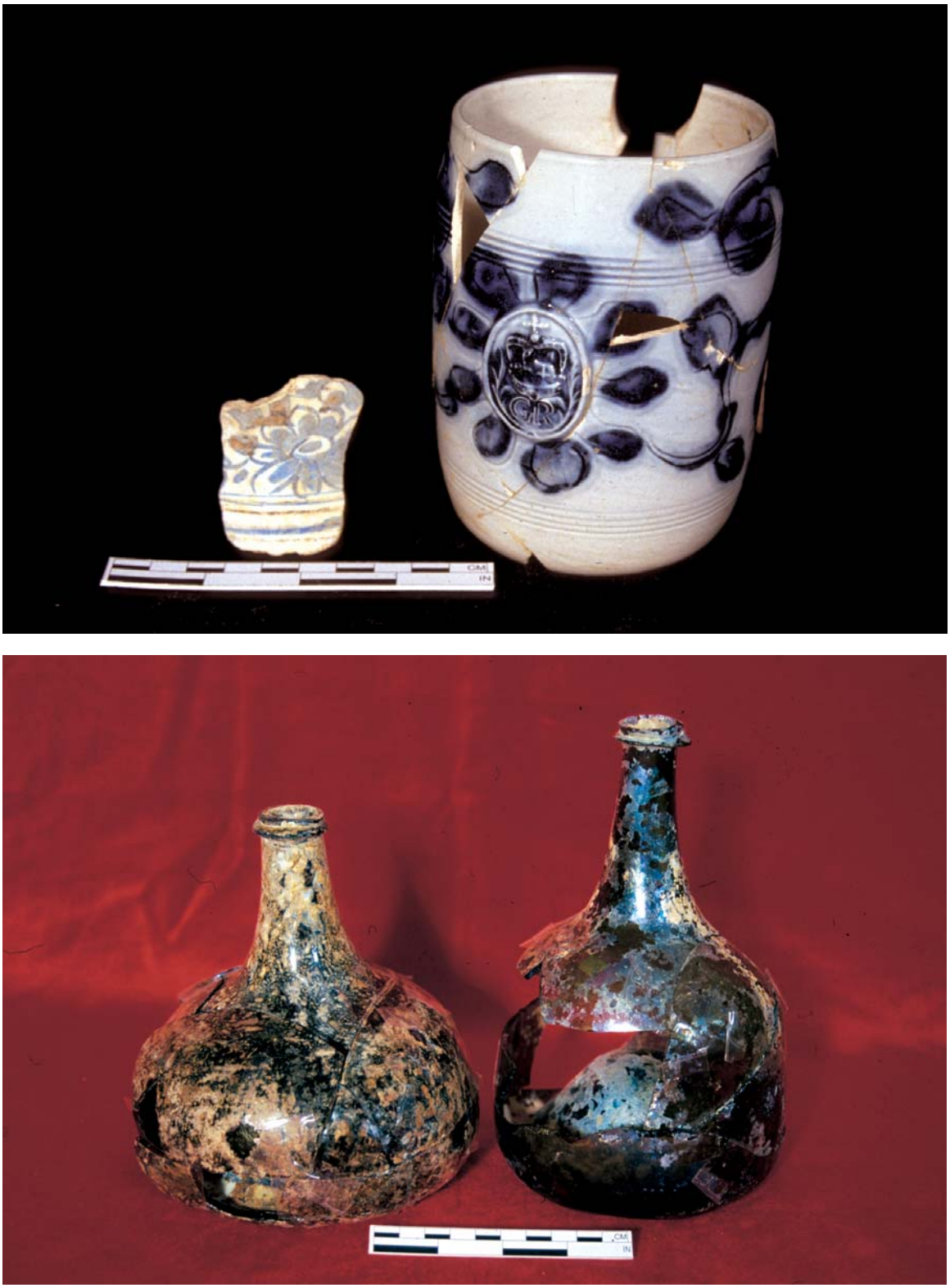


Plate 40. Tankards and onion wine bottles from Hercules Courtney's tavern c.1779-1784 at 58 S. Front Street (114 S. Front Street, Room C, Feature 3).

Plate 41. Stamped graphite mortar and lump of amber from 114 S. Front Street, Room C, Feature 3. These objects were probably used by tenant Hercules Courtney in his occupation as carver and gilder 1769-1785.

horse, 10 ounces of plate, 200£ for his occupation as merchant, and 640£ for the dwelling (Toogood 1985).

By the time of the census taking in 1790, William Richardson was living at this address as head of a household including two free white males over the age of 16, two free white females, and three other free persons. Richardson was listed in city directories as a "mathematical and optical instrument maker" (*The Philadelphia Directory* 1791:107) and "optician" (*The Hogan Directory* 1795; *The New Trade Directory for Philadelphia* 1800). The concentration of glass lenses found in YohA1 links the contents of this privy with Richardson. He paid ground rent to the Pennsylvania Hospital and was taxed in 1795 and 1798 (U.S. Direct Tax) for the house and lot then valued at 800£, one horse, 40 ounces of plate, and one chair (buggy).

In 1803, gunsmith William Booth, purchased the lot. Booth lived there for eight years before selling the property to silversmith Robert Swan in 1815. Robert Swan also owned the property adjoining the rear yard and fronting onto Gray's Alley at #13 and may have lived there first, because he is listed in the 1800, 1810, and 1820 censuses (U.S. Census). In each census, there are three members of the household: three free white males in 1800 (ages 10-15, 16-25, and 26-44); two free white males (1 under 10 and 1 over 45) and one female 26-44 in 1810; and one free white male over 45, presumably Robert Swan, and two free white females in the 16-25 age range in 1820.

In his will dated December 28, 1829, Swan bequeathed $500 to the infant son of a couple in the Northern Liberties who named their son after him—Robert Swan Daffen, $500 to his executor, James Arrott, and the remainder to his brother, Henry Swan, in England, so it does not appear that he was married. In 1800 his household was probably composed of apprentices, and the women in the household, one in 1810 and two in 1820, may have done work in silver or been employed as housekeepers and/or cooks. The inventory of his household furnishings befit a bachelor—

Bookcase	23.00
Clock	20.00
5 Old Chairs	2.40
Open Stove Shovel	5.75
3 old Candlesticks	.50
Wash stand & Ewer	1.30
Bedstead, Mattrass	
Bolster & Pillowcases	12.75
Bedstand & 2 Towels	.60
Mahogany Stand	1.00
2 Ten Plate Stoves	10.00
	77.30
Books	26.40
"	9.95
	112.73

The sale of Swan's two houses brought in $7000, so that his total assets were valued at $7515.94 (Philadelphia County Will 1831).

Quantities of worked bone and antler found in the privies (YohA1 andYohC2) on both lots are likely associated with Swan's work as a silversmith or as an umbrella manufacturer, which he was listed as in an 1825 Philadelphia directory. Much of his work survives, and some of his

pieces, particularly cutlery, employed faunal material (Figure 48). Swan's estate was settled following his death in October 1831.

The TPQ of 1825 for the final filling in of the privy is very close to the settling of Robert Swan's estate in 1829. Artifacts found in the privy (AS I) link its use to William Richardson, who lived at this address circa 1795 to 1803, and to Robert Swan, who lived there from 1815 to 1831.

8.2.1 THE ARCHEOLOGY OF AN ARTISAN PRIVY (YOHA1, AS I C.1825)

The mean ceramic date of 1796 falls within the Richardson occupation, and the TPQ of 1825 coincides with the end of the Swan occupation, so the contents of this privy may belong to two artisan households. Artifacts directly associated with the workshops of these men include a large concentration of glass lenses (249), crucibles (2), tools—chisel, file, and funnels—and cut bone, antler and horn (57) residue (Plate 42). The glass lenses are clearly byproducts of William Richardson's work, and the cut bone/antler/horn are likely byproducts of Robert Swan's workshop. The crucibles are also probably associated with Robert Swan, as they were commonly used by silversmiths to melt down silver coinage for reuse in new creations (Hazen 1837:261).

The presence of six sets of dishes, including three tea sets and three for dining. indicate a refined lifestyle. The teawares (44%) in this privy formed the largest percentage of ceramics of any of the Area F features (Table 24). Painted (23), printed (18), and plain (18) English teawares were used most frequently, but two matching sets of Chinese Export porcelain (18) and one of English scratch-blue stoneware (5) were also staples showing the importance of tea time. The plain creamware set of dishes was used for tea and dining and included small sizes for serving tea to children. It is possible that business was conducted over tea as suggested at the artisan households on Sixth Street by Yamin (2004).

Table 24. Percentage of Selected Functional Groups for Priority Features from the Area F Site.

	Ceramic				Glass			
Feature	Kitchen	Tea	Table	Bev	Tumbler	Wine Glass	Decanter	Alcohol Bottle
YohC1, AS I	16	28	18	24	4	9	1	46
YohF1, AS I	24	32	16	19	10	5	0	53
YohF1, AS II	31	32	10	17	8	7	0	46
114C3, AS I	38	22	12	18	10	5	0	62
114C2/2A, AS I	8	35	37	8	16	9	2	41
YohA1 AS I	14	44	18	10	31	13	2	19

Aside from plain and Royal creamware tea and table sets, a set of blue-edged dishes was used for dining. Price lists for late-eighteenth-century ceramics indicate these plain (index value of 1.00) and minimally decorated plates (index value of 1.72) were the cheapest ceramics available (Miller 1980:4). Serving vessels were few in number, consisting of six serving dishes, two platters, and one mustard pot. Although index values are not available for the tea assemblage (the nearest year being 1824), it is clear that more money was spent on teawares than tablewares. The absence of variety in the tablewares suggests entertaining at dinnertime was not customary.

There were almost no food bones discarded in this privy, so the only dietary evidence is in the form of seeds (black/raspberry, fig, grape, strawberry, elderberry, and apple), cherry pits, and coffee.

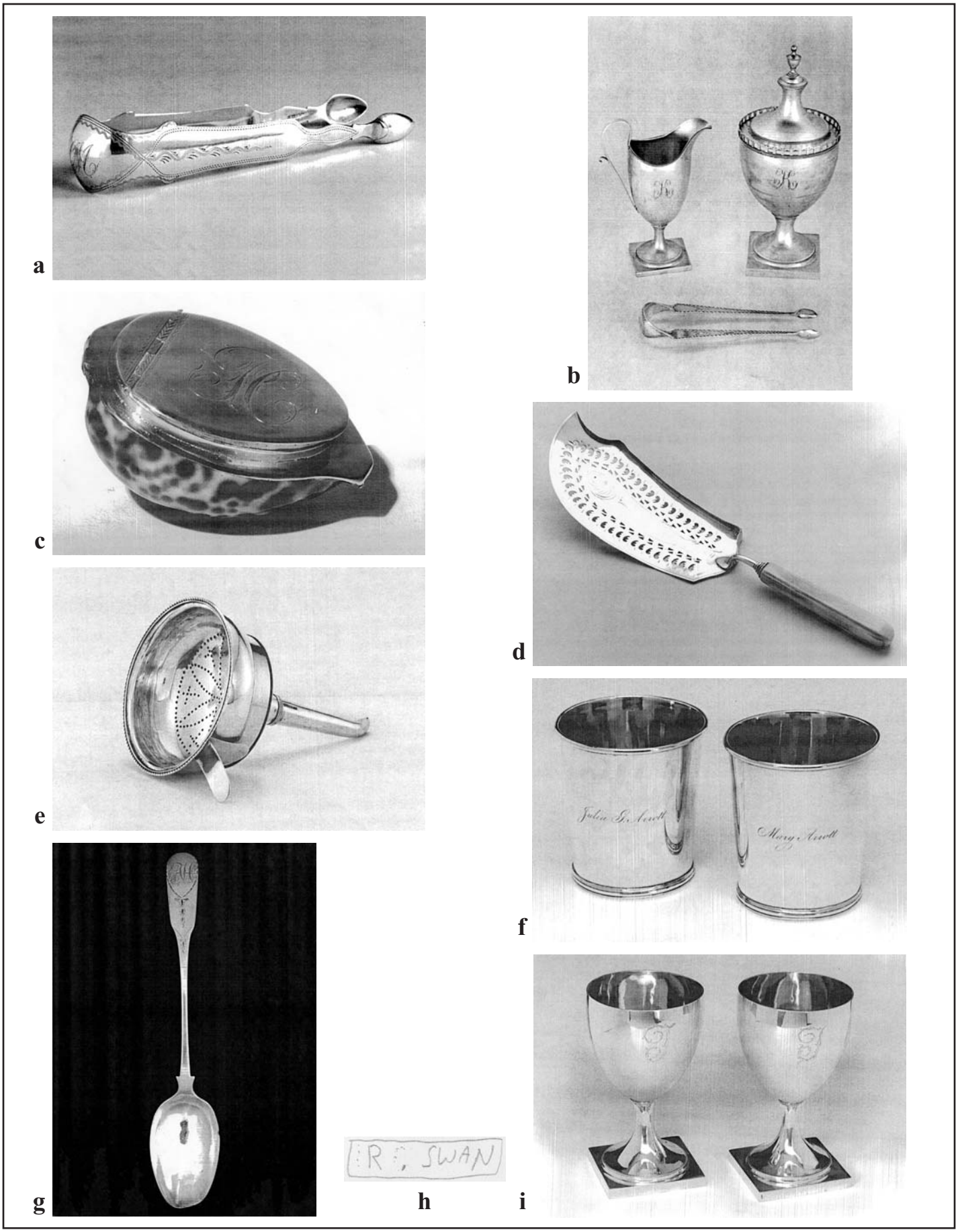


Figure 48. Signed pieces by silversmith Robert Swan (Courtesy of Decorative Arts Photographic Collection, Winterthur Library): a, sugar tongs: b, creamer, sugar & sugar tongs set; c, tortoiseshell snuff box; d, fish knife with bone handle; e, wine strainer; f, beakers engraved Julia G. Arrott and Mary Arrott (probably relations of the executor of his estate, James Arrott); g, spoon; h, his mark; and i, goblets.

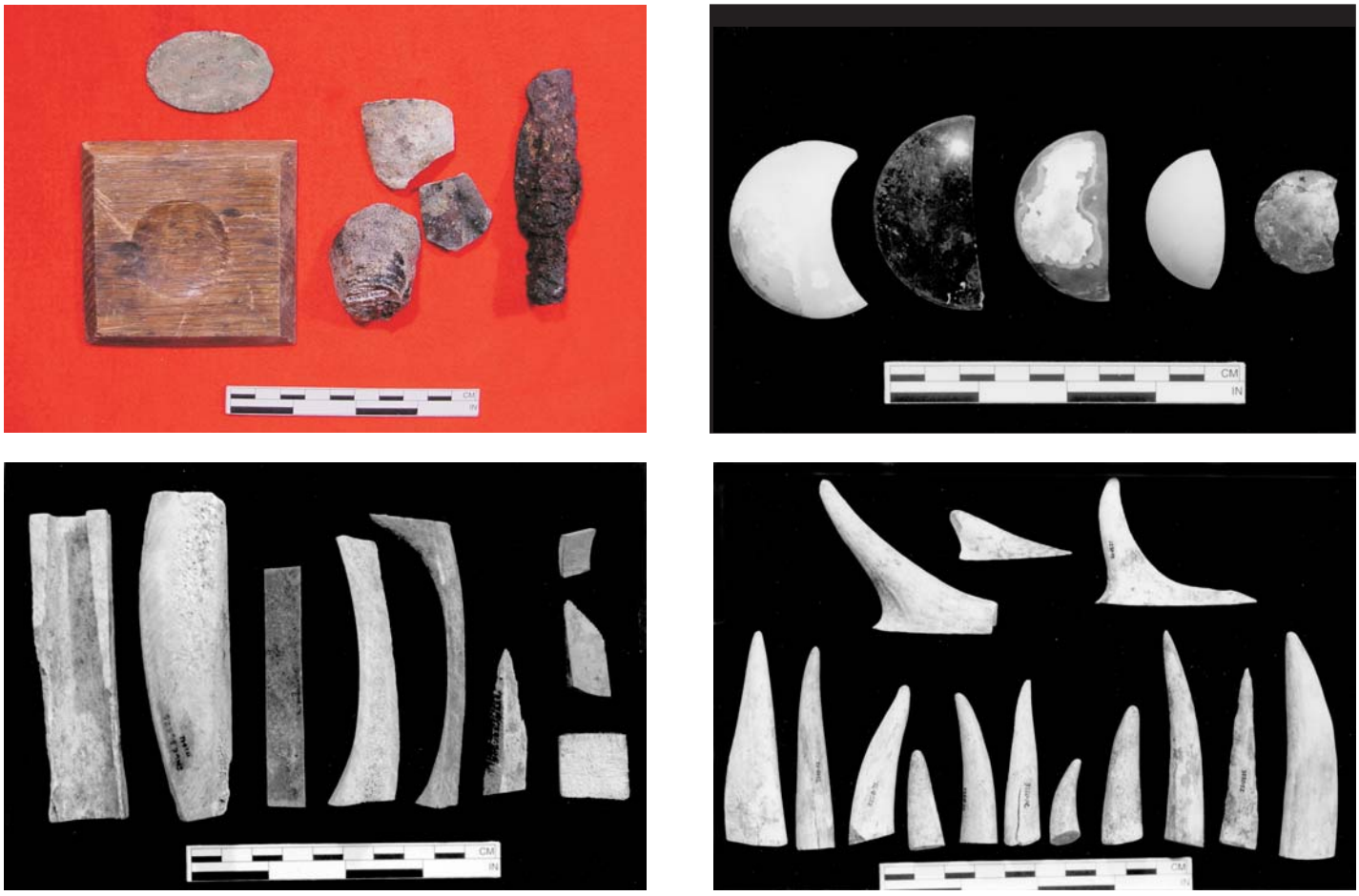


Plate 42. Tools and materials from the workshops of artisans William Richardson, optician and maker of scientific instruments 1790-1803, and Robert Swan, silversmith and umbrella maker 1815-1831, who lived at 75 S. Second Street during these years (Yoh Building, Room A, Feature 1): a, brass template, wooden stand, crucible fragments, and chisel; b, glass lenses; c, cut bone, and d, cut antlers from the production of cutlery handles or umbrella parts.

The highest frequency of tumblers (31%) was found in this feature (see Table 24). Similar frequencies were noted in the artisan assemblages at Block 1, where it was deduced to be an acceptable workplace behavior (Yamin 2004:66). The presence of a large number of jugs (10) may be another accommodation of workers sharing the home space, much like that proposed for Adam Everly's store on High Street (Gerhardt 2002). What they were drinking is unclear from the archeological evidence, but beer and cider were common beverages. The archeological evidence does indicate a modest consumption of alcoholic beverages, with the fewest number present of the selected features (see Table 24). Most of the liquor bottles were wine (12), and the large number of wine glasses (17) indicates this was the preferred beverage (Plate 43).

Ill health was indicated for this household by the concentrations of parasite eggs and the large number of medicine bottles (30) in this privy. The estate records of Robert Swan show the costs of his medical attendance preceding his death in 1831. One of the patent medicine bottles was a bottle of Robert Turlington's Balsam of Life (Plate 44). This nostrum was put up in a distinctive "coffin"- shaped vessel, first patented in 1754. Despite the container's pessimistic shape, it was extremely popular and was counterfeited repeatedly, perhaps a commentary on eighteenth-century humor (Fike 1987:27). The scar of a hinge mold dates this bottle to after 1780.

Although not explicitly stated in the documentary record, an interpretation of the census records suggests apprentices living in both households. Two free white females were listed in the household of William Richardson in 1790, and two free white females between the ages of 16 and 25 in the household of Robert Swan in 1820, but no children. This is surprising because children are represented by a number of toys—a redware money box, bird figurine/whistle, marbles, and toy vessels as well as child-sized dishes. In the case of Robert Swan, who was unmarried, it is possible that his housekeepers brought their children into his home. His legacy to an unrelated namesake, Robert Swan Daffen, may stem from a paternal role he assumed for his female companions.

8.3 ROBERT SMITH'S NEW HOUSE AND DRY GOODS STORE AT 58 S. FRONT STREET, 1791-1822

Several features date to the second house that stood on this spot, the combination house/store built in 1791/2 by merchant Robert Smith. Robert Smith replaced Alexander Beardsley's two-story house with a larger, three-story brick house with a carriage house behind it in the year following his purchase. The old Beardsley house was valued at 750£ and the new house at 1400£ in 1792. Robert Smith was further taxed for 30 ounces of plate at 12£, one wagon at 30£, and for his occupation at 300£.

Robert Smith operated a profitable dry goods store in the first floor front of his new house where he conducted business as "Robert Smith & Co." from 1795-1811. Prior to this, Smith operated a few doors down at 54 S. Front Street, an address later listed for Richard and James Smith, merchants who were related to him. Business correspondence of Robert Smith for the period 1787-1816 on file at the Historical Society of Pennsylvania indicates he traded in textiles. He conducted business with the New York firm of his brother-in-law and employed family relations as agents, clerks, and accountants (HSP 1787-1816). The correspondence is a fascinating account that cites visits to manufacturing towns in Great Britain and ascertains the reliability of contacts, the advantages of dealing in cash, and the difficulties in the depreciations of paper currency, as well as religious sentiments, the political climate in Europe, and collecting capital to finance supercargoes. Except for his listings in the city directories, no advertisements for his store were

Plate 43. Wine, the beverage of choice on this lot, was served in wineglasses, suggesting artisans William Richardson and Robert Swan enjoyed a high standard of living on Second Street (Yoh Building, Room A, Feature 1).

Plate 44. Robert Turlington's patent medicine Balsam of Life sold in coffin-shaped, hinge molded bottles. This was one of many medicine bottles discarded in the privy in back of 75 S. Second Street, perhaps from Swan, who died there in 1831 (Yoh Building, Room A, Feature 1).

found, and if it weren't for these letters, knowledge of his business dealings would have been lost to time.

Robert Smith made various improvements to the property in the 31 years he lived there with his wife, Mary, and their family. The couple had at least three daughters—Mary, Hannah, and Helen, and one son, John. Between 1792-1798, Smith erected a second stable on the west end of the lot, and in 1805, he purchased a two-story brick coach house and stable on an adjoining lot on Taylor's Alley (PCDB EF-20:527). This was the same lot owned by Thomas Leiper until 1796 (see Figure 11).

In 1793, Robert Smith was taxed for his house valued at 1400£, 50 ounces of plate at 22£, one horse at 20£, one chair at 20£, one wagon at 50£, and personal effects at 300£ (Philadelphia City Tax 1791-1799). One year later, the value of his house and lot was increased to 1500£, and in addition to the chair and wagon, he was taxed for one coachee at 50£, two horses at 75£, one cow at 6£, one girl at 12£, and personal effects at 400£. In addition to the girl, who lived in the house as a servant, a man by the name of James Robinson [should be Robertson] was taxed as living at the Smith residence. James Robertson, a merchant, was a nephew from his brother-in-law's New York firm, who lived with the Smith family during his term of work for his uncle.

The 1795 taxes were the same except that the value of the house and lot increased to 1600£ and Robert Smith owned three horses instead of two (Philadelphia City Tax 1791-1799). From 1796-1799, Smith was taxed for a dwelling worth $4300, three horses worth $300, and one cow worth $16. James Robertson lived with the family throughout this period. Smith's buildings were described in the U.S. Direct Tax of 1798 as follows:

> Brick Dwelling, 3 story, 20 x 40 ft.
> Piazza, 3 story brick, 9 x 16 ft.
> Back Parlour, 3 story brick, 13 by 18 ft.
> Kitchen, 3 story brick, 13 by 18 ft.
> Wash House, 1 story brick, 8 x 12 ft.
> Stable, 2 story brick, 20 x 20 ft.

It is clear from his taxes that Robert Smith prospered. He was elected as one of 25 directors for the Bank of the United States in 1791 (Pennsylvania *Gazette* 1791), and was active in the community, serving on a Select Council of citizens of Philadelphia in September 1796 (Pennsylvania *Gazette* 1796). He was also an officer of the St. Andrew's Society that met on November 30, 1793, at the City Tavern to celebrate the anniversary of their Tutelar Saint. At that event they toasted:

> *the immortal memory of St. Andrew,*
> *the land of cakes,*
> *the land we live in,*
> *the President of the U.S.,*
> *the VP of the U.S.,*
> *may liberty triumph over despotic tyranny,*
> *the beggar's benison,*
> *the Hibernian Society,*
> *the sons of St. George,*
> *the bonniest lass in a' the world,*
> *the German Society,*

> *the American fair,*
> *success to the arms of America,*
> *the sons of St. Patrick, and*
> *the American Congress: may they be an illustrious example to all the Republics* (Pennsylvania *Gazette* 1793).

The 1800 federal census identifies a large household (13) living in Robert Smith's new house at 58 S. Front Street. Of the five males listed, Robert Smith was then probably the lone male identified as 45 or over; one, perhaps James Robertson, was between the age of 16-25, and three were under the age of 10. There were eight females in the household: three under 10, one 10-15, one 16-25, and three between the ages of 26-44. The three other free persons were presumably hired servants.

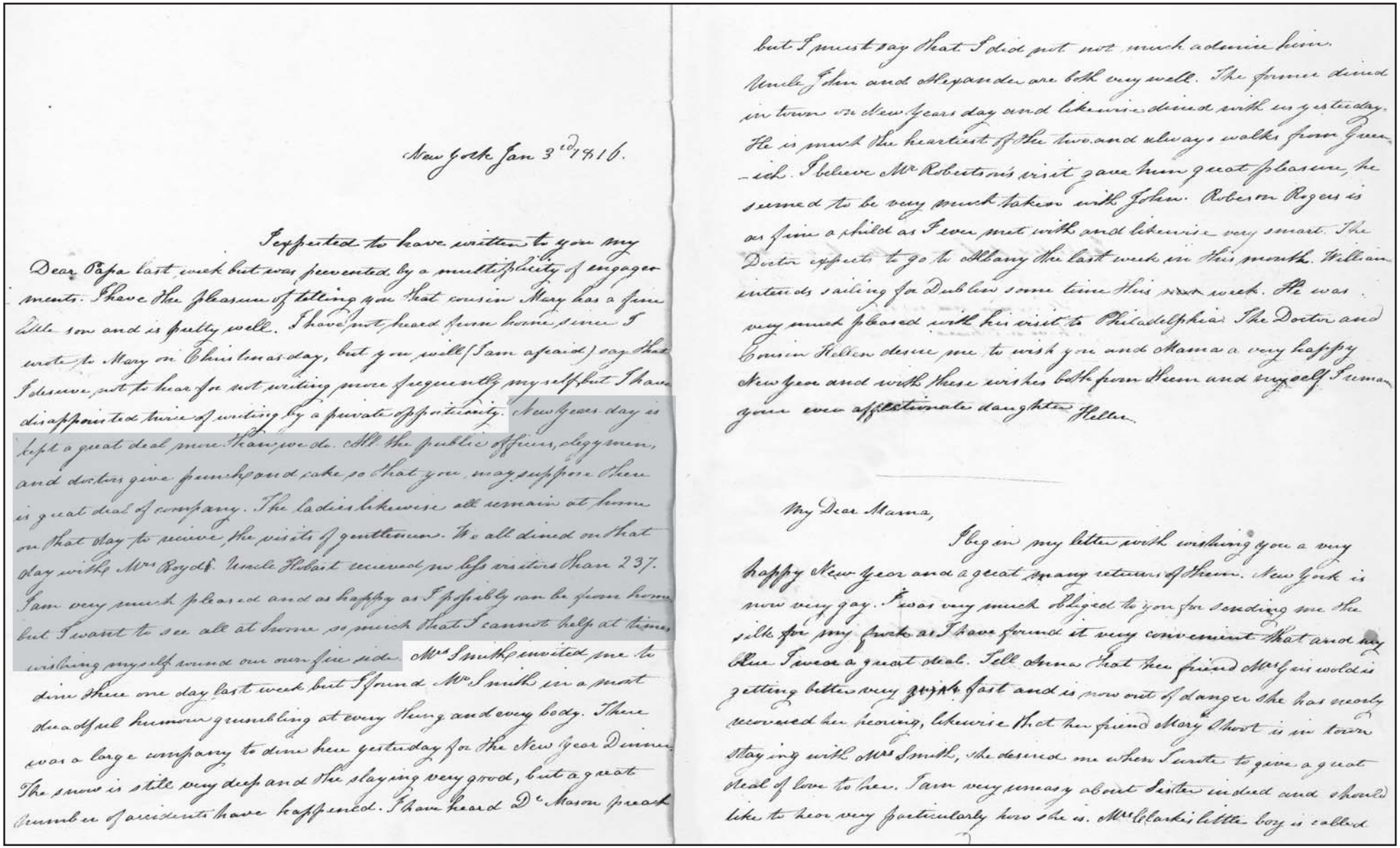
In 1810, the household was reduced to 11 free whites, and three "other free" persons. There were still five males, two aged 10-15, one 16-25, one 26-44, and one, presumably Robert, 45 and over. There were two fewer women in the household that included three girls 10-15, two girls 16-25, and one (his wife?) 26-44.

An 1816 letter to Robert Smith from his daughter describes the kinds of social events she attended during a visit to family in New York (Figure 49). She recounts "New Years Day is kept a great deal more than we do" with rounds of visitors, up to 237 at the home of one uncle, calling at homes serving "punch and cake." These social calls and tales of large dinner parties may be more than the Smiths' celebration of New Years, but it does imply that the Smiths enjoyed a similar scale of social entertaining.

By 1820 the Smith household was greatly reduced. There were five free whites, including two males (one 16-18 and one over 45) and three females (one 16-26 and two over 45), as well as one male slave 14-24 years of age. The Smith's sold their house/store sometime in 1820 but continued on at this address for another two years. The TPQ of 1823 for AS I of Feature 2/2A coincides with the move of the Smith family from their store/residence.

8.3.1 THE ARCHEOLOGY OF ROBERT SMITH'S ICE HOUSE/COLD CELLAR (114C1/4/4A) AND PRIVY (114C2/2A, AS I, C. 1825)

Among the improvements to his house, Robert Smith added an ice house connected to a marble-lined subcellar at the very back of his house. The subcellar was probably entered from a trap door in the washroom floor above, a similar arrangement as that found in the Bishop White House (INHP 1958:Ch.III:2-3). The concept of ice houses had only recently been introduced to Philadelphia (c.1782) at the home of financier Robert Morris and was no doubt the talk of the town in the circles frequented by the likes of George Washington and Bishop White to name a few (http://www.ushistory.org/presidentshouse/history/icehouse.htm). It appears that Robert Smith mixed in society, and this innovation would have provided the Smith family with iced drinks, ice cream, and other frozen desserts through the long summer months. Smith's position on the Board of Directors of the Bank of the United States and his membership in the St. Andrew Society suggest his prominence as a merchant with some social standing. These facts together with the archeological evidence, the high value of their ceramics, and this elaborate cold storage system suggest strongly that the Smiths entertained.



New York Jan 3rd 1816.

I expected to have written to you my Dear Papa last week but was prevented by a multiplicity of engagements. I have the pleasure of telling you that cousin Mary has a fine little son and is pretty well. I have not heard from home since I wrote to Mary on Christmas day, but you will (I am afraid) say that I deserve not to hear for not writing more frequently myself but I have disappointed twice of writing by a private opportunity. New Years day is kept a great deal more than we do. All the public offices, clergymen, and doctors give punch and cake so that you may suppose there is great deal of company. The ladies likewise all remain at home on that day to receive the visits of gentlemen. We all dined on that day with Mrs Boyd. Uncle Hobart received no less visitors than 237. I am very much pleased and as happy as I possibly can be from home but I want to see all at home so much that I cannot help at times wishing myself round our own fire side. Mrs Smith invited me to dine there one day last week but I found Mr Smith in a most dreadful humour grumbling at every thing and every body. There was a large company to dine here yesterday for the New Year Dinner. The snow is still very deep and the slaying very good, but a great number of accidents have happened. I have heard Dr Mason preach but I must say that I did not see much admire him. Uncle John and Alexander are both very well. The former dined in town on New Years day and likewise dined with us yesterday. He is much the heartiest of the two and always walks from Greenwich. I believe Mr Roberton's visit gave him great pleasure, he seemed to be very much taken with John. Roberton Rogers is as fine a child as I ever met with and likewise very smart. The Doctor expects to go to Albany the last week in this month. William intends sailing for Dublin some time this next week. He was very much pleased with his visit to Philadelphia. The Doctor and Cousin Helen desire me to wish you and Mama a very happy New Year and with these wishes both from them and myself I remain your ever affectionate daughter Helen.

My Dear Mama,

I beg in my letter with wishing you a very happy New Year and a great many returns of them. New York is now very gay. I was very much obliged to you for sending me the silk for my frock as I have found it very convenient that and my blue I wear a great deal. Tell Anna that her friend Mrs Griswold is getting better very quick fast and is now out of danger she has nearly recovered her hearing, likewise that her friend Mary Short is in town staying with Mrs Smith, she desired me when I write to give a great deal of love to her. I am very uneasy about Sister indeed and should like to hear very particularly how she is. Mrs Clarke's little boy is called

Figure 49. Letter to Robert Smith from his daughter Helen describing the elaborate social events she attended during a stay with family relations in New York in 1816 (Historical Society of Pennsylvania).

Robert Smith's porcelain tea service, with the monogram over a plow, was the first clue linking the privy (114C2/2A) to this owner (Plate 45). A second clue was a lead bale seal marked "B & Co" used in Europe as a means of identification and as a component of regulation and quality control for textiles (http://www.imacdigest.com/bale.html). Bale seals were folded around each side of a length of fabric and stamped closed. Robert Smith's correspondence confirms he was engaged in the textile trade.

This privy contained more than double the number of artifacts (20,366) found in the other selected features (see Table 20), 80 percent of which were the remains of 654 ceramic and 493 glass vessels. Nearly half of the ceramic vessels belonged to matched sets of dishes accounting for 37 sets (see Table 23). There were comparable numbers of tea (227) and table (242) wares. Serving vessels in the tea and table groups accounted for 26-27 percent of each assemblage (see Table 14). There were also six sets of glassware.

In addition to the monogrammed set, the Smiths' tea sets were Chinese overglaze-painted floral (27), plain cream colored (21), blue-printed chinoiserie motif (13), polychrome-painted floral motif (8), dark blue floral print (8), a black-printed genre motif (5), and blue-painted chinoiserie motif (3) (see Table 15). The tea sets comprised tea bowls and saucers and a few serving vessels (4 slop bowls, 1 milk jug). This means the owners probably used something fancier with the sets, such as silver for serving.

The Smiths preferred Chinese porcelain for entertaining (Plate 46). They owned a very large Chinese Export dinner service in an underglaze blue Willow pattern (52) that included an array of plates and serving vessels (a tureen and salad dish) for serving dinner and dessert as well as coffee and tea following the meal (see Table 16). A second set of Chinese porcelain dishes (12) was a simple pattern of Three Trees in underglaze blue. They also owned a separate set for serving supper (Set #34) and a set of barrel-shaped vessels (Set #37) that may have been used for serving condiments. Formal dining included matching sets of wine glasses, tumblers, glass cruets, and salt dishes.

The Smiths may have had dessert parties (Plate 47). Certainly their ice pit and cold cellar gave them the means for providing iced drinks and desserts. For this purpose, they might have used a set of Chinese porcelain dessert bowls (7 in Set #36), possibly for ice cream, their fluted and edged syllabub cups (7), assorted punch bowls (9), and a fancy twig fruit basket. Several vases in glass and Chinese porcelain and a black basalt bulb vase would have decorated the tables on such occasions.

The Smiths enjoyed large cuts of beef, pork, mutton, and veal, a variety of game and domestic birds, and a limited number of small fish. The greatest density of blackberry/raspberry and strawberries was found in this feature and is likely associated with the Smiths' love of desserts and entertaining. Fig, grapes, and elderberries were also present, along with sunflower.

The Smiths favored beer, porter, or ale (83%) over wine (8%) and other alcohol. An assortment of vessels were used to imbibe these beverages, but predominantly glass tumblers (79), wine glasses (46), ceramic tankards (17), and shot glasses (10). Sixteen jugs that included three matching printed jugs may have been used to serve alcoholic or nonalcoholic beverages. To what extent these beverages were served in business dealings is unknown.

While these sets of fancy dishes suggest a lavish lifestyle, the repair of a glass decanter and wine glass indicates a practical side in the care of their possessions, and that some were valued above

Plate 45. Robert Smith's monogram commissioned for a Chinese Export porcelain tea set and this lead bale seal, associated with importation of textiles, link the contents of Feature 2/2A in Room C of 114 S. Front Street with the second house on this site built by merchant Robert Smith in 1792.

Plate 46. Sets of Chinese Export porcelain dishes owned by the Robert Smith family (114 S. Front Street, Room C, Feature 2/2A): a, overglaze painted tea set with "RS" monogram, Set #17; b, underglaze blue dinner set, Set #20; c, underglaze blue table set, Set #21; d, set of four underglaze blue, barrel-shaped pots, Set #36.

Plate 47. Fancy vessels that may have been used by the Smiths for entertaining, possibly for dessert parties: a, set of Chinese Export porcelain bowls, dessert size; b, pearlware syllabub cups; c, dipped punch bowls; and d, pearlware twig fruit basket from 114 S. Front Street, Room C, Feature 2/2A.

others (Plate 48). Less expensive dishes such as the English earthenwares may have been used for everyday. They owned an older set of creamware dishes (18) in scalloped and Royal patterns, a set of blue Willow (10), and blue edgeware (49).

The bedrooms were furnished with matching toilet sets—chamber pots, basins, and ewers in plain creamware and blue Willow. In addition to chamber pots (34) and stool pots (10) in creamware (16) or redware (25), they owned at least one fluted creamware bourdalou or coach pot for the use of a woman in transit (Plate 49). Other items pertaining to personal hygiene included combs (20) and toothbrushes (5), one child sized, and a perfume bottle. A watch, parts of a bone fan, beads, and a cuff link were probably lost down the privy rather than discarded.

The archeology of the features associated with Robert Smith reflect the lavish lifestyle his family enjoyed as a result of his success as a merchant. The variety and quality of the ceramic and glass goods from this household indicate a high standard of living. The frequency of matched sets of dishes, serving vessels, and glassware indicates entertaining on a large scale. Sets of dishes suitable for dessert together with concentrations of strawberries and raspberries may even point to dessert parties. Letters home from their daughter describe such parties and give the impression of a close-knit family. The artifacts and remains of an ice house/cold cellar left behind by the Smiths together with the historical record, which documents carriages and stables, are further indications of gentrification. Surviving correspondence and Robert Smith's civic undertakings trumpeted in the Pennsylvania *Gazette* suggest the Smiths may have been members of Philadelphia society.

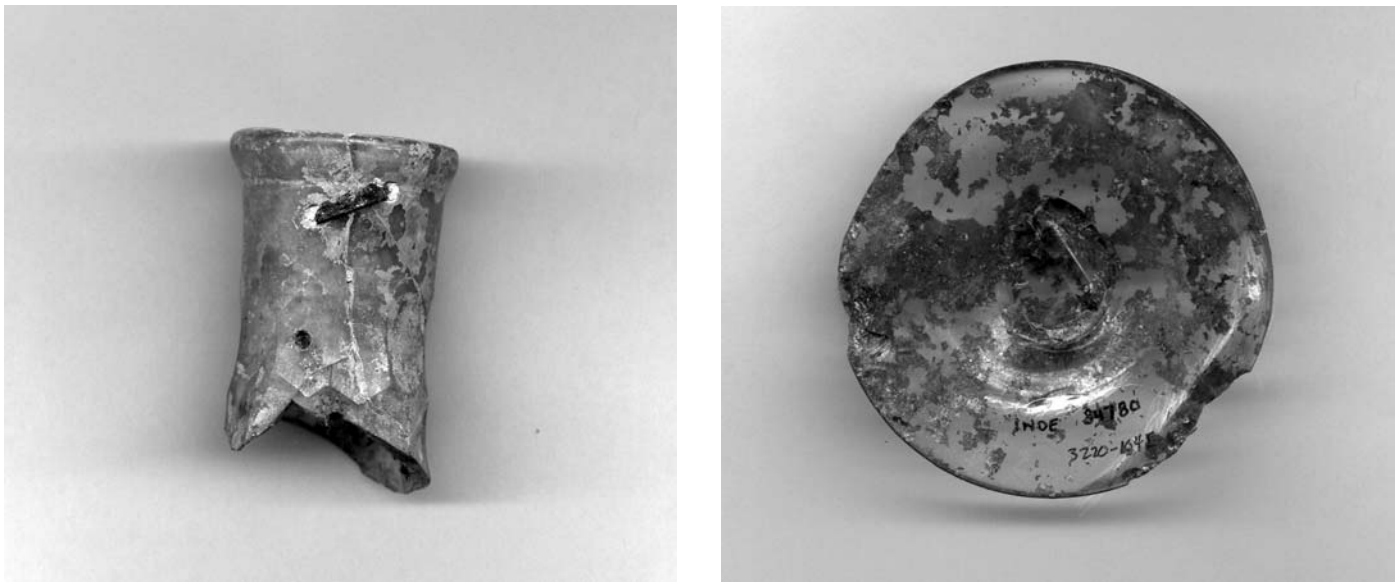


Plate 48. Repaired vessels in the Smith assemblage illustrate a practical, if not sentimental, care for some possessions. Mended cut glass decanter and wine glass showing polished, repaired chips on base (114 S. Front Street, Room C, Feature 2/2A).

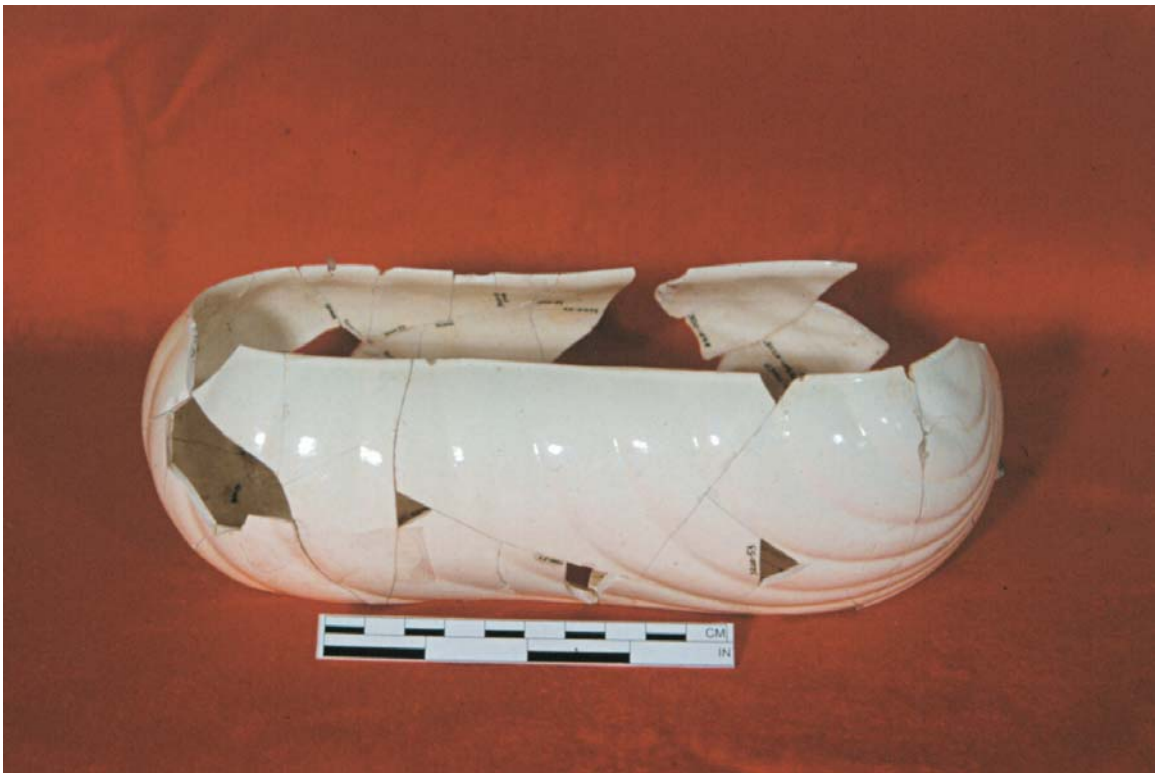


Plate 49. Creamware bourdalou or coach pot for a lady's convenience in traveling, owned by the women in the Smith home (114 S. Front Street, Room C, Feature 2/2A).

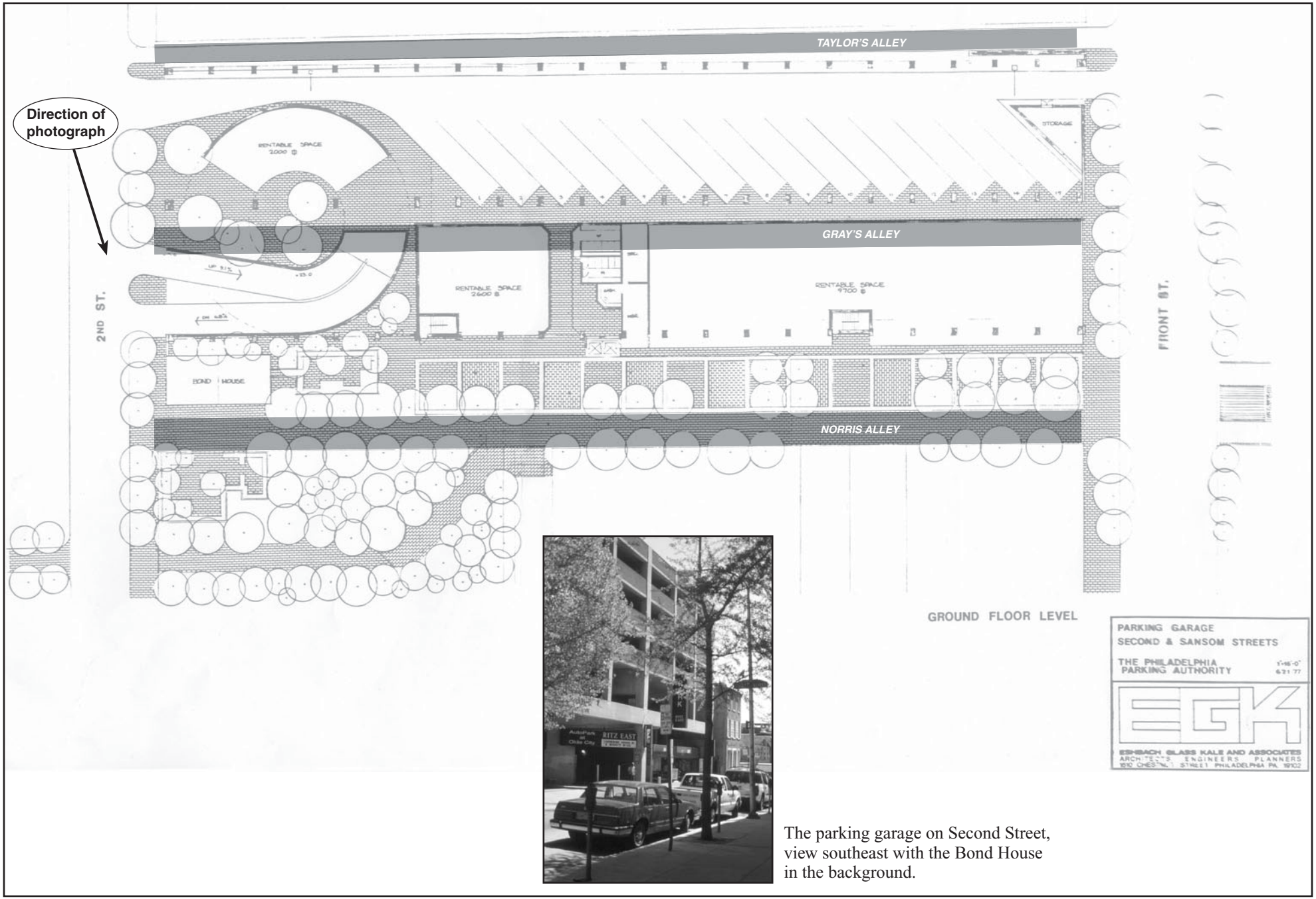
9.0 THE AREA F SITE REVISITED: OLD DATA, NEW CONCLUSIONS

The name "Area F" for the portion of the city block between Front and Second and Ionic and Gatzmer streets that is the subject of this archeological report is a rather sterile assignation for a city grid that in no way conveys the richness of the history of this early lot along Philadelphia's waterfront. Indeed, by the time of the archeological investigation in 1977, the block had lost all visible evidence of its early history and showed no resemblance whatsoever to the "green country town" that it once was (Figure 50). In a sense, the Area F site lost its history at the end of the nineteenth century with the construction of large warehouses that consumed the earlier lots created from Holme's Plan of 1683. Although not a First Purchaser, Anthony Morris's 1687 purchase of Lot 17 and a portion of Lot 18 on the Holme Plan was a selection of a prime waterfront lot worthy of Donald Trump three centuries later.

Morris, a Quaker entrepreneur, arrived in Philadelphia at a time when Philadelphia was establishing itself as a major port on the Delaware River. By 1690, Anthony Morris, initially listed as a baker, was one of 119 craftsmen and 22 shopkeepers working in a city of nearly 2000 residents (Dunn and Dunn 1982:10, 20). Within a few years, Morris built a brewery on land to the east, between his house and the river, and by 1693 he was listed among the wealthiest 10 percent of the city's population (Dunn and Dunn 1982:25). Morris had emigrated from London to Burlington, New Jersey, in 1682 with other Quakers, and his ties to the Society of Friends helped establish him in the new city. Immediately after settling in Philadelphia, Morris began subdividing his land, creating an alley through the middle of his property running from Front Street to Second Street, a move that created more street frontage, vastly increasing the value of his initial investment. The earliest subdivisions of his city lot were to friends who were fellow Quakers. Alexander Beardsley, a London glover, was a friend as was John Budd, the cooper, a friend from his first years in Burlington. Over the next 30 years until his death in 1721 at the age of 67, Anthony Morris grew wealthy from his brewery and real estate transactions. His active role in Monthly Meetings put him in contact with other prominent Quakers, including James Logan, Edward Shippen, Samuel Carpenter, and William Penn himself which led to his participation in early city government. Nearly three hundred years later all of this was forgotten when the city block designated Area F was once again identified as a prime location, not because of its proximity to the riverfront, but because of its proximity to Independence National Historical Park, for parking (Figure 51). If we are "to preserve the recollections of olden time, and to exhibit society in its changes of manners and customs, and the city and country in their local changes and improvements," as John Watson wrote in 1870 in his *Annals of Philadelphia and Pennsylvania*, then perhaps a more appropriate name for the Area F site, one that recalls the history of the block, would be the Anthony Morris Site.

The story of this site, like the story of Philadelphia itself, comes from its advantageous siting on the Delaware River and the success of its seaport (Figure 52). The strategic location to the wharves of this one-acre lot of ground is what drew people to the block and influenced the kinds of trades that developed there, beginning with John Budd's cooper shop in 1702. All was in response to the busy seaport, the prosperity it brought, and the staggering growth in population that accompanied its commercial growth.

Figure 50. The Area F site following the demolition of the Yoh Building c.1977, view west with Front Street in the foreground. The commercial building at 114 S. Front Street is still standing at right. In the far background at left is the reconstructed City Tavern c.1773 on Second Street.



The parking garage on Second Street, view southeast with the Bond House in the background.

Figure 51. The Area F site as it appears today beneath the parking garage. The locations of Norris Alley, Gray's Alley, and Taylor's Alley have been added to the construction plan for orientation.

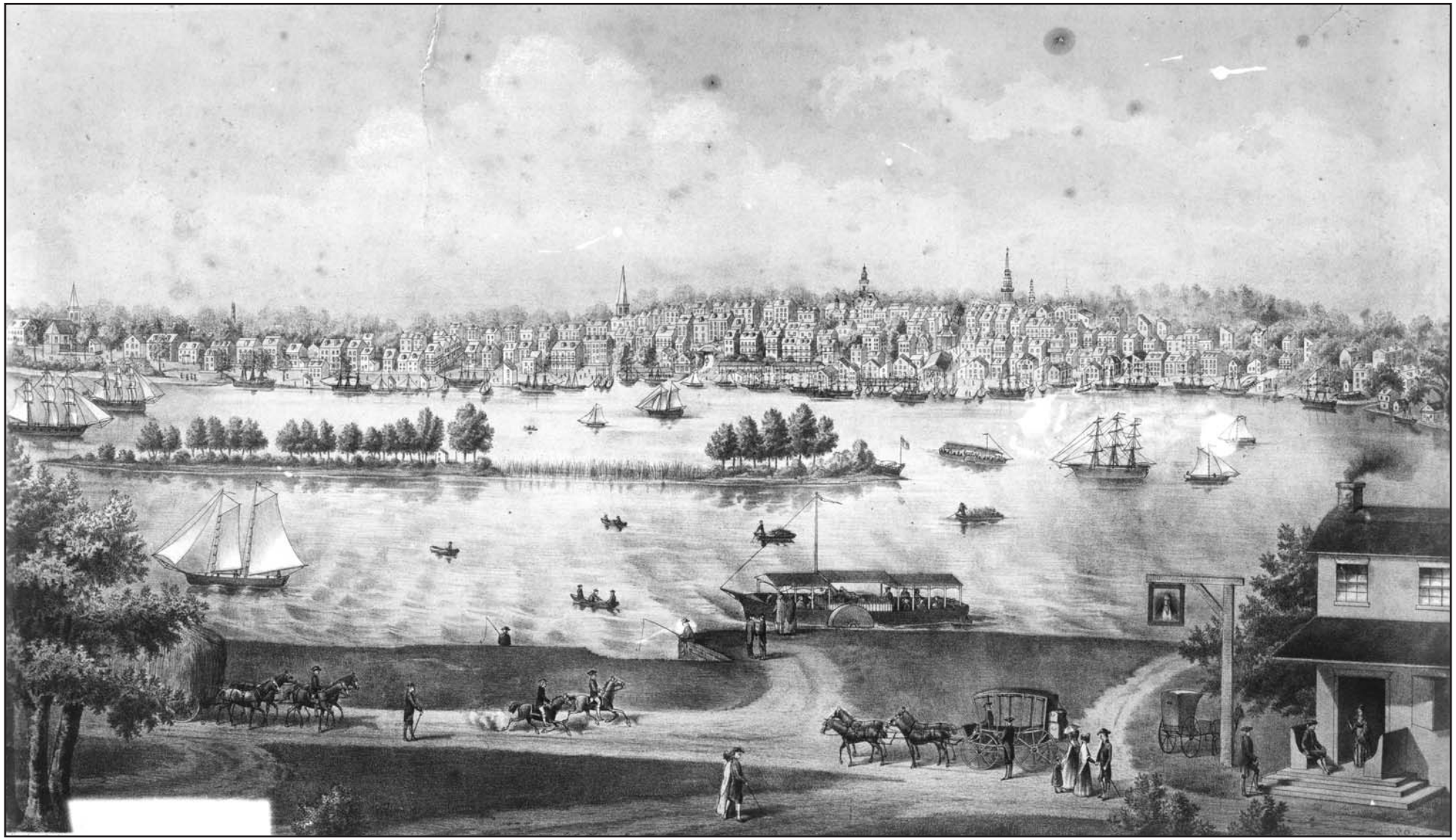


Figure 52. Romanticized view of the Philadelphia harbor c.1815 (Anonymous) showing the emergence of a city.

When Philadelphia Was Still A Greene Country Towne

As the historical background shows, the ends of the block were the choice spots for settlement, Front Street first, followed by Second Street, and after the creation of the alley, the interior of the block. The larger lot sizes along Front Street allowed for larger, more expensive houses than those on Second Street, and the Second Street lots were larger than those along Morris Alley. This fact led to a different set of assumptions which proved to be wrong about the assemblages from the alley, at least in regards to the earliest inhabitants of Morris Alley when Philadelphia was still a green country town. When the first few houses on the alley were built at the turn of the eighteenth century, they were lived in by the people who built them. These owner-occupants were well connected and chose the alley for its privacy and proximity to the seaport. William Annis was a sea captain, who wanted to be near the port for obvious reasons. William Gray was an entrepreneur who took over the interior of the block, expanded the cooper business started by John Budd, and built a bake house catering to the sea trade. Both had family connections to the adjacent properties; William Annis's wife was the granddaughter of the second-richest man in Philadelphia, brewer Joshua Carpenter, from whom they obtained their lot. William Gray was a descendent of Alexander Beardsley and a member of a family of brewers, coopers, ferrymen, and tavernkeepers. The archeological assemblages associated with these owners reflected a surprisingly high standard of living.

The presence of large numbers of Chinese Export porcelain dishes, and matching sets of dishes, left behind by the Annis family reflected a refined lifestyle (Table 25). This impression was heightened by the lists of belongings passed down through wills and in the inventory of their estate that identified their valued belongings, the items that were saved and not cast down the privy. The Annis assemblage was distinguished by some exotic pieces that may have been picked up as souvenirs from the captain's voyages, and his will tells us that he made enough money as a mariner to invest in other property that he bought along the alley and elsewhere in the city. The medicine bottles, the presence of parasites in the privy soil—signs of infection and disease—and the knowledge that Patience and William Annis died young indicate that despite their comfortable standard of living on the alley, the colonial town was not the healthiest place to live.

William Gray established his enterprise in the middle of Morris Alley next door to John Budd's cooper shop, which he bought shortly after. The siting of Gray's bake house in the interior of the block, like that of John Palmer's bake house (c.1753) at New Market (Liggett 1978:7), may have been chosen for safety reasons, because, at that time, they would have been surrounded by yards and not houses. William Gray likely dug the deep, wood-lined privy for his use and that of the servants and tenants he employed to operate the bake house and cooper shops. William Gray lived and worked alongside his workers. The expensive cuts of meat and the variety of fish and wild fowl associated with William Gray's occupation were something of a surprise coming from this communal privy on the interior of the block. The archeological assemblage associated with Gray indicates that he ate and drank well and owned an expensive set of Chinese Export porcelain teawares (see Tables 23 and 25). All indications are that William Gray had a thriving business exporting his bisket in barrels from his own cooper shop. He may have made enough in this enterprise to buy a house/tavern on High Street, the Conestoga Wagon, where he moved in 1750, having sold the Bake House to Mary Weyman. The inventory of his estate, valued at a comfortable 1310£ 8s 2p in 1754, listed the considerable furnishings of the tavern, a cellar well stocked with rum, beer, brandy, wine, and a barrel of mackerel, as well as several lots of land, including one on the south side of Morris/Gray's Alley that he held onto.

Table 25. Comparison of Percentages of Imported Wares from China and England/Europe to Local Wares in the Ceramic Assemblages of Area F Occupants.

Address	Feature	MCD	TPQ	Occupant Association	Occupation	CHINESE EXPORT PORCELAIN	ENGLAND /EUROPE	PHILA
13 Gray's	YohC1, AS I	1735	1750	Owners Wm & Patience Annis 1729-1748	Mariner	31%	38%	31%
1-3 Gray's	YohF1, AS I	1747	1769	Owner William Gray c.1738-1751, Mary Weyman 1751-c.1760	Bake House/Coopers	23%	40%	37%
1-3 Gray's	YohF1, AS II	1766	1783	Tenants (Owner Thomas Bond Jr.) c.1760-c.1792/5	Bake House/Coopers	10%	50%	40%
58 S. Front	114C3, AS I	1779	1783	Tenant Hercules Courtney 1769-1784	Carver/Graver/Tavern	13%	45%	42%
75 S. 2nd	YohA1, AS I	1796	1825	Owners Wm Richardson 1790-1815; Robert Swan 1815-1831	Optician; Silversmith	10%	68%	22%
58 S. Front	114C2/2A, AS I	1803	1823	Owner Robert Smith 1790-1822	Textile Merchant	25%	62%	13%

The complex of bake house and cooper shops was sold to Mary Weyman and operated much the same way until the 1760s, when the character of the alley began to change as more of the lots were built on and the open space gradually disappeared. The growing population clustered around the bustling waterfront, creating a boom in real estate, particularly in rentals. By 1765, Philadelphia was the largest city in America and the fourth largest in the British Empire, behind London, Dublin, and Edinburgh (Cresswell and Lane 1990:13). The bake house complex continued in operation, run by tenants of Thomas Bond Junior. The coopers on Gray's Alley thrived, but as the open space along the alley vanished, it was filled by rows of small houses on either side and lost its rural character. It was gradually transformed into a crowded, dark, narrow alley inhabited by itinerant tailors, hatters, housekeepers, and widows, many of them new arrivals from Europe. The drop in the numbers of Chinese Export porcelain and in the variety and cuts of meats in the bake house deposit of this period may be a result of a lower standard of living associated with tenant occupants. Likewise, the presence of counterfeit coins in the later deposit of the bake house privy attests to the shortage of legitimate currency during the Revolution.

In 1764, Hercules Courtney, an Irish craftsman of superior ability, was among the flood of talented artisans arriving from Europe to make their fortune in the young city. After serving as a journeyman with furniture maker Benjamin Randolph, probably working off the cost of his voyage, Courtney set up shop on Front Street in Alexander Beardsley's old house, which he rented from George Gray. Until the time of the Revolution, he worked on commission, carving furniture and woodwork in the homes of Philadelphia's rich. Not earning quite enough, he supplemented his income as a chandler, selling candles. When the Revolutionary War broke out he joined a militia and participated in the Battle of the Brandywine with mixed results. It is unclear if he was wounded, because upon his return to Philadelphia, he felt the necessity to apply for a tavern license. It is unlikely that he quit his occupation of carver and graver, but rather did both. He ran the tavern out of his house until his death, and his wife continued on for another year or two following that. Almost half of the dishes owned by Hercules Courtney were made in Philadelphia, the highest percentage of local wares on the site. The local wares were more affordable, and perhaps more practical for running a tavern. The Courtneys did own a set of Queensware, assorted tin-glazed earthenware, and Chinese Export porcelain dishes, suggesting, at

least, a modest standard of living. The period preceding and following the war was a time of spiraling inflation, and it is possible that the aging Courtney needed to run the tavern to adjust to fluctuations in the economy. Courtney was a talented artisan, but he never made the kind of money that allowed him to buy his own house.

Philadelphia, the Capital

After the Revolution, Philadelphia was the cultural center of the country, especially in the decade it served as the nation's capital. After an economic slump in the 1780s, a boom in trade in the 1790s caused an upswing in the economy. It is probably no coincidence that this was the period that saw major rebuilding on the Area F site, though remarkable in light of the wave of yellow fever epidemics that plagued the city at this time. The area along the waterfront between Front and Second streets, with the Old London Coffeehouse at one end and the new City Tavern at the other end, had become Philadelphia's business district. Anthony Morris's lot, right in the middle, was still a prime location for merchants engaged in trade. The four houses facing Front Street, including Anthony Morris's mansion house and the two tenements he built between his house and Beardsley's, were demolished, and larger houses, with storefronts at #58 and #60, were built in their place in the last decade of the eighteenth century. The Quaker druggist John Elliott built one large house on the site of the two earlier tenements.

Merchants and shopkeepers occupied the houses along Second Street. In 1795, William Richardson, an optician, took up residence at 75 South Second Street. An English silversmith, Robert Swan, had purchased the Annises' old house on Gray's Alley by 1800, perhaps settling there because it was close to silversmiths Joseph Richardson and son on Front Street, with whom he may have had a business connection. Swan did very well and later purchased a larger house on Second Street, the one previously occupied by William Richardson, who may have had a familial relationship with the well-known silversmiths. Swan's two houses had adjoining back yards, an ideal situation for a busy artisan with apprentices and housekeepers. We know from the body of work that survives that he produced silverwork on commission. Less is known about his work as an umbrella manufacturer, though the quantities of cut bone and antler may be residual material associated with this occupation. Swan, who may have been a bachelor, owned several sets of dishes, preferring to spend considerably more on teawares (index value 2.5) than tablewares. The other beverage of choice was wine, a beverage associated with gentility. Although Swan did not enjoy good health, he was financially secure and appeared to live a life of comfortable respectability.

The new store and house of Robert Smith on Front Street at the corner of Taylor's Alley was a few doors south of his previous establishment on Front Street, so he was not new to the area. His status as a successful textile merchant is evident in the cost of his house and in his membership in the St. Andrew's Society and as a director of the new Bank of the United States. The amenities of his new house and volume of ceramics associated with his home, and possibly his dry goods store, reflect the affluence of this elite merchant household. In addition to having a stable and carriage house at the back end of his lot, the family owned a large collection of Chinese Export porcelain, with many matching sets for breakfast, lunch, dinner, and dessert. The array of serving vessels and matched sets of glass tableware all indicate that entertaining was a way of life for them. Sanitation and health care in the Smith household were superior, as indicated by the lowest concentration of parasites found in their privy.

The lives of Anthony Morris, brewer, William Annis, mariner, William Gray, baker, Hercules Courtney, carver and tavern keeper, William Richardson, optician, Robert Swan, silversmith, and

Robert Smith, merchant, reflect the "commonplace prosperity" enjoyed by many Philadelphians in the eighteenth century (Warner 1968:8). All of these men embodied the entrepreneurial spirit that enabled them to attain comfortable standards of living, with Anthony Morris, William Gray, and Robert Smith at the high end of the spectrum and William Annis, William Richardson, Robert Swan, and Hercules Courtney ranging below them. At least four of them—Morris, Gray, Annis, and Swan—owned property other than their homes as investments. Hercules Courtney was the only one who did not own his house, and he had the need to supplement his income with tavern keeping.

These early Philadelphians, beginning with Anthony Morris, were part of the American tradition of privatism that encourages the expectation that each man should look to his own prosperity and the entire town would prosper (Warner 1968:4).

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APPENDIX I:

Archeological Investigation of Disturbed Eighteenth-Century Features, Nineteenth-Century Features, and Architectural Features

by

Daniel G. Crozier and Juliette Gerhardt

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

Plate 14. Area F, Yoh Building, Room F, wall unit B-C, shared west wall of Room C, 114 S. Front Street. Note brick sealing former door connecting brick store with rear warehouse c.1847.

Plate 15. Area F, Yoh Building, Room F, brick wall units D-E and F-G; view east. Note Feature 8 in foreground.

Plate 16. Area F, Yoh Building, Room F, wall unit K-L showing incorporation of c.1896 brick wall with stone cellar wall of an earlier building. Note the brick ledge may have been added to reinforce the earlier stone wall. Trench 6 in foreground; view southwest.

Plate 17. Area F, Yoh Building, Room F, southwest corner, wall units K-L and L-M; view southwest. Note filled in doorway at left and brick facing, right, added to finish edge of truncated wall L-M.

Plate 18. Area F, Yoh Building, Room F, wall unit M-N; view south. The seam shows the finished brick end of wall L-M and added brick chimney at right.

Plate 19. Area F, Yoh Building, Room F, view southeast of wall unit N-O. Trenches 7 and 8 in foreground with exposed brick walls perpendicular to wall unit N-O.

Plate 20. Area F, Yoh Building, Room F, brick floor in process of being removed; wall unit O-P, view southeast. Note base of bricked-in window opening at top of photograph. Wall O-P is in the approximate location of the former 1-3 Gray's Alley.

Plate 21. Area F, Yoh Building, Room F, wall unit P-Q, view southwest. This stone wall may be the west wall of 1-3 Gray's Alley. The brick facing at the right was added when the wall was broken through to create a door opening in the later warehouse.

Plate 22. Area F, Yoh Building, Room F; wall units Q-R, R-A and brick floor, view southwest. Stone wall Q-R stands on the property line between William Gray's bake house c.1738 at 1-3 Gray's Alley and George Gray's lot at 114 S. Front Street. About 1847, Joseph Solms built a 4-story brick warehouse in this location fronting Taylor's Alley to the north.

Plate 23. Area F, Yoh Building, Room F; Trench 1 at right, Trench 2 center, and Trench 3 to the left with Feature 3 exposed in the center right of the photograph; view west. Wall unit R-A is at the top of the photo and portions of Q-R and A-B are to the left and right. These walls may have formed the westernmost of Joseph Solms' warehouses built facing Taylor's Alley c.1847.

Plate 24. Area F, Yoh Building, Room F; brick removal to excavation of Trenches 4 and 5, view east. Feature 8 is at the top center of the photograph.

Plate 25. Area F, Yoh Building, Room F, Feature 3; mortared stone post support, view west.

Plate 26. Area F, Yoh Building, Room F, Feature 3A; concentration of stone, including a little concrete and brick; view west.

Plate 27. Area F, Yoh Building, Room F, Feature 7; brick foundations, possible furnace area.

Plate 28. Area F, Yoh Building, Room F, showing the wooden beam of Feature 7 anchored in the center of the feature.

Plate 29. Area F, Yoh Building, Room F, Feature 8; concrete manhole cover over brick shaft interpreted as a cesspool, c.1896.

Plate 30. Area F, Yoh Building, Room F, small test cut into edge of Feature 9 showing thickness (six courses) of brick platform, 20th century machinery support.

Plate 31. Area F, 114 S. Front Street, Room A; arrow points to vertical joint in south wall. Note void of former floor joist in south wall.

Plate 32. Area F, 114 S. Front Street, Room A; close up of joist pocket in south wall foundation following excavation.

Plate 33. Area F, 114 S. Front Street, Room A, east wall. Note structural changes in east wall and lime mortar in basement floor.

Plate 34. Area F. 114 S. Front Street, Room A, Feature 1, c.1856 floor remnant in southeast corner of room; view south.

Plate 35. Area F, 114 S. Front Street, Room A, Feature 1, c.1856 floor remnant; view east.

Plate 36. Area F, 114 S. Front Street, Room A, Feature 2, brick foundation for a furnace; view southwest.

Plate 37. Interior view of Area F, 114 S. Front Street, Room B, view west of c.1892 water closet that drained into Feature 2 (below pallet). Note brick arches at left, built c.1856 to support one-story counting house. The stone walls of Room B formerly enclosed an open yard at cellar level (Photograph by George Eisenman in Batcheler 1978).

Plate 38. Area F, 114 S. Front Street, Room B, Feature 2. Domed brick/mortar closure for cesspool. Note drain lower left, shower drain pipe lower right, and drain pipe upper left; view south.

Plate 39. Area F, 114 S. Front Street, Room C, east wall. Note barred window, partially filled in with brick; view east into Room B.

Plate 40. Area F, 114 S. Front Street, Room C, south wall. Note area of brick in stone wall to the right of pillar.

Plate 41. Area F, 114 S. Front Street, east wall. Note brick patch in wall.

Plate 42. Area F, 114 S. Front Street, south wall; possible reused wall.

Plate 43. 116 S. Front Street, vertical pocket in foundation wall showing wooden beam or floor joist in place; view north.

Plate 44. 116 S. Front Street, vertical pocket in foundation wall after removal of wood; view north.

Plate 45. Area F, 118 S. Front Street, Room A. Note brick-lined stone foundation walls forming the southeast corner of the Anthony Morris House.

Plate 46. Area F, 118 S. Front Street, Room B, Feature 1, unlined shaft possibly dating to the late nineteenth century. View south. Note slumped remains of brick arch.

1.0 ARCHEOLOGICAL INVESTIGATION OF THE YOH BUILDING AND 114 SOUTH FRONT STREET

The 1977 archeological investigation of the Area F site was conducted in cellar rooms A,B,C, and F of the Yoh Building at 117-123 South Second Street and in cellar rooms A,B, and C of 114 South Front Street. As Figure 1 shows, Rooms A and B at the front of the Yoh Building occupied four historic lots on Second Street: 117, 119, 121, and 123 while Room C approximated the historic lot at 113 Gatzmer Street. Room F of the Yoh Building, extending between Gatzmer and Ionic streets at the center of the site, comprised all of the historic lot at 101-103 Gatzmer and a portion of the original subdivision at 114 South Front Street. The lot at 114 South Front Street remains unchanged. Remnants of historic features survived beneath the cellar floors in both buildings. The features are summarized by building, the Yoh Building in Table 1, and 114 South Front Street in Table 2. Artifacts collected during the archeological investigation were bagged according to provenience. This information is listed in the field log, presented here in Table 3. The archeologists also observed that the walls of the buildings were themselves artifacts of earlier structures and went to great effort to record the architectural features that were incorporated into the later warehouse walls. Mortar samples were collected and noted on the floor plans of the buildings. In addition to mortar, soil, brick, and wood samples were also collected for future analyses and are listed in Table 4. These tables provide essential information to understanding the Area F artifact assemblage. The intact eighteenth-century features were described in the main body of the report, and the remaining features are described in this section.

1.1 YOH BUILDING: ROOM A

Room A was the northwest cellar room of the Yoh Building, west of Room D and north of Rooms B and C. All Room A walls were constructed of Mica Gneiss and/or Wissahickon Schist. There were three windows with low sills along the north wall and an opening onto the sidewalk (Second Street) from the west wall (Plate 1). Excavations along the west wall of Room A revealed a working trench from which mortar samples were taken. The south wall was tied to and built at the same time as the west wall (Plate 2). The east wall appeared to be built on a concrete footer. Four pillars, each supported by a concrete foundation, ran down the center of the room from east to west.

In Room A, the concrete flooring was removed and the total floor area examined except for a minor portion to the east where a large electrical transformer was located. Three trenches and three test pits were dug to greater depths at various points around the room to examine the stratigraphy, the footers of the walls, and to cross-section some large mortar spills noted below the concrete flooring and believed associated with the construction of the room walls.

The concrete flooring was seated on a bed of coarse aggregate mixed with a brownish yellow soil. Below this was a soft, fine-textured soil ranging from greenish gray to yellowish brown with fragments of brick, mica schist, and slate. This was underlain by a sterile yellowish-brown clay and, deeper still, a water laid sand. Fill adjacent to the walls, at a depth of 2.00 feet, was a more compact reddish-brown clay, interpreted as a builder's trench.

In the northeast portion of the room, a large cement slab was found beneath the concrete floor. Portions of this concrete slab were removed but failed to reveal any sub-surface features. Two shafts, Feature 1 and Feature 2, were exposed in the southeast quadrant of Room A (Plate 3). Two

other features were recorded but not excavated; a portion of a builder's trench (Feature 3) along the south wall and, north of Feature 2, a section of mortar flooring (Feature 4).

The pillars that run the length of Room A approximate the historic property line between 73 and 75 South Second Street. Feature 4 may be a remnant of the kitchen at 73 South Second Street built c.1761 by James James. This may have been the only surviving eighteenth-century feature associated with this lot. The shaft features fall within the boundaries of the neighboring lot to the south, 75 South Second Street. It is possible that Feature 3, the builder's trench located along the south wall of this room, may have been associated with the eighteenth-century structure that stood on this lot, but this feature was not excavated. The mortar samples collected in this room were not analyzed so it is not possible to confirm if the walls of Room A were reused cellar walls from the eighteenth-century structures that stood at 73 and 75 South Second Street.

1.1.1 YOH BUILDING, ROOM A, FEATURE 2 (UNLINED PRIVY)

After initial clearing of the southeast corner of Room A, a circular discoloration designated Feature 2 (YohA2) was exposed approximately 4.50 ft. northwest of Feature 1 (see Figure 1, Plate 3). The feature was wetter than the surrounding area and measured 3.40 ft. by 3.70 ft. in diameter. It was encountered at an elevation of 9.55 ft. ASL (Figure 2). The entire feature was excavated to 7.55 ft. ASL; below this depth, it was sectioned and only the south half excavated to a depth of 7.15 ft. ASL

A circular concentration of artifacts in a dark brown clay matrix with flecks of charcoal was how YohA2 appeared in plan. Two whole Staffordshire yellowware posset cups were embedded in this upper stratum. Other than the fact that both vessels were stained and their rims nicked, perhaps the reason for discard, the condition of these vessels was good. Within a foot, the dark brown clay was mottled with dark yellowish brown to brown/dark brown and large clumps of decayed wood to a depth of 7.60 ft. ASL. This was underlain by a lighter, yellowish-brown clay, and below that, a yellowish-brown sand. The total depth of the feature from top to bottom was 2.40 ft. although it was probed another foot to sterile soil. Except for chunks of wood found throughout there was no evidence of a wood or brick liner. YohA2 was interpreted as the basal portion of an unlined privy pit.

The three layers of fill in YohA2 were combined into one analytical stratum (AS I) at the base of the truncated privy. Most of the artifacts came from the uppermost layers. All that was recovered in the lens of yellow brown clay and sand lining the base of the pit was a melted piece of olive bottle glass, some window glass, and a tiny white salt-glazed stoneware sherd. Evidence that the feature was truncated is suggested by the fact that 82 percent (42) of the vessels could be reconstructed to less than 40 percent, and in fact the majority (28) were 10 percent or less.

Fifty-one ceramic vessels were identified in this feature: 16 kitchen, 13 teaware, 11 beverage, 4 table, 1 hygiene, and 6 unidentifiable vessels. The majority of the ceramics were redware (19) followed by tin-glazed earthenware (10), yellowware (9), Chinese Export porcelain (6), white salt-glazed stoneware (5), and creamware (2) (Table 5, Plate 4). Over half (63%) of the vessels were imported, 26 from England or Europe and 6 from China, while the remaining 37 percent (19) were locally produced redware. A TPQ of 1800 was assigned to this feature based on the Chinese Export porcelain dishes.

Thirteen glass vessels were recovered from YohA2 (Table 6). Of these, 10 were bottles and three were tablewares. Of the 10 bottles, one case gin bottle, four wine bottles, and five unidentified

bottles were identified. The wine bottles generally dated from c.1750 to 1760. The three tableware vessels consisted of two molded flip glasses and one drawn wine glass.

Small finds included a pair of brass tongs, one worked antler fragment, two buckles related to horse hardware, one knife, two brass buttons, one wig curler, three kaolin fragments of tobacco pipes, and a large quantity of oyster shells (see Plate 4).

YohA2 was the base of an unlined privy shaft associated with the dwelling at 75 South Second Street. The early TPQ of 1800 for the bottom of this shaft and the mean ceramic date of 1763 suggests this privy predated YohA1 and was probably the original privy for this lot. Given the shallow depth of this feature, it may have been intended as a temporary privy, or it was dug in compliance with the 1763 Act of Assembly regulating privy depths.

1.2 YOH BUILDING: ROOM B

Room B occupied the southwest corner of the Yoh Building cellar, abutting Room A to the north and Room C to the east (see Figure 1). Three large pillars ran down the center of Room C from east to west. Large machinery, including a heater, tank and generator, and a stairway filled the south half of the room so that the concrete floor covering this portion of the room was not removed for investigation.

The north and south walls of Room B were entirely of stone with at least one window in the south wall (Plate 5). The west wall was partly stone with a sealed window and brick with two sealed arches leading to Second Street (Plate 6). The east wall was brick with an arch at floor level providing access between Rooms B and C. Concrete in the north half of the room was removed and Features 1 and 2 were exposed. After exposure, these features were determined to date to the twentieth century and are only briefly described below. The area to the north and west of Feature 2 was disturbed.

Room B occupies the historic lots at 77 and 79 South Second Street with the line of pillars approximating the property line between these two lots. The south wall of Feature 2 may have disturbed the earlier foundation or rests upon it. Although anomalies were recorded in the walls of Room B, the ground disturbance in this room was extensive and probably destroyed all parts of the eighteenth-century structures that were built on the historic lots.

1.2.1 YOH BUILDING, ROOM B, FEATURE 1

Feature 1 (YohB1) was a circular, brick-lined structure with a metal cover located against the east wall of Room B in the Yoh Building (see Figure 1). The elevation of YohB1 was 10.28 ft. ASL Excavations around the metal cover exposed a brick conduit passing below the archway leading into Room C (Plate 7). The surface of the conduit was exposed in Room C where it was designated Feature 3. A brick and mortar sample (No. 150) collected at an elevation of 10.02 ft. ASL in the area of the opening was the only artifact recovered from this complex of features spanning Rooms B and C. The opening into the conduit in Room B and its continuation in Room C (Feature 3) were interpreted as drainage-related features associated with the early twentieth century warehouse and were not investigated further.

1.2.2 YOH BUILDING, ROOM B, FEATURE 2

Feature 2 was the brick and concrete foundation of a furnace located near the center of Room B in the Yoh Building (see Figure 1, Plate 7). The feature was exposed, determined to be associated with the early twentieth-century warehouse and not investigated further.

1.3 YOH BUILDING: ROOM C

Room C was a small cellar room in the southeast corner of the Yoh Building, abutted by Room A to the north and Room B to the west (see Figure 1). The west wall of Room C was brick and the others were stone (Plate 8). Only the northern third of this room was investigated as the southern portion was occupied by a boiler. A sump occupied the extreme northwest corner of the room, but several features were exposed immediately beneath the concrete floor in the remaining area. A large, metal drain pipe traversed the center of the room from north to south (Plate 9). Two overlapping brick shafts were exposed in the northeast corner of the room. The northernmost, Feature 1, was truncated by the north wall of the room, and the edge of the later shaft, Feature 2, was truncated by construction of a brick conduit, Feature 3, that crossed the center of the room passing under the archway in the west wall connecting Rooms C and B (Plate 10). The surface of Feature 3 was exposed at an elevation of 9.60 ft and clearly was twentieth century in origin. A linear stain along the north wall of Room C, was identified as a possible builder's trench, Feature 4, associated with the construction of the Yoh Building. Features 3 and 4 were mapped and photographed but not excavated further.

Room C occupies the historic lot fronting Gray's Alley (#13) that became 113 Gatzmer Street. This was a small, backwards L-shaped plot that was the earliest subdivision on what was then Morris Alley. The first house built on this lot dates to c.1702.

1.3.1 YOH BUILDING, ROOM C, FEATURE 2 (BRICK-LINED PRIVY)

Feature 2 (YohC2) was a circular brick-lined privy pit overlapping the southeast side of Feature 1 in the northeast quadrant of Room C (see Figure 1, Plate 11). The southwest side of YohC2 was, in turn, disturbed by Feature 3, a brick conduit contemporaneous with the construction of the Yoh Building. The surface of Feature 2 was encountered at 9.59 ft. ASL and the bottom of the feature was reached at 5.80 ft. ASL. YohC2 was sectioned and the southwest or disturbed portion of the shaft was removed by shovel and screened down to sterile soil. Later, the northeast half was excavated so that the entirety of Feature 2 was excavated.

The inside diameter of the YohC2 shaft measured 5.90 ft. (Figure 3). The top of the feature, between 9.50-8.00 ft. ASL, was filled with ash, brown soil, and brick rubble. Below this, a loose yellow-brown soil with concentrations of mortar and brick rubble continued to an elevation of 6.45 ft. ASL, approximately level with the brick sill at the base of the feature. This sill was level with the portion of wall of YohC1 that had been ripped out to this depth and incorporated into the wall of YohC2. The fill from below this point was gray sand that extended to a depth of 6.20 ft. ASL. In the southeast corner, a pebbly yellow sand was excavated to sterile soil, encountered at 5.80 ft. ASL.

The glass and ceramic analyses of YohC2 identified two analytical strata within the surviving remnant of shaft. The uppermost strata comprised artifacts with a TPQ of 1865 in a matrix of ash, soil, brick and mortar building rubble designated AS II. AS II fills represent the closing of the privy and its subsequent truncation during construction of the Yoh Building c.1908, and brick

conduit (Feature 3). The deposits at the base of the shaft, the gray and yellow sands designated AS I, may represent use of the shaft. Artifacts within AS I produced a TPQ of 1830. AS III was assigned to the disturbed layer at the juncture of Features 1 and 2. The YohC2 shaft was probably in use from c.1750 (TPQ for YohC1) to 1830. The range of artifacts recovered in this disturbed feature can be seen in Plate 12.

A total of 110 whole or reconstructed ceramic vessels were catalogued from Feature 2; 28 vessels from AS I, 61 vessels from AS II, and 21 vessels from disturbed contexts, AS III. Over half of the ceramic vessels were represented by fragments (less than 25 percent reconstructible). It is uncertain if the fragmentary nature of the ceramics was a result of filling behaviors or post-abandonment construction activities. The feature was too compromised to allow for more than a few observations.

YohC2, AS I

The ceramic assemblage in AS I was small (Table 7): teawares (12), tablewares (7), beverage (3), kitchen (3), hygiene (1), and unknown (2). These ceramic groupings were made of pearlware (12), creamware (7), tin-glazed earthenware (2), stoneware (2), local Philadelphia redware (2), refined redware (1), Chinese Export porcelain (1), and whiteware (1). Of these, there was a nearly whole slip-decorated pie pan, saucer size (see Plate 12a), and fragments from a relief-molded dry-bodied stoneware jug (see Plate 12b). The single piece of Chinese Export porcelain was an underglazed blue creamer.

Sixty-five glass vessels were recovered in YohC2 (Table 8). The *TPQ* of 1830 for AS I was derived from one of four fancy cologne bottles found in this feature (see Plate 12m). In addition to the cologne bottle there were seven bottles that included one case gin bottle and two wine bottles. Glass tablewares consisted of one tumbler, one wine glass, one decanter or case bottle, and one pressed glass plate. An additional vessel (1) was identified during the glass vessel analysis, but it could not be determined as to whether this vessel functioned as a bottle or as a piece of tableware.

Quantities of architectural debris and oyster shell were found throughout YohC2 so only non-architectural items are described. In AS I, personal items included five buttons (2 brass, 3 bone), a large U.S. copper cent made 1793-1857 (the date was illegible), two toothbrush fragments, one slate pencil, one gunflint, eight kaolin pipe fragments (see Plate 12p-r), and a piece of coral. Household items consisted of lamp glass, two carved bone utensil handles, a furniture tack, and fragments of worked bone.

YohC2, AS II

Sixty-one ceramic vessels in AS II were sorted into teawares (25), tablewares (10), kitchen (9), beverage (8), hygiene (4), gardening (3), and unknown (2) (Table 9). The kitchenwares, hygienewares, and gardening vessels were manufactured locally, of redware (12) or stoneware (4). Two lusterware goblets with sprig decoration are noteworthy vessel forms in the beverage group (see Plate 12e). The remnants of three sets were identified in the AS II fill: one lustreware soft-paste porcelain tea set (Set #1, see Plate 12h), one blue transfer-printed pearlware tea set (Set #2, see Plate 12f), and one blue shell-edge pearlware table setting (Set #3, see Plate 12k). The majority (64%) of the vessels in AS II were imported from England, 34 percent are local to Philadelphia or New Jersey, and 2 percent, a single slop bowl, was imported from China.

The majority (47) of the glass vessels were found in AS II (see Table 8). As was the case in YohC1, most of the vessels contained alcoholic beverages or medicine. Among the identifiable alcohol bottles were one case gin bottle, six wine bottles (see Plate 12l), one flask, two

miscellaneous spirit bottles, and two carboys. Carboys were used to store a large volume of wine or other alcoholic beverages. Three miscellaneous beverage bottles were also identified. These likely contained mineral waters, soda, or some similar product. Other bottles included seven medicine bottles and two fancy cologne bottles. Glass tablewares were well represented in AS II; most were associated with drinking. There were 10 tumblers, two wine glasses, and one miscellaneous drinking glass. One serving vessel, a cruet, was also identified. Two additional unidentified tableware vessels originated from this analytical stratum as well as one vessel that could not be positively identified as being a bottle or a piece of tableware.

Small finds in AS II consisted of more buttons (14 brass, 9 bone; see Plate 12o), one toothbrush, one comb, another illegible coin, one pocket knife, two gunflints and five uncut .30-caliber lead pistol shot, 15 kaolin pipe fragments (see Plate 12p), and one rubber token c.1849 from D.P. Dietericks Cheap Rubber Store on Chestnut Street (see Plate 12s). Children's toys consisted of miniature dishes–a pearlware teabowl and plate and redware jug. Household items included lamp glass, two carved bone utensil handles, the backing for a drawer pull (see Plate 12t), a finial, and decorative lead scrolls. A whole conch shell and fragments of worked bone and antler were also found in AS II.

YohC2, AS III
In AS III, one redware mixing bowl decorated with manganese mottling and beading may have been made by Philadelphia potter Thomas Haig, 1819-1831 (Myers 1980:41). This form and decoration were noted on vessels excavated at the Block 1 and Block 2 sites at Independence Mall (Gerhardt 2002).

The five glass vessels found in the disturbed AS III are listed in Table 8. A whole milk glass cologne bottle c.1827, molded in the shape of a Paris fountain, was something of a luxury item (see Plate 12n).

Small finds in AS III included three buttons (1 brass, 2 bone), one marble, four kaolin pipe stems, and one knife handle.

1.4 YOH BUILDING: ROOM F

Room F was a large room forming the easternmost limit of the Yoh Building complex, bounded by the unexcavated Room E to the west and Room C of 114 S. Front Street to the east. Room F was a separate warehouse at 103 Gatzmer Street built c.1896 by Thomas Roberts who later built the adjoining warehouses on properties he bought up from the Richardson estate (see Plate 2). Prior to the construction of the warehouse at 103, at least three buildings/lots occupied the area within Room F, stretching from Gatzmer to Ionic Streets.

Remnants of these earlier buildings were evident in the walls and floor surfaces within Room F. Some of the floor was concrete, while large areas of the room were covered with brick flooring, in varied patterns, underlain by a bedding of mortar. Efforts were made to document these variations in plan and photographically. In order to accomplish this, the walls were labeled in clockwise direction beginning in the northwest corner: wall A-B, B-C, C-D . . . Q-R (Figure 4). Gneiss and Schist were used in the stone walls. Wall A-B was a mortared stone wall with evidence of large, hewn stones, formerly window or door sills, reused in the wall (Plate 13). Wall B-C also formed the west wall of Room C, 114 S. Front Street and revealed a bricked-in doorway that formerly connected the two buildings at basement level (Plate 14). Wall segments D-E and F-G were brick constructions, while wall K-L was both brick and stone (Plates 15-16). A brick ledge along the base of the stone portion of K-L and the brick section were added to reinforce the

earlier stone wall. Stone sealed an earlier doorway in K-L and wall L-M was truncated and finished with brick (Plate 17-18). Bricked-in window openings were observed in walls N-O and O-P (Plates 19-20). Stone wall P-Q was broken through to create a door opening in the later warehouse and brick was used to frame the opening (Plate 21). Wall units Q-R and R-A were mortared stone (Plate 22). These alterations reflect the changing uses and re-adaptations of earlier walls that were incorporated into the c.1896 warehouse. Mortar samples collected from these walls were another method of documentation.

Further architectural features noted in the south end of Room F included three short, brick walls (original height unknown) at right angles to walls P-Q and N-O (see Plate 19). Several, flat stone slabs spaced at regular intervals in the floor probably once served as supports. These features along with the above-cited variations in the floors and walls of Room F were recorded as part of the archeological investigation of Room F.

The archeological investigation of this room focused in the areas of brick paving. Strips of brick were removed in swaths 2.5 feet wide, the surfaces below troweled to remove the brick and mortar residue, and examined for features. The stratigraphy beneath the straight brick flooring in the northern portion of the room revealed, from top to bottom, a layer of black ash, red grit, and fine-textured yellow brown sandy subsoil. Beneath the herringbone brick, the stratigraphy revealed, from top to bottom: a thin layer of red grit, then black ash, a yellow brown gritty soil, a deep layer of red grit, and finally the fine yellow brown sand. The additional layers under the herringbone section were probably deposited following the excavation for the cesspool (Feature 8) c.1896 in the east side of the room. A total of 10 trenches were excavated in Room F, Trenches 1-3 (Plate 23) at the northern end of the room, Trenches 4-6 (Plate 24) in the central portion of the room, and Trenches 7-10 (see Plate 19) in the southern part of the room. With the exception of an area along the west wall (P-Q) north of the opening, the parts of the room under concrete flooring were not investigated.

Ten subsurface features were identified in Room F (see Figure 4; Table 1). Five of these features date to the construction or operation of the warehouse at 103 Gatzmer Street c.1896, or later: a post support (Feature 3/3A, Plates 25-26), mortar spill (Feature 5), possible footing for a coal furnace (Feature 7, Plates 27-28), cesspool (Feature 8, Plate 29), and machinery support (Feature 9, Plate 30).

Two features, 4 and 10, are fragments of brick wall foundations that are in line with a small building or warehouse on Taylor's Alley depicted on the 1860 Hexamer and Locher map.

1.5 114 SOUTH FRONT STREET: ROOM A

A concrete surface covered the floor of Room A and six evenly-spaced metal pillars bisected the room from east to west (Figure 5). Each pillar was supported on a foundation of brick and concrete.

Wall construction in Room A varied and suggested reuse of older walls. The north wall of Room A was brick for two-thirds of its length, changing at a vertical joint in the wall to stone at the west end of the room. The stone foundation of the south wall of Room A changed in width from bottom to top. Above the foundation, the south wall was brick interspersed with stone – Mica Schist and Gneiss, and patched with plaster. Approximately half way along the course of this wall was a vertical joint (Plate 31). From the point of the joint to the west end of the room, the south wall was straighter and more vertical than that portion lying east of the vertical joint. The vertical joint along the south wall did not line up with the vertical joint on the north wall, nor did examination of the immediate area to the north reveal remains of a foundation leading in that direction. Also along the

south wall, six openings, measuring .5-.6 ft. in width by approximately 3.0 ft. in depth, contained chunks of wood, stone, and mortar, probable remains of earlier floor joists (Plate 32). The foundation of the south wall was deeper, extending to a depth of 12.65-12.70 ft. in contrast to the north wall which only extended to a depth of 14.60 -14.80 ft. The west wall of Room A was stone and matched the stonework of the west portion of the north wall. The sizes of stone utilized in the west and north walls were larger than those in the south wall. The front or east wall of Room A was both stone and brick (Plate 33). The base of this wall, near the south end, was constructed with massive stones and the upper wall constructed of smaller, Mica Schist and Gneiss, and brick. Three openings along the east wall had been filled in with cinder blocks.

Concrete was removed from Room A, from east to west, with excavations initiated in the east end of the room. Many discolorations, containing various amounts of mortar, were noted in the dark yellow-brown mottled clay beneath the concrete surface. One stain along the north side of the room plotted the east-west course of a sewer pipe that ran the length of the building. The northeastern corner of Room A was not examined due to the presence of open electric boxes and an elevator shaft which was utilized for storage. The southwest corner of Room A was disturbed by an oil line attached to a tank located in Room B. Two north-south trenches and a test pit along the south wall were excavated exposing four features.

15.1 114 South Front Street, Room A, Feature 1

Feature 1 was a well-defined concentration of mortar (the upper part stained red), stone and wooden beams in the southeast corner of Room A at an elevation of 15.65 ft. (see Figure 2, Plates 34-35). The feature was mapped, photographed, and mortar and soil samples collected. Feature 1 was interpreted to be an earlier floor associated with the occupation of Hugh Catherwood 1855-1886.

1.5.2 114 South Front Street, Room A, Feature 2

A square, brick-paved platform and trough located along the south wall of Room A at an elevation of 15.45 ft. was mapped and photographed (see Figure 5, Plate 36). This brick foundation, designated Feature 2, served as a platform for a furnace associated with the building erected by Joseph Solms c.1847.

1.5.3 114 South Front Street, Room A, Feature 4

Feature 4 was a dark stain filled with loose soil and rubble at an elevation of 14.83 ft. in front of a door opening in the southwest corner of the room (see Figure 5). Several fragments of bone, tin-glazed earthenware, olive bottle glass, window glass, and one brass button, pipe stem, and clam shell were found in the loose soil (Bag 10). Feature 4 is in the vicinity of the well (114B1) and may be midden associated with the earlier houses on this lot. The area was further disturbed by a brick footing for one of a pair of posts supporting the first floor, and a later pipe. This brick footing was two bricks long by four bricks wide and two courses deep. The brick footing postdated Feature 4.

1.6 114 South Front Street: Room B

Three doorways were located between Room A and Room B to the west. Room B was approximately one third the size of Room A and the interior was made smaller by the presence of two standing arches in the southern portion of the room (Plate 37). The arches, constructed of headers, were supported by three brick pillars added c.1856 when a one-story counting house was

erected at grade level (Batcheler 1978). On the west side of Room B, there was a water closet and a set of steps leading up to the first floor.

The walls in Room B were all constructed with large stones. It was noted that the foundation of the north wall was not as deep as that of Room A. All of the perimeter stone walls have weather-pointed mortar joints indicating that this space was an open yard at cellar level prior to 1856 (Batcheler 1978). The two barred windows and doorway in the west wall of Room B was the façade of a separate, four-story building built c.1847 at the rear of this lot.

The concrete flooring in Room B was disturbed at the northern end by a sewer pipe extending east-west, apparently throughout the entire structure. Other disturbances identified as gas lines and various water pipes were examined by test pit.

The concrete floor of Room B was removed and the southwest corner of the room excavated to a yellowish-brown clay. Stratigraphy beneath the concrete was, from top to bottom, a coarse cinder bedding, a thin layer of clay, a rubble-filled reddish-brown soil with a concentration of rust-colored sand, underlain by a soft, sterile sandy soil. A joist pocket in the wall, identical to those found in Room A, was exposed. It contained a fragment of a wooden floor joist and sand. Three features were identified in Room B, but only Feature 1 predates the c.1847 building.

1.6.1 114 South Front Street, Room B, Feature 2

Feature 2 was a circular, brick-lined shaft capped with a brick dome, near the south wall of Room B west of Feature 1 (see Figure 5, Plate 38). The surface of the brick dome was encountered at an elevation of 15.12 ft. Investigation of Feature 2 was limited to the cutting of a hole into the dome cover. This revealed a shaft lined with brick headers and stretchers, possibly reused. The upper 1.50 ft. was mortared, probably for the purpose of attaching the domed cover. The exterior diameter of the dome was 4.50 ft. and the interior diameter of the shaft was approximately 2.90 ft. Although Feature 2 was not excavated, probing indicated there was approximately 1.30 ft. of fill at the bottom. The entire shaft measured 11.35 ft. from the top of the dome to the base of the brick. The presence of drain pipes emptying into Feature 2 indicated it functioned as a cesspool for an interior toilet added c.1892 (Batcheler 1978).

1.6.2 114 South Front Street, Room B, Feature 3

Two parallel, mortared stone walls, at elevations of 15.87 and 15.73 ft., were uncovered on the south side of the brick arches. These north-south walls, designated Feature 3, may have been a stone foundation for an earlier water closet that emptied into Feature 2. A tobacco pipe stem, several late eighteenth-century sherds including blue painted and printed pearlware and Chinese Export porcelain, some olive bottle glass, and one later bottle fragment from the Whitney Glass Works 1887-1918, were collected in the vicinity of the walls (Bag 19). Feature 3 predates an 1892 insurance survey noting minor alterations at this address (Batcheler 1978).

1.7 114 S. Front Street: Room C

Room C abutted Room B to the east and Room F of the Yoh Building to the west. Three piers ran down the center of Room C, four smaller ones along the north wall and three more along the south wall of the room. An elevator shaft was located approximately midway along the south wall. Two arched vaults, both straddling shaft features, were located in the north wall. The westernmost arch was constructed entirely of headers. The easternmost arch was destroyed when a sewer pipe was

placed in that area. The west end of Room C was vaulted with brick arches constructed of headers and stretchers. One vault was higher than the other but they appeared to have been constructed simultaneously.

All of the walls in Room C were stone but variations in their construction were observed. As described in Room B, the east wall of Room C had two barred windows and a doorway (Plate 39). Most of the south wall was constructed with a small-sized stone and had patches of brick, apparently added for repairs (Plates 40-41). However, a portion of the south wall was constructed of larger stones and probably represents an earlier, reused wall (Plate 42). The north wall was constructed with a massive-sized stone and had the above-mentioned arches in two places. This wall also exhibited patches of brick interspersed in the stonework. The west wall was also stone except for the southwest corner that was brick.

The concrete covering the floor of Room C was removed. Several test pits were excavated around the perimeter of the room to locate the bases of the walls. Three test pits were excavated along the south wall, one along the centerline of the vaults occupying the west end of the room, and one in the northwest corner of Room C. These test pits exposed the foundations of the walls and the following differences in elevations: base of north wall at northwest corner, 14.66 ft.; base of west wall at northwest corner, 14.25 ft.; and base of the center vault along the west wall, 14.90 ft.

Five features were identified immediately beneath the concrete flooring. All of the features in Room C predate Solms'c.1847 building.

2.0 ARCHEOLOGICAL INVESTIGATION OF 116 AND 118 SOUTH FRONT STREET

The archeological investigation of a portion of the vacant lot south of 114 South Front Street, then in use as a parking lot, was undertaken in an effort to locate structural remains of the Anthony Morris house and/or basal remains of privies, wells, or other historic period structures. These investigations consisted of backhoe-excavated trenches.

2.1 116 SOUTH FRONT STREET

A backhoe trench, 10 ft. wide narrowing to 6 ft. by 13 ft. long, was excavated 33 feet north of Gatzmer Street (see Figure 5). This trench uncovered an east-west trending stone foundation with brick facing, 13 feet long. A vertical opening in this stone foundation contained fragments of a wood beam, probably a floor joist, identical to those described at 114 South Front Street (Plates 43-44).

This wall segment lines up 10 feet north of Morris's house and is most likely the north wall of the southern tenement constructed c.1720 by Anthony Morris. The two tenements were demolished in 1782 by John Elliott who replaced them with a single structure.

2.2 118 SOUTH FRONT STREET

A backhoe trench, 10-13 ft. wide by 82 ft. long, was excavated at the northwest corner of Gatzmer and Front streets (see Figure 5). Not far below the surface of the macadam were the stone and brick foundations of a house. A brick wall was exposed to the east, parallel to Front Street, and to the south, parallel to Gatzmer Street. The south wall was stone faced inside and out with brick (Plate 45). A break in the south foundation wall 43 feet to the west marked the location of the rear wall of the main house. The basement room of the main house was designated Room A, and the rear extension basement, Room B.

At the time of discovery, the foundations were assumed to be the remains of Anthony Morris's house built c.1688 on this location. A 1957 photograph of the Front Street side of this block shows a three-story brick house although Anthony Morris's house was two stories. A descendent, Deborah Morris, insured the house in 1788 but it was rebuilt by her heir, Dr. Samuel Griffiths, c.1798.

The stratigraphy below the macadam surface of the parking lot revealed a deep layer of brick rubble and gravel/pebble soil with occasional cobble-sized inclusions. Below this fill was a thin, .1 ft. thick, lens of soil that blended into sterile yellow clay. A single unlined pit was uncovered in Room B, along the south wall, and was designated Feature 1.

2.2.1 118 SOUTH FRONT STREET, ROOM B, FEATURE 1 (UNLINED SHAFT)

Feature 1 (118B1) was a circular soil discoloration 7.10-7.30 ft. in diameter located in the southeast corner of Room B at an elevation of 12.32 ft. ASL (see Figure 5, Plate 46). The north half of 118B1 was excavated to a depth of 2.00 ft. ASL and probed to .70 ft. BSL (Figure 6).

The top of 118B1 was filled with a yellow-brown sand, brick, wood, and mortar to depths ranging between 10.60 to 10.00 ft. ASL, with the deepest point at the center of the pit. Beneath this, the pit

was filled with a clayey soil and more brick and mortar rubble. Soil, mortar and brick samples were collected from Feature 118B1.

The upper layer of 118B1 contained several fragments of plate glass, a light bulb, and a machine-made bottle together with tin-glazed earthenware. Below this, were more eighteenth-century ceramic sherds – tin-glazed earthenware, redware, creamware, pearlware, table and bottle fragments, bone and brass buttons, kaolin pipe fragments, brick, shell and bone. The presence of a mold blown bottle c.1877 at the bottom of the pit provided the TPQ for the feature. Later items such as the machine-made bottle and two light bulbs (post 1895) found at the top of the feature were probably intrusive.

The configuration and content of this feature indicate a nineteenth century date. The location of the feature at the back of the house approximates the location of a steam-driven elevator added when the house was converted to a coffee warehouse in the third quarter of the nineteenth century. The absence of organic matter in this feature and its location suggests that 118B1 may be a remnant of the elevator shaft.

3.0 REFERENCES CITED

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Tables

Table 1. Summary of features in the Yoh Building, Area F.

LOCATION	RM	FEA	DIA (ft)	ELEVATION (ft)		DEPTH (ft)	DESCRIPTION	%	FUNCTIONAL INTERPRETATION	TPQ	ASSOC
75 (119) S. 2nd St	A	1	4.80	9.56	-1.20	10.76	Brick lined shaft	50	Privy	AS II 1860 AS I 1825	AS I: William Richardson optician 1790-1803; Robert Swan silversmith 1815-1831
75 (119) S. 2nd St	A	2	3.40-3.70	9.55	6.60	2.95	Unlined shaft	50	Base of Privy	c.1800	
75 (119) S. 2nd St	A	3	-	-	-	-	Linear stain along south wall	0	Possible Builder's Trench	c. 1905	Cigar Factory
73 (117) S. 2nd St	A	4	7 x 7	-	-	-	Mortar floor	Exposed	Kitchen Cellar?	c.1761?	James James' brick house?
117-123 S. 2nd St	B	1	2.60	10.28	-	-	Brick-lined shaft w/ metal cover	0	Associated w/ Fea 3 Rm C	c. 1905	Cigar Factory
117-123 S. 2nd St	B	2	-	9.80	9.60		Rectangular brick/ concrete feature	0	Furnace foundation	c. 1905	Cigar Factory
13 Gray's Alley	C	1	5.20	9.77	-1.02	10.79	Brick lined shaft	50	Privy	1750	Wm & Patience Annis
13 Gray's Alley	C	2	6.60	9.59	5.80	3.79	Brick-lined shaft	100	Privy	AS II 1865 AS I 1830	AS I: Robert Swan silversmith 1800-1831
117-123 S. 2nd St	C	3	?	9.60	?	?	Brick vaulted	0	Drainage conduit	c. 1905	Cigar Factory
117-123 S. 2nd St	C	4	-	-	-	-	Linear stain along north wall	0	Possible Builder's Trench	c. 1905	Cigar Factory
1-3 Gray's Alley	F	1	4.80-5.80	14.81	-1.07	15.88	Wood-lined shaft mentioned in 1750 deed	100	Privy	AS III 1825 AS II 1783 AS I 1769	AS I: Bake House Wm Gray 1738-1751; Mary Weyman 1751-c.1760); AS II: tenants of Thomas Bond Jr. c.1760-1792/5
1-3 Gray's Alley	F	2	2.80	15.00	14.25	0.75	Unlined pit	100	Northern edge of Fea 1 (privy)	c.1825	Fill following use of privy
103 Gatzmer St	F	3/3A	.50	15.02	14.70	.32	Circular stone/mortar & brick rubble	Tested	Post? Support	20th C.	Warehouse
Taylor's Alley	F	4	6.23	15.50	?	?	Brick concentration	0	Foundation?	Mid 19th C.	Stable/warehouse
103 Gatzmer St	F	5		15.10	14.60	.50	Patch of lime mortar	Sampled	Mortar spill?	20th C.	Warehouse
58 (114) S. Front St	F	6	-	15.06	13.65	1.41	Mortared stone & brick walls	Exposed	SW corner/foundation of carriage house/stable	c.1792	Robert Smith, Merchant 1791-1822
103 Gatzmer St	F	7	-	14.93	12.82	2.11	Brick footing w/ wooden beam	Exposed	Trough-like brick footing w/ possible drain, possible seating for coal furnace	19th-20th C.	Warehouse
103 Gatzmer St	F	8	1.80	14.60	?	?	Brick-lined shaft w/ pipes draining into it & concrete manhole cover	Exposed	Cesspool/cistern	c.1896	Warehouse
103 Gatzmer St	F	9	-	14.93	?	?	Solid brick (6 courses) platform	Exposed	Machinery support platform, SW corner Rm F	20th C.	Warehouse
Taylor's Alley	F	10		15.02	13.20	1.92	North-South brick & stone wall	Exposed in Tr. 1	Foundation	Mid 19th C.	Stable/warehouse

Table 2. Summary of features at 114 and 118 South Front Street, Area F.

S. FRONT ST	RM	FEA	DIM (ft)	ELEVATION (ft)		DEPTH (ft)	DESCRIPTION	%	FUNCTIONAL INTERPRETATION	TPQ	ASSOC
58 (114)	A	1	-	15.65	?	?	Mortar, stone & wooden beams	Tested	Floor Support	c.1856	Hugh Catherwood
58 (114)	A	2	-	15.45	?	?	Brick paving	Exposed	Foundation of brick furnace	Post 1847	Associated w/ building erected by Joseph Solms
58 (114)	A	3	5.0+	15.32	?	?	Mortared stone wall segment	Exposed	Piazza foundation	1792	Robert Smith, Merchant 1791-1826
58 (114)	A	4	1.5 x 2.5	15.00	?	?	Dark stain & brick support	Sampled	Midden	18th C.	Robert Smith or earlier
58 (114)	B	1	4.56	14.65	-1.35	16.00	Brick-lined shaft	100	Well	1792 or earlier	Robert Smith, Merchant ?
58 (114)	B	2	4.50	15.12	11.35	3.77	Brick-lined shaft w/ domed brick cap	Probed	Cesspool/privy	Mid 19th C.	Joseph Solms
58 (114)	B	3	-	15.87			Parallel mortared stone walls	Exposed	Original water closet foundation over Fea 2	Mid 19th C.	Joseph Solms
58 (114)	C	1	4.20	15.00	14.20	0.80	Circular brick-lined feature	100	Ice pit assoc w/ Fea 4/4A	1792	Robert Smith, Merchant
58 (114)	C	2	7.30	15.05	5.22	9.83	Brick-lined shaft	100	Double shaft privy (half salvaged by MICA 1979)	AS II 1870 AS I 1823	AS I: Robert Smith, Merchant 1791-1822
58 (114)	C	2A	3.00	5.22	1.20	4.02	Brick-lined shaft	100			
58 (114)	C	3	5.00	14.87	2.60	12.27	Brick & stone-lined shaft	50	Privy	AS II 1870 AS I 1783	AS I: Tavernkeepers Hercules Courtney 1769-1784 or Samuel Green 1784-1786
58 (114)	C	4	6.20 x 3.40	15.30	11.80	3.50	Brick & marble tank	100	Cold storage sub-cellar	1792	Robert Smith, Merchant
58 (114)	C	4A	3.20	11.25	1.85	9.40	Brick-lined shaft below Fea 4	Exposed	Drainage below sub-cellar	1792	Robert Smith, Merchant
58 (114)	C	5		15.4			Mortared brick & stone walls	100	SW corner of brick wash house	1792	Robert Smith, Merchant
62 (118)	B	1	7.10 x 7.30	12.32	2.0	10.32	Unlined shaft	50	Unknown, possible elevator shaft	19th C.	Coffee Warehouse?

Table 3. Area F Field Log.

BAG	LOCATION	ROOM	FEATURE	DESCRIPTION	DATE
1	Yoh Bldg	A		Basement, SW corner, ash below concrete	3/23/1977
2	Yoh Bldg	A		SW corner, trench 6 ft from S wall; Trench 1	3/23/1977
3	Yoh Bldg	A		Loose brown soil beneath floor	3/24/1977
4	Yoh Bldg	A		Trench 4, NE corner, below bedding of rubble	3/24/1977
5	Yoh Bldg	A		NE corner from bedding	3/24/1977
6	114 S Front St	A		S wall E of N-S Trench 1; taken from inside of vertical wall opening	3/29/1977
7	114 S Front St	A		S side W 26.5-39 ft, N 9 ft, dark brown rubble near S wall	3/28/1977
8	114 S Front St	A	2	Fill, interior brick facing; furnace area	3/27/1977
9	114 S Front St	A	2	Combined with Bag 8	3/27/1977
10	114 S Front St	A	4	SW corner, broken brick rubble	3/30/1977
11	Yoh Bldg	C		Fill below bedding, W of the N-S pipe to the W wall	3/30/1977
12	Yoh Bldg	C		W wall beneath arch, extends 2 ft below concrete floor	3/30/1977
13	Yoh Bldg	C	1	E of wall; fill below concrete floor	3/31/1977
14	Yoh Bldg	C	1	E of N-S pipe to 5 ft E, exterior, fill beneath concrete	3/31/1977
15	Yoh Bldg	C		Disturbed area around Feature 2	4/1/1977
16	Yoh Bldg	A	1	SE corner of Feature 1; exterior soil	4/1/1977
17	Yoh Bldg	A	2	El. 9 - 7.6 ft	4/1/1977
18	114 S Front St	B		Fill	4/5/1977
19	114 S Front St	B		SW corner, S of stairway and brick buttress; 5 ft E & 4.5 ft N of corner	4/5/1977
20	114 S Front St	C	2	El. 14.95 - 14.70 ft; loose light brown soil	4/11/1977
21	114 S Front St	C	2	El. 14.70-13.50 ft; dark brown soil w/concentration of coal and wood	4/11/2007
22	114 S Front St	C	3	El. 15 - 13 ft; mottled brown soil w/brick	4/11/1977
23	114 S Front St	C	3	El. 13-10.63 ft; light brown; Note: wall of feature is now stone, previously brick	4/11/1977
24	114 S Front St	C		Yellow, mottled, sandy soil; S of E-W stone wall at E end of room	4/11/1977
25	114 S Front St	A		SW corner (behind furnace) around trench for copper pipe	3/31/1977
26	114 S Front St	A	1	E-W trench through Feature 1; red cementing material on the top layer	3/31/1977
27	114 S Front St	C	2	El. 14.25-13.1 ft; compact light brown soil under wood	4/15/1977
28	114 S Front St	C	3	El. 10.63-9.80 ft; light brown, sandy soil	4/15/1977
29	114 S Front St	C	2	El. 13.25-12.85 ft; above brick floor, dark brown soil w/charcoal, wood	4/18/1977
30	114 S Front St	C	4	Dark stain S of brick structure and N of stone wall	4/18/1977
31	114 S Front St	C	4	Interior of brick structure	4/18/1977
32	114 S Front St	C	3	El. 9.8-? ft black, brick and mortar rubble, ash	4/18/1977
33	114 S Front St	A		From mortar in front of elevator shaft	4/19/1977
34	114 S Front St	C	4	On stone wall, S of brick structure	4/21/1977
35	114 S Front St	C	2	El. 12.65-11.50 ft; beneath brick floor red, coarse sand	4/21/1977
36	114 S Front St	C	2	El. 11.05-7.85 ft; fine compact yellow brown soil	4/21/1977
37	A. Morris Structure			S side, stone wall W of brick wall; fill 65 ft W of SE corner	4/22/1977
38	A. Morris Structure	B	1	S side, Level 1; soil, wood, brick, mortar w/sand	4/25/1977
39	A. Morris Structure	B	1	S side, Level 2, sand w/brick and mortar rubble (2 bags)	4/25/1977
40	114 S Front St	C	1	No description	4/7/1977
41	A. Morris Structure	A		Structure interior, fill	4/12/1977
42	A. Morris Structure			Found in mortar between inside brick layer and stone wall; 13.85 ft of SE corner	4/14/1977
43	A. Morris Structure			S side; found on top of wall	4/12/1977
44	114 S Front St	C	4	(W side of Feature 4); pipe connecting Feature 1 & 4; red sand	4/26/1977

Table 3. Area F Field Log.

BAG	LOCATION	ROOM	FEATURE	DESCRIPTION	DATE
45	114 S Front St	B		Fill	4/27/1977
46	114 S Front St	B		Fill around circular stain; el. 15.5-15.1 ft	4/27/1977
47	A. Morris Structure	B	1	S side; Level 3	4/27/1977
48	114 S Front St	B		Fill in SW corner between 2 walls; el. 14.22-? ft; brick and mortar rubble w/soil	4/28/1977
49	114 S Front St	B		Circular stain; 15.5-14.55 ft; reddish sand	4/28/1977
50	114 S Front St	B		Discoloration in SE corner; grey clay; el. 14.55-?ft	4/28/1977
51	114 S Front St	B	1	N-S trench (Trench 1); el. 15.55; SE corner from S wall 3.5 ft N, from E wall 3.0 ft W; brick and mortar rubble in soil	4/28/1977
52	114 S Front St	B	1	W side of Feature 1; el. 15.3-14.8 ft; soil light brown; clay w/brick and stone; mortar (above capping mortar)	4/29/1977
53	114 S Front St	C	2	SW quad; el. 8.15-5.27 ft; wet, brown soil w/mortar broken and whole bricks	5/16/1977
54	114 S Front St	C	3	Material from collapsed N half	5/17/1977
55	114 S Front St	B	1	El. 13.98-12.55 ft; loose, light brown soil clay, brick and mortar rubble	5/17/1977
56	114 S Front St	C	3	El. 8.72-5.6 ft; Note at 6.72 ft artifacts found were red earthenware jug, bottle, aboriginal ground stone ax	5/17/1977
57	114 S Front St	C		(E-W trench) W of Feature 4	5/18/1977
58	114 S Front St	C	3	El. 5.6-4.6 ft	5/18/1977
59	114 S Front St	C	3	El. 4.6-3.2 ft	5/19/1977
60	114 S Front St	C	3	El. 3.2-? ft	5/19/1977
61	114 S Front St	B		W of Feature 1; el. 14.8-? ft; beneath capping mortar	5/20/1977
62	114 S Front St	B	1	El. 12.55-11.1 ft; mottled brown and dark grey soil w/ash, shell, and brick	5/23/1977
63	114 S Front St	B	1	El. 11.1-8.98 ft	5/23/1977
64	114 S Front St	B	1	El. 8.98-6.1 ft	5/24/1977
65	Yoh Bldg	C	2	El. 9.5-8.0 ft, ash	5/25/1977
66	Yoh Bldg	C	2	El. 9.5-8.0 ft, brown soil	5/25/1977
67	Yoh Bldg	C	2	El. 8.0-6.45 ft; Yellow brown loose soil w/mortar concen. and brick rubble, redware chamber pot at 6.8 ft and stoneware bottle at 6.5 ft	5/25/1977
68	Yoh Bldg	C	2	El. 6.45-6.2 ft	5/26/1977
69	Yoh Bldg	A	1	El. 8.0-5.5 ft	5/26/1977
70	Yoh Bldg	C	2	El. 6.20-? ft	5/26/1977
71	114 S Front St	B	1	El. 6.1ft- shell and a texture change	5/26/1977
72	Yoh Bldg	A	1	El. 5.5-3.0 ft; brown soil, ash, brick rubble	5/27/1977
73	114 S Front St	C	2A	El. 5.22-2.97 ft; fill and grey clay	6/1/1977
74	114 S Front St	C	2A	El. 2.97-1.41 ft; sand	6/1/1977
75	Yoh Bldg	A	2	El. 7.6-7.4 ft; wet grey clay	6/3/1977
76	Yoh Bldg	A	2	El. 7.4-7.15 ft	6/6/1977
77	********	******	********	THIS NUMBER WAS SKIPPED **********	********
78	Yoh Bldg	C	1	El. 9.0-8.7 ft; red and orange clays	6/7/1977
79	Yoh Bldg	C	1	El. 8.7-8.25 ft; dark brown to black soil, mostly clay	6/7/1977
80	Yoh Bldg	C	1	El. 8.25-7.55 ft; sandy, light yellow brown soil	6/7/1977
81	Yoh Bldg	C	1	W half of Feature wall to 1.3 ft E compact yellow clayey soil, el. 8.20-7.68 ft	6/7/1977
82	Yoh Bldg	C	1	El. 7.55-5.67; greyish soil (Bag 82A only to 6.5 ft; beginning of brick)	6/7/1977
83	Yoh Bldg	A	1	El. 3.0-1.1 ft; (Arbitrary level; no soil change)	6/8/1977
84	Yoh Bldg	C	3	Sand above the feature; El. 9.3 ft (cleanup)	6/8/1977
85	Yoh Bldg	C	1	El. 7.05-5.47 ft; disturbed fill from Feature 2; S brick fall, dark brown w/mortar and brick rubble	6/8/1977
86	Yoh Bldg	A	1	El. 1.1-(-0.9) ft	6/9/1977
87	Yoh Bldg	C	1	El. 5.67-4.27 ft W and 4.55 E; mixed grey-brown soil (Bag 87A el. 6.5-4.69 ft W and 5.2 ft E)	6/9/1977

Table 3. Area F Field Log.

BAG	LOCATION	ROOM	FEATURE	DESCRIPTION	DATE
88	Yoh Bldg	A	1	El. (-0.9) - ? ft	6/10/1977
89	Yoh Bldg	C	1	El. 4.27 ft W - 4.55 ft E, to 2.79 ft center and 3.35 ft edge; yellow brown clay	6/10/1977
90	Yoh Bldg	C	1	El. Center 2.79 ft, 3.35 ft edge to 2.32 ft center and 2.85 ft edge; reddish brown soil, sand and organic content	6/13/1977
91	Yoh Bldg	C	1	El. Center 2.32 ft and edge 2.85 - ? ft; grey-yellow fine sandy soil	6/13/1977
92	Yoh Bldg	C	1	El. (-0.52)-(-1.02) ft; wet grey sand; column from S side	6/13/1977
93	Yoh Bldg	B		Fill beneath concrete floor	6/10/1977
94	Yoh Bldg	F	3	El. 15.02-14.7 ft; soil on top and around feature (2 bags)	10/11/1977
95	Yoh Bldg	F		Trench 1, along wall unit A-B, W side	10/12/1977
96	Yoh Bldg	F		Trench 3 along wall unit Q-R, el. 15.43-14.9 ft	10/11/1977
97	Yoh Bldg	F	1	S side, el. 14.99-12.60 ft	10/13/1977
98	Yoh Bldg	F	1	N side, el. 15.0-12.60 ft	10/13/1977
99	Yoh Bldg	F	3	Exterior W, el. 15.02-14.7 ft	10/14/1977
100	Yoh Bldg	F	2	El. 15.0-14.3 ft	10/14/1977
101	Yoh Bldg	F	6	E-W Trench 3; charcoal and brick fragment	10/14/1977
102	Yoh Bldg	F		E-W Trench 1, el. 15.05-13.9 ft; rubble E of stone wall	10/14/1977
103	Yoh Bldg	F		Area S of Feature 3, el. 15.2-14.9 ft; brick and mortar patch (Feature 3A)	10/14/1977
104	Yoh Bldg	F	6	E-W Trench 3, E wall rubble, el. 14.9-13.77 ft	10/14/1977
105	Yoh Bldg	F	6	El. 14.32 ft; rubble above stone/brick wall that runs E-W	10/14/1977
106	Yoh Bldg	F	7	El. 14.92-13.63 ft; mid feature area (see map) near wood, loose brown soil	10/17/1977
107	Yoh Bldg	F	7	El. 14.8-13.85 ft; ash area N of feature (see profile)	10/17/1977
108	Yoh Bldg	F	7	El. 13.85-13.5 ft; S of N brick wall, dark humus soil	10/18/1977
109	Yoh Bldg	F		N-S Trench 9, extending N of wall unit O-P, adjacent to sandstone slab, el. 15.3-15.2 ft	10/19/1977
110	Yoh Bldg	F		N-S Trench 9, extending N of wall unit O-P S end, el. 15.42-15.17 ft	10/19/1977
111	Yoh Bldg	F		SW area of Trench 10, N of possible E-W brick wall, el. 15.36-14.96 ft	10/19/1977
112	Yoh Bldg	F		N-S Trench 9, extending N of wall unit O-P, N end of trench, el. 15.30-15.17 ft	10/19/1977
113	Yoh Bldg	F		N-S Trench 8, extending N of wall unit O-P, adjacent to brick wall which runs E-W of wall unit N-O, el. 15.30-15.10 ft	10/19/1977
114	Yoh Bldg	F	3A	El. 14.48 ft; cobble concentration and dark soil w/organic content and artifacts	10/20/1977
115	Yoh Bldg	F		Trench 10, N-S area adjacent to S concrete pad, along wall unit P-Q	10/20/1977
116	Yoh Bldg	F	2	S face off	10/20/1977
117	Yoh Bldg	F	1	Clean up	10/20/1977
118	Yoh Bldg	F	2	El. 15.2-15.0 ft	10/24/1977
119	Yoh Bldg	F		Trench 10, NW portion of concrete slab, el. 15.25-14.52 ft	10/25/1977
120	Yoh Bldg	F	1	W half, el. 12.35-11.0 ft, brown soil w/mortar, brick, artifacts	10/25/1977
121	Yoh Bldg	F	1	W half, el. 11.0-9.80 ft; brown soil w/brick and artifacts	10/25/1977
122	Yoh Bldg	F		Trench 10, S part found adjacent to SE corner of concrete/brick pad, el. 15.1 ft	10/24/1977
123	Yoh Bldg	F	1	E half, el. 12.35-11.0 ft; brown soil w/brick, mortar, artifacts	10/26/1977
124	Yoh Bldg	F	1	E half, el. 11.0-9.80 ft; brown soil without mortar	10/26/1977
125	Yoh Bldg	F	1	El. 9.80-8.45 ft; change at brick level, brown soil w/mortar, brick, fewer artifacts	10/27/1977
126	Yoh Bldg	F	1	El. 8.45-7.00 ft; entire feature, change made at mortar layer, more mortar in soil at this layer, also humic material in SW quadrant	10/27/1977

Table 3. Area F Field Log.

BAG	LOCATION	ROOM	FEATURE	DESCRIPTION	DATE
127	Yoh Bldg	F		Trench 9; dark area around S end, el. 15.36-14.96 ft	10/27/1977
128	Yoh Bldg	F	1	N half, dark humic soil, arbitrary change at level 7.0-4.7 ft, due to the bowl shape of feature	11/2/1977
129	Yoh Bldg	F	1	All of the feature except for the dark humic soil, el. 6.0-3.63 ft	11/2/1977
130	Yoh Bldg	F	1	El. 3.63-0.73 ft	11/7/1977
131	114 S Front St	C	4	Metal artifacts from W wall of feature	11/7/1977
132	114 S Front St	C	4	Metal artifacts from E wall of the feature and the copper drain from the floor	11/7/1977
133	Yoh Bldg	F	1	El. 0.73-(-1.07) ft	11/7/1977
134	Yoh Bldg	F	1	N half, el. 3.53 ft; 2 buckets removed and then feature collapsed	11/7/1977

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
1	Mortar	Yoh Bldg	A		Concrete spill below present floor (see map)	3/28/1977	91158
2	Mortar	Yoh Bldg	A		Below floor 3 ft E of W wall	3/28/1977	91159
3	Mortar	Yoh Bldg	A		Concrete spill below present floor (see map)	3/28/1977	91160
4	Mortar	Yoh Bldg	A		Concrete spill near N wall (paper adhering)	3/28/1977	91161
5	Mortar	Yoh Bldg	A		Concrete spill under floor near N wall center	3/28/1977	91162
6	Mortar	Yoh Bldg	A		Concrete spill in NE corner below floor	3/28/1977	91163
7	Mortar	Yoh Bldg	A		Concrete spill in NE corner (see map)	3/28/1977	91164
8	Wall	Yoh Bldg	A		Base of W wall S end	3/28/1977	91212
9	Wall	Yoh Bldg	A		Base of N wall center	3/28/1977	91213
10	Mortar	114 S Front St	A		S wall 7 ft W of SE corner (see drawings)	3/29/1977	91093, 91217
11	Mortar	114 S Front St	A		S wall, upper stone mortar (see drawings)	3/29/1977	91094, 91218
12	Mortar	114 S Front St	A		S wall red facing (see drawings)	3/29/1977	91095, 91219
13	Mortar	114 S Front St	A		S wall white facing (see drawings)	3/29/1977	91096, 91220
14	Mortar	114 S Front St	A		S wall mortar between bricks (see drawings)	3/29/1977	91097, 91221
15	Mortar	114 S Front St	A		Furnace area, S wall, red mortar (see drawings)	3/29/1977	91098, 91222
16	Mortar	114 S Front St	A		Furnace area, S wall, white mortar mixed with red (see drawings)	3/29/1977	91223
17	Brick & Mortar	114 S Front St	A		Furnace area, S wall, outside wall foundation (see drawings)	3/29/1977	91087, 91224
18	Mortar	114 S Front St	A		Furnace area, S wall, cut in the stone wall (see drawings)	3/29/1977	91099, 91225
19	Mortar	114 S Front St	A		N-S Trench 1	3/29/1977	91100, 91226
20	Mortar	114 S Front St	A		S wall, 3.6 ft W of Trench 1, 1.5 ft N of S wall	3/29/1977	91101, 91227
21	Mortar	114 S Front St	A		S wall, from vertical opening, wood included	3/29/1977	91102, 91228
22	Mortar	114 S Front St	A		S wall, 2 ft W of juncture, red facing included	3/29/1977	
23	Mortar	114 S Front St	A		S wall, 2 ft W of juncture, white facing	3/29/1977	91103, 91229
24	Mortar	114 S Front St	A		N wall, outside white facing	3/29/1977	91104, 91230-91231
25	Brick & Mortar	114 S Front St	A		N wall	3/29/1977	91088, 91232-91233
26	Mortar	114 S Front St	A		From pillar support (2nd pillar E)	3/29/1977	91105, 91234
27	Brick	114 S Front St	A		From pillar support (2nd pillar E)	3/29/1977	91022
28	Mortar	114 S Front St	C		S wall facing	3/29/1977	91128
29	Mortar	114 S Front St	C		S wall	3/29/1977	91129, 91263
30	Wood	114 S Front St	A		S wall, from horizontal plank in wall	3/30/1977	
31	Mortar	114 S Front St	A		Interior wall 7.6 ft E of N wall juncture, 5 ft S of N wall	3/30/1977	91106, 91235
32A	Soil	114 S Front St	A		Above mortar from center of room, 7 ft from N wall	3/30/1977	
32B	Mortar	114 S Front St	A		From center of room, 7 ft N wall	3/30/1977	91205, 91236
33	Mortar	114 S Front St	A		N wall, 1.1 ft S of wall	3/30/1977	91107, 91237-91239
34	Mortar	114 S Front St	A		N wall, 5.5 ft from W end	3/30/1977	91108, 91241
35	Mortar	114 S Front St	A		N wall, 5.5 ft from W end, facing	3/30/1977	91109, 91242
36	Lime	114 S Front St	A		From deposit in center of room (see map)	3/30/1977	
37	Mortar	Yoh Bldg	A		Trench SW corner from below bedding	3/24/1977	
38	Soil	114 S Front St	A		S wall, E of N-S Trench 1, inside vertical opening (also labeled Bag 6)	3/29/1977	91269
39	Coal	114 S Front St	A	3	S side, W 26.5-39 ft, N 9 ft, from dark brown rubble area near S wall	3/29/1977	
40	Concrete	114 S Front St	A	4	Floor	3/31/1977	91204, 91243
41	Mortar	114 S Front St	A		W wall, S corner, sill	3/31/1977	91110, 91244
42	Brick	114 S Front St	A		Trench 1, S wall, vertical opening	3/31/1977	91023
43	Brick	114 S Front St	A	4	Floor	3/31/1977	91020
44	Wood	114 S Front St	B		SW corner, vertical opening in wall	4/5/1977	

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
45A	Mortar	114 S Front St	C		S wall 6 ft E of S vault, top stone	4/11/1977	91130, 91264
45B	Mortar	114 S Front St	C		S wall 6 ft E of S vault, el. 13.97 ft, bottom brick	4/11/1977	91131, 91265
46A	Mortar	114 S Front St	C		S wall 20 ft W of SE corner, el. 13.2 ft, lower brick wall (beneath stone)	4/11/1977	91132
46B	Soil	114 S Front St	C		S wall 20 ft W of SE corner, el. 13.2 ft, under brick wall	4/11/1977	
47	Mortar	114 S Front St	C		N vault, N wall from bottom bricks	4/11/1977	91133
48	Wood	114 S Front St	C	2	El. 15.10 ft	4/11/1977	
49	Mortar	114 S Front St	C	1	Capping	4/12/1977	91122, 91255
50	Mortar	114 S Front St	C		N vault, W wall from bottom stone wall	4/11/1977	91134, 91266
51	Coal	114 S Front St	C	2	El. 15.10 ft	4/11/1977	
52	Newspaper	114 S Front St	A		S wall, 5.8 ft W of wall juncture, inside vertical opening	4/6/1977	
53	Mortar	114 S Front St	A		SE corner, S wall, red	4/14/1977	91111, 91245
54	Mortar	114 S Front St	C		SE corner, E wall, white	4/14/1977	91135, 91267
55A	Mortar	114 S Front St	A	1	Top, red (see profile)	4/14/1977	91090, 91214
55B	Mortar	114 S Front St	A	1	Top, white, wood rests on this	4/14/1977	91091, 91215
55C	Mortar	114 S Front St	A	1	Lowest white	4/14/1977	91092, 91216
55D	Soil	114 S Front St	A	1	Beneath mortar	4/14/1977	
56	Mortar	114 S Front St	C	1	Below brick floor	4/18/1977	91123, 91256
57A	Mortar	A. Morris Structure			S side, 10 ft W of E side, outside brick	419/77	91136
57B	Mortar	A. Morris Structure			S side, 10 ft W of E side, inner stone wall	4/19/1977	91137
57C	Mortar	A. Morris Structure			S side, 10 ft W of E side, inside brick	4/19/1977	91138
58	Mortar	A. Morris Structure			E side, floor in SE corner	4/19/1977	91139
59	Mortar	A. Morris Structure			E side, facing on stone wall, 0.5 ft N of SE corner	4/19/1977	91140
60	Facing	A. Morris Structure			S side, 10 ft W of SE corner, white wash (?), from inner stone wall	4/19/1977	
61	Mortar	A. Morris Structure			E side, 1.5 ft N of SE corner, between brick walls	4/19/1977	91141
62	Mortar	A. Morris Structure			SE corner 3 ft diameter, 0.9 ft below inner brick ledge, el. 15.66 ft	4/19/1977	91142
63A	Mortar	A. Morris Structure		1	S side, between bricks on E side of arch	4/19/1977	
63B	Soil	A. Morris Structure		1	S side, above bricks under arch	4/19/1977	91144
63C	Mortar	A. Morris Structure		1	1.5 ft N of S side, Note: this may be part of the exterior brick wall which runs around the stone wall and drops down here	4/19/1977	91145
64	Brick	A. Morris Structure	A		S side, interior	4/19/1977	91036
65	Brick	A. Morris Structure	A		S side, interior	4/19/1977	91037
66	Brick	A. Morris Structure	A		S side, S wall exterior	4/19/1977	91038
67	Brick	A. Morris Structure	A		S side, S wall exterior	4/19/1977	91039
68	Mortar	114 S Front St	A	1	E side, flashing, along wall	4/19/1977	
69	Wood	114 S Front St	A	1	From N-S beam	4/19/1977	
70	Brick	114 S Front St	A	1	Square, E end of trench	4/19/1977	91019
71	Brick	114 S Front St	A	4	5.5 ft W of E wall, 6.5 ft S of N wall	4/14/1977	91021
72	Mortar	A. Morris Structure			S side, wall 65 ft W of SE corner	4/22/1977	91151
73	Brick	114 S Front St	C	4A	Interior archway brick, W side	4/20/1977	91034
74	Wood	A. Morris Structure			N wall, horizontal beam	4/25/1977	

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
75A	Mortar	A. Morris Structure			N wall in association with vertical opening	4/25/1977	91152
75B	Mortar	A. Morris Structure			N wall in association with vertical opening	4/25/1977	91153
75C	Mortar	A. Morris Structure			Top of wall, el. 2.3 ft below sidewalk	4/25/1977	91154
75D	Mortar	A. Morris Structure			N wall, lens	4/25/1977	91155
76	Mortar	A. Morris Structure		1	S side, NE below brick on floor plan	4/25/1977	91146
77	Brick	A. Morris Structure		1	S side, NE of circular feature	4/25/1977	91041
78	Brick	A. Morris Structure			S side, fill	4/25/1977	91044
79	Lime	114 S Front St	C	4	Interior, brick structure	4/19/1977	91209
80	Mortar	114 S Front St	C	4	5.5 ft W of E wall, 6.5 ft S of N wall	4/14/1977	91126
81	Mortar	114 S Front St	C	4	15 ft W of E wall, 6 ft N of S wall	4/14/1977	91208, 91261
82	Sand	114 S Front St	C	4	W exterior, red along brick wall, 3 ft E of Feature 1, 4 ft S of N wall	4/14/1977	
83	Mortar	114 S Front St	C	2	Interior wall, el. 8.3 ft	4/26/1977	91124, 91257
84A	Mortar	A. Morris Structure		1	S side, laid brick, top mortar, level 2	4/26/1977	91147
84B	Brick	A. Morris Structure		1	Laid brick, level 2	4/26/1977	91040
84C	Mortar	A. Morris Structure		1	Bottom mortar, level 2	4/26/1977	91148
85A	Brick	A. Morris Structure			N side, wall w/white wash in one header side	4/26/1977	91045
85B	Mortar	A. Morris Structure			N side, wall w/white wash between brick	4/26/1977	91156
86	Wood	A. Morris Structure			N side, vertical beam, from vertical opening, top	4/26/1977	
87A	Brick	A. Morris Structure	B		N side	4/27/1977	91042
87B	Mortar	A. Morris Structure	B		N side	4/27/1977	91149
88A	Mortar	A. Morris Structure			S wall, N side	4/27/1977	91157
88B	Brick	A. Morris Structure			S wall, N side	4/27/1977	91046
89	Mortar	A. Morris Structure	B		S wall, exterior, stone wall, red	4/27/1977	91150
90	Brick	A. Morris Structure	B		S wall, N side	4/27/1977	91043
91	Mortar	A. Morris Structure	A		S side, back wall	4/27/1977	91143
92	Soil	A. Morris Structure		1	S side, rubble (see E-W plan view)	4/27/1977	91210
93	Soil	A. Morris Structure	B	1	S side, clay	4/27/1977	
94	Soil	A. Morris Structure	B	1	S side, lens below clay	4/27/1977	
95	Soil	A. Morris Structure	B	1	S side, lens below clay	4/27/1977	
96	Soil	A. Morris Structure	B	1	S side, sand below clay	4/27/1977	
97	Soil	Yoh Bldg	A		Trench on W wall, fill	3/28/1977	
98	Soil	Yoh Bldg	A		Front, trench on W wall, sand	3/28/1977	
99	Mortar	Yoh Bldg	A		Note: newspaper	3/28/1977	91165
100	Soil	Yoh Bldg	A		Clay above sand, trench along W wall	3/28/1977	
101	Soil	114 S Front St	A		N-S Trench 1, clay	3/29/1977	
102	Soil	114 S Front St	C		S wall	3/29/1977	

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
103	Mortar	114 S Front St	B		Beneath E central entrance, stone wall	4/29/1977	91121, 91268
104A	Soil	114 S Front St	C	2	El. 13.65 ft (see profile)	5/17/1977	
104B	Charcoal	114 S Front St	C	2	El. 14.35 ft (see profile)	5/17/1977	
104C	Ash	114 S Front St	C	2	El. 13.2 ft (see profile)	5/17/1977	PS
104D	Soil	114 S Front St	C	2	El. 12.7 ft (see profile)	5/17/1977	
104E	Charcoal	114 S Front St	C	2	El. 12.0 ft (see profile), mixed charcoal, soil	5/17/1977	PS
104F	Soil	114 S Front St	C	2	El. 11.5 ft (see profile), red sandy soil	5/17/1977	
104G	Sand	114 S Front St	C	2	El. 10.55 ft (see profile)	5/17/1977	
104H	Soil	114 S Front St	C	2	El. 9.2 ft (see profile)	5/17/1977	
104I	Soil	114 S Front St	C	2	El. 6.4 ft (see profile)	5/17/1977	
104J	Wood	114 S Front St	C	2	El. 13.2 ft (see profile)	5/17/1977	
104K	Soil	114 S Front St	C	2	El. 12.2 ft (see profile), grey lens	5/17/1977	
104L	Sand	114 S Front St	C	2	El. 11.45 ft (see profile)	5/17/1977	
104M	Soil	114 S Front St	C	2	El. 12.35 ft (see profile)	5/17/1977	
104N	Mortar	114 S Front St	C	2	El. 5.27 ft (see profile)	5/17/1977	PS
105	Mortar	114 S Front St	C	4	Bedding beneath marble floor	5/17/1977	91127, 91262
106	Mortar	114 S Front St	C	2	El. 7.0 ft	5/17/1977	91125, 91258
107	Liquid	114 S Front St	C	3	From green bottle, el. 6.72 ft	5/17/1977	
108	Soil	114 S Front St	C	3	El. 8.70 ft	5/17/1977	
109	Brick	114 S Front St	C	3	El. 8.70 ft	5/17/1977	90018, 91029
110	Soil	114 S Front St	C	3	El. 5.95 ft, check for artifacts	5/17/1977	80202-80211, 80213
111A	Soil	114 S Front St	C	3	El. 10.8 ft	5/17/1977	
111B	Soil	114 S Front St	C	3	El. 9.64 ft	5/17/1977	
111C	Soil	114 S Front St	C	3	El. 6.25 ft	5/17/1977	
111D	Soil	114 S Front St	C	3	El. 13.15 ft	5/17/1977	
112	Soil	114 S Front St	C	3	El. 5.6 ft	5/18/1977	80214-80219
113A	Mortar	114 S Front St	B	1	Mortar covering feature, el. 14.53 ft	5/19/1977	91112, 91246
113B	Mortar	114 S Front St	B	2	E wall, el. 15.8 ft	5/19/1977	91114, 91248
113C	Mortar	114 S Front St	B	2	E wall, N of brick, el. 15.8 ft	5/19/1977	91115, 91249
113D	Mortar	114 S Front St	B	2	S wall, lowest brick, el. 13.1 ft	5/19/1977	91116, 91250
113E	Mortar	114 S Front St	B		Red, W of Feature 2, stone wall	5/19/1977	91117, 91251
113F	Mortar	114 S Front St	B		Red/white, stone wall W of Feature 2, el. 14.75 ft	5/19/1977	91118, 91252
113G	Mortar	114 S Front St	B	2	Shower drain pipe at entry into brick dome, el. 13.77 ft	5/19/1977	91119, 91253
113H	Brick & Mortar	114 S Front St	B	2	From dome, el. 13.6 ft	5/19/1977	91120
114	Mortar	114 S Front St	C	3	El. 4.0 ft	5/19/1977	90017, 91206, 91259
115	Soil	114 S Front St	C	3	El. 3.6 ft	5/19/1977	80220-80233
116	Brick	114 S Front St	C	3	El. 4.0 ft	5/19/1977	90015, 91030
117	Brick	114 S Front St	C	3	El. 4.0 ft	5/19/1977	90016, 91031
118	Soil	114 S Front St	C	3	With mercury (Bag 59)	5/19/1977	
119	Mortar	114 S Front St	C	3	Beneath archway brick, el. 13.9 ft	5/19/1977	90019, 91207, 91260
120A	Soil	114 S Front St	C	3	Clay beneath stone wall, el. 3.6 ft	5/19/1977	
120B	Soil	114 S Front St	C	3	Red beneath stone wall, el. 3.6 ft	5/19/1977	
120C	Soil	114 S Front St	C	3	Cobbly clay, el. 3.4 ft	5/19/1977	
120D	Soil	114 S Front St	C	3	Sand at bottom, el. 3.0 ft	5/19/1977	
121	Mortar	114 S Front St	B	1	Capping mortar, W of Feature, Note: Black material in mortar	5/20/1977	91113, 91247
122	Soil	114 S Front St	C	2	El. 4.66 ft	5/20/1977	PS
123	Soil	114 S Front St	B	1	El. 10.15 ft	5/23/1977	
124	Brick	114 S Front St	B	1	El. 10.15 ft	5/23/1977	91024
125	Soil	114 S Front St	B	1	El. 10.15 ft, check for artifacts	5/23/1977	80234-80238
126	Liquid	Yoh Bldg	C	2	El. 7.5 ft, from stoneware bottle	5/25/1977	
127	Soil	Yoh Bldg	A	1	El. 8.0 ft	5/25/1977	
128	Brick	114 S Front St	B	1	El. 5.1 ft	6/1/1977	91025
129	Brick	114 S Front St	B	1	Brick w/clay, el. 5.1 ft	6/1/1977	91026
130	Brick	114 S Front St	C	2A	El. 5.22 ft	6/1/1977	87123

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
131	Soil	114 S Front St	C	2A	Sand below brick, el. 2.25 ft	6/2/1977	PS
132	Soil	114 S Front St	C	2A	Grey below brick, el. 3.62 ft	6/2/1977	PS
133	Brick	114 S Front St	C	2	El. 2.88 ft	6/2/1977	87122, 91085
134A	Soil	Yoh Bldg	C	2	Ash, el. 9.0 ft	6/1/1977	PS
134B	Soil	Yoh Bldg	C	2	El. 8.0 ft	6/1/1977	
134C	Soil	Yoh Bldg	C	2	El. 7.0 ft	6/1/1977	PS
134D	Soil	Yoh Bldg	C	2	El. 6.3 ft	6/1/1977	PS
135	Mortar	Yoh Bldg	A	1	El. 4.75 ft	6/2/1977	86668, 91211
136	Soil	Yoh Bldg	A	1	From inside redware pot, el. 5.5 ft (Bag 72)	6/3/1977	
137	Brick	114 S Front St	B	1	Brick floor, el. 2.65 ft	6/3/1977	91027
138A	Soil	114 S Front St	B	1	From top, el. 14.25-12.55 ft	5/20/1977	
138B	Soil	114 S Front St	B	1	Brown, el. 7.6 ft	5/20/1977	
138C	Soil	114 S Front St	B	1	Beneath brick floor, el. 1.8 ft	5/20/1977	PS
139A	Soil	Yoh Bldg	A	2	(Bag 17) contents of yellow slipware vessel	5/20/1977	
139B	Soil	Yoh Bldg	A	2	Contents of yellow slipware vessel with dots, one handle	5/20/1977	
139C	Soil	Yoh Bldg	A	2	Contents of yellow and brown stripped slipware vessel, pitcher	5/20/1977	PS
140A	Soil	Yoh Bldg	A	2	El. 8.5 ft	6/6/1977	
140B	Soil	Yoh Bldg	A	2	El. 7.4 ft, grey clay	6/6/1977	PS
140C	Soil	Yoh Bldg	A	2	Sand, el. 7.2 ft	6/6/1977	PS
141	Brick	Yoh Bldg	A	1	From lining	6/7/1977	86667, 91047
142	Brick	Yoh Bldg	C	2	From lining	6/7/1977	91061
143	Brick	Yoh Bldg	C	1	From lining	6/7/1977	91056
144	Brick	Yoh Bldg	C	1	Grey soil int., el. 5.86 ft	6/9/1977	91057
145	Brick	Yoh Bldg	C	1	Grey soil, el. 5.7 ft	6/9/1977	91058
146	Brick	Yoh Bldg	B		Fill beneath concrete floor; Note: Writing	6/10/1977	91052
147	Brick	Yoh Bldg	B		Fill beneath concrete floor	6/10/1977	91053
148	Brick	Yoh Bldg	B		Fill beneath concrete floor; Note: Writing	6/10/1977	91054
149A	Soil	Yoh Bldg	A	1	El. 1.1 ft	6/10/1977	80239-80249
149B	Soil	Yoh Bldg	A	1	El. (-0.9) ft	6/10/1977	80250-80259
150	Brick & Mortar	Yoh Bldg	B		From shaft near E wall, el. 10.02 ft	6/10/1977	91055
151A	Soil	Yoh Bldg	C	1	Wet sand, el. (-0.72) ft	6/14/1977	PS
151B	Soil	Yoh Bldg	C	1	Wet grey sand, el. (-0.52) ft	6/14/1977	
151C	Soil	Yoh Bldg	C	1	Mottled sand, el. 2.36 ft	6/14/1977	80260-80263
151D	Soil	Yoh Bldg	C	1	Reddish sand, el. 3.0 ft	6/14/1977	80264-80268
151E	Soil	Yoh Bldg	C	1	Yellow-orange clay, el. 3.97 ft	6/14/1977	80269-80274
151F	Soil	Yoh Bldg	C	1	Loose grey w/bricks, el. 5.72 ft	6/14/1977	80275-80280
151G	Soil	Yoh Bldg	C	1	Compact grey without bricks, el. 6.67 ft	6/14/1977	80347-80355
151H	Soil	Yoh Bldg	C	1	Red S of brick fall, el. 6.15 ft	6/14/1977	
151I	Mortar	Yoh Bldg	C	1	S side in red soil w/brick, el. 7.05 ft	6/14/1977	
151J	Mortar	Yoh Bldg	C	1	El. 7.35 ft	6/14/1977	
151K	Soil	Yoh Bldg	C	1	Mixed fill, sand, el. 8.0 ft	6/14/1977	
151L	Soil	Yoh Bldg	C	1	Mixed fill clay, el. 8.0 ft	6/14/1977	
151M	Soil	Yoh Bldg	C	1	Mixed fill, grey and brown soil, el. 7.5 ft	6/14/1977	80281-80285
151N	Soil	Yoh Bldg	C	1	Brown clay, el. 8.55 ft	6/14/1977	
151O	Soil	Yoh Bldg	C	1	Brown clay and sand, el. 8.55 ft	6/14/1977	80286-80287
151P	Soil	Yoh Bldg	C	1	Laminated clays, el. 9.0-8.7 ft	6/14/1977	
151Q	*******	*********	********	*******	********OMITTED***************	********	********
151R	Soil	Yoh Bldg	C	1	Red lining E side of Feature, 2 ft from the top	6/14/1977	
152	Brick	Yoh Bldg	F		S of steps, possible furnace area, center curved portion, el. 15.05	10/13/1977	91079
153	Brick	Yoh Bldg	F		S of steps, N end of brick area, el. 15.42 ft	10/13/1977	91080
154	Brick	Yoh Bldg	F		Herringbone floor near E wall, center, el. 15.40 ft	10/13/1977	91081
155	Brick	Yoh Bldg	F		NW section of room, sizes vary slightly, el. 15.30 ft	10/13/1977	91082
156	Brick	Yoh Bldg	F		NE section of room, less worn than elsewhere, el. 15.50 ft	10/13/1977	91083

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
157	Mortar	Yoh Bldg	F		NE corner of room, top of brick flooring	10/12/1977	91177
158	Mortar	Yoh Bldg	F	7	Below brick in S portion of feature, el. 14.8 ft	10/14/1977	91174
159	Soil	Yoh Bldg	F	7	Burned sand (?), above brick, el. 14.8 ft	10/14/1977	
160	Soil	Yoh Bldg	F		Dark brown circular stain in Trench 3, SW of Feature 3	10/14/1977	
161	Soil	Yoh Bldg	F		Area of Feature 3	10/14/1977	
162	Bedding	Yoh Bldg	F		Below brick, above Feature 1	10/14/1977	
163	Mortar	Yoh Bldg	F	6	Trench 2, parallel to wall unit B-C, el. 14.32 ft	10/14/1977	91171
164	Mortar	Yoh Bldg	F		Wall unit B-C, N stone wall section, above basement floor	10/14/1977	91178
165	Mortar	Yoh Bldg	F		Wall unit B-C, S stone wall, above basement floor	10/14/1977	91179
166	Mortar	Yoh Bldg	F		Wall unit Q-R, above basement floor	10/14/1977	91180
167	Mortar	Yoh Bldg	F		Wall unit R-A, 1 ft above brick floor	10/14/1977	91181
168	Mortar	Yoh Bldg	F		Wall unit R-A, 7 ft above brick floor	10/14/1977	91182
169	Brick and Mortar	Yoh Bldg	F		Wall unit R-A, top of wall	10/14/1977	91089
170	Mortar	Yoh Bldg	F	6	Trench 3	10/14/1977	91172
171	Mortar	Yoh Bldg	F		Wall unit Q-R, most recent, facing on other	10/14/1977	91183
172	Mortar	Yoh Bldg	F	3	See profile	10/14/1977	91168
173	Mortar	Yoh Bldg	F	5	El. 15.10 ft	10/14/1977	91170
174	Mortar	Yoh Bldg	F		Brick underlay	10/14/1977	91184
175	Mortar	Yoh Bldg	F		Wall unit A-B, W side, above basement floor	10/14/1977	91185
176	Mortar	Yoh Bldg	F		S of Feature 3, el. 15.0 ft	10/14/1977	91186
177	Mortar	Yoh Bldg	F	8	Beneath cap	10/17/1977	91176
178	Brick	Yoh Bldg	F	8	Beneath cap	10/17/1977	91078
179	Brick	Yoh Bldg	F	6	S wall lining, 5 ft W of wall unit B-C, el. 14.54	10/17/1977	91073
180	Mortar	Yoh Bldg	F	6	S wall lining, 5 ft W of wall unit B-C, el. 14.54	10/17/1977	91173
181	Soil	Yoh Bldg	F	3	Beneath feature (see profile)	10/19/1977	
182	Soil	Yoh Bldg	F	7	N ash area, above brick floor	10/19/1977	
183	Soil	Yoh Bldg	F	6,8	Trench 2, N-S profile, end depth	10/19/1977	
184A	Soil	Yoh Bldg	F	6,8	NS profile, ash beneath brick	10/19/1977	
184B	Soil	Yoh Bldg	F	6,8	NS profile, reddish clay	10/19/1977	
184C	Soil	Yoh Bldg	F	6,8	NS profile, dark brown	10/19/1977	
185	Brick	Yoh Bldg	F		N of Feature 7, beneath steps, el. 15.2 ft	10/20/1977	91084
186A	Soil	Yoh Bldg	F	1	W wall, dark lens superior portion, el. 17.09 ft	10/20/1977	
186B	Soil	Yoh Bldg	F	1	W wall, dark lens inferior portion, el. 17.08 ft	10/20/1977	PS
187	Soil	Yoh Bldg	F	3	Concentration of large cobbles, SW of feature, el. 14.48 ft	10/20/1977	
188	Soil	Yoh Bldg	F	1	El. 13.39 ft, concentration of cobbles and broken brick below Feature 2, towards E wall of Feature 1	10/21/1977	91062
189	Mortar	Yoh Bldg	F	3A	Cobble and brick rubble, el. 14.7 ft	10/20/1977	91169
190	Brick	Yoh Bldg	F	3A	El. 14.7 ft	10/20/1977	91072
191	Soil	Yoh Bldg	F	3A	Contains artifacts, el. 14.7 ft	10/20/1977	80288-80295
192	Soil	Yoh Bldg	F	2	Dark brown/black, el. 14.9 ft	10/26/1977	
193	Mortar	Yoh Bldg	F	2	El. 14.7 ft	10/26/1977	91167
194	Soil	Yoh Bldg	F		Trench 4, 2nd cut from E, yellow brown grit, pebbles, el. 14.51 ft	10/26/1977	
195	Soil	Yoh Bldg	F		Trench 4, 2nd cut from E, deep red grit lens, el. 13.01 ft	10/25/1977	
196	Soil	Yoh Bldg	F		Trench 4, 2nd cut from E, below red grit lens, el. 12.81 ft	10/25/1977	
197A	Soil	Yoh Bldg	F	1	N-S profile, yellow-brown, silty soil	10/26/1977	

Table 4. Area F Sample List.

PS = Parasite Sample (parasite samples are consumed in analysis)

SAMPLE	SAMPLE TYPE	LOCATION	RM	FEAT	DESCRIPTION	DATE	INDE NO.
197B	Soil	Yoh Bldg	F	1	N-S profile, humic soil	10/26/1977	
197C	Soil	Yoh Bldg	F	1	N-S profile, mortar concentration, some wood	10/26/1977	
197D	Soil	Yoh Bldg	F	1	N-S profile, soil mixed with mortar	10/26/1977	
197E	Soil	Yoh Bldg	F	1	N-S profile, sandy soil without mortar	10/26/1977	
197F	Soil	Yoh Bldg	F	1	N-S profile, sand below brick, el. 10.17 ft	10/26/1977	
197G	Soil	Yoh Bldg	F	1	N-S profile, el. 9.8-8.45 ft	10/31/1977	
197H	Soil	Yoh Bldg	F	1	N-S profile, el. 8.45 ft	10/31/1977	PS
198	Wood	Yoh Bldg	F	7	N-S beam in brick floor, el. 13.61 ft	10/26/1977	
199	Wood	Yoh Bldg	F	7	E-W beam between brick walls, at right angles to wall unit P-Q, el. 14.32 ft	10/26/1977	
200	Wood	Yoh Bldg	F	7	E-W beam 12 x 9 in, inside opening in brick wall, el. 13.6 ft	10/26/1977	
201	Brick	Yoh Bldg	F	7	Interior brick floor, el. 13.61 ft	10/26/1977	91074
202	Brick	Yoh Bldg	F	7	W half, el. 11 ft	10/26/1977	91075
203	Brick	Yoh Bldg	F	1	N-S profile brick, el. 11.8 ft	10/26/1977	91063
204	Mortar	Yoh Bldg	F	7	S brick wall, at right angles to wall unit P-Q	10/26/1977	91175
205	Brick	Yoh Bldg	F	7	S brick wall, at right angles to wall unit P-Q	10/26/1977	91076
206	Brick	Yoh Bldg	F	1	E half, el. 11.03 ft	10/26/1977	91064
207	Mortar	Yoh Bldg	F	1	E half, el. 10.03 ft	10/26/1977	91166
208	Brick	Yoh Bldg	F	1	E half, el. 12.35-11.0 ft	10/26/1977	91065
209	Brick	Yoh Bldg	F	1	Brick level, el. 10.34 ft	10/27/1977	91066
210	Mortar	Yoh Bldg	F		Wall unit D-E/E-F, brick chimney	10/27/1977	91187
211	Mortar	Yoh Bldg	F		Wall unit F-G, brick wall	10/27/1977	91188
212	Mortar	Yoh Bldg	F		Wall unit H-K, SE chimney	10/27/1977	91189
213A	Mortar	Yoh Bldg	F		Wall unit K-L, stone wall	10/27/1977	91190
213B	Mortar	Yoh Bldg	F		Wall unit K-L, brick wall	10/27/1977	91191
213C	Mortar	Yoh Bldg	F		Wall unit K-L, brick above stone	10/27/1977	91192
214	Mortar	Yoh Bldg	F		Wall unit L-M, stone wall	10/27/1977	91193
215	Mortar	Yoh Bldg	F		Wall unit L-M/M-N, brick corner	10/27/1977	91194
216A	Mortar	Yoh Bldg	F		Wall unit N-O, brick chimney	10/27/1977	91195
216B	Mortar	Yoh Bldg	F		Wall unit N-O, stone at N end of wall	10/27/1977	91196
216C	Mortar	Yoh Bldg	F		Wall unit N-O, brick window enclosure	10/27/1977	91197
217A	Mortar	Yoh Bldg	F		Wall unit O-P, brick window enclosure	10/27/1977	91198
217B	Mortar	Yoh Bldg	F		Wall unit O-P, stone wall	10/27/1977	91199
217C	Mortar	Yoh Bldg	F		Wall unit O-P, brick above stone wall	10/27/1977	91200
218A	Mortar	Yoh Bldg	F		Wall unit P-Q, stone wall exterior (possibly later than 218B)	10/27/1977	91201
218B	Mortar	Yoh Bldg	F		Wall unit P-Q, stone wall	10/27/1977	91202
218C	Mortar	Yoh Bldg	F		Wall unit P-Q, brick arch over chimney	10/27/1977	91203
219	Soil	Yoh Bldg	F	1	El. 9.8-8.45 ft, yellow brown, E half, Bag 125	10/31/1977	80296-80300
220	Soil	Yoh Bldg	F	1	El. 8.45-? ft, dark brown heavy in organic and cultural debris, E half, Bag 126	10/31/1977	80301-80309
221	Soil	Yoh Bldg	F	1	SE edge w/concentration of clam shell, el. 7.0 ft	10/31/1977	
222	Soil	Yoh Bldg	F	1	Center, el. 7.0 ft	11/1/1977	80310-80316
223	Soil	Yoh Bldg	F	1	SE quad, el. 6.0 ft	11/2/1977	80317-80327
224	Brick	Yoh Bldg	F	1	SE quad, el. 5.7 ft	11/3/1977	91067
225	Soil	Yoh Bldg	F	1	El. 2.23 ft, includes artifacts and seeds	11/8/1977	80328-80338
226	Soil	Yoh Bldg	F	1	El. 0.43 ft, flotation sample	11/10/1977	80339-80346
227	Soil	Yoh Bldg	F	1	El. (-2.6) ft, sterile soil	11/10/1977	

Table 5. Ceramic Vessels in Yoh Building, Room A, Feature 2.

FUNCTION			TEA				BEVERAGE				TABLE		KITCHEN									
SUBFUNCTION			DRNK		SERV								PREPARATION									
ORIGIN	WARE	FORM	TEABOWL	SAUCER	SLOP BOWL	TEAPOT	TANKARD	POSSET CUP	PUNCH BOWL	JUG	PLATE	HANDLE	BOWL	JAR	BUTTER POT/CROCK	MILK PAN	PIE PAN	PUDDING PAN	SPIDER	CHAMBER POT	SHERD	TOTALS
PH	**Redware**	*Lead Glazed*					2						2	1	3	1			1	1	1	12
		Slip Decorated											2				4	1				7
ENG	**TGEW**			2	2				2		3		1									10
	Yellowware	*Slipped, Trailed, Dot*						3		3											3	9
	Creamware	*Plain*																			1	1
		Painted										1										1
	Stoneware	*White salt-glazed*	1	1		1			1												1	5
CEP	**Porcelain**	*Underglaze blue*	2	2	1																	5
		Overglaze dec.		1																		1
TOTALS			3	6	3	1	2	3	3	3	3	1	5	1	3	1	4	1	1	1	6	51

Table 6. Glass Vessels in Yoh Building Room A, Feature 2.

Functional/Subfunctional Group	Yoh A 1 AS I		Yoh A 2	
BOTTLES	**#**	**%**	**#**	**%**
Alcohol				
Case Gin	3	4.9	1	10.0
Beverage	10	16.4	0	0.0
Wine	12	19.7	4	40.0
Liquor	1	1.6		
Food				
Condiment	5	8.2	0	0.0
Medicine				
Patent	3	4.9	0	0.0
Medicine	15	24.6	0	0.0
Unidentified Bottle	12	19.7	5	5.0
Total Bottle	61	100.0	10	100.0
TABLEWARE				
Drinking				
Tumbler	42	60.8	0	0.0
Wine Glass	17	24.6	1	33.3
Drinking Glass	2	2.9	0	0.0
Shot Glass	1	1.4	0	0.0
Flip Glass	0	0	2	66.6
Serving				
Decanter	1	1.4	0	0.0
Case Bottle	2	2.9	0	0.0
Castor	1	1.4	0	0.0
Cruet	1	1.4	0	0.0
Unidentified Tableware	2	2.9	0	0.0
Total Tableware	69	50.6	3	99.9
Total Bottle	61	45.5	10	76.9
Total Tableware	69	50.6	3	23.1
Total Unidentified	5	3.6	0	0.0
Total Vessels	135	99.7	13	100.0

Table 7. Ceramic Vessels in Yoh Building, Room C, Feature 2, AS I.

FUNCTION			TEA							BEV		TABLE			KITCHEN						
SUBFUNCTION			DRINK			SERVING						DINING			EAT						
ORIGIN	WARE	FORM	TEABOWL	HANDLED CUP	SAUCER	SLOP BOWL	CREAMER	LID	TEAPOT	TANKARD	JUG	PLATE	TABLE	SERVING DISH	PORRINGER	BOWL	PIE PAN	CHAMBER POT	SHERD	TOTALS
PHILA	**Redware**																			
		Slip Decorated															1			1
		Mottled								1										1
	Yellowware																			0
	Stoneware																			0
ENGLAND	**TGEW**					2														2
	Redware	*Engine turned*						1												1
	Creamware	*Plain*											1			1		1		3
		Painted							1			1				1			1	4
	Pearlware																			
		Painted, polychrome	1	1		1			1											4
		Painted, blue			2															2
		Edged, blue										2								2
		Edged, green										1		1						2
		Printed		1																1
		Printed, Willow										1								1
	Whiteware																			
		Annular								1										1
	Stoneware	*White salt-glazed*																	1	1
		Other									1									1
CEP	**Porcelain**	*Underglaze blue*					1													1
TOTALS			1	2	2	3	1	1	2	2	1	5	1	1	0	2	1	1	2	28

Table 8: Glass Vessels from Yoh Building, Room C, Feature 2.

Functional/Subfunctional Group	AS I	%	AS II	%	AS III	%	Total	%
	BOTTLES							
ALCOHOL								
Case Gin	1	12.5	1	3.3	0	0.0	2	4.9
Wine	2	25.0	6	20.0	0	0.0	8	19.5
Liquor	0	0.0	2	6.7	0	0.0	2	4.9
Carboy	0	0.0	2	6.7	0	0.0	2	4.9
Beverage	0	0.0	1	3.3	0	0.0	1	2.4
Flask	0	0.0	0	0.0	1	33.3	1	2.4
BEVERAGE								
Beverage	0	0.0	1	2.4	0	0.0	1	2.4
Mineral Water	0	0.0	1	2.4	0	0.0	1	2.4
FOOD								
Mustard	0	0.0	2	6.7	0	0.0	2	4.9
Capers	0	0.0	2	6.7	0	0.0	2	4.9
MEDICINE								
Chemical	0	0.0	7	23.3	1	33.3	8	19.5
COSMETIC								
Fancy Cologne	1	12.5	2	6.7	1	33.3	4	9.8
UNIDENTIFIED BOTTLE	4	50.0	3	10.0	0	0.0	7	17.1
TOTAL BOTTLE	8	100.0	30	100.0	3	100.0	41	100.0
	TABLEWARE							
DRINKING								
Tumbler		25.0	10	62.5	1	0.0	12	57.1
Drinking Glass	0	0.0	1	6.25	0	0.0	1	4.7
Wine Glass	1	25.0	2	12.5	0	0.0	3	14.3
SERVING								
Case Bottle	1	25.0	0	0.0	0	0.0	1	4.7
Cruet	0	0.0	1	6.25	0	0.0	1	4.7
Plate	1	25.0	0	0.0	0	0.0	1	4.7
TOTAL SERVING	2	50.00	1	6.25	0	0.0	3	14.1
UNIDENTIFIED TABLEWARE	0	0.0	2	12.5	0	0.0	2	9.5
TOTAL BOTTLE	8	61.5	30	63.8	3	50.0	41	63.1
TOTAL TABLEWARE	4	30.8	16	34.0	1	25.0	21	32.3
UNIDENTIFIED FRAGMENT	1	7.7	1	2.1	1	25.0	3	4.6
TOTAL VESSELS	13	100.0	47	99.9	5	100.0	65	100.0

Table 9. Ceramic Vessels in Yoh Building, Room C, Feature 2, AS II. The highlighted cells indicate matched sets.

FUNCTION			TEA											TABLE							KITCHEN									HYGIENE			GARD		U	
SUBFUNCTION			DRINK			SERVING								PLATES				SERVING			EAT		PREPARATION												
ORIGIN	WARE	FORM	TEABOWL	HANDLED CUP	SAUCER	SLOP BOWL	CREAMER	LID	TEAPOT	GOBLET	MUG	JUG	BOTTLE	MUFFIN	SOUP	PLATE	TWIFFLER	SERVING DISH	SAUCER DISH	PLATTER	PORRINGER	BOWL	JAR	BUTTER POT / CROCK	MILK PAN	PIE PAN	PUDDING PAN	LID	CHAMBER POT	STOOL POT	DRUG JAR / POT	FLOWER POT	FLOWER POT TRAY	SHERD	TOTALS
PHIL	**Redware**	*Unglazed*																																	3
		Lead Glazed										1									2	1		1	1			1	2	2					11
		Slip Decorated																								2									2
	Stoneware											2	1											1										1	5
ENGLAND	**TGEW**																																		0
	Redware	*Refined*					1			2		1																							4
	Creamware	*Plain*				1		1																											2
	Pearlware	*Plain*																																	0
		Painted, polychrome	1		2						1																								4
		Painted, blue	1	1	5																														7
		*Edged, blue (**Set 3**)*												1	1	1		1																	4
		Edged, green														1																			1
		*Printed (**Set 2**)*	2			1								1				1																	5
		Printed, Willow														1																			1
	Whiteware	*Plain*																																	0
		Edged															1																		1
		Printed																		1															1
	White Granite			3	1																														4
	Stoneware	*White salt-glazed*																																1	1
	Porcelain	*Bone China (**Set 1**)*		3	1																														4
CEP	**Porcelain**	*Underglaze blue*				1																													1
TOTALS			4	7	9	3	1	1	0	2	1	4	1	2	1	3	1	2	0	1	2	1	0	2	1	2	0	1	2	2	0	2	1	2	61

Figures

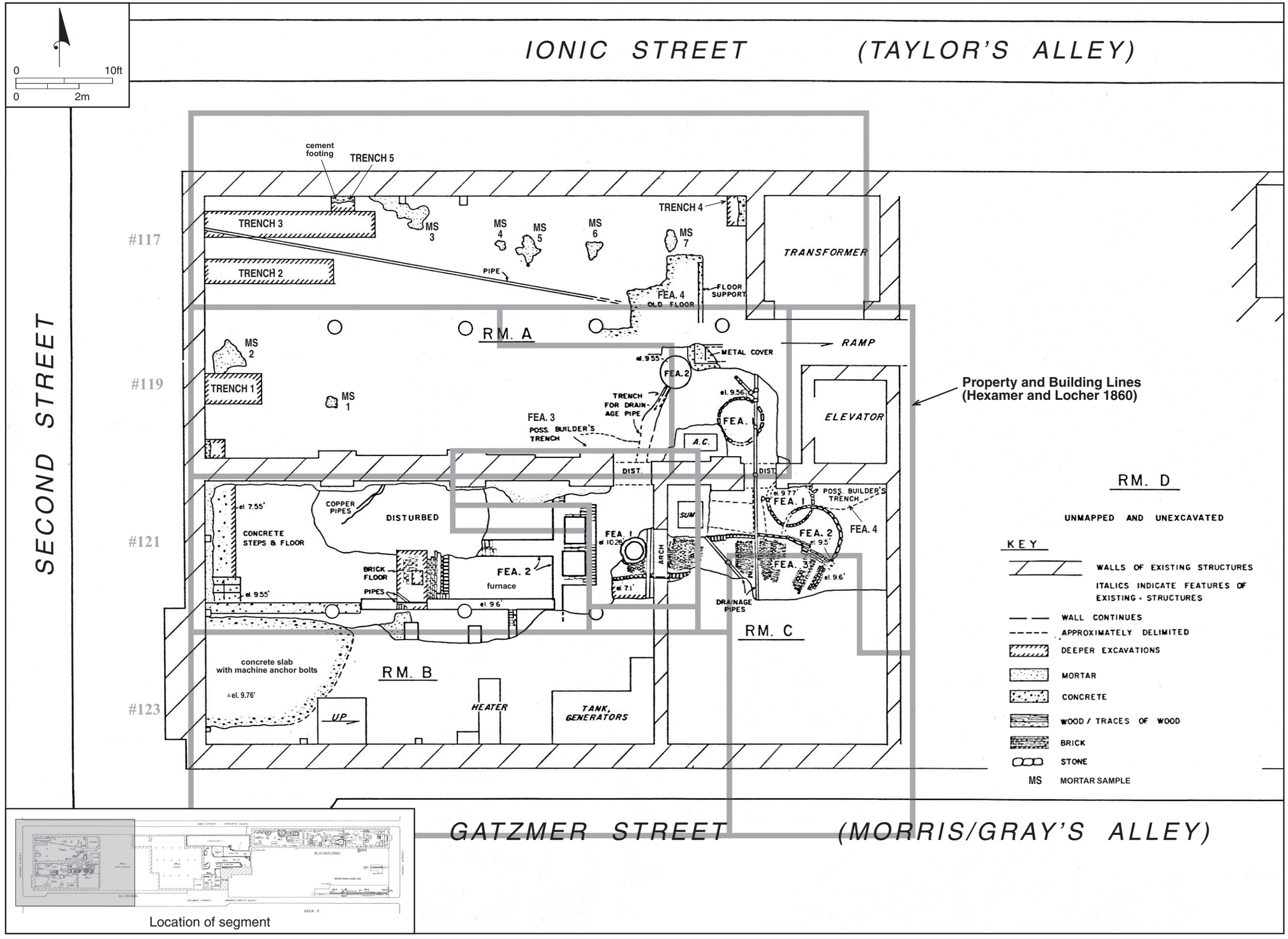

Figure 1. Plan of excavated trenches and exposed features in Rooms A, B and C of the Yoh Building, Area F site.

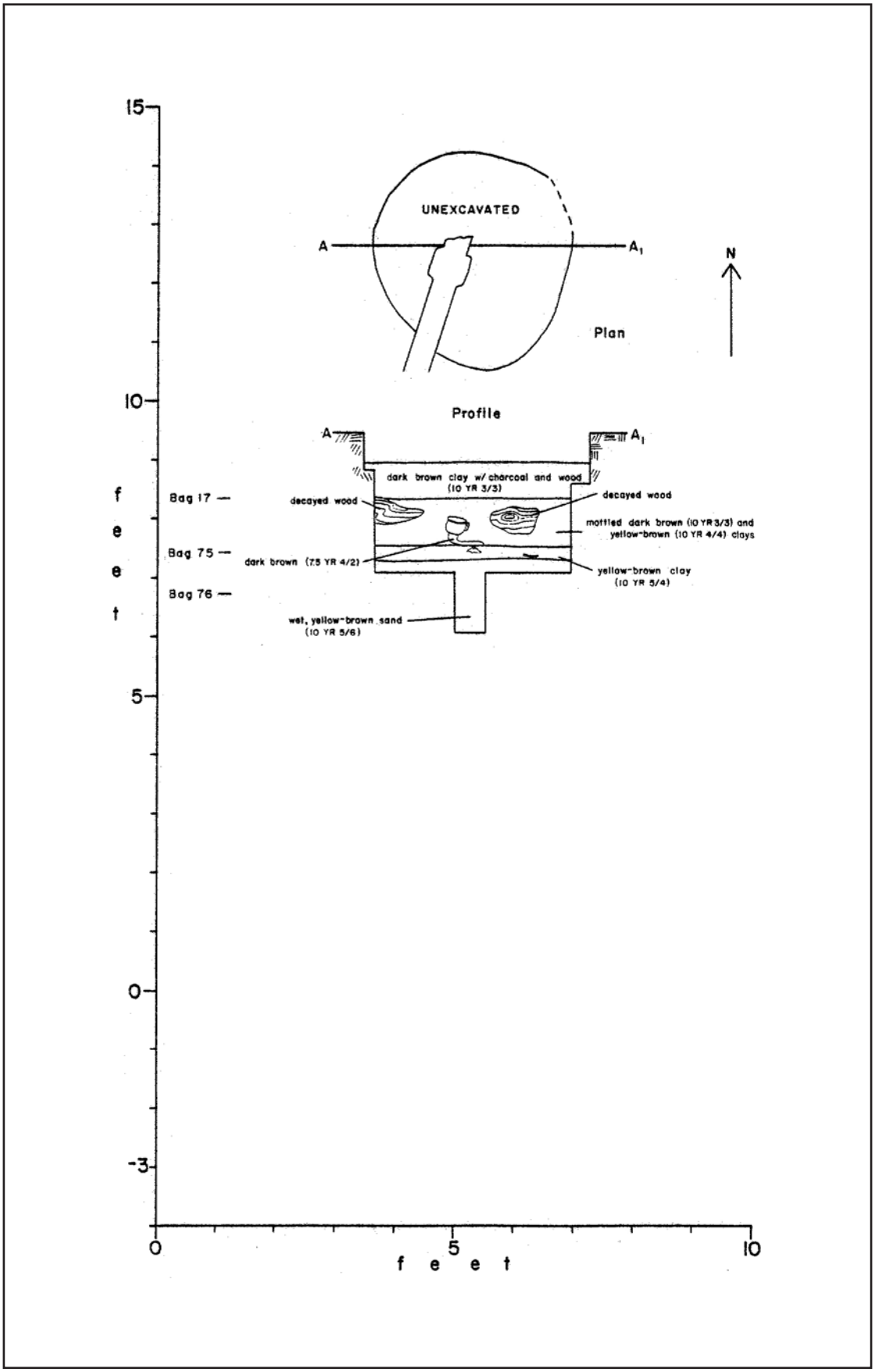

Figure 2. Area F, Yoh Building, Room A, Feature 2 (YohA2) plan and profile. One half of the feature was excavated and one half preserved in situ.

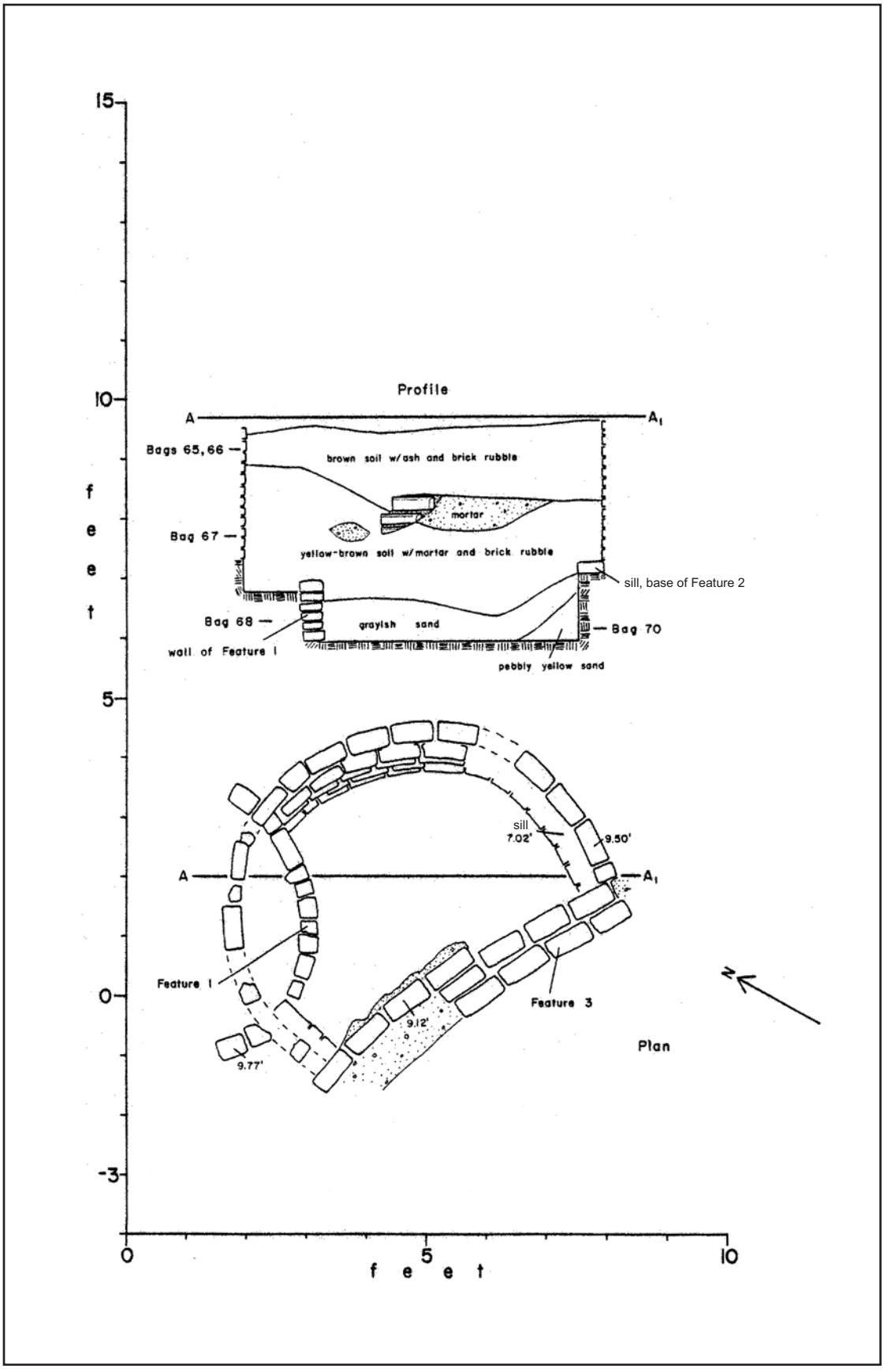

Figure 3. Area F, Yoh Building, Room C, Feature 2 (YohC2) plan and profile. The entire feature was excavated.

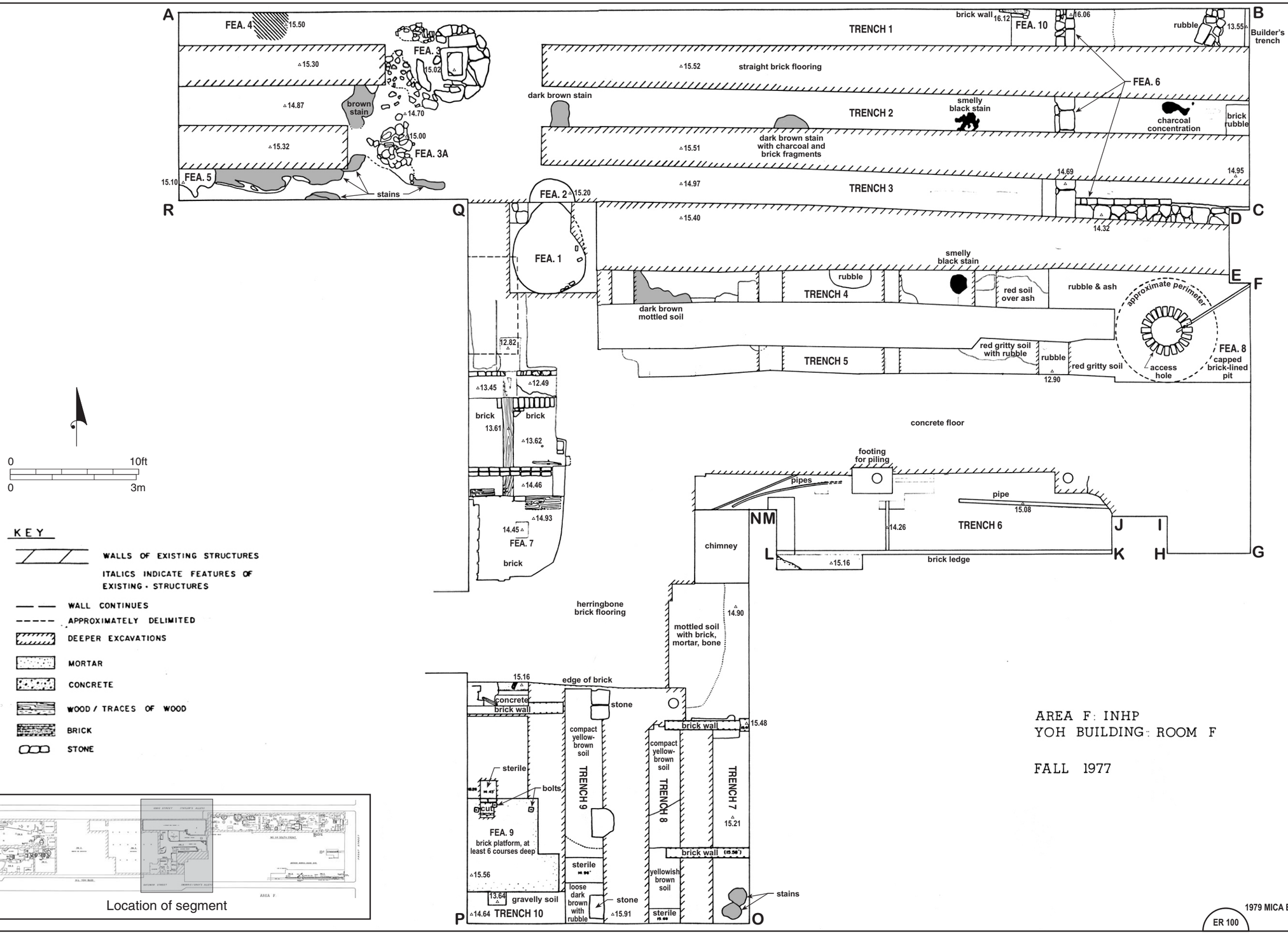

Figure 4. Plan of excavated trenches and exposed features in Room F of the Yoh Building, Area F site.

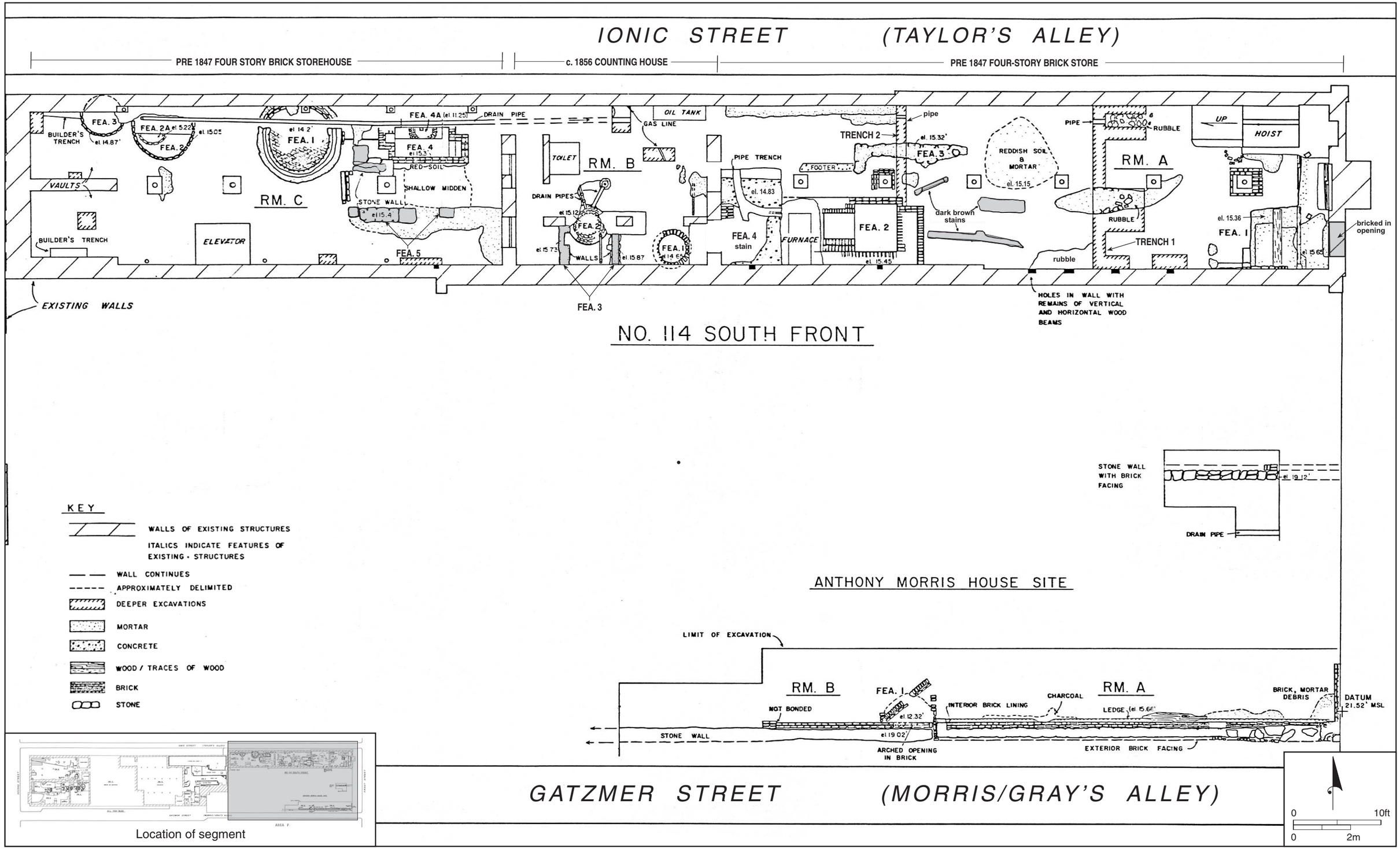

Figure 5. Plan of excavated trenches and exposed features at 114 South Front Street and the Anthony Morris House site (118 South Front Street).

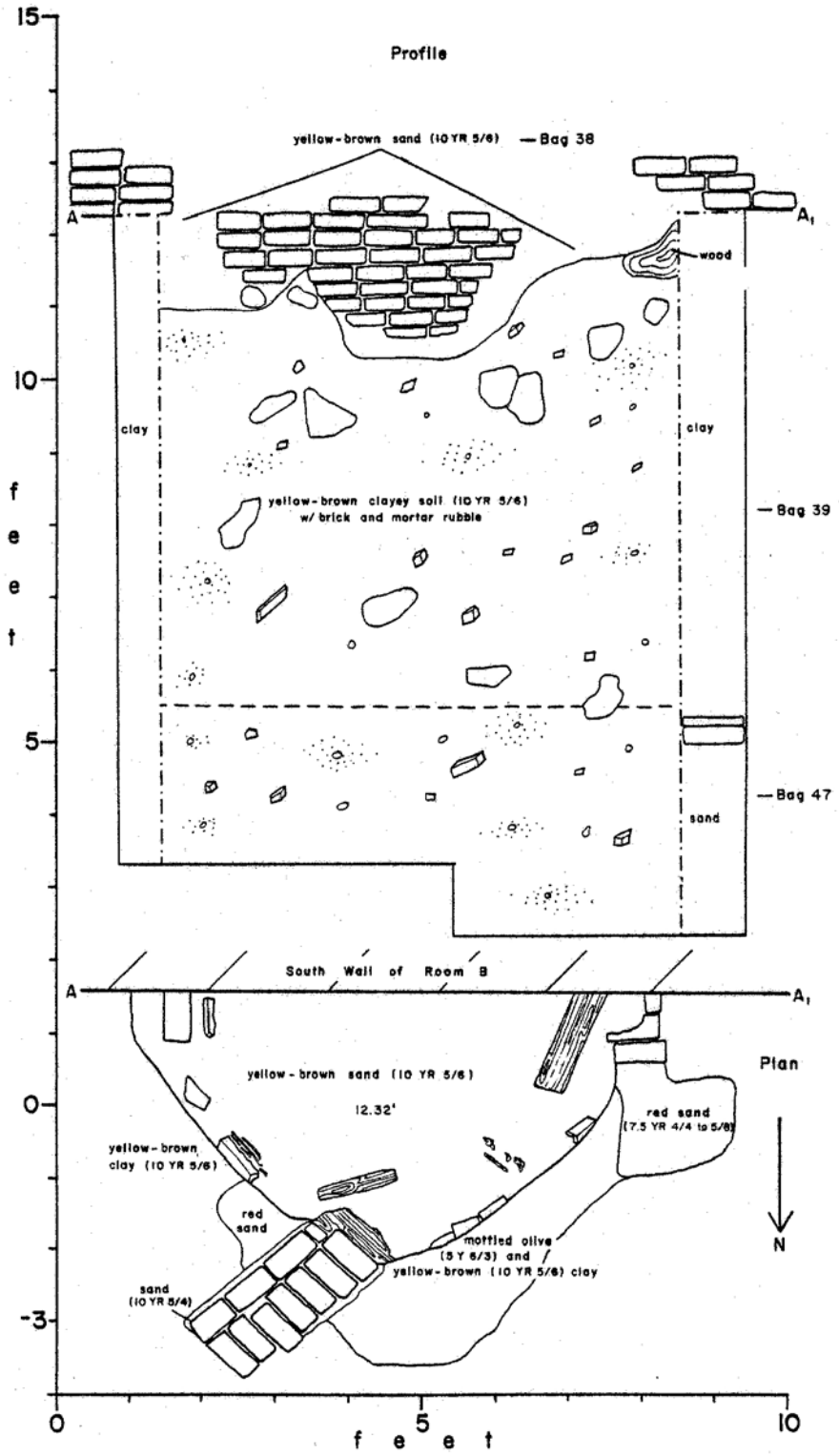

Figure 6. Area F, 118 S. Front Street, Room B, Feature 1 plan and profile. One half of this feature was excavated, and the other half preserved in situ.

Plates

Plate 1. Area F, Yoh Building, Room A; north cellar wall showing one of the three windows along this wall.

Plate 2. Area F, Yoh Building, Room A; south wall and southwest corner showing contemporaneity of the basement walls.

Plate 3. Area F, Yoh Building, Room A with concrete floor removed exposing Feature 2, left foreground, and brick-lined Feature 1, right rear; view east.

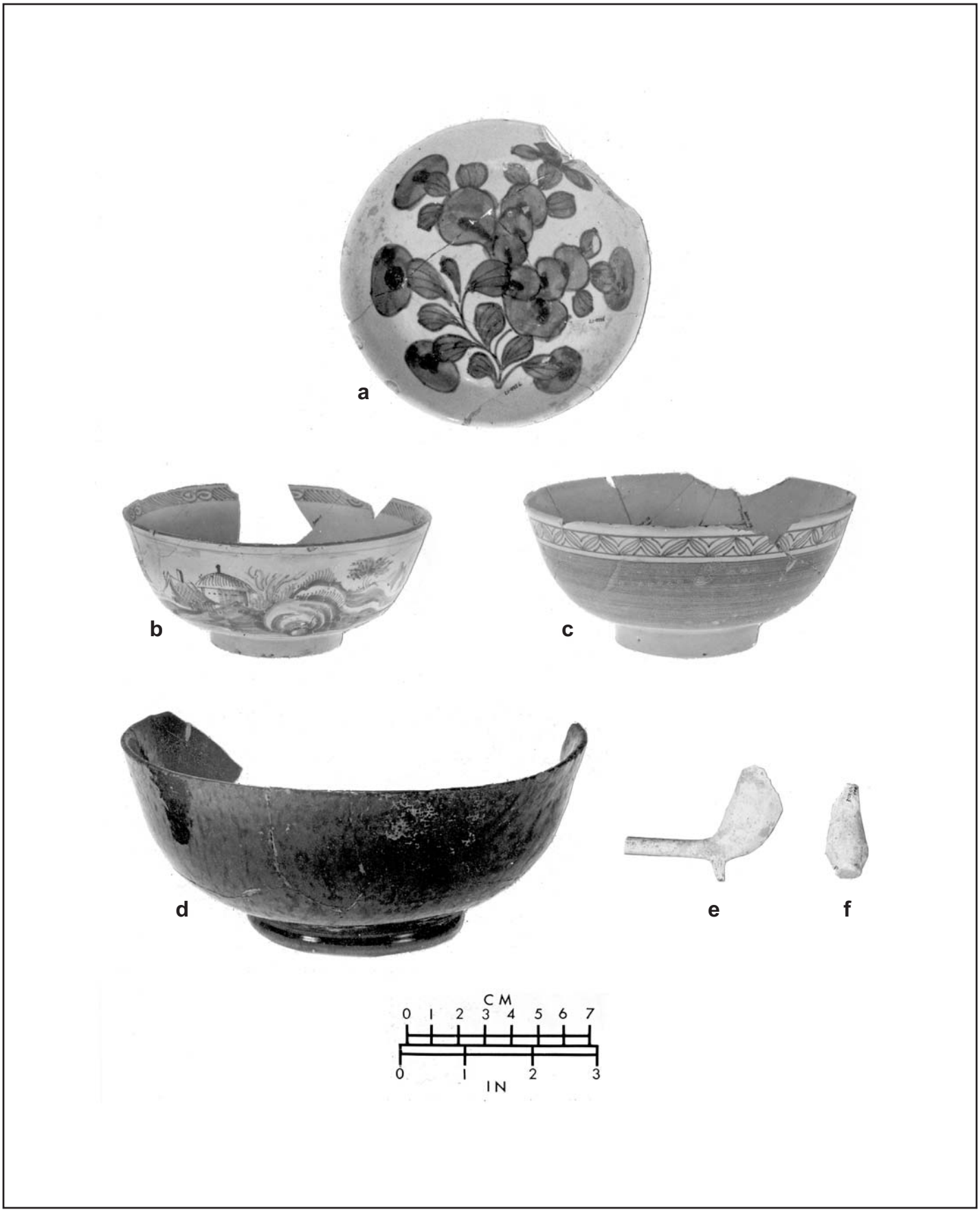

Plate 4. Ceramic vessels and artifacts from Yoh Building, Room A, Feature 2: a-c, painted tin-glazed earthenware teawares, a, saucer, b-c, slop bowls; d, redware punch bowl; e, kaolin pipe, and f, kaolin wig curler fragment.

Plate 5. Area F, Yoh Building, Room B; southwest corner. Note closure of opening in west wall; view southwest.

Plate 6. Area F, Yoh Building, Room B; west wall. Note closure of arched openings to Second Street; view west.

Plate 7. Area F, Yoh Building, Room B; east wall. Note brick arch opening into Room C, manhole cover of Feature 1 right center, and brick foundations for a furnace/boiler (Feature 2) in the foreground; view northeast.

Plate 8. Area F, Yoh Building, Room C; west wall. Note brick arch over entrance into Room B and sump in northwest corner; view west.

Plate 9. Area F, Yoh Building, Room C; metal pipe exposed beneath concrete floor running through the center of the room and builder's trench, Feature 4, in upper right corner along wall; view north.

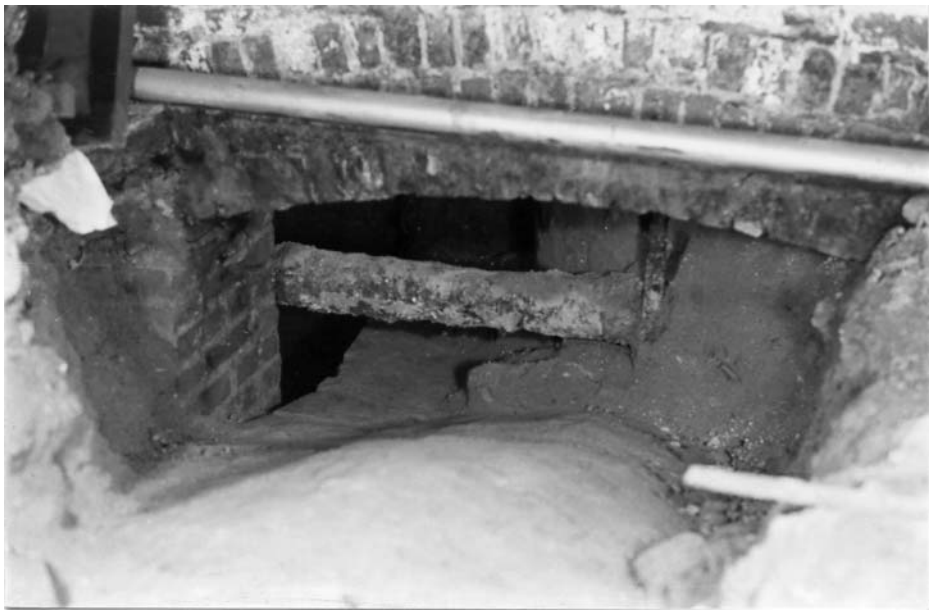

Plate 10. Area F, Yoh Building, Room C; close-up of surface of brick conduit, Feature 3, passing under the west wall and archway separating Rooms B and C; view west.

Plate 11. Area F, Yoh Building, Room C, Feature 2 (center), built over Feature 1 (top center), view northwest. Note the signboard is resting on Feature 3 (left), the brick conduit constructed c.1908.

Plate 12. Artifacts from Yoh Building, Room C, Feature 2: a, Philadelphia slip-decorated redware pie pan; b, stoneware bottle; c, English relief-molded stoneware sherd; d, American stoneware jug; e, lusterware goblet; f, blue printed pearlware tea bowl from Set 2; g, painted pearlware cup, London shape; h, English bone china cup from Set 1; i, dark blue printed pearlware slop bowl; j, blue printed "American Villa" pearlware muffin; k, blue edged pearlware muffin from Set 3; l, wine bottle; m-n, scent bottles; o, brass button; p-r, kaolin pipes; s, rubber token from D.P. Dietericks Cheap Rubber Store – 308 Chestnut St. Phila"; t, brass backplate.

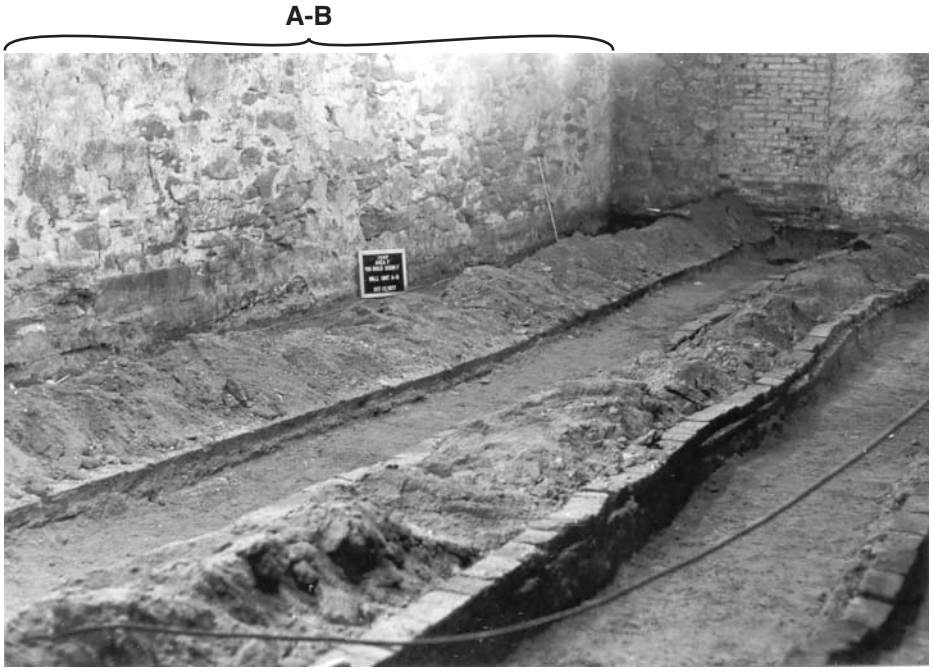

Plate 13. Area F, Yoh Building, Room F, wall unit A-B upper left; in foreground, brick floor removed to expose earthen floor; view northeast.

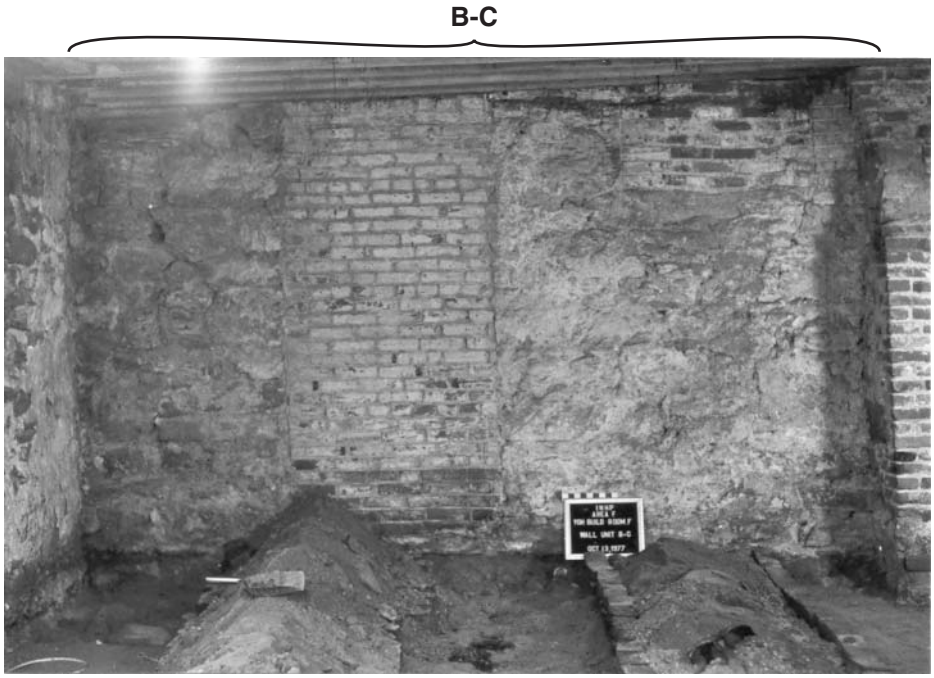

Plate 14. Area F, Yoh Building, Room F, wall unit B-C, shared west wall of Room C, 114 S. Front Street. Note brick sealing former door connecting brick store with rear warehouse c.1847.

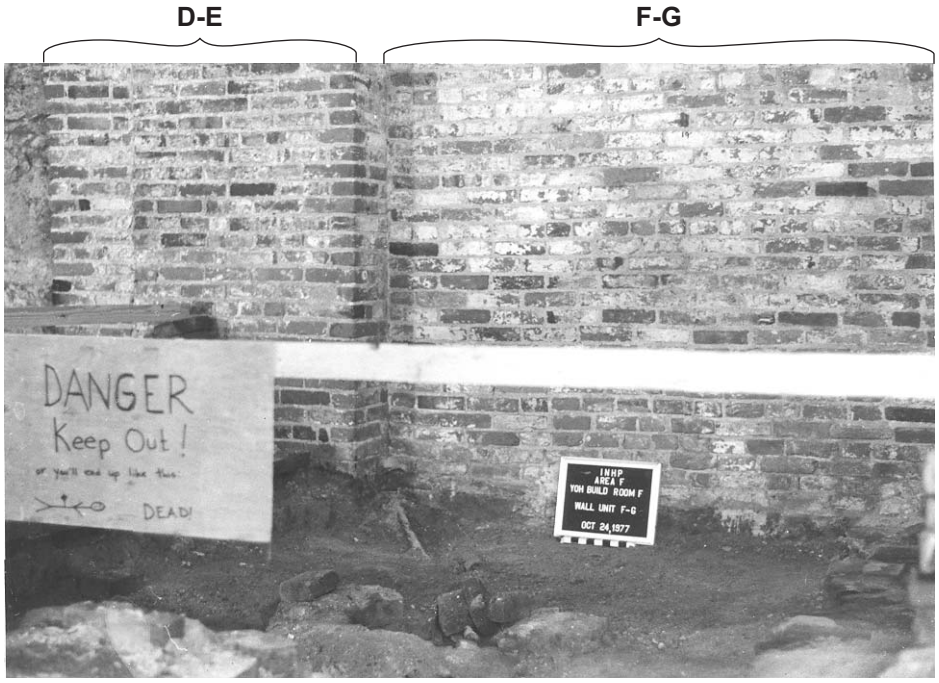

Plate 15. Area F, Yoh Building, Room F, brick wall units D-E and F-G; view east. Note Feature 8 in foreground.

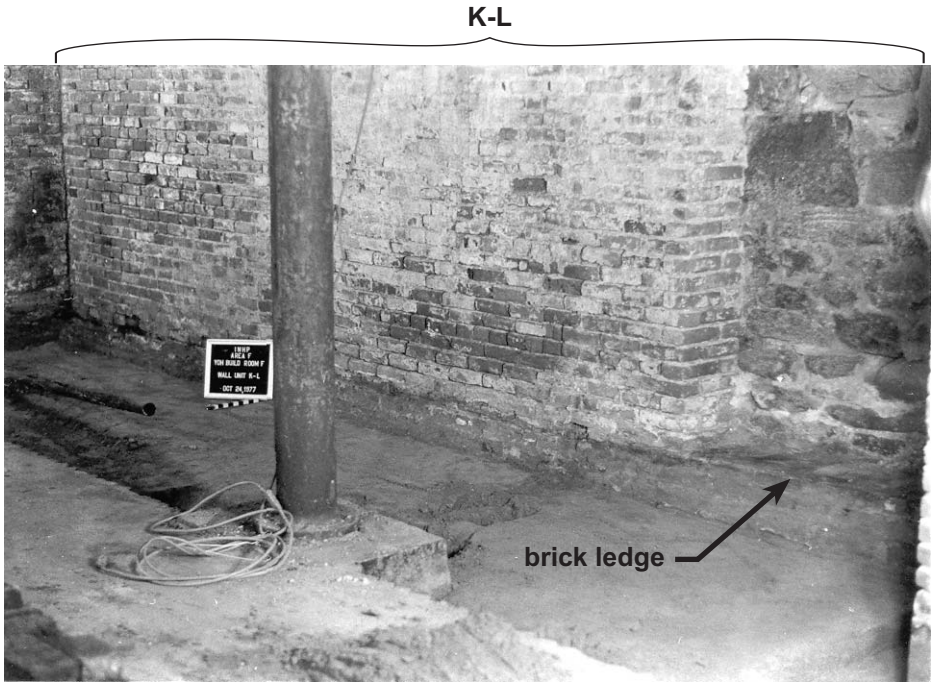

Plate 16. Area F, Yoh Building, Room F, wall unit K-L showing incorporation of c.1896 brick wall with stone cellar wall of an earlier building. Note the brick ledge may have been added to reinforce the earlier stone wall. Trench in foreground; view southwest.

Plate 17. Area F, Yoh Building, Room F, southwest corner, wall units K-L and L-M; view southwest. Note filled in doorway at left and brick facing, right, added to finish edge of truncated wall L-M.

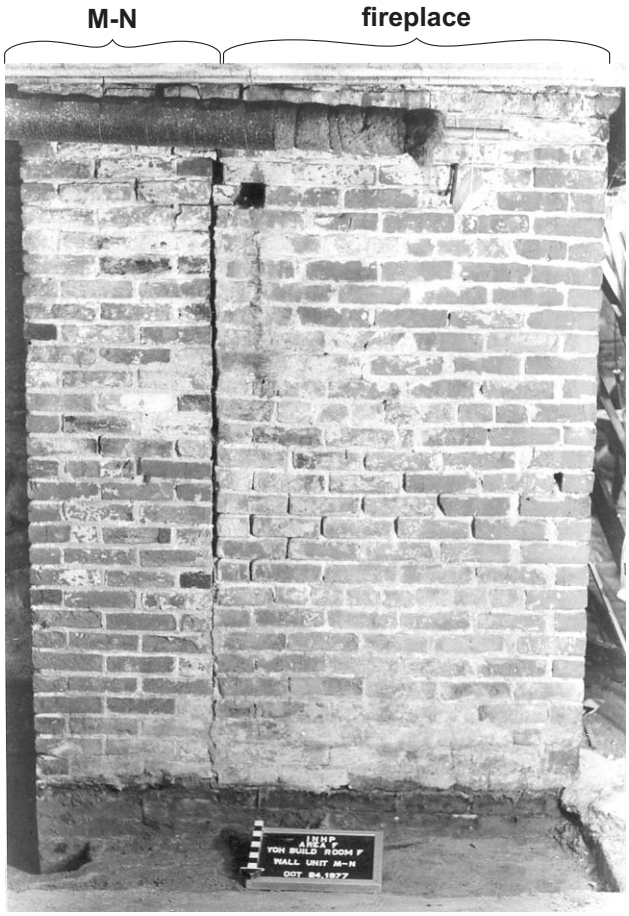

Plate 18. Area F, Yoh Building, Room F, wall unit M-N; view south. The seam shows the finished brick end of wall L-M and added brick chimney at right.

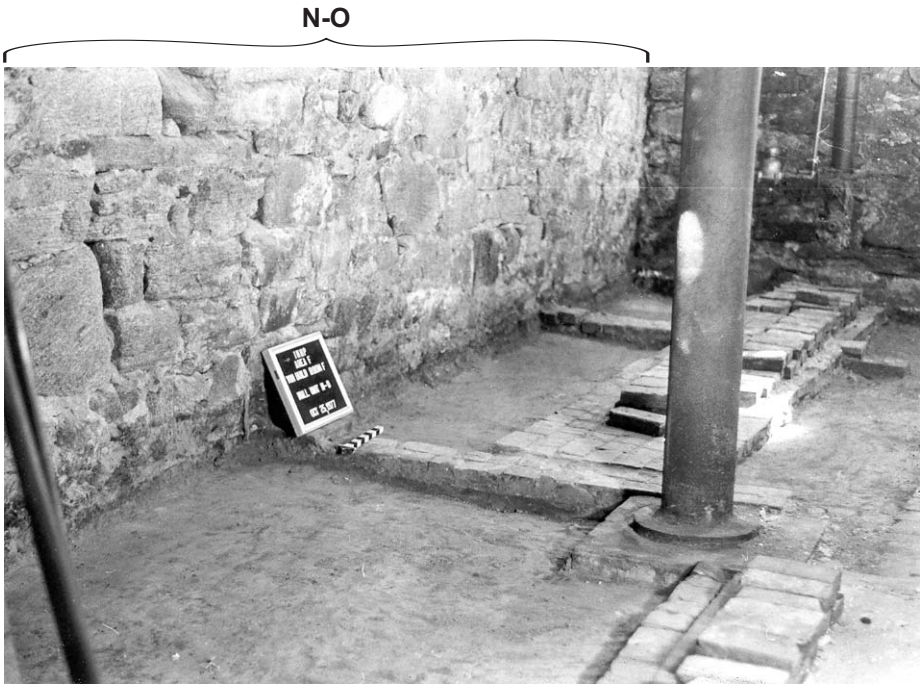

Plate 19. Area F, Yoh Building, Room F, view southeast of wall unit N-O. Trenches 7 and 8 in foreground with exposed brick walls perpendicular to wall unit N-O.

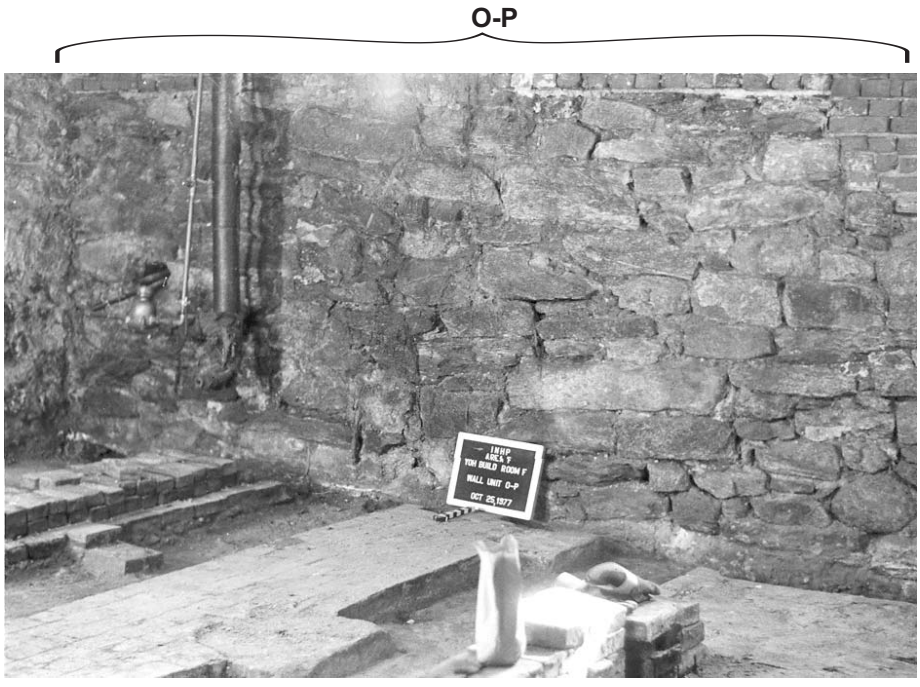

Plate 20. Area F, Yoh Building, Room F, brick floor in process of being removed; wall unit O-P, view southeast. Note base of bricked-in window opening at top of photograph. Wall O-P is in the approximate location of the former 1-3 Gray's Alley.

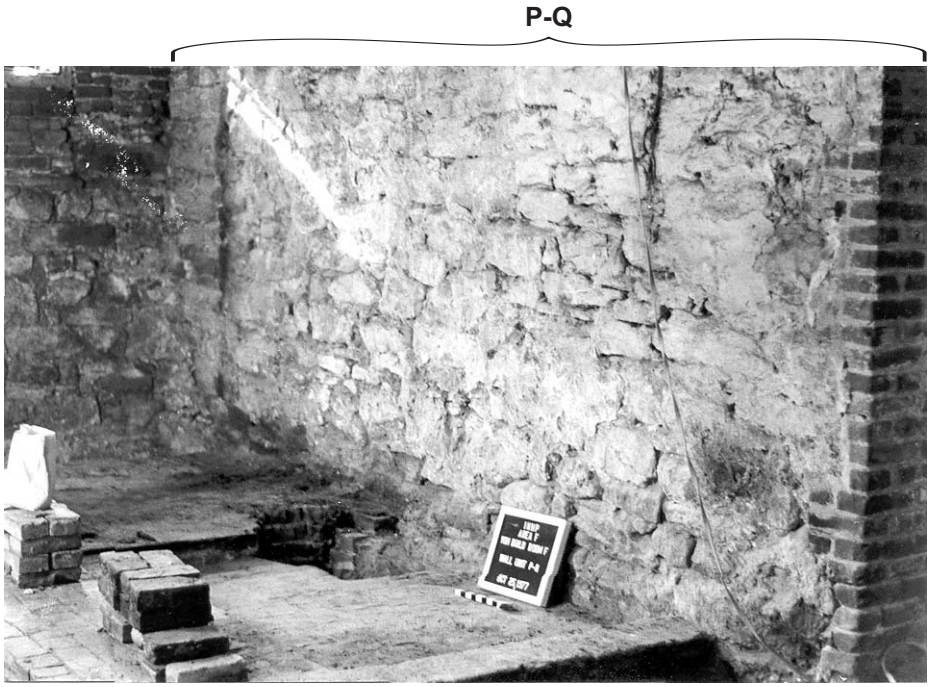

Plate 21. Area F, Yoh Building, Room F, wall unit P-Q, view southwest. This stone wall may be the west wall of 1-3 Gray's Alley. The brick facing at the right was added when the wall was broken through to create a door opening in the later warehouse.

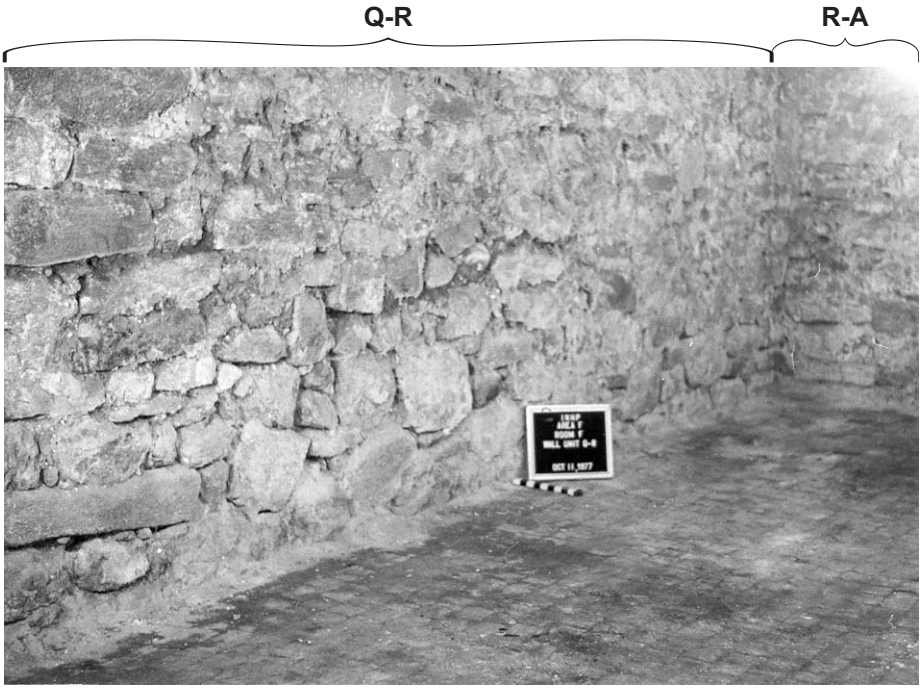

Plate 22. Area F, Yoh Building, Room F; wall units Q-R, R-A and brick floor, view southwest. Stone wall Q-R stands on the property line between William Gray's bake house c.1738 at 1-3 Gray's Alley and George Gray's lot at 114 S. Front Street. About 1847, Joseph Solms built a 4-story brick warehouse in this location fronting Taylor's Alley to the north.

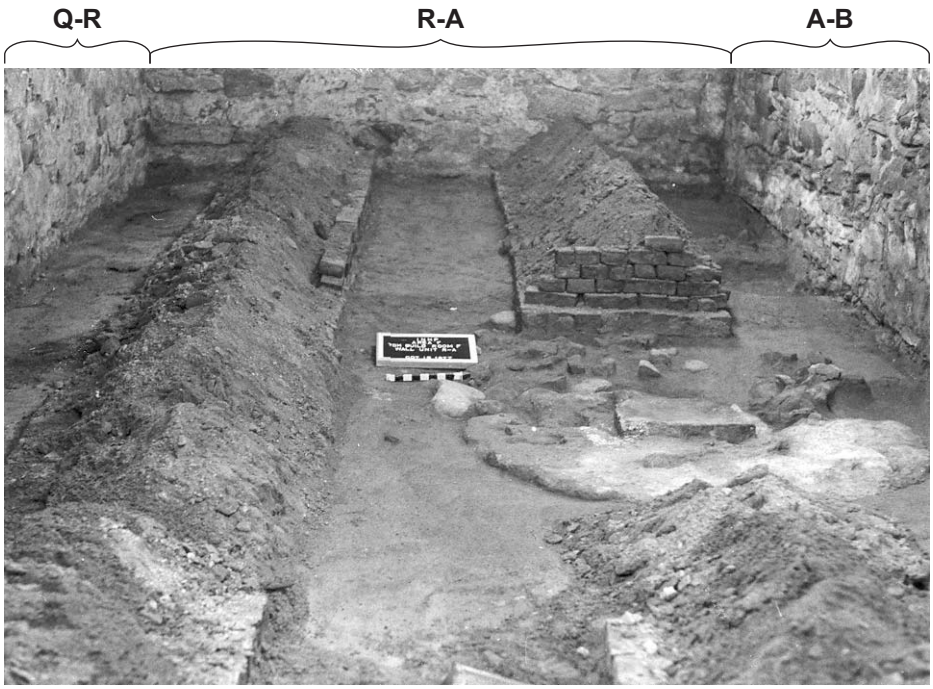

Plate 23. Area F, Yoh Building, Room F; Trench 1 at right, Trench 2 center, and Trench 3 to the left with Feature 3 exposed in the center right of the photograph; view west. Wall unit R-A is at the top of the photo and portions of Q-R and A-B are to the left and right. These walls may have formed the westernmost of Joseph Solms' warehouses built facing Taylor's Alley c.1847.

Plate 24. Area F, Yoh Building, Room F; brick removal to excavation of Trenches 4 and 5, view east. Feature 8 is at the top center of the photograph.

Plate 25. Area F, Yoh Building, Room F, Feature 3; mortared stone post support, view west.

Plate 26. Area F, Yoh Building, Room F, Feature 3A; concentration of stone, including a little concrete and brick; view west.

Plate 27. Area F, Yoh Building, Room F, Feature 7; brick foundations, possible furnace area.

Plate 28. Area F, Yoh Building, Room F, showing the wooden beam of Feature 7 anchored in the center of the feature.

Plate 29. Area F, Yoh Building, Room F, Feature 8; concrete manhole cover over brick shaft interpreted as a cesspool, c.1896.

Plate 30. Area F, Yoh Building, Room F, small test cut into edge of Feature 9 showing thickness (six courses) of brick platform, 20th century machinery support.

Plate 31. Area F, 114 S. Front Street, Room A; arrow points to vertical joint in south wall. Note void of former floor joist in south wall.

Plate 32. Area F, 114 S. Front Street, Room A; close up of joist pocket in south wall foundation following excavation.

Plate 33. Area F, 114 S. Front Street, Room A, east wall. Note structural changes in east wall and lime mortar in basement floor.

Plate 34. Area F. 114 S. Front Street, Room A, Feature 1, c.1856 floor remnant in southeast corner of room; view south.

Plate 35. Area F, 114 S. Front Street, Room A, Feature 1, c.1856 floor remnant; view east.

Plate 36. Area F, 114 S. Front Street, Room A, Feature 2, brick foundation for a furnace; view southwest.

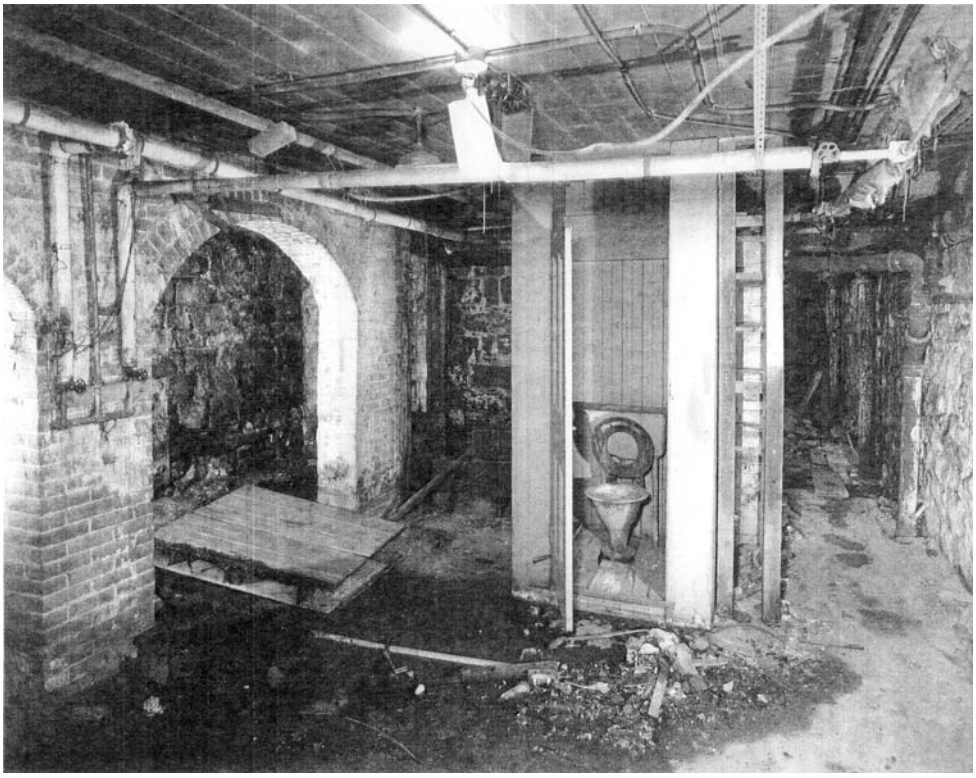

Plate 37. Interior view of Area F, 114 S. Front Street, Room B, view west of c.1892 water closet that drained into Feature 2 (below pallet). Note brick arches at left, built c.1856 to support one-story counting house. The stone walls of Room B formerly enclosed an open yard at cellar level (Photograph by George Eisenman in Batcheler 1978).

Plate 38. Area F, 114 S. Front Street, Room B, Feature 2. Domed brick/mortar closure for cesspool. Note drain lower left, shower drain pipe lower right, and drain pipe upper left; view south.

Plate 39. Area F, 114 S. Front Street, Room C, east wall. Note barred window, partially filled in with brick; view east into Room B.

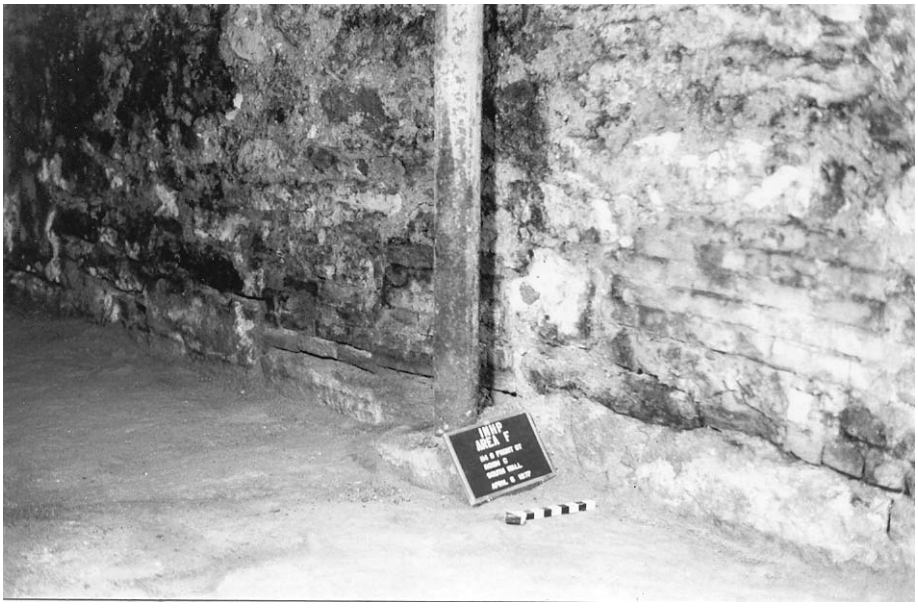

Plate 40. Area F, 114 S. Front Street, Room C, south wall. Note area of brick in stone wall to the right of pillar.

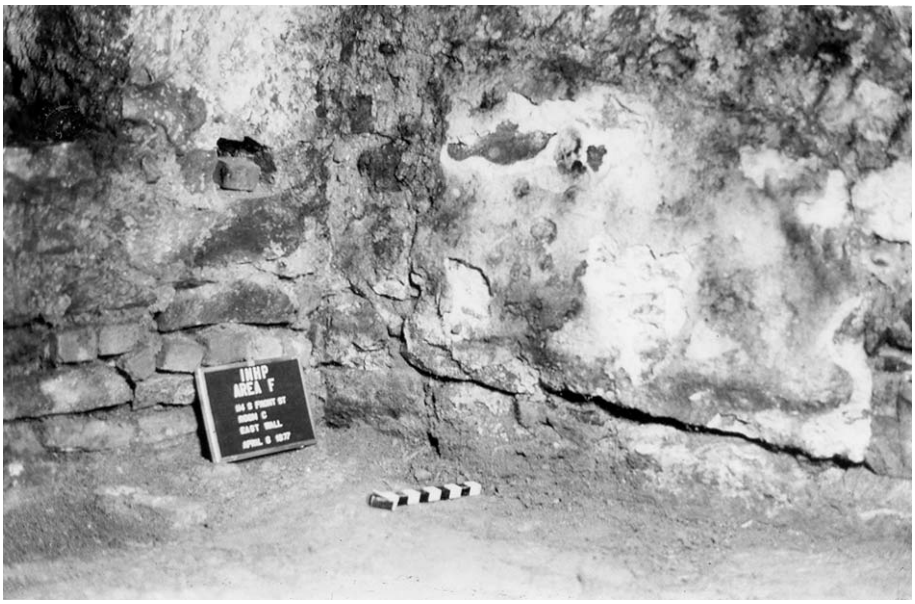

Plate 41. Area F, 114 S. Front Street, east wall. Note brick patch in wall.

Plate 42. Area F, 114 S. Front Street, south wall; possible reused wall.

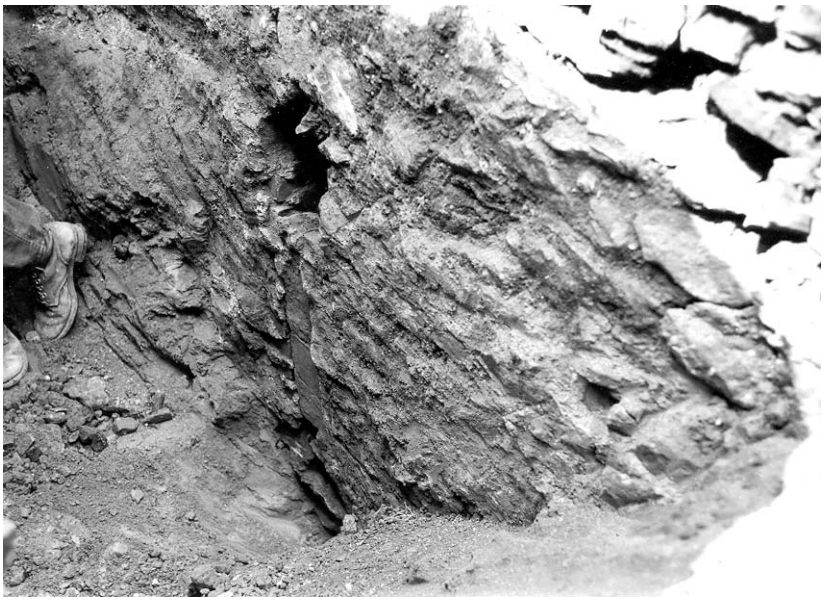

Plate 43. 116 S. Front Street, vertical pocket in foundation wall showing wooden beam or floor joist in place; view north.

Plate 44. 116 S. Front Street, vertical pocket in foundation wall after removal of wood; view north.

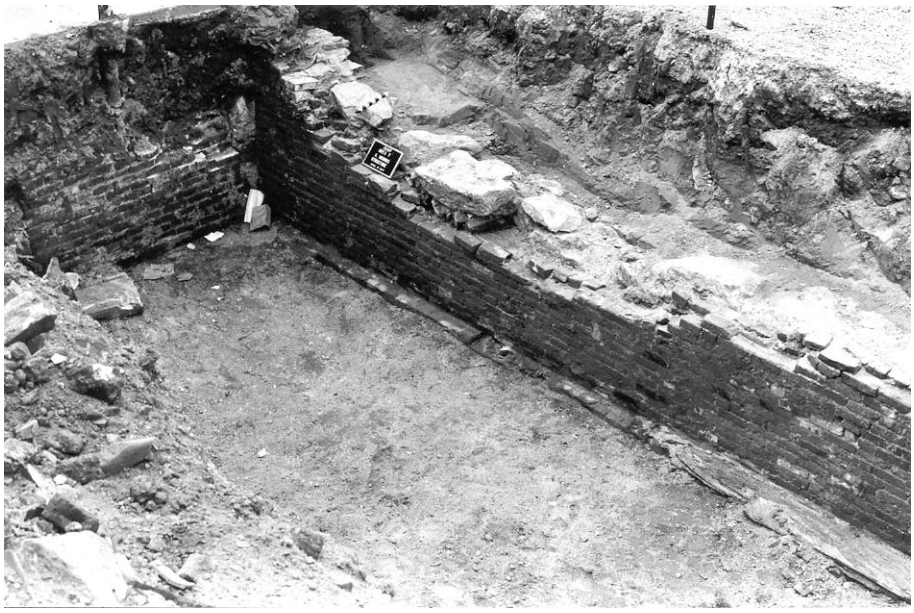

Plate 45. Area F, 118 S. Front Street, Room A. Note brick-lined stone foundation walls forming the southeast corner of the Anthony Morris House.

Plate 46. Area F, 118 S. Front Street, Room B, Feature 1 unlined shaft possibly dating to the late nineteenth century. View south. Note slumped remains of brick arch.

APPENDIX II:

Mortar Analysis of 114 S. Front Street

by

Lori Aument

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

Samples of mortar were taken from Area F 114 South Front Street, Philadelphia, Pennsylvania, during archeological excavation work in 1977. The samples were labeled, catalogued, and taken to a laboratory for analysis. The mortar samples were analyzed using acid digestion and gravimetric analysis methods that are still accepted as good practice for characterizing mortar. Subsequently, calculations were done based on these analyses in order to determine the binder content of the mortar samples; however, the assumptions underlying these calculations have since been proven flawed. It is now generally accepted that acid digestion and gravimetric analysis can only aid in characterizing the mortar, not in determining specific quantities of binder in the original mix. The results of the analysis can be used for general characterization and comparative purposes, but do not yield quantifiable information regarding the binder content.

A table of analytical data that is still considered valid was gathered from the 1977 mortar analyses. All analyzed mortar samples were re-examined in order to obtain more accurate and consistent observational notes. No further acid digestion and gravimetric analyses were undertaken. One weakness in the analytical data is the lack of information on the aggregate. Current comparative mortar analyses have emphasized the importance of the aggregate, identifying its mineralogical composition and grain size distribution. This information is extremely helpful when trying to compare various traditional mortars. Unfortunately, the mortar analyses undertaken in 1977 for the Area F archeological site did not provide detailed information on the aggregate. Examination of powdered samples undertaken in 2005 produced more accurate observations of the aggregate but did not provide details on grain size distribution.

The data from both the 1977 mortar analyses and the 2005 observations were placed in a chart for comparative purposes. Based on this information, conclusions were drawn as to the probable content of the original mortar. The similarity of mortar samples was noted; similar mortar types used in different features may indicate that these features were constructed within the same time period. These observations are not definitive, but may be used in conjunction with other archeological documentation to support or disallow estimates of building dates.

1.1 MORTAR

Mortar is a material that bonds masonry units together, allows for some settling and movement of masonry units, and aids in keeping water out of a building. Mortar is composed of binder, aggregate, water, and additives, such as pigment. The binders may be categorized as being non-hydraulic or hydraulic, depending on how they achieve their set during curing. Non-hydraulic binders, such as non-hydraulic lime mortars, cure by way of a reaction with carbon dioxide in the atmosphere only and do not set in water. Non-hydraulic limes are produced by burning a natural lime source, such as shells or limestone, at temperatures at or below 1100ºC. The burned limestone forms a calcium oxide material known as quicklime. Quicklime is slaked with water in order to form calcium hydroxide or lime putty. The lime putty is combined with aggregate to form mortar for building. Carbonation, or curing, is caused by the reaction of calcium hydroxide with atmospheric carbon dioxide to form calcium carbonate.

Hydraulic mortars can set in water and are produced by binders with or without additives. Hydraulic mortars achieve their set through reactions with atmospheric carbon dioxide as well as through the reaction of silicates found in the natural lime source or in additives. Examples of

hydraulic mortars include non-hydraulic lime mortar with a pozzolanic additive, natural hydraulic lime, natural cement, and Portland cement:

- Non-hydraulic lime with a pozzolanic additive: A pozzolana is any admixture material containing reactive clays, composed of silica, alumina, and iron, which imparts a hydraulic set. Traditional pozzolan materials included low fired brick or ceramic dust and volcanic ash material, which were added to non-hydraulic lime mortars to impart a stronger or faster set. Fine brick dust imparts hydraulic characteristics to lime mortar when the bricks have been fired at temperatures under 950ºC and grain sizes are between 38-600µm. Brick grains that are larger than 600µm do not increase hydraulicity, but do aid in increasing porosity and permeability.[1]
- Natural hydraulic lime: Natural hydraulic lime is produced in a similar manner to non-hydraulic lime but is fired at higher temperatures. The natural limestone used in production contains the right type and amount of clay to produce a lime mortar with a hydraulic set. Calcium, aluminum, and iron silicates are formed during set. Most traditional, "pure" lime mortars probably had some level of hydraulic set.
- Natural cement: Natural cement is produced from natural limestone containing greater amounts of reactive clays. It is distinguished from natural hydraulic lime in that natural cement cannot be slaked. Instead, the burned stone is finely ground and stored in airtight containers; otherwise, it will set with the moisture in the air. Natural cement was used in the United States from around 1820-1900, primarily for engineering projects, particularly canals, and government buildings.
- Portland cement: Portland cement is produced by combining natural stone and additional minerals and burning at a very high heat, forming vitrified material known as clinkers. Like natural cement, Portland cement cannot be slaked and the burned product is finely ground. The clinker material contains highly reactive silicates that form tri-calcium silicates during curing. Portland cement was produced in the United States beginning c. 1870, though it may have been imported before that date. By the end of the nineteenth century, Portland cement was used for construction under water or where high strength was needed. It did not come into widespread construction use, nor was the industry standardized and regulated, until the first quarter of the twentieth century.[2]

It should be noted that there was great variability between all of these binders up through the nineteenth century because of a lack of standardization. Lime, natural hydraulic lime, and even natural cement, were produced locally in relatively small kilns using a wide variety of natural lime sources and fuels. Firing temperatures could vary widely. Even Portland cement changed greatly from its initial invention to its current standardized form.[3] It is difficult to generalize about the components of any one historic material given the variations over time and over different geographic regions, as well as the differences in manufacturing.

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[1] J.M. Teutonico, G. Ashall et al, "A Comparative Study of Hydraulic Lime-Based Mortars" in the *Proceedings of the International RILEM Workshop, Paisley, Scotland, 12-14 May 1999*, edited by P. Bartos, C. Groot and J. J. Hughes (France: 2000, RILEM Publications): 339-350.

[2] For an excellent overview of natural cement and Portland cement history in the United States see J.O. Draffin, "A Brief History of Lime, Cement, Concrete and Reinforced Concrete" in *A Selection of Historic American Papers on Concrete 1876-1926*, Publication Sp-52, ed. by H. Newlon, Jr. (Detroit: American Concrete Institute, 1976): 3-40.

[3] The composition of Portland cement varied during 1870-1930 because of technological advances in rotary kiln technology, grinding apparatus, and standard additives, such as gypsum. See Draffin, 12.

Categorizing hardened mortars by their binder content is further complicated by the commonality of components within the various binder materials. Lime, natural hydraulic lime, natural cement, and Portland cement are all related materials, sharing common components though exhibiting a wide range of performance characteristics. It is difficult to distinguish a non-hydraulic lime mortar from a lime mortar that is weakly hydraulic. Differentiating an eminently hydraulic natural lime mortar from a weak natural cement mortar is equally problematic. While it is fairly easy to distinguish a modern Portland cement mortar from a lime based mortar, the variations in between are less distinct.

1.2 1977 AREA F MORTAR ANALYSIS: CLIVER METHOD

Temple University student, Susan Quick, analyzed the Area F mortars using the Cliver method, detailed in an article by E. Blaine Cliver published by the *Bulletin for the Association of Preservation Technology* in 1974.[4] The aim of the Cliver method was to determine the percent content of lime, natural cement, and/or Portland cement contained in the binder of the sampled mortar. The Cliver method involved procedures for acid digestion and gravimetric analysis, which are still fairly standard:

1. Grind the mortar sample (about half a cup!) into a coarse powder. Weigh and place in a glass container.
2. Add a solution of equal parts hydrochloric acid and water.
3. Filter entire solution through a weighed piece of common chemists' filter paper.
4. Dry the sand and residue under a heat lamp and weigh. Subtract the filter paper weight to obtain the dissolved sample weight.
5. The sample's weight loss is calculated as the "soluble fraction".
6. Return the residue to a weighed glass container. Add water and stir.
7. Filter off the lighter residue that is suspended in the water. Repeat until only sand remains in the container.
8. Dry both residue and sands. Calculate the individual weights of sand and residue. After the residue has dried, it is examined in order to determine its color and, therefore its probable content. [5]

The Cliver method then requires that a determination be made concerning the probable binder of the mortar based upon the weight and color of the "residue" collected on the filter paper. According to the 1974 article, reddish to light tan residues may be clay or natural cement, while medium to dark gray residues may indicate Portland cement. Taken in conjunction with the physical characteristics of the mortar, such as its hardness, a judgment is made on the probable binder material.

If the binder is believed to contain Portland cement, the Cliver method calculates the percentage of cement in the binder by using several assumptions about the content of Portland cement. It is assumed that Portland cement contains 60-65% lime or acid soluble material. The weight of the residue is then multiplied by a factor of 1.5 in order to obtain the fraction weight of the cement

[4] E. Blaine Cliver, "Tests for the Analysis of Mortar" in *Bulletin for the Association of Preservation Technology*, Vol. VI, No. 1 (1974): 68-73.

[5] Cliver, 70.

soluble fraction. By subtracting the cement soluble fraction from the original residue weight, the weight of lime soluble material is obtained.[6]

The Cliver method requires a second test if the binder is assumed to be a natural cement. In this test, the sample is dissolved with a 50% solution of sulfuric acid in the same manner as the first acid digestion. The residues collected during this test are assumed to include the cement or clay residues found in the first test, as well as calcium sulfate formed by the reaction of calcium carbonate with the sulfuric acid. By using the percentages of cement or clay residue calculated in the first test, the weight of clay or cement is calculated based on the weight of the original sample used in the second test. The calculated clay or cement weight is subtracted from the weight of residue collected in the second test; the result is assumed to be the weight of calcium sulfate collected in the residue during the second test. Using another factor based on the assumed carbonation of the mortar, the percentage of calcium hydroxide in the original mortar is calculated from the weight of calcium sulfate. The percentage of calcium hydroxide is assumed to indicate the amount of lime in the original mix.[7]

1.3 POST-1981 MORTAR ANALYSIS: CHARACTERIZATION

In 1981, John Stewart and James Moore of the Conservation Division of Parks Canada tested the accuracy of the Cliver method by applying the method to mortars with known contents. [8] Historically accurate mortars were mixed and cured and then tested according to various methods, including the Cliver method. It was found that the color of the fines residue can be misleading and may lead to false assumptions about the original binder material. For example, lime mortars containing pozzolanic material or clayey sands produced gray colored residue that could be mistaken for Portland cement residue. However, even when the correct binder material was chosen, the quantitative results based on the Cliver method calculations did not agree well with the known mortar mixes. The quantitative results were off by as much as 238% in some mortars. Based on these tests, the Cliver method was proven to be unreliable in calculating exact percentages of lime, natural cement, and/or Portland cement.

It should be noted that the 1974 article by Cliver did acknowledge that the calculations could only reliably be used for comparative analysis. Cliver did not claim that these calculations would give exact proportions found in the original mortars. However, there are far too many variables within the binder materials to make the broad generalizations called for in the Cliver method. Any categorization of mortars into natural cement, hydraulic lime, and Portland cement using this method is suspect.

The authors of the 1981 report concluded that the best rated method for mortar characterization was that first outlined by an archeologist, Hanna Jedrzejewska, in 1960; this method was most likely the basis for the Cliver method.[9] Jedrzejewska called her procedure a “preliminary

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[6] Cliver, 70.

[7] It is noted that the percent lime content is not exact, but may provide a base number for comparing with other mortar samples. Cliver, 71.

[8] Stewart, John and James Moore. "Chemical Techniques of Historic Mortar Analysis" in *Mortars, Cements and Grouts Used in Historic Buildings* (Rome: ICCROM, 1982): 297-310.

[9] Hanna Jedrzejewska, “Old mortars in Poland: a new method of investigation” in *Studies in Conservation*, V. 5, n. 4 (1960): 132-138. In addition to acid digestion and gravimetric analysis, Jedrzejewska’s method included calcimetry, which involved digesting the sample in acid within a vacuum chamber. The carbon dioxide released in the chemical reaction between hydrochloric acid and calcium carbonate was collected and measured by volume. The amount of carbon dioxide collected was calculated

comparative analysis" that could be used to quickly type and categorize mortars. The analysis is somewhat subjective, and primarily comparative in nature, and may be effectively used to assess the relationship between different parts of a structure or of a structure to similar sites elsewhere. Stewart and Moore stated that the Jedrzejewska method reliably categorized mortars into broad categories of hydraulic or non-hydraulic mortars.

1.4 2005 OBSERVATIONS AND REINTERPRETATION OF 1977 MORTAR ANALYSIS RESULTS

The 1977 mortar analysis work on the Area F mortar samples may contain some helpful information regarding the general characteristics and probable hydraulic content of the mortar. However, there are many inaccuracies and deficiencies in the 1977 observations and analyses. Observational notes are inconsistent and do not provide information on the hardness of the samples or the mineralogical content of the sands. The notes reveal a poor understanding of lime and cement technology and materials analysis:

- References to "Rosewell" natural cement are probably meant to be Rosendale cement, manufactured in upstate New York.
- Spectroanalysis is the analysis of light by breaking the light into a spectrum and measuring the amount of each wavelength present. It is not clear if a spectrophotometer was used for this analysis.
- There is reference to a reflectance meter but no description of the equipment used.
- There are confused references between x-ray diffraction, which results in peaks that correspond to chemical compounds, and a reflectance meter, which measures the light reflectance of a surface.
- Large nodules of lime found in the binder were mistakenly identified as oyster shell fragments.
- The percent acid soluble, percent sand, and percent fines do not always add up to 100%. These percents total less or more than 100%.

Additionally, the 1977 mortar analyses did not detail the type or mineralogical content of the aggregate in the mortars. Aggregate characterization and identification can aid in comparative analysis; mortars with identical aggregate type and similar aggregate grading can be assumed to have been installed within a close timeframe. The dearth of information on the aggregate is the greatest weakness in the data collected during the 1977 mortar analysis study.

It appears that the mortar analyses were carried out in a methodical, consistent manner. Results from these analyses may be used for a reinterpretation of the probable mortar contents. A few weights, such as the original sample weight, the acid soluble fraction weight, the residue weight, and the weight of the sand, may be used to make a qualitative determination on the hydraulic content of the mortar. The Munsell color for the fines should also aid with characterization. By determining the basic percent weight of residue, acid soluble, and sand content, the 1977 mortar analyses of Area F may aid in understanding the types of mortar found at 114 South Front Street.

In order to clarify the observational notes, mortar samples were re-examined in 2005. Only mortar samples that had been analyzed in 1977 were chosen for re-examination. Samples were

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to estimate the percent of lime in the original sample. Calcimetry for historic mortars was further refined by J.M. Teutonico, *A Laboratory Manual for Architectural Conservators*, Rome, ICCROM, 1988. The author has found the results of calcimetry to vary greatly depending on temperature.

observed in both solid and powdered states under a stereomicroscope at 20x magnification with 75 watt incandescent light illumination. No new acid digestion or gravimetric analysis was done. Notes were made on the hardness, color, and aggregate content. Inclusions and additives such as lime nodules, charcoal, coal, brick fragments, and brick dust were noted. Descriptions of the mortar samples are organized by room and then by feature or building element. Similarities between mortars were noted and the mortars were categorized by type. Locations of the mortar samples are identified in Figure 1 by the mortar sample number (circled) assigned in the field. These samples were cataloged and the INDE catalog numbers were used in the text of this report. Tables 1 and 2 list both the INDE catalog number and the original mortar sample number is given in brackets.

Room A

Feature 1

Feature 1 is a concentration of mortar whose upper part is stained red, stone, and wooden beams in the southeast corner. It is believed to be a former floor support dated to c. 1856. Trench 1, an east-west trench, was excavated across Feature 1. Mortar samples 91090, 91091, and 91092 came from Feature 1 and sample 91100 came from Trench 1; all are traditional lime or lime-clay mortars. Sample 91090 is a clay-lime mortar containing significant amounts of brick dust. Samples 91091 and 91092 are both presumed to be finishing materials. Sample 91091 is a pure lime mortar that appears to be a finishing plaster. Sample 91092 is a clay-lime mortar with brick dust and embedded pieces of wood, which may be a brown coat or floor insulation material. Mortar sample 91100, taken from Trench 1, contains the two types of mortar found in samples 91091 and 91092.

Feature 2

Feature 2 is a square, brick paved platform and trough located along the south wall that is believed to be a furnace dating to c. 1847. Samples 91098, 91223, 91087, and 91099 were taken from the south wall near Feature 2 and appear to date to different periods of construction. Sample 91098 is clay-lime mortar with significant brick dust. The other samples from this area are whiter in comparison. Sample 91223 is a traditional lime mortar with significant traces of charcoal containing a micaceous aggregate that probably had some clay impurities. Sample 91087 is similar to sample 91099; both are grayish containing brick dust and coal fragments. These mortars appear to be somewhat hydraulic lime mortars; the hydraulic set may come from the lime and/or the brick dust additive.

Feature 3

Feature 3 is a mortar covered stone wall found running east-west through Room A. It is believed to be a remnant of a piazza foundation dating to c. 1792. Sample 91106, which was taken from this location, was not analyzed through acid digestion. Observations indicate that the mortar was composed of clay and lime with inclusions of brick dust and coal fragments.

Exterior South Wall

The south wall of Room A is constructed of interspersed brick and stone and has evidence of plaster. There is a vertical break in the wall at a midpoint along its length. Samples 91093, 91094, 91095, and 91096 were taken from the same area on the south exterior wall, 7 feet west of the southeast corner. Samples 91102 and 91103 were taken from different points along the same south wall. Sample 91102 was taken from a joist pocket in the south wall. Sample 91103 is a plaster sample taken 2 feet west of a cold joint in the south wall.

Samples 91093, 91096, and 91102 taken from two areas, one 7 feet west of the southeast corner and the other from a joist pocket, were the same mortar type. These clay-lime mortars were pale brown with large white nodules and a medium sized aggregate with brick fragments and mica. Sample 91094, also taken from the area 7 feet west of the southeast corner, was different in color, though still a traditional lime mortar containing brick dust and a micaceous feldspar aggregate. Samples 91095 and 91111 are also clay lime mortars but differed from the other samples above; they are redder in color, contain a greater amount of brick dust, and resemble the reddish brown mortars found in Room A Features 1 and 2. Sample 91103 is a sample of finishing plaster and is unlike any of the other mortars sampled at the south wall of Room A.

West Wall

The west wall is built of stone and constructed in the same form as the west portion of the north wall. Sample 91110 was taken from the south corner sill and is a reddish brown clay-lime mortar containing a coarse feldspar sand with rounded lithic fragments, mica, and a significant amount of brick dust. It is similar to reddish brown mortars found in the south wall of Room A.

Exterior North Wall

The exterior north wall is constructed of brick for two-thirds of its length. The western third is constructed of stone. Sample 91088 was taken from the brick masonry on the north wall, while sample 91108 was taken from the western, stone masonry portion. Neither sample was analyzed through acid digestions; however, from observations it is clear that the two mortars have some similarities. Sample 91088 is a light gray lime mortar with large white lime nodules and a fine, feldspar aggregate containing mica and some brick dust. It is similar to gray mortars found in Room A Feature 2. Sample 91108 contains two types of mortar. The light gray mortar is similar to the mortar in sample 91088. The second mortar is a reddish brown clay-lime mortar that is similar to other such mortars found in the west and south walls of Room A.

Miscellaneous Samples

Several other mortar samples were collected from various areas within Room A:

- Sample 91101 was taken 7.6 feet east of the vertical joint in the north wall and 5 feet south of the north wall. It is a reddish brown clay-lime mortar with a feldspar aggregate containing mica bundles and a significant amount of brick dust. It is similar to mortars found in the north, west, and south walls of Room A.
- Sample 91105 was taken from the mortar and brick base of the second metal pillar support. From the analysis, the mortar is composed of lime with traces of charcoal from the lime burning process.
- Sample 91205 was taken 7 feet from the north wall, a third of the length of the room from the west wall. The sample was not analyzed through acid digestion but appears to be a lime based mortar with some clay impurities. It is similar to sample 91107.
- Sample 91107 was taken near the west end of the room, 1.1 feet south of the north wall. The sample was not analyzed through acid digestion but appears to be a lime based mortar with some clay impurities. It is similar to sample 91205.
- Sample 91204 was a sample of the cementitious floor taken from the southwest corner of the room. It is believed to be a lime mortar with significant clay impurities. There is evidence of a fine grained feldspar sand containing bundles of mica and abundant charcoal fragments from the lime burning process.

Room B

Feature 1

Samples 91112 and 91113 were taken from Feature 1, a circular, brick lined shaft believed to be associated with the Beardsley House and date to 1687-1791. Both samples were taken from the mortar covering the brick pit and contain two different types of mortar: a traditional clay-lime mortar and also a hard grayish mortar that probably has some hydraulic qualities. The clay-lime mortar is very soft. The grayish mortar is hard and has large white nodules and large brick fragments. The grayish mortar has a very fine feldspar sand with lithic fragments and brick dust additive. Sample 91113 also contains very large pieces of charcoal (1.5-3cm), which appear to be embedded in both mortar types.

Feature 2

Feature 2 is a circular brick lined shaft, capped with a brick dome that is believed to be a cesspool dating to the 19th century, installed prior to 1892. Samples 91119 and 91120 were both taken from the brick dome over the shaft. Sample 91119 consists mainly of a grayish mortar that is similar to that found in samples from Room B Feature 1, but there are also traces of the clay-lime mortar as well. The grayish mortar is hard with large inclusions of charcoal and brick fragments. The aggregate is a fine feldspar sand containing charcoal grains and brick dust. Sample 91120 contains the same grayish mortar seen in sample 91119.

Feature 3 (Walls near Feature 2)

Several additional samples were taken at the brick foundation walls, Feature 3, associated with Feature 2. It is believed that these brick foundations were for a water closet that drained into the cesspool and were constructed around the same time. Samples 91114 and 91115 were taken from the east wall. Samples 91117 and 91118 were taken from the west wall. Sample 91116 was taken from the south wall in this area.

Sample 91114 from the east wall is a solid, but friable, grayish white mortar containing large white nodules, a fine, feldspar sand, and charcoal and brick fragments. The sample is probably a lime-based mortar with a possible hydraulic set from either a natural hydraulic lime or the brick dust additive.

Sample 91117 from the west wall is a pinkish-white mortar with aggregate of variable size containing mica, glauconite, coal, and brick dust. The mortar is probably a clay-lime mortar containing a significant amount of brick dust. This mortar is similar to pinkish mortars found in the west walls of Room C. Samples 91115 from the east wall and 91118 from the west wall both contain two types of mortar: the grayish white mortar identical to sample 91114 and the pinkish-white mortar found in sample 91117.

Sample 91116 is a hard gray mortar with large white nodules that is layered with a very soft clay mortar. The aggregate varies in size and includes some large pebbles of feldspar as well as some brick fragments. Sample 91116 is probably an hydraulic binder based mortar, though the analysis on this mortar was not valid.

East Wall

Sample 91121 was taken from the stone masonry of the east wall. The sample includes a mix of a hard, friable gray mortar with abundant large white nodules layered with a soft clay mortar. The aggregate has a varied grain size and consists primarily of feldspar with mica flakes and charcoal fragments. The gray mortar is different from sample 91110 taken from the opposite side of the

same wall. Based on the analysis, it is believed to be a high lime mortar with a high percentage of aggregate.

Room C

Feature 1 and 4A

Features 1 and 4A are believed to be related features associated with a small cold cellar dating to c. 1791. Samples 91122 and 91123 were taken from Feature 1, a circular brick shaft feature; sample 91122 is from the capping. Sample 91127 is taken from Feature 4A, which is a square feature lined with marble; the sample comes from the bedding mortar for the marble floor tile. Sample 91207 was taken from Feature 4, a stone wall believed to date to the same period as Features 1 and 4A. All of the samples are similar white to light gray mortars that are solid but friable with large white nodules throughout the binders. The mortars appear to have a high percentage of aggregate. The aggregate is a fine feldspar sand with grains of glauconite, hematite, mica, and magnetite. All of these mortars are believed to be lime-based.

Feature 2

Feature 2 is a double privy shaft believed to date to c. 1791. Mortar sample 91125 was taken from the inner wall of Feature 2. The white mortar is hard but friable. The binder has white nodules of lime throughout, but the nodules appear to have been dissolved by water moving through the mortar. The aggregate is a fine feldspar sand with brick dust. Based on the observations, the mortar appears to be a lime based mortar; however, the fines content was significant, indicating some sort of impurities, such as clay or fine brick dust.

Feature 3

Sample 91206 is from Feature 3, which is believed to be a privy pit associated with the Beardsley House c. 1687. The light gray mortar is hard, but friable, and contains a high percentage of aggregate with some very large grains. There are also traces of charcoal. The aggregate is a rounded feldspar sand of varied sizes with lithic fragments and fine mica flakes. The mortar is believed to be a lime-based mortar. The charcoal fragments indicate the lime was burned using wood fuel.

Exterior Wall: South Wall

The south wall is constructed mainly of small sized stone masonry with patches of later brick infill. A portion of the south wall is constructed of possibly salvaged, larger stone masonry. Samples were taken along the length of the south wall. All of the mortar samples appear to be different types:

- Sample 91128 is a piece of thin, parging material that was taken near the west end of the south wall near the vaults. The sample is a thin, gray sheet of mortar that appears to be a later, Portland cement skim coat applied over an earlier stucco.
- Sample 91129 was taken at a midpoint of the south wall. The mortar is a reddish-brown mortar with white lime nodules. The aggregate is a feldspar sand of varied size with mica and significant amounts of brick dust. The mortar appears to be a lime mortar with brick dust additive.
- Samples 91130 and 91131 were taken at the south wall, 6 feet east of the south vault. Sample 91130 was taken approximately 2 feet higher than 91131.

- Sample 91130 is a friable white mortar with white nodules throughout. The aggregate is a fine feldspar sand with lithic fragments and mica flakes. Sample 91130 is a lime-based mortar.
- Sample 91131 is a soft, friable gray mortar with white nodules throughout. There is a high percentage of aggregate, which is a fine feldspar sand with lithic fragments, hematite grains, and mica flakes. The mortar also has inclusions of brick fragments, wood, and coal. The mortar is a lime-based mortar with some hydraulic qualities.

- Sample 91132 was taken 20 feet west of the southeast corner at the same level of the wall as sample 91131. Sample 91132 is a brown clay-based mortar with a high percentage of feldspar aggregate of varied size.

Exterior Wall: West Wall

The west wall is constructed primarily of stone with brick masonry at the southwest corner. Mortar sample 91134 was taken from the west wall of the north vault. The sample is a hard pinkish-white mortar with white nodules throughout. The aggregate is a rounded feldspar sand of varied size and includes mica bundles and glauconite. There are also brick and coal fragments. The mortar is believed to be a lime-based mortar with a significant brick dust additive. The sample is similar to mortars taken from walls near Feature 2 in Room B.

Exterior Wall: North Wall

The north wall is constructed of massive stone masonry with brick arched vaults. Sample 91133 was taken from the north wall of the north vault. The sample is a brown clay mortar with small fragments of white mortar intermixed. The aggregate is a fine feldspar sand with traces of glauconite. The sample is lighter than the clay mortar found in sample 91132. It is believed to be a clay rich lime mortar.

East Wall

The east wall is constructed of stone with several openings. Mortar sample 91135 was taken from the southeast corner of the east wall. The sample contains two types of mortar. The first type is a reddish-brown mortar similar to that seen in sample 91129 from the east wall. The second type is a gray mortar found in sample 91131 from the south wall.

Tables

Table 1. Area F 114 South Front Street: Mortar Samples by Location

Room	Area/Feature	Mortar Samples	Location
Room A	Feature 1 (Concentration of mortar, stone and wood beams c. 1856)	INDE 91090, 91214 (55A)	Room A, Feature 1
		INDE 91091, 91215 (55B)	Room A, Feature 1 (Top whole wood rests on this)
		INDE 91092, 91216 (55C)	Room A, Feature 1
	Trench 1	INDE 91100, 91226 (19)	Room A, N-S Trench 1
	Feature 2 (South Wall at furnace area, c. 1847)	INDE 91098, 91222 (15)	Room A, South Wall Furnace Area
		INDE 91223 (16)	Room A, South Wall, Furnace Area (G)
		INDE 91087, 91224 (17)	Room A, South Wall, Furnace Area (H)
		INDE 91099, 91225 (18)	Room A, South Wall, Furnace Area (I)
	Feature 3 (Mortar covered wall c. 1792)	INDE 91106, 91235 (31)	Room A, 7.6 E of North Wall juncture, 5' South of N. Wall
	Exterior Wall: South Wall (Brick and stone interspersed, plastered)	INDE 91093, 91217 (10)	Room A, South Wall, 7' W of SE Corner (A)
		INDE 91094, 91218 (11)	Room A, South Wall, 7' W of SE Corner (B)
		INDE 91095, 91219 (12)	Room A, South Wall, 7' from the SE Corner (C)
		INDE 91096, 91220 (13)	Room A, South Wall, 7' from the SE Corner (D)
		INDE 91102, 91228 (21)	Room A, South Wall Vertical Opening Mortar (Note Wood)
		INDE 91103, 91229 (23)	Room A, South Wall 2' W of Jointure
		INDE 91111, 91245 (53)	Room A, SE Corner, South Wall
	West Wall (Stone, similar construction to stone part of north wall)	INDE 91110, 91244 (41)	Room A, West Wall, South corner, sill

Table 1. Area F 114 South Front Street: Mortar Samples by Location

Room	Area/Feature	Mortar Samples	Location
	Exterior Wall: North Wall (Brick to east, stone to west)	INDE 91088, 91232, 91233 (25) (brick)	Room A, North Wall
		INDE 91108, 91241 (34) (stone)	Room A, North wall, 5.5' from West end- Mid Point (red and white Mortars, Inside wall)
	Miscellaneous floor/ground	INDE 91101, 91227 (20)	Room A, 7.6 E of North Wall juncture, 5' South of N. Wall
		INDE 91105, 91234 (26) (concrete and brick at base of metal pillar)	Room A, 2nd pillar support
		INDE 91205, 91236 (32B)	Room A, 7' from North Wall
		INDE 91107, 91237, 91239 (33)	Room A, North Wall 1.1' South of Wall
		INDE 91204, 91243 (40)	Room A, Feature 4, concrete from floor
Room B	Feature 1 (Circular, brick lined shaft, c. 1687-1791)	INDE 91112, 91246 (113A)	Room B, Feature 1, Mortar covering brick pit
		INDE 91113, 91247 (121)	Room B, Feature 1, capping mortar (Note: black in mortar)
	Feature 2 (Circular, brick lined shaft, capped with brick dome, c. 19th century cesspool)	INDE 91119, 91253 (113G)	Room B, Feature 2, shower drain pipe/at entry into brick dome
		INDE 91120 (113H)	Room B, Feature 2, brick and mortar from dome
	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)	INDE 91114, 91248 (113B)	Room B, Wall East of Feature 2, North of break
		INDE 91115, 91249 (113C)	Room B, Wall East of Feature 2, South of break
		INDE 91116, 91250 (113D)	Room B, South Wall, mortar from lowest part, brick
		INDE 91117, 91251 (113E)	Room B, from stone wall west of Feature 2 (red mortar)
		INDE 91118, 91252 (113F)	Room B, from stone wall west of Feature 2
	East Wall (Stone)	INDE 91121, 91268 (103)	Room B, beneath East central entrance (stone wall)
Room C	Feature 1 (Ice house c. 1791)	INDE 91122, 91255 (49)	Room C, Feature 1 (Capping)

Table 1. Area F 114 South Front Street: Mortar Samples by Location

Room	Area/Feature	Mortar Samples	Location
		INDE 91123, 91256 (56)	Room C, Feature 1
	Feature 2 (Double privy shaft c. 1791)	INDE 91125, 91258 (106)	Room C, Feature 2, Mortar sample from inner wall
	Feature 3 (Privy shaft c. 1687)	INDE 91206, 91259 (114)	Room C, Feature 3, el. 4.0'
	Feature 4 (Stone wall)	INDE INDE 91207, 91261 (81)	Room C, Feature 4, 15' W of East Wall, 6' No of S Wall
	Feature 4a (Ice house c. 1791)	INDE 91127, 91262 (105)	Room C, Feature 4a, mortar bedding beneath marble floor
	Exterior Wall: South Wall (Small sized stone with patches of later brick, portion of wall constructed of large stone)	INDE 91128 (28)	Room C – South Wall (Facing)
		INDE 91129, 91263 (29)	Room C - South Wall
		INDE 91130, 91264 (45A)	Room C, South Wall, 6' East of South Vault (15.3' El. Top Stone)
		INDE 91131, 91265 (45B)	Room C, South Wall 6' East of South Vault (El. 13.97)
		INDE 91132 (46A)	Room C, South Wall, 20' West of SE Corner (El. 13.92)
	Exterior Wall: West Wall (Stone with brick at southwest corner)	INDE 91134, 91266 (50)	Room C, North Vault, West Wall from bottom stone wall
	Exterior Wall: North Wall (Massive stone with two brick arches)	INDE 91133 (47)	Room C, North Vault, North Wall from Bottom Bricks
	East Wall (Stone)	INDE 91135, 91267 (54)	Room C, SE Corner, E Wall

Table 2. Area F 114 South Front Street: Mortar Samples by Type

Mortar Type	Mortar Samples	Location	Area/Feature
Type 1 A reddish pink mortar with large white lime nodules that is solid but friable. Aggregate is predominantly feldspar with mica bundles and rounded lithic fragments. A clay-lime based mortar with brick dust additive and a high percentage of aggregate.	INDE 91090, 91214 (55A)	Room A, Feature 1	Feature 1 (Concentration of mortar, stone and wood beams c. 1856)
	INDE 91098, 91222 (15)	Room A, South Wall Furnace Area	Feature 2 (South Wall at furnace area, c. 1847)
	INDE 91095, 91219 (12)	Room A, South Wall, 7' from the SE Corner (C)	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
	INDE 91111, 91245 (53)	Room A, SE Corner, South Wall	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
	INDE 91110, 91244 (41)	Room A, West Wall, South corner, sill	West Wall (Stone, similar construction to stone part of north wall)
	INDE 91108, 91241 (34) (stone)	Room A, North wall, 5.5' from West end-Mid Point (red and white Mortars, Inside wall)	Exterior Wall: North Wall (Brick to east, stone to west)
	INDE 91101, 91227 (20)	Room A, 7.6 E of North Wall juncture, 5' South of N. Wall	Miscellaneous floor/ground
Type 2 A pale brown mortar with some lime nodules. The aggregate is a medium sized feldspar sand with brick fragments. Sample is a clay-lime based mortar.	INDE 91093, 91217 (10)	Room A, South Wall, 7' W of SE Corner (A)	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
	INDE 91096, 91220 (13)	Room A, South Wall, 7' from the SE Corner (D)	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
	INDE 91102, 91228 (21)	Room A, South Wall Vertical Opening Mortar (Note Wood)	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
Type 3 A light brown mortar with many large white nodules. There is little aggregate, which is a very fine grained sand. A lime-based mortar with some clay impurities.	INDE 91205, 91236 (32B)	Room A, 7' from North Wall	Miscellaneous floor/ground
	INDE 91107, 91237, 91239 (33)	Room A, North Wall 1.1' South of Wall	Miscellaneous floor/ground
Type 4 A solid but friable mortar is light gray with white nodules throughout. The aggregate is a fine, predominantly feldspar	INDE 91087, 91224 (17)	Room A, South Wall, Furnace Area (H)	Feature 2 (South Wall at furnace area, c. 1847)
	INDE 91099, 91225 (18)	Room A, South Wall, Furnace Area (I)	Feature 2 (South Wall at furnace area, c. 1847)

Table 2. Area F 114 South Front Street: Mortar Samples by Type

Mortar Type	Mortar Samples	Location	Area/Feature
fine, predominantly feldspar sand with significant amounts of brick dust and coal fragments. A somewhat hydraulic lime binder; hydraulic set may be from natural hydraulic lime or brick additive. Lime was possibly burned with coal fuel.	INDE 91088, 91232, 91233 (25) (brick)	Room A, North Wall	Exterior Wall: North Wall (Brick to east, stone to west)
	INDE 91108, 91241 (34) (stone)	Room A, North wall, 5.5' from West end-Mid Point (red and white Mortars, Inside wall)	Exterior Wall: North Wall (Brick to east, stone to west)
Type 5 Hard but friable gray mortar contains white nodules and large brick fragments. The sand is a fine feldspar aggregate with lithic fragments and brick dust. Mortar probably has some hydraulic characteristics; hydraulic set may be from natural hydraulic lime or brick additive.	INDE 91112, 91246 (113A)	Room B, Feature 1, Mortar covering brick pit	Feature 1 (Circular, brick lined shaft, c. 1687-1791)
	INDE 91113, 91247 (121)	Room B, Feature 1, capping mortar (Note: black in mortar)	Feature 1 (Circular, brick lined shaft, c. 1687-1791)
	INDE 91119, 91253 (113G)	Room B, Feature 2, shower drain pipe/at entry into brick dome	Feature 2 (Circular, brick lined shaft, capped with brick dome, c. 19th century cesspool)
	INDE 91120 (113H)	Room B, Feature 2, brick and mortar from dome	Feature 2 (Circular, brick lined shaft, capped with brick dome, c. 19th century cesspool)
	INDE 91114, 91248 (113B)	Room B, Wall East of Feature 2, North of break	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)
	INDE 91115, 91249 (113C)	Room B, Wall East of Feature 2, South of break	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)
	INDE 91118, 91252 (113F)	Room B, from stone wall west of Feature 2	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)
Type 6 Hard but friable pinkish-white mortar with large white nodules and very large aggregate. The aggregate has a wide range of	INDE 91115, 91249 (113C)	Room B, Wall East of Feature 2, South of break	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)

Table 2. Area F 114 South Front Street: Mortar Samples by Type

Mortar Type	Mortar Samples	Location	Area/Feature
grain sizes and is composed predominantly of feldspar with mica, glauconite, coal, and significant brick dust additive. It is believed to be a lime-clay based mortar with a brick dust additive. Lime was possibly burned with coal fuel.	INDE 91117, 91251 (113E)	Room B, from stone wall west of Feature 2 (red mortar)	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)
	INDE 91118, 91252 (113F)	Room B, from stone wall west of Feature 2	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)
	INDE 91134, 91266 (50)	Room C, North Vault, West Wall from bottom stone wall	Exterior Wall: West Wall (Stone with brick at southwest corner)
Type 7 Solid but friable white to light gray mortar with large white nodules and a high percentage of aggregate. The aggregate is a fine feldspar sand with grains of glauconite, hematite, mica, and magnetite. This mortar is believed to be lime-based.	INDE 91122, 91255 (49)	Room C, Feature 1 (Capping)	Feature 1 (Ice house c. 1791)
	INDE 91123, 91256 (56)	Room C, Feature 1	Feature 1 (Ice house c. 1791)
	INDE 91127, 91262 (105)	Room C, Feature 4a, mortar bedding beneath marble floor	Feature 4a (Ice house c. 1791)
	INDE 91207, 91261 (81)	Room C, Feature 4, 15' W of East Wall, 6' No of S Wall	Feature 4 (Stone wall)
Type 8 Reddish-brown mortar with white lime nodules. Aggregate is a feldspar sand of varied size with mica and significant amounts of brick dust. A lime-based mortar with brick dust additive.	INDE 91129, 91263 (29)	Room C - South Wall	Exterior Wall: South Wall (Small sized stone with patches of later brick, portion of wall constructed of large stone)
	INDE 91135, 91267 (54)	Room C, SE Corner, E Wall	East Wall (Stone)
Type 9 Soft, friable gray mortar with white nodules and a high percentage of aggregate. Aggregate is a fine feldspar	INDE 91131, 91265 (45B)	Room C, South Wall 6' East of South Vault (El. 13.97)	Exterior Wall: South Wall (Small sized stone with patches of later brick, portion of wall constructed of large stone)

Table 2. Area F 114 South Front Street: Mortar Samples by Type

Mortar Type	Mortar Samples	Location	Area/Feature
sand with lithic fragments, hematite grains, mica flakes, and inclusions of brick fragments, wood, and coal. A lime-based mortar with some hydraulic qualities.	INDE 91135, 91267 (54)	Room C, SE Corner, E Wall	East Wall (Stone)
Type 10 Almost pure white lime with a predominantly feldspar aggregate. The sample appears to be a finishing plaster. Lime based mortar with significant amounts of brick dust.	INDE 91091, 91215 (55B)	Room A, Feature 1 (Top whole wood rests on this)	Feature 1 (Concentration of mortar, stone and wood beams c. 1856)
	INDE 91100, 91226 (19)	Room A, N-S Trench 1	Trench 1
Type 11 Clay-lime mortar with lime nodules and embedded wood. Sample surfaces show wood formwork. Possibly a brown coat for stucco or a floor insulation material. No evidence of fiber reinforcement. Aggregate is predominantly feldspar with significant amounts of brick dust.	INDE 91092, 91216 (55C)	Room A, Feature 1	Feature 1 (Concentration of mortar, stone and wood beams c. 1856)
	INDE 91100, 91226 (19)	Room A, N-S Trench 1	Trench 1
Atypical	INDE 91223 (16)	Room A, South Wall, Furnace Area (G)	Feature 2 (South Wall at furnace area, c. 1847)
	INDE 91106, 91235 (31)	Room A, 7.6 E of North Wall juncture, 5' South of N. Wall	Feature 3 (Mortar covered wall c. 1792)
	INDE 91094, 91218 (11)	Room A, South Wall, 7' W of SE Corner (B)	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
	INDE 91103, 91229 (23)	Room A, South Wall 2' W of Jointure	Exterior Wall: South Wall (Brick and stone interspersed, plastered)
	INDE 91105, 91234 (26) (concrete and brick at base of metal pillar)	Room A, 2nd pillar support	Miscellaneous floor/ground
	INDE 91204, 91243 (40)	Room A, Feature 4, concrete from floor	Miscellaneous floor/ground

Table 2. Area F 114 South Front Street: Mortar Samples by Type

Mortar Type	Mortar Samples	Location	Area/Feature
	INDE 91116, 91250 (113D)	Room B, South Wall, mortar from lowest part, brick	Walls near Feature 2 (Feature 3) (Brick foundations for water closet that emptied into Feature 2, c. 19th century pre-1892)
	INDE 91121, 91268 (103)	Room B, beneath East central entrance (stone wall)	East Wall (Stone)
	INDE 91125, 91258 (106)	Room C, Feature 2, Mortar sample from inner wall	Feature 2 (Double privy shaft c. 1791)
	INDE 91206, 91259 (114)	Room C, Feature 3, el. 4.0'	Feature 3 (Privy shaft c. 1687)
	INDE 91128 (28)	Room C – South Wall (Facing)	Exterior Wall: South Wall (Small sized stone with patches of later brick, portion of wall constructed of large stone)
	INDE 91130, 91264 (45A)	Room C, South Wall, 6' East of South Vault (15.3' El. Top Stone)	Exterior Wall: South Wall (Small sized stone with patches of later brick, portion of wall constructed of large stone)
	INDE 91132 (46A)	Room C, South Wall, 20' West of SE Corner (El. 13.92)	Exterior Wall: South Wall (Small sized stone with patches of later brick, portion of wall constructed of large stone)
	INDE 91133 (47)	Room C, North Vault, North Wall from Bottom Bricks	Exterior Wall: North Wall (Massive stone with two brick arches)

Figures

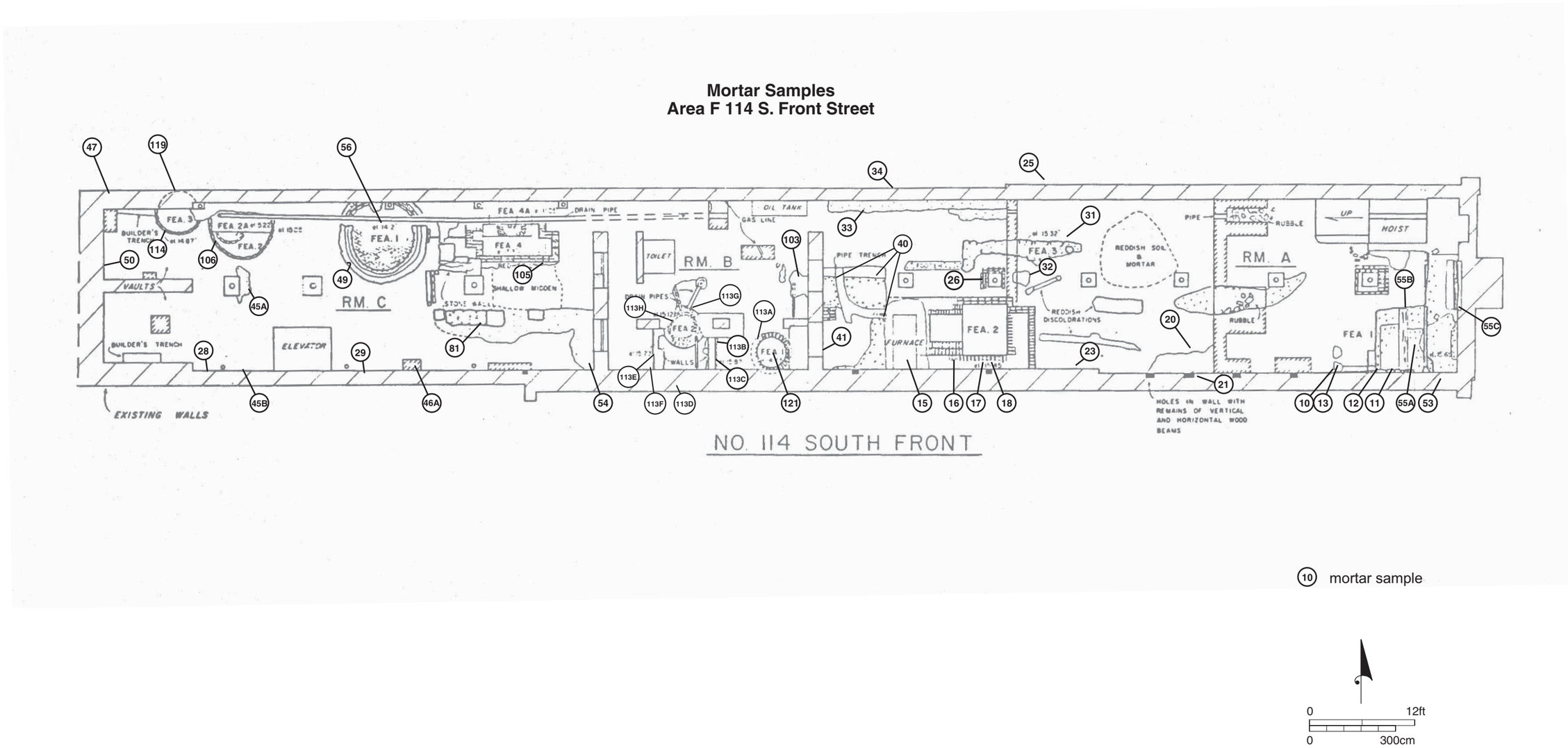

Figure 1. Map showing locations of mortar samples from 114 S. Front Street.

APPENDIX III:

Seed Analysis in Historic Sites Archaeology

by

Roberta Zullick Taylor

TABLE OF CONTENTS

ABSTRACT

Seed analysis was performed on floral remains extracted from soil samples excavated at Area F, Independence National Park, Philadelphia, the site of the first English settlement in Pennsylvania, in an attempt to determine the archaeological importance of such analysis as well as determining the reliability of using plant remains as an indicator of actual food sources. Seed analysis was found to provide explanations for non-representation of various plant species, the ability to detect periods of economic stress through changes in plant species within a feature, and the ability to differentiate feature types by examining seed content, as well as determining changes in natural habitat. The benefits of seed analysis and its implications for historic and prehistoric archaeology are discussed.

LIST OF TABLES

INTRODUCTION AND OBJECTIVES

The site upon which the research of this thesis was based is known as Area F, Independence National Historic Park, Philadelphia, Pennsylvania. The site was excavated in 1977 under auspices of the National Park Service by Temple University, Daniel G. Crozier, Director. Further excavation of the site occurred in 1980 by the University of Pennsylvania. However, all of the material used in this analysis was recovered during the 1977 excavation. The excavation was primarily salvage in nature, undertaken prior to the construction of a multi-tiered aboveground parking garage.

The decision to analyze the floral remains (seeds) of the site was made for several reasons:

(1). Seed analysis has traditionally been relegated to a relatively insignificant position within both prehistoric and historic archaeology. With the exception of a few historic sites, primarily in England, seed analysis has consisted of a laundry list of the identified species present.

(2). Due principally to good preservation of an uncontaminated site coupled with excellent historical documentation, Area F provided the opportunity to conduct a more in depth analysis than any previously undertaken. The objectives of this study are listed below.

Objectives

This thesis was undertaken in an attempt to determine the archaeological importance of seed analysis. Although the basic research was conducted on soils extracted from historic sites, it was hoped that the results would have important consequences for both historic and prehistoric archaeological sites. The reliability of using plant remains as an indicator of food sources could be tested through a comparison of the plant remains recovered with those plants historically documented as food sources e.g. how much of what is recovered should/should not be considered a food source?; what known food sources were not represented archaeologically: The reliability of plant remains as an indicator of food sources is especially important prehistorically since no documentation and few other indicators, if any, are available and the possibility exists wherein the importance of these remains are inaccurately assessed.

SOURCES OF SEEDS RECOVERED FROM ARCHEOLOGICAL SOILS

In both historic and prehistoric sites the possibility exists that seeds of modern origin may be contained in archeological soils. Several authors have addressed themselves to this issue, notably Keepax (1977) and most recently Minnis (1981). However, prior to discussing contamination of archeological and modern seeds, and seed preservation, methods of seed deposition should be examined.

Micro- and macrobotanical remains have similar means of dispersal. Pollen grains are abundantly produced and due to their small size efficiently dispersed in the atmosphere. “The total pollen that falls on a surface over the years is the ‘pollen rain’ which is satisfactorily represented by even a small sample…assuming that the pollen is randomly mixed in the pollen rain.” (Watts and Winter, 1966). It cannot be assumed, however, that the composition of “seed rain” is randomly mixed. The size and quantity of seeds produced varies greatly and the range of dispersal is limited by the weight of the seed. Due to this limited dispersal, seed analysis is usually employed in determining local vegetation whereas pollen analysis usually determines regional vegetation (Watts and Winter, 1996). Due to the long-range dispersal of pollen, seed analysis often tends to be a better indicator of the flora present at archeological sites than pollen analysis; however, seed

analysis often identifies non-local species which were being specifically imported as resources or accidentally imported along with these resources.

In addition to natural deposition by seed rain, seeds can also be deposited through human interaction, which includes the collection, processing, storage, consumption and disposal of plants and/or seeds.

Minnis (1981) listed sources of seeds, modern and prehistoric which are recoverable from archeological sites. Archeological sources included direct resource utilization, indirect resource utilization, seed rain during occupation and post-occupation seed rain. Modern sources included regional (i.e. local) seed rain, site specific seed rain, and procedural contamination.

The majority of seeds recovered from archeological sites have been preserved either through charring or in coprolites. Minnis (1981), among others, has described the variety of means by which botanical remains are preserved by charring, including the burning of debris and stored materials, the charring of seeds blown into hearths, or the charring of seeds accumulated in abandoned structures. These types of situations could occur either prehistorically and/or historically.

In prehistoric sites, usually only those seeds which are charred are considered to be from archeological contexts. All uncharred seeds are considered contaminants of modern origin. This point seems to be well taken as the amount of uncharred prehistoric seeds surviving seems to be minimal and assuming all seeds recovered to be prehistoric would tend to skew the analysis results. As the decomposition of seeds in soils is as yet not completely understood, future research should be able to determine the probability of the survival of uncharred remains (Minnis, 1981).

In historic sites, however, it is often more difficult to differentiate between archeological and modern seeds. Possibilities i.e. conditions for preservation, exist whereby uncharred seeds of historic origin are preserved to the present day. Essentially, uncharred seeds that are located in self-contained features which have remained continually moist throughout the years are preserved. These features are primarily privies, wells or cisterns which were lined by wood, brick, mortar, stone, etc., the privies contain material of high organic content which tends to aid preservation. Willcox (1977) described the circumstances whereby plant remains from a second-century timber-lined pit in London were preserved. Willcox attributed the preservation to a combination of waterlogging and a mineralization by calcium salts. The lining of these features seems to help retain the moisture and chemical compounds within the features, thereby eliminating or minimizing the effects of alternating wetting and drying the plant material present and improving its chances of preservation. The fact that a few of these features were capped after abandonment served not only to retain moisture but also to eliminate any sources of contamination. Keepax (1977), however, noted the preservation of seeds and organic material in non-waterlogged conditions and stated that “urban sites may sometimes produce well preserved seeds from highly organic deposits although these are not completely waterlogged.”

Plant resources, however, do not have an equal probability of survival in archeological soils. The probability of a plant being preserved is largely determined by the plant itself. Those plants utilized for their seeds, kernels or grains are more likely to be preserved than those utilized for their roots or leaves. The size and number of seeds produced per plant also influences preservation. For example, raspberries which contain between fifty to one hundred seeds per fruit may be archeologically represented by a large quantity of seeds, especially in coprolitic samples.

Larger fruits with single seeds such as peaches or cherries are less likely to be preserved in large quantities or in coprolites (Dennell, 1976).

Munson et al. (1971) categorized food plants by their chances of preservation:

(1) Those foods which have a rather dense, inedible part (maize cobs)
(2) Plants which are somewhat dense but which are normally ingested in their entirety (small seeds or maize kernels)
(3) Non-dense foods with a high water content (tubers and greens)

The processing a plant undergoes also affects preservation. "For example, there need be little or no direct evidence for plants such as grape, apple, or plum if they were crushed for the juice. Plants such as these are more likely to be preserved if they were dried and then stored" (Dennell, 1976). Dennell described two types of processing activities:

(1) "Those which alter the state, but not the composition" of the plant e.g. drying;

(2) "Those which alter the composition of the crop which is being prepared for consumption."

The first type of activity "would leave a direct indication of the crop in the archeological record" while the second type "could leave residues of either the crop itself, or the part which was discarded" (Dennell, 1976). Dennell believes that these two distinctions are necessary to evaluate the economic importance of plant remains.

Not only those plants considered to be food crops are represented archeologically. Species such as flax and hemp were cultivated for fiber and/or oil, etc. and were economically important. However, weeds seem to constitute the largest group of non-crop plant species found in archeological contexts. Some seed species are edible and if found in abundance would seem to indicate wild plant collection. The majority of weeds, however, are inedible and therefore the probability exists that these were extracted from crop areas and discarded. A serious problem exists in that much of the botanical evidence recovered from archeological sites might be more indicative of those species discarded than of those consumed.

Absence of certain species in the archeological record does not necessarily exclude them from the list of exploited species. Here again the nature of the plant itself is largely responsible for its non-inclusion. For example, vegetables are frequently consumed before being allowed to go to seed (e.g. lettuce, cabbage) or the seed itself is consumed (e.g. peas, beans).

The majority of seeds recovered by the author from various historical sites (e.g. Area F, INHP: Route 18 Archeological Salvage Project, New Brunswick, New Jersey) were uncharred yet prevailing conditions precluded their being classified as modern. The conditions for preservation at Area F resembled those described above by Willcox. The pH readings, as discussed elsewhere, occurred primarily in the lower alkaline range (7-9); although Willcox does not mention pH level, the presence of calcium salts in Willcox's samples could correspond with the Area F alkalinity, in contributing to preservation. Most seed-producing features (Area F) were lined and as a result contained a great deal of moisture. In addition, the site area had a high water table, which probably contributed to the moisture levels within the features.

The Area F site was unusual in that the excavation took place while the buildings (Yoh Building and 114 S. Front Street) were still standing. Excavation was carried out in the basements of the buildings; prior to excavation, concrete/cement flooring was removed by using jack hammers.

The fact that these buildings were longstanding, with the floors removed immediately before excavation, and the fact that several features were capped, reduced the possibility that the site was contaminated by seeds of modern origin. The location of the features within the buildings also reduced the possibility of contamination during excavation.

Contamination of archeological soils by modern seeds can be a serious problem. Keepax (1977) listed possible sources of contamination: careless collection of samples, aerial contamination of samples left exposed to the atmosphere, cross-contamination during flotation, and contamination of the deposit prior to excavation. The first three contamination sources can be greatly reduced or eliminated if care is taken during the collection and flotation processes. The fourth source of contamination is difficult to control and Keepax listed five means by which "modern seeds and/or topsoil might penetrate into buried archeological levels: plowing, root holes and drying cracks, downwashing, earth-worms and burrowing animals." Obviously, the impact of these actions differs depending upon the site conditions.

To differentiate modern and archeological seeds, Keepax suggests the following methods: radiocarbon dating of seeds; concentrations of seeds i.e. "high seed concentrations sandwiched between layers with few seeds consist largely of genuine ancient seeds"; depth of soil in which seeds are found i.e. "the number of uncharred and therefore possibly modern seeds drops rapidly with increased depth"; species composition in comparison to modern vegetation; state of preservation i.e. charred vs. uncharred; comparison of size and morphology of ancient and modern seeds (Keepax, 1977).

Spector (1970), among others, has advised the taking of soil samples outside the immediate site area to determine whether the seeds recovered within the site area are part of the natural vegetation, specifically selected, or a combination of the two. However, natural seed rain is extremely localized and varies greatly even in adjacent areas; because site vegetation tends to differ from the surrounding areas this type of comparison seems untenable.

Keepax (1977), on the other hand, has suggested that the modern vegetation of the site area be recorded before excavation in order that likely contaminants be known. This approach seems more reasonable and should be recommended. However, this was not done at Area F due to the nature of the site and immediate surrounding area i.e. buildings still standing in urban area with a parking lot immediately adjacent to the site. A few weeds were found growing near the site area but no record of these plants were made. However, since contamination of the site, as discussed above, was considered negligible, this omission is not a serious one.

A major point of discussion in floral analyses is which quantitative method best reflects the relative economic importance (actual vs. potential food sources) of recovered species: numerical frequencies, minimum number of individuals, commonest species, weights, etc.

Dennell (1976) in discussing the various methods of quantifications stated "…there can be no justification for estimating the economic status of a plant by its numerical frequency alone. This method may be democratic, in allowing 'one seed, one vote', but wholly ignores the factors affecting the composition of an archeological sample of plant remains." Although this method has been the most widely used quantification procedure, Dennell questions whether the number of seeds of a particular plant present archeologically can provide any indication of whether or not that plant was used as a food source. Another problem inherent in calculating economic importance by numerical frequency that must be considered is what quantity of seeds must be present to denote utilization by man. Is the presence of one seed of an edible species indicative of its economic importance to man or of accidental inclusion?

In seeking alternatives to the use of numerical frequencies Dennell (1976) reviewed a method whereby "the numbers of seeds…of a species was regarded as less important than the number of samples in which the species was the commonest." This method was not considered by Dennell to provide an accurate rating of the importance of each plant source for several reasons:

(1) A plant would not be counted as a food resource unless it was the commonest species.

(2) The method does not consider plant processing activities which "alter the composition of a crop by removing an unwanted component" and thereby producing residues containing large quantities of weeds and very small quantities of the actual cultigen.

(3) The economic importance of a plant resource is represented in terms of a percentage yet it is not clear whether this percentage represents the quantity, the amount of calories, the proportion by weight, etc. that one plant contributes to the total food resources.

Dennell (1976) recommends an approach wherein particular attention is paid to whether a plant species represents a crop, or a residue, and the stage of preparation at which the species was preserved. He believes the "economic importance of a plant resource should be indicated to some extent by the range and type of domestic activities to which it was subjected" i.e. the most important resources should be associated with food preparation, consumption and storage whereas less or unimportant resources should be associated with a different range of activities such as refuse disposal, etc.

Dennell also distinguishes from actual and potential plant foods. Although one cannot assume that a potentially edible plant was necessarily utilized, there are circumstances wherein potential resources can be positively identified as actual resources e.g. resources recovered from coprolites, storage containers, etc. Privies, in historical sites archeology, present a unique problem in that although primarily functioning for the disposal of human waste, they were sometimes utilized as refuse receptacles, etc. and although coprolites are not subjected to seed rain, privies sometimes are and the presence of inedible species in a privy are not uncommon. Layers of fill are also common in privies and account for some of the less important resources recovered. Therefore, only those species from privy levels composed of coprolites can be identified as actual food sources although the presence of these same species in other levels of the same or contemporaneous privies would seem to confirm their identity as an actual food source.

With the exception of the instances noted above no reliable method is presently known by which to distinguish between actual and potential plant resources and to estimate the importance of the plant species recovered.

Weighing the recovered remains is another type of quantification procedure and is described in Begler and Keatinge (1979). Although weighing accounts for all remains of a particular species of a particular level regardless of the state of preservation, it does have several inherent problems:

(1) The number of individual plants represented by the remains is ignored.

(2) Comparisons of the weights of different species by levels will invariably lead to misconceptions as the weights of different plant species do not represent equivalent amounts of those species. Neither can weight proportions (i.e. proportion of the weight of the remains of a plant species to the total weight of all subsistence remains) be compared as

the presence in one level of a particularly weighty remain e.g. shell, large seeds or nuts would tend to skew the results.

Therefore, as seen in Begler & Keatinge (1979) "weights (or volumes) of the remains from one species can neither be compared nor combined with the weights (or volumes) of remains from another species." However, floral analyses must represent more than a laundry list of plant species and the comparison of species remains between levels is essential. Begler and Keatinge (1979) in an effort to resolve this problem "computed the total weight recovered from the excavated block (or feature) for each species separately and calculated the proportion of the remains of each species represented in each level" thereby permitting "the observation of species distribution throughout the excavated block."

Quantification by weight was not utilized at Area F for several reasons:

(1) This method of quantification necessitates the recovery of the total subsistence remains from all levels of a feature. The plant remains recovered at Area F were from samples taken at each level and therefore the total plant remains from each level were unavailable.

(2) The shell and bone of each level, although for the most part totally recovered, have not been weighed.

(3) If the weights of the sample remains were used for the type of comparison advocated by Begler and Keatinge, they would undoubtedly be too small for significant comparison.

Another quantification method for subsistence remains is the determination of the minimum number of individuals represented. Usually employed in faunal analyses, this method is being increasingly utilized in floral analyses although strict adherence to the method usually produces insignificant results. The calculation of individuals by the counting of a certain anatomical part, although successful in faunal analyses of a single stratigraphic level, yields uncertain results in floral analyses, especially from those types of features which produce the majority of plant remains i.e. trash pits, privies, etc. A major weakness in using minimum number of individuals in floral analyses is the inability to "evaluate the significance of different types of remains" (Begler and Keatinge, 1979). This is, if five stems are recovered a minimum number of five plants can be assumed; but if one hundred seeds e.g. raspberry are recovered are they representative of one raspberry, two, one hundred or somewhere in between? A simple assumption of a minimum number of one yields no further information than the laundry list present/absent data. The inability to account for plants parts, due in part to preservation and in part to the usage of the plant itself, limits the usefulness of minimum number if individuals concept.

In consideration of the various methods of quantification listed above, a procedure was devised wherein the nature of the features of Area F was taken into consideration as well as in an attempt to observe changes over time. Although the observed changes and patterns will be discussed in the interpretive section, the method by which the Area F flora was quantified and from which the interpretations were made will be discussed below.

As noted above, samples of soil rather than the entire soil level were subjected to analysis. Although most of the samples weighted 175.0 grams, in a number of cases the sample weight was insufficient. An actual count of remains by species for all samples was recorded and an adjusted count was calculated for those samples with insufficient weights. The adjusted count was calculated by dividing 175.0 grams by the weight in grams of the insufficient sample and

multiplying the actual count of each species of that sample by the quotient. Both counts are recorded in Table 2.

The minimum number of individuals (MNI) was calculated where possible by dividing the count (actual or adjusted in the case of the samples with insufficient weights) by the average number of seeds per fruit or plant, if known. The MNI, along with its counts, were used in comparison of species between levels of a feature in an attempt to note changes through time. The presence and/or absence of different species through time were also noted. In studying the range of plants utilized and the frequency changes of each type/species through time it is hoped that periods of stress or other occurrences can be noted archeologically. Such analysis of plant remains could have important consequences both historically and prehistorically.

RECOVERY METHODS

Although seeds have been the focal point of several floral studies there has been no agreement as to the best method to recover these remains from archeological soils. There are essentially two different types of recovery techniques described in the literature: wet and dry. Richard Yarnell (1964) is the sole proponent of the dry technique which consists of the dry-screening of soil samples and examination of the remaining material under a low-power microscope. This method, however, has several drawbacks. It is very time consuming and not advisable for very large samples or for a site with a great number of samples. After screening, a good deal of hand-separation must be done as refuse of the same size will remain in the screens. The abrasion caused by excessive screening often damages the seeds which makes identification difficult. This method also is suitable only for dry, sandy, non-claylike soils as other soil types tend to clog the screens with the seeds remaining in the soil. Generally, as the soil found in the features dealt within this study (i.e. privies) tended to be wet, claylike, or humic soils often containing large amounts of organic materials, this method proved unsuitable.

Several different recovery methods can be classified as wet and generally consist of flotation techniques using water, chemicals, or a combination thereof.

Jarman et al. (1972) described the retrieval of plant remains by froth flotation using water at the site location. However, this method is performed on such a large scale that its use in the laboratory becomes impractical.

The most popular method of seed extraction seems to be that devised by Streuver (1968). This is essentially a two-step process: Water separation followed by chemical flotation. “The water-separation technique works on the principle that different substances (e.g. stone, burnt clay, bone, and charred plant remains) have different porosities and therefore settle in water at different rates” (Streuver, 1968). Because plant remains settle more slowly than bone, stone, etc. they can easily be separated by being placed in a tub of water, rotating it clockwise and counter-clockwise, or stirring and extracting the floating material. Streuver’s water-separation technique yields two products: (1) the light fraction on the bone and plant remains which were retrieved by using a tea strainer and (2) the heavy fraction on stone, pottery, etc. recovered from the bottom of the tub. The second step of this process is flotation of the light fraction in a zinc chloride ($ZnCl_2$) solution with a specific gravity of 1.62 wherein the lighter plant material will float as the heavier bone material sinks. The plant remains are then extracted with a tea strainer, thoroughly washed and dried.

Watts and Winters (1966), using core samples extracted from a lake bed in Minnesota, recovered seeds by soaking the core segments in a hot detergent solution, stirring, and then washing the

sediments through No. 40 and No. 140-mesh screens. Residues were then collected, placed in shallow water on a white plate, and examined under low powered microscope.

Spector (1970) also uses a process involving water-separation and chemical flotation. Spector differs from Streuver in that during the water-separation step the water was continually stirred until all material which floated was collected. The residue (Streuver's heavy fraction) was then "boiled in a sodium bicarbonate solution to disaggregate cohesive sediments and thereby release any seeds which may have been lodged in the matrix. Each sample was then washed through a No. 40-mesh screen," sorted by hand and with the use of a low powered microscope. Spector's second step of chemical flotation is identical to Streuver's.

Extraction procedures used in Great Britain were reported by Keepax (1976, 1977) and Willcox (1977). Samples of 1-5 Kg. were disaggregated using a dilute hydrogen pyroxide solution, then washed through a series of sieves (300 micron minimum), and the residue sorted for seeds. Keepax also mentions that sieve residues were subjected to paraffin flotation. As no further information could be located in relation to paraffin flotation it was necessary to disregard it concerning this study. Willcox (1977) also mentioned that seeds treated with hydrogen pyroxide must be stored in alcohol (industrial methylated spirits) as distortion occurs when seeds are allowed to dry at room temperature.

All of the recovery techniques discussed above were tested by the author in a previous floral (seed) analysis (Route 18 Archeological Salvage Project, New Brunswick, New Jersey) and all were found to be inadequate in one degree or another. The main fault I found with Streuver (1968) was that a great number of seeds were not recovered with the light fraction in the water-separation process (i.e. the combined swirling and straining action is not controlled well enough to enable all seeds to be retrieved).

Although Watts and Winters (1966) method of disaggregating their samples is a good one, the size screen (i.e. No. 140-mesh) used for washing the sediments would leave too great an amount of refuse to be examined by hand or under a microscope. In addition their method of examination creates logistical problems.

Spector's (1970) recovery method, although effective, involves quite a number of steps. I question, in particular, the water-separation process and will detail later in the section on the methods used for this study how the water-separation process can be shortened. Before doing so, however, I think it would be beneficial to examine the sampling, and other tests and information deduced prior to actual seed extraction.

Two types of samples were utilized in this floral analysis: those samples collected as soil samples at the site during excavation and samples collected in the laboratory from artifact bags and boxes or from individual ceramic vessels. The soil samples gathered in the field were taken from the features themselves, areas outside of features, and randomly from the various rooms investigated. Feature samples were systematically collected at each soil change and/or at diverse elevations. Where possible a sample was collected beneath the feature.

In all 138 soil samples and bag samples were tested for floral remains. Before subjecting the samples to water-separation and/or chemical flotation, it is advisable to determine the pH. Besides determining the acidity/alkalinity of each sample it is often possible to discover which samples contain either positive or questionable floral remains. Seeds often float during the procedure but it is also possible to detect remains by examining the color and composition of the soil e.g. coprolitic soils almost invariably contain floral remains. As to the pH, only 11 of the 138

samples exhibited acidity with the majority of the samples falling in the 7.0-9.0 range. The soil samples containing the greatest amount of seeds also fall within this range: however, of the samples positively identified as containing coprolitic material two were acidic with pH readings of 4.6 and 5.1, and the third nearly neutral with a reading of 7.1.

The procedure used for testing the pH of the samples is as follows:

An electronic pH meter was used for the testing and according to the manufacturer's directions was turned on one hour before testing to allow the electrodes to warm up. The reference meter was checked to read pH 7.0 and the electrodes calibrated to standard buffers of 4.01±.01 @ 25ºC and 10.01±.01 @ 25ºC. The room temperature should be checked and the meter adjusted accordingly.

Five grams of each sample were weighed and mixed with double glassed distilled water (pH 7.0) in clean plastic cups. Each sample was stirred for one minute before being placed under the electrodes (lower electrodes into mixture). The pH reader was then turned on and the mixture swirled in order to insure good contact with the electrodes. When the needle stopped after approximately 30 seconds, a reading was taken and recorded to the nearest 0.1. After the reading was taken, the pH meter was turned to reference. The plastic cup was discarded and electrodes rinsed with distilled water before taking the next reading.

The following results were obtained using the method described above:

PROVENIENCE	SAMPLE NO.	pH
114 S. Front St., Room A	32A	9.3
	101	8.8
114 S. Front St., Room A, Fea. 1	55D	8.4
114 S. Front St., Room B, Fea. 1	123	9
	125	8.3
	138A	8.7
	138B	8.9
	138C	8.7
	Bag 62	8.8
114 S. Front St., Room C	46B	9.5
	102	8.3
114 S. Front St., Room C, Fea. 2	104A	7.7
	104C	7.3
	104D	8.1
	104E	7.7
	104F	8.0
	104G	8.3
	104H	7.8
	104I	8.1
	104K	8.0
	104L	7.8
	104M	8.1
	104N	7.4
	Bag 21	7.0
	Bag 53	7.0

114 S. Front St., Room C, Fea. 2A		131 7.4
		132 7.4
	Bag 73	7.3
114 S. Front St., Room C, Fea. 3		108 6.9
	111A	7.6
	111B	7.8
	111C	7.5
	111D	7.6
		118 7.5
	120A	7.6
	120B	7.4
	120C	7.6
	120D	7.6
	Bag 22	7.5
	Bag 23	8.6
	Bag 32	8.2
	Bag 54	8.1
	Bag 56	7.8
	Bag 58	7.9
	Bag 59	7.6
114 S. Front St., Room C, Fea. 4		82 9.3
Yoh Bldg., Room A		97 9.2
		98 7.6
		100 8.4
Yoh, Room A, Fea. 1		127 8.8
		136 8.9
	Bag 83	7.9
	Bag 86	8.2
Yoh, Room A, Fea. 2	139A	7.6
	139B	7.8
	139C	7.4
	140A	8.1
	140B	8.0
	140C	7.7
	Bag 17	7.6
Yoh, Room C, Fea. 1	151A	7.1
	151B	7.6
	151C	7.6
	151D	7.7
	151E	8.1
	151F	8.1
	151G	7.9
	151H	7.4
	151I	8.0
	151K	7.2
	151L	7.3
	151M	7.3
	151N	7.3
	151O	6.9
	151P	6.9
	Bag 82	7.7

	Bag 85		7.8
	Bag 87		7.7
	Bag 89		7.7
	Bag 90		7.5
	Bag 90A		7.6
Yoh, Room C, Fea. 2	134A		7.7
	134B		7.5
	134C		8.6
	134D		8.3
	Bag 67		8.4
Yoh, Room F, Fea. 1	186A		6.0
	186B		5.9
	197A		9.2
	197B		9.4
	197C		9.1
	197D		9.3
	197F		9.1
	197G		9.2
	197H		8.5
		221	7.9
		225	6.5
		227	6.8
	Bag 120		8.7
	Bag 124		8.6
	Bag 125		8.3
	Bag 126		6.9
	Bag 128		7.1
	Bag 129		4.3
	Bag 130		5.1
	Bag 133		4.6
Yoh, Room F, Fea. 2		192	10.0
	Bag 118		10.2
Yoh, Room F, Fea. 3		161	9.5
		181	9.4
		187	10.0
Yoh, Room F, Fea. 3A		191	8.5
Yoh, Room F, Fea. 7		159	8.3
		182	9.9
Yoh, Room F, Trench 2		183	9.6
Yoh, Room F, Trench 3		160	8.1
Yoh, Room F, Trench 4	184A		8.2
	184B		10.2
	184C		9.4
		194	9.6
		195	9.0
		196	8.6
A. Morris, Room B, Fea. 1	63B		8.2
		92	10.0
		93	9.1
		94	8.3
		95	7.9
		96	8.1

After determining the pH of the samples, the procedure of seed extraction can be started. In the procedure I used there were essentially three steps: deflocculation, water-separation, chemical flotation.

Soil samples weighing 175 grams (due to the small size of some samples the 175 gram weight was not met) were deflocculated by being combined with 50 grams of Calgon Water Softener (sodium phosphate, sodium carbonate) and tap water and stirred every ten minutes for 24 hours of continuously shaken overnight. Here again samples containing plant remains can often be identified. Seeds often float during this process but the color and odor of some samples also can be indicative of coprolitic material which generally contain plant remains.

The samples are then washed through a series of screens: U.S.A. Standard Testing Sieves No. 10 (.0787 inch), No. 35 (.0197 inch), and No. 60 (.0098 inch). The samples should be washed thoroughly to remove any chemical or clay residues. The material remaining in the sieves constitutes both the light and heavy fractions. The top screen catches the largest seeds, stones, etc. and can be easily scanned and the vital (i.e. floral) material removed. This material along with fractions in the other two sieves should be transferred to plastic containers and dried in a 150ºF oven. The drying can usually be accomplished in 24-48 hours depending upon the volume of material.

Flotation of the dried fractions in a zinc chloride solution is the final step in the extraction process. The ZnCl2 solution must have a specific gravity of 1.62. This is achieved by mixing 860 grams technical grade, granular ZnCl2 with enough water to make 1 liter of solution. This formula can be multiplied if the need arises. The specific gravity can be checked by weighing one ml. of the solution.

Care should be taken when working with ZnCl2 as the solution can cause minor burns. Flotation should occur only in a well-ventilated area or under a chemical hood. The skin should be protected by rubber gloves.

The solution should be placed in a 4-6 gallon plastic flat-bottomed tub. A fine mesh screen with a handle is positioned on the bottom of the tub. A common kitchen splatter screen with the handle bent perpendicular to the screen works well.

The dried fractions of one sample are then slowly poured into the ZnCl2 solution. Plant material will float and can be easily retrieved with a tea strainer. Stone, bone, etc. will sink, be caught in the screen, and later raised to be further examined, if wished, or discarded.

The tea strainer containing plant remains should be washed periodically throughout the process to facilitate retrieval. The seeds can be washed into a holding container until all material has been extracted. The seeds then held in the container(s) should be washed through the No. 60 testing sieve several times to removed any ZnCl2 residue. As ZnCl2 is hygroscopic, any residue will inhibit drying. After washing, the seeds should be transferred to plastic containers and allowed to dry in a 150º oven. When completely dry, the seeds can be transferred to receptacles more conducive to storage i.e. coin envelopes, plastic or glass vials, until ready to be identified.

Other seeds were recovered in the laboratory while washing the ceramic artifacts. Naturally, a great deal of seed material was lost during this process as the screen size and technique used did not lend itself to the retrieval of plant remains. However, many larger seeds were retrieved and are represented along with those seeds recovered by the process described above.

Prior to identification, the seed remains must be sorted. Sorting will remove any charcoal or extraneous material recovered with the seeds during flotation as well as classifying the seeds by physical characteristics such as size, shape, coloring, reticulation, etc.

Identification, which can be very time consuming, is accomplished with the use of a low-powered (7-30x) microscope, seed identification manuals and/or a seed type collection. In this study the identification manuals used were those by Montgomery (1978) and Martin and Barley (1961). A basic comparative type collection assembled by the author was also referred to. As species determination is often possible only by examining the internal morphology of the seed, which unfortunately is frequently absent in archeological specimens, some seeds are identified only to the family or genus level (Martin and Barkley, 1961). Other seeds remain unidentified due either to their poor condition or to their non-representation in the manuals or type collections. Those seeds which are tentatively identified or unidentified should be referred to a specialist, either botanist or seedsman, who possibly will be able to provide additional identification information.

Seeds, unlike pollen, can usually be identified to the species level. Identification only to the genus level can be problematic in that different species of the same genus can be edible or inedible, native or non-native, etc. and therefore could bias cultural interpretations (Spector, 1970). Very often identification to the species level required the availability of more than one seed. A problem is created when only one seed of a species is present and this example is in poor condition. This situation does not occur in pollen analysis wherein pollen is abundantly produced and identified primarily to the genus level.

HISTORICAL DESCRIPTION OF RECOVERED PLANT SPECIES

Edible Species:

Amaranth/Pigweed:
Amaranthus blitoides (Prostrate pigweed)
Amaranthus retroflexus (Redroot pigweed, green amaranth)
Amaranthus tuberculatus (Water hemp)
Amaranth, naturalized from tropical America, grows nearly all over the United States. It was highly prized by Indians, especially *Amaranthus blitoides* and *Amaranthus retroflexus.* The seeds of both species were gathered, ground, and made into cakes and porridge. The leaves of *Amaranthus retroflexus* were also used as a spread. In season, from spring to autumn, the plants are a valuable source of Vitamins A, B, and C. (Medsger, 1966; Angier, 1974).

Barbarea vulgaris (Wintercress or Yellow Rocket)
Wintercress, introduced from Europe, has spread as weed along stream banks, in swamps, along roadways and in cultivated fields. Wintercress grows during the warm days of winter and has often been used as a winter salad green or pot herb. The buds are cooked and eaten like broccoli. In earlier times, wintercress was important when the first signs of scurvy appeared; the buds and leaves contain a high percentage of Vitamin C. (Angier, 1974).

Brassica nigra (Black mustard)
This annual was listed as an herb in the 17th and 18th centuries by Favretti (1962). The seed is edible and used for condiment and medicinally for mustard plasters or as an emetic. Young leaves are used for salad and pot herbs. (Medsger, 1966). Mustard is an excellent source of Vitamin A, Vitamin C, thiamine, riboflavin, niacin, calcium, phosphorus, potassium. (Angier, 1974). Originally naturalized from Eurasia, mustard is now found throughout most of the United States (U.S.D.A., 1971). Season- July-November.

Castanea dentate (American chestnut)
A large forest tree native to eastern United States, the chestnut produces delicious nuts in the autumn. A popular tree in the early years of our country, it was often mentioned by travelers and botanists, including Bartram, as being indigenous to Pennsylvania. Besides being prized for its nuts the chestnut tree was valuable for its wood.

A fungus disease introduced from abroad proved fatal to the tree and has killed nearly all the trees. If a resistant variety of the tree is not developed, the tree seems doomed to become extinct. (Medsger, 1966).

Chicorium intybus (Chicory)
Although native to the Mediterranean and cultivated in Europe, in North America chicory has become a weed growing in waste areas and along roadways. The young leaves, a source of Vitamins A and C, can be boiled as a pot herb in the spring. A variety has been developed as a substitute, adulterant or flavorer for coffee (ground roots are roasted). (Angier, 1974). Hussey (1974) describes the perennial as having medicinal value.

Citrullus sp. (Watermelon) Citrullus vulgaris, Citrullus lanatus
There is some controversy in the literature regarding the watermelon. Leighton (1976) regards it as originating in Africa and questions its transplantation by slaves. Favretti (1962) lists the species as being a common field crop in New England in the 17th century. In this area watermelons were grown by the Delaware Indians prior to the arrival of white settlers. Fletcher (1971) lists watermelon among other staples of Delaware Indian agriculture. In an account of New Sweden by Thomas Campanius Holm "written from notes given him by his grandfather, a chaplain, in 1642, in the Swedish settlements in the Delaware only two years after the first European farming was attempted in that region…: 'there is, also, amongst other things, a most beautiful and excellent fruit, which we call, in Sweden, water-melon.'" (Carrier, 1923).

Other early narratives of settlers and travelers mention watermelon. Penn, in a letter to the Committee of the Free Society of Traders in 1683, includes watermelon in a list of the "Artificial Produce of the Country" (Myers, 1959). Gabriel Thomas also mentions the raising of watermelon in Pennsylvania in 1698. (Myers, 1959).

Watermelons from southern ports were shipped occasionally to northern metropolitan areas during the first half of the 19th century.

Cocos nucifera (Coconut)
Coconuts were imported to the colonies chiefly by way of triangular trade from the West Indies, Cuba, and Central America. Some also found their way from Asia and the South Sea Islands. These imports were chiefly city treats, limited in quantity, and often too expensive for the average householder. (Hunt, 1837; Johnson, 1961).

Cucurbitaceae (Melon/Squash Family)
Members of the family *Cucurbitaceae* were already being cultivated by the Indians when the early settlers arrived. Pumpkins, watermelons, and summer squashes (yellow crook-necks and greenish-white patty-pans) were particular Indian favorites (Fletcher, 1971). Travelers and settlers described the produce grown by the Indians always including "Squashes, Pumpkins, Watermelons, Musmelons." (Myers, 1959; Carrier, 1923).

The colonists also had their favorite members of this family and often sent for seeds including those of cucumbers and melons (Mason, 1968); the Indians later adopted these same varieties (Secor, 1975).

Leighton (1976) listed the following varieties of melons as 18th century American vegetables: "the green fleshed melon; the netted wrought melon; a rough, knotty melon called the Diarbekr; the Portugal or King Charles Melon; the Cantaloupe from Armenia; the Zatta Melon from Italy." Gourds and cucumbers were mentioned as well.

Favretti (1962) lists those species of common garden crops and the century they became popular:

17TH CENTURY		18TH CENTURY		19TH CENTURY	
Cucumis melo	Musk melons	*Lagenaria*	Squash, Calabash or Bottle Gourd	*Cucumis anguria*	Cucumber, Round Prickly or Indian or Bur Gherkin
Cucumis sativus	Cucumber/cowcumber				
Cucurbita pepo	Pumpkins/Ponpions				
Cucurbita sp.	Squashes				
Citrullys vulgaris	Melons				

Fragaria virginiana (Strawberry)
Strawberries were used by Indians as a food source and were growing abundantly along the east coast when the settlers arrived (Leighton, 1976). Favretti (1962) listed the species as a common garden fruit in the 17th century. Wild strawberries were used in baking, preserves, desserts and to make wine (Benson, 1937). The fruit is a good source of Vitamin C, iron, potassium, sulphur, calcium, sodium and silicon. The leaves are brewed for a tea, also high in Vitamin C. (Angier, 1974).

Juglans nigra (Black walnut)
The Indians and settlers alike found this native American tree to be a valuable source of nuts, wood, dye and as a tanning agent. Originally a forest tree common on hillsides and rich bottom lands, it is now found primarily along fences and roadsides. Kalm noted that it was the 25th most populous tree in Pennsylvania. (Benson, 1937).

Morus alba (White mulberry)
Several species of mulberry are native to America, however, in regards to its fruit and its potentiality as a silk producer it proved disappointing. In a letter to the Committee of the Free Society of Traders in 1683, William Penn noted the natural presence of white and black mulberries; Gabriel Thomas noted the same two varieties in 1698 in "An Historical and Geographical Account of Pensilvania and of West New-Jersey." (Myers, 1959). Most authorities seem to agree that the white mulberry cited by Penn and Thomas was in reality *Morus rubra*, also known as the English mulberry, was introduced to the colonies from Europe primarily for its fruit (Leighton, 1976; Medsger, 1966).

Morus alba, white mulberry, was introduced to America in the 18th century, in the attempt to establish a silk industry. Originally a native of China, it was introduced from Europe. This silk industry failed due to the high cost of labor, but the white mulberry has remained although rarely found west of the Appalachians. It thrives in moist rich bottom lands and foothill forests. (Angier, 1974). The fruit of the white mulberry is edible although it is not quite as tasty as the red or black varieties. The fruit is in season from June to September. (Medsger, 1966).

Physalis heterophylla (Groundcherry)
This edible plant, a member of the potato family and closely related to the tomato, is native and found in all areas of the United States in waste areas, cultivated fields, and open areas. They can be eaten raw, used in pies, preserves and sauces. Season- July to September (Angier, 1974).

Portulaca oleracea (Purslane) – French salads; Indian weeds.
Kalm observed it growing wild among the corn, as did Champlain. (Leighton, 1976).

Purslane, considered to be a weed in Canada and the United States, has long been a food source in Europe and was introduced to this continent in colonial times. It is an annual and grows well in fertile sandy soil and is prevalent throughout the country. Its widespread distribution is due primarily to its enormous seed production; more than 52,000 per 1-2" plant. The entire plant is edible; raw as a salad herb, boiled as a vegetable, used in soups, and the minute black seeds when mixed half and half with wheat flour are used in breadstuffs. Purslane is an excellent source of Vitamin A and C. (Angier, 1974) Season- May-August (Medsger, 1966)

Prunus americana (Yellow Wild Plum)
Several varieties of wild plums including *Prunus americana*, were available in such quantities to be enjoyed by colonists and Indians. The other varieties of plums included the beach plum (*Prunus maritime*), the sloe or Allegheny plum (*Prunus spinosa*), and the Chickasaw plum (*Prunus angustifolia*). As with peaches, European varieties of plums were imported as immigration increased. The most popular European plums transplanted in America were the Greengaga and the Damson. (Leighton, 1976).

Prunus americana was a great favorite of the Indians who consumed them both raw and cooked. The colonists used the wild plum to mellow gin, a process which stretched supplies, as well as for brandy, preserves, pies, baking (Angier, 1974) and dye (Hussey, 1974). Plums also had medicinal qualities being used for choleric agues and constipation (Leighton, 1974). The fruit ripens in August and September.

Prunus cerasus (Sour cherry)
This variety was introduced from Europe but has since grown wild in the eastern United States. The fruit, ripens in July and is used for pies and jellies. Nearly all the cherries cultivated for their edible fruit have been developed from this species.

Cherries were an important fruit both for the Indians and the early settlers. Early narratives on the Pennsylvania area, including those of William Penn, state the importance and availability of cherries although descriptions and specifications are not included.

The cherries in America were disappointing to those settlers accustomed to the English varieties. Wines and preserves were the primary products, and garden cherries from England were imported for eating. The only native cherry to surpass the English variety was *Prunus serotina*, known for its beautiful wood and whose fruit was used, along with sugar and rum, to make a favorite colonial drink known as cherry bounce. (Leighton, 1976).

Prunus dulcis (Almond)
Almonds were imported to the colonies. They were listed as a food import to Virginia by John Norton and Sons, merchants of London and Virginia (Mason, 1968). In the nineteenth century Jordan almonds were imported from Malaga, Spain (Hunt, 1837).

Prunus pensylvanica (Pin cherry)
The only early light-red cherry in the northern states, the pin cherry ripens from July-September. The cherries are small and sour, used only in jellies and syrups; although the fruit is too sour to be eaten raw, birds soon strip the trees. (Medsger, 1966; Angier, 1974).

Prunus persica (Peach)
When the first European settlers arrived in the Pennsylvania area, they were delighted to discover that peaches were growing in abundance. Fletcher (1971) listed wild peaches among those wild plants collected by the Indians in the Delaware Valley. Secor (1975) presumes that these peaches were derived from the trees the Spaniards planted in Florida. William Penn noted peaches as a wild fruit and described them as being "…very good, and in great quantities, not an Indian plantation without them; but whether naturally here at first, I know not, however one may have them by Bushels for little; they make a pleasant Drink and I think not inferior to any Peach you have in England…" (Myers, 1959). Thomas Paschall, in 1683, also described, "…Peaches in abundance of three sorts I have seen rott on the Ground, and the Hogs eate them, they also make good Spirits from them." (Myers, 1959): peach brandy was distilled in substantial amounts and considered a staple. Peaches were also dried as a means of preservation.

Peaches were the most important orchard fruit in the Middle Atlantic colonies even surpassing apples (Bidwell, 1941), the stones often being used as currency. As immigration increased, more European peaches were introduced; 31 varieties were available in 1768 and over 250 by 1850. (Leighton, 1976).

Prunus virginiana (Choke cherry)
Angier (1974) claims that the choke cherry is "possibly the most widely distributed tree on this continent and certainly the most common wild cherry in North America." It prefers rich, moist ground but adapts itself readily to poorer areas. This cherry, too, is sour when raw but is sought for wines and jellies. The fruit ripens in July and August.

Rubus occidentalis (Black raspberry)
This species, also known as the American "black-cap raspberry," is one of two varieties of native American raspberries (the other being *Rubus strigosus*, American red, similar to the European *Rubus idaeus*). Wild American raspberries were considered superior to the imported varieties and even though plentiful in the wild, they were often transplanted to the colonial garden where fruit was borne the same year (Leighton, 1976). Peter Kalm lists *Rubus occidentalis* as the fifth most abundant woodland shrub in the Philadelphia area (Benson, 1937) and therefore it is not surprising that the fruit was extensively collected by Indians and settlers alike. Indeed, it has been called "the most valuable wild fruit on this continent" and is an extremely rich source of Vitamin C (Angier, 1974). In addition to eating the fruit raw, and its use in baking, preserves, etc., raspberries and blackberries were used in winemaking. *Rubus acaulis*, also a member of the raspberry family, has also been recovered. Season- June-September.

Sagitarria platyphylla (Arrowhead)
This native plant, also known as the tule potato, was used by Indians of Pennsylvania (Wapatoo) and settlers alike. A tuber, it can be exactly as a new potato. A member of the water plantain family, it grows under water in ponds and marshes, or along the banks of slow-moving streams throughout the United States. They are in season from spring until autumn. (Medsger, 1966; Angier, 1974).

Sambucus canadensis (Elderberry)
The elderberry is a shrub which bears its fruit from August to October. Each berry has 3-4 seeds. The fruit is used for pies, jellies, and wine. (Medsger, 1966). The wild fruit is among the richest in Vitamin A, calcium, thiamine, niacin, and protein. The plant prefers rich, moist soil. (Angier, 1974).

Kalm described several of the fruits, including elderberries, valuable to Indians and settlers alike claiming that *Sambucus canadensis* was the ninth most populous woodland shrub/tree in Pennsylvania. (Benson, 1937).

Among its other uses, the elderberry had many medicinal ones, in fact, Kalm dubbed it the "whole Iroquois pharmacy." (Secor, 1974).

Solanaceae (Nightshade family) possibly or *Solanum nigrum* or *Solanum americanum*
Solanum nigrum is an annual herb, naturalized from Europe, a weed in waste places, roadsides, disturbed and cultivated fields and seabeaches. *Solanum americanum* is native, to rocky or dry open woods, thickets, shores, and openings, often spreading to cultivated or waste ground. The berries, when ripe (May-November), can be eaten raw, and used in preserves or baking (U.S.D.A., 1971). John Bartram mentions solanum in passing in *Travels in Pensilvania* in 1743.

Vaccinium macrocarpon (Large Cranberry)
This wild cranberry grows in marshes and bogs along the east coast. The large red berries ripen in September and October but will remain fresh throughout the winter. Not eaten raw, the berries are best used in baking, sauce, or for juice. The Indians made extensive use of the berries and they were prized by settlers because they kept so well. (Medsger, 1966). The berry was gathered but not cultivated until the 1800's. (Favretti, 1962). This particular variety has been cultivated with the primary areas of cultivation being Cape Cod and South Jersey.

Vaccinium myrtilloides (Sourtop blueberry)

Gaylussacia baccata (Huckleberry)
Over thirty-five different species of blueberries and huckleberries are native to the United States. The fact that they grow in such profusion delayed their cultivation until recently. Most species grow in open woodlands and clearings, though some are found in swamps. The two genuses are different in that *Vaccinium* contain numerous soft seeds whereas "*Gaylussacia* contains precisely ten stony seedlike nutlets." (Angier, 1974). Indians and settlers alike enjoyed the fruit raw, in cooking and baking. They can also be used in preserves.

Vitis aestivalis and *Vitis vinifera/labrusca*
The two varieties of grapes were identified from the extracted plant remains: *Vitis aestivalis* (summer grape) and *Vitis vinifera/labrusca* (white grape). Both species have been noted in the literature as having been available in colonial times. Indeed, more has been written on grapes as an historic food source than almost any other plant.

Vitis aestivalis is a native species from New England to Florida and ripens from August to October. The seeds are large for the size of the berry and they were primarily used for eating, jellies and pies. (Medsger, 1966).

Vitis vinifera, "white and red, blue, muscadine," has been listed as a garden fruit in New England during the 17th century although primarily it is a Eurasian species. (Favretti, 1962).

Vitis labrusca, a species native to the Eastern United States, ripens from August-November, has a musky odor and taste and is best suited for jellies. (Medsger, 1966).

These varieties are only a few of the more than two dozen species native to the United States. Grapes, in general, "favor moist, fertile ground along stream banks, beaches, fences, stone walls and near the edges of woods." (Angier, 1974).

"Nearly every traveler to America both before and during the early years of settlements noted the abundance of wild grapes." Scuppernongs, white, blue, and pork grapes were noted in 1644 in reference to the Dutch settlement of New Netherland. (Carrier, 1923).

In 1683, in a letter to the Committee of the Free Society of Traders, William Penn listed among the fruits found in the woods of Pennsylvania…"Grapes of divers sorts. The great Red Grape called by Ignorance, the Fox-Grape (because the Relish it hath with unskilful Palates) is in itself an extraordinary Grape, and by Art doubtless may be Cultivated to an excellent Wine, if not so sweet, yet little inferior to the Frontimack, as it is not much unlike in taste, Ruddiness set aside, which in such things, as well as Mankind, differs the case much. There is a white kind of Muskedel, and a little black Grape, like the cluster-Grape of England, not yet so ripe as the other; but they tell me, when Ripe, sweeter, and that they only want skilful Vinerons to make good use of them: I intend to venture on it with my French man this season…" The aforementioned French man was Andrew Doz and was put in charge of Penn's 200 acre vineyard of French vines in the area of Philadelphia now known as Lemon Hill. (Myers, 1959). The average Pennsylvania settler, however, would no doubt, have found the cost of such experimentation prohibitive.

In 1698, in "An Historical and Geographical Account of Pensilvania and of West New-Jersey," Gabriel Thomas expounded upon the excellence of…"Grapes, Red, Black, White, Muscadel, and Fox, which upon frequent Experience have produc'd Choice Wine, being daily Cultivated by skilful Vinerons: they will in a short space of time, have very good Liquor of their own, and some to supply their Neighbours, to their great advantage." Thomas also alluded to future competition between the pure wines of this country and those adulterated varieties produced in Europe. This anticipated competition was not to become a reality, however, until the 19th century. England had hoped that the abundance of native grapes in the colonies would produce an unlimited supply of wine, thereby freeing her of her dependence on other European countries, in particular Spain and France, for a supply of the liquor.

Wine made from native American grapes was produced and shipped to England but the results were unsuccessful. The American wine lacked the fine quality of French wines and served only to increase the negative sentiments against America and her products. (Carrier, 1923). In 1750, Kalm pronounced the wine made of native grapes as "Sour and sharp and has not nearly such an agreeable taste as that which is made from European grapes." (Benson, 1937).

Even though initial attempts at wine production failed, continual efforts were made during the 18th century to transplant European varieties of wine grapes. The most popular variety was *Vitis vinifera*, a European wine grape, but *vinifera* grapes struggled with weather, soil, and plant pests, particularly phylloxera, and never became the great American producer, it was meant to be.

The failure of *vinifera* grapes in America is noteworthy. It forced winemakers to use native grapes and experiment with hybrids. Grapes of the *Vitis labrusca* variety were used throughout colonial times in the Mid-Atlantic region for domestic consumption. It also increased the volume of wine imports as well as the importation of Scotch and Irish whiskey, West Indian rum, French cognac, and Spanish brandy.

The true beginnings of the commercial grape wine culture in America started around 1820 when a hybrid of *Vitis vinifera* and *Vitis labrusca* resulted in the Catawba wine grape and in the 1820's a *labrusca* variety, the Concord, produced not only excellent wine but also juice and preserves. (McGinty, 1980).

The 19th century also saw the importation of grapes from Malaga, Spain, Portugal, France, and Italy (Hunt, 1837) as well as from California in 1869 via transcontinental railroad (Johnson, 1961).

Grapes are a source of Vitamin A, C, and the B complexes, calcium, phosphorus, iron, sodium and potassium. (Angier, 1974).

Edible/Medicinal species:

Chenopodium ambrosioides (Wormseed, Goosefoot)
This variety of *Chenopodium* was so named because of its medicinal qualities as remedy for worms in children. (Miller, 1976).

Other varieties of *Chenopodium* were especially valuable to the Indians. Seeds of *Chenopodium leptophyllum* and *Chenopodium Fremontii* were gathered, ground and used for cakes, gruel, flour. The greens of *Chenopodium* were used raw or cooked as spinach. The plant was originally introduced from Asia and Europe, it is now spread throughout the United States and found primarily in disturbed areas, along roadsides, etc. (Medsger, 1966; Angier, 1974).

Cruciferae (Mustard/Cress family)

At least 45 members of this family are found in the northeastern United States. (Montgomery, 1978). Some particular species utilized by the early settlers were:

Lepidium sativum (Garden cress) – salad
Tropaeolum majur and *Tropaeolum minus* (Nasturtiums)- grown in the 17th century as a salad, in the 18th century for ornamentation. (Leighton, 1976).
Brasica nigra and *Brassica alba* (Black and white mustard) used as condiment or medicinally. See section on *Brassica nigra.*
Capsella bursa-pastorius (Sheep's purse) used medicinally or as a styptic. (Hussey, 1974).
Dentaria laciniata (Pepper root) – food (Hussey, 1974).
Barbarea vulgaris (Wintercress or Yellow Rocket) – See section on *Barbarea vulgaris.*

Hedeoma pulegioides (American pennyroyal)
Kalm was advised to drink it as tea for a cold and to rub it on limbs for pain. (Leighton, 1976). Hussey (1974) described it simply as having medicinal value.

Potentilla sp. (Cinquefoil)
Cinquefoil prefers damp soil along waterways. The roots were used by Indians and settlers as food and resembled parsnips. A medicinal tea is also made from the leaves. (Angier, 1974). *Cinquefoil* is apparently native and Carrier (1923) notes its use as forage.

Trifolium sp. (Clover)
Originally imported from England, clover now can be found in all temperate parts of North America; different varieties flourish in areas from wetlands to drier areas.

Preferred as a forage, the various species of clover are edible as well as having medicinal properties. Clover can be eaten raw or cooked, used as a tea or as a bread-stuff. Medicinally it was used to treat ulcers, corns, and burns (Angier, 1974; Miller, 1976).

See *Gramineae* in this section for a description of the importation of a variety of clovers as a source of forage.

Medicinal species:

Actea alba (White Baneberry)
Also known as white cohosh, snakeroot, and necklaceweed, the plant was known by the scientific name *Christophoriana* in colonial times. It was used primarily for medicinal purposes being thought a remedy for itching, rheumatism, flatulence, and nervous irritability. (Miller, 1976; Leighton, 1976).

Gabriel Thomas noted the presence of black snake root in Pennsylvania…"There grows also in great plenty the Black Snake Root, (fam'd for its sometimes preserving, but often curing the Plague, being infused only in Wine, Brandy, or Rumm)…" (Myers, 1959).

Euonymus atropurpureus (Wahoo)
Also known as Indian arrowroot, burning bush, or spindle tree, Wahoo was primarily used for medicinal purposes as a remedy for fever, dyspepsia, torpid liver, constipation, dropsy and pulmonary effections. (Miller, 1976; Leighton, 1976).

Stachy olympica (Lamb's ears)
Stachy olympica belongs to the mint family, *Labiatae,* members of which are used medicinally, as herbs and teas. *Stachy olympica* is found in the northeastern United States (Montgomery, 1978).

Acalypha rhomboidea (Three-seeded mercury/Spurge)
A member of family *Euphorbiaceae*. See section on *Euphorbia* (Spurge).

Acer sp. (Maple)
American maple trees were in demand by both Indians and early settlers for their wood and sap. Humphry Marshall listed the six varieties available in the 18th century:

(1) *Acer pensylvianicum* (Pennsylvania dwarf, mountain Maple) now *Acer spicatum.*
(2) *Acer glaucum* (Silver maple) now *Acer saccharinum.*
(3) *Acer negundo* (Ash leaf maple or Box elder).
(4) *Acer canadense* (American striped maple) now *Acer pennsylvanicum.*
(5) *Acer rubrum* (Red maple) – used for black or purple dyes, syrup, and carved vessels.
(6) *Acer saccharum* (Sugar maple) – also used for black and purple dyes, syrup, and carved vessels. (Leighton, 1976; Hussey, 1974; Montgomery, 1978). Kalm listed *Acer rubrum* as the sixth most populous species of tree, and *Acer negundo* as number twenty-seven. (Benson, 1937).

Cornus racemosa (Gray or Panicled Dogwood)
Dogwood species have been cultivated in the eastern United States at least since the 17th century. However, few references have been made to *Cornus racemosa*. In 1785, Humphry Marshall, called it "Swamp American Dogwood." Favretti (1962) lists it as a common tree of the first half of the 19th century. It is inedible.

Cyperaceae: *Carex sp*. (Sedge)
A perennial weed, sedge is native to the United States and found in marshes, swamps, rich meadows and shores. The common species in the Pennsylvania area include: *Carex lasiocarpa, Carex latifolia,* and *Carex esculentus*.

Season- May to September (U.S.D.A., 1971).

Datura stramonium (Jimsonweed)
An annual herb/weed which flourishes in cultivated fields, on rich soils, and waste places. The plant is often used as a narcotic and is poisonous. It was originally introduced from Eurasia and Africa (U.S.D.A., 1975). The species, known as the thornapple or Jamestown weed, was a common New England garden plant in the 17th century. (Favretti, 1962). "Jefferson said the French invented a preparation of this 'most elegant among poison plants,' which 'every man of firmness' carried in his pocket in the time of Robespierre 'to anticipate the guillotine.' He refused on account of his grandchildren, to grow it in his garden, but he listed it among Virginia's medicinal plants." (Leighton, 1976).

Euphorbia sp. (Spurge)
At least 10 species of spurge are found in the eastern United States, many of which are native. They are herbs, primarily annuals, which thrive in dry, sandy soils in fields, waste areas, and roadsides. Member of family *Euphorbiaceae*. (U.S.D.A., 1971).

Gramineae (Grass family)
Although Pennsylvania now has over 175 species of grasses, when the settlers first arrived, many could not and did not exist. The area was over 97% forested (Secor, 1975) and deficient in grasses. The Indians had not domesticated any herbivorous animals and therefore had not developed any forage plants. In "natural pastures and those cleared by burnings…two chief types of forage plants existed; the wild rye (*Elymus sp*.), and broom straw (*Andropogon sp*.)." (Bidwell, 1941). The latter was the dominant species in the Middle Colonies.

Livestock raising was established soon after settlement, and the lack of forage was a principal problem for the settlers. The two indigenous species proved acceptable as summer forage but "the proportion of roughage to nutriment was so large that the hay was insufficient for winter." (Bidwell, 1941). Thomas Budd, describing the Delaware River region in 1685 in *Good Order Established in Pennsylvania and New Jersey*, said, "In the *Woods* groweth plentifully a coarse sort of *Grass*, which is so proving that it soon makes the Cattel and Horses fat in the Summer, but the *Hay* being course, which is chiefly gotten on the fresh Marshes, the Cattel loseth their flesh in the Winter, and become very poor, except we give them Corn…" (Bidwell, 1941).

As long as this condition persisted livestock were in danger of starvation and in times of drought whole herds were destroyed. To alleviate this problem, hay and pasture plants were imported from England, primarily timothy, Kentucky blue grass, red and white clover, and rye grass. The introduction of other species was most likely accidental by being mixed with shipboard forage. Timothy was the first grass to be cultivated and was very popular in Pennsylvania as was rye grass (*Arrhenatherum elatius* or *Lolium perenne*) (Carver, 1923). Clover "great and small" was also valuable and imported by William Penn and others as early as 1685; red clover or claver grass, a recent introduction to England, was also imported. These practices continued through the 18th century and 1780 has been given as the date of the "first improvement of upland fields by clover in the Philadelphia area." (Bidwell, 1941).

Linum usitatissimum (Flax)
The several species of flax available to the early settlers including *Linum usitatissimum*, were valuable sources of fiber, oil, dye and medicine. Flaxseed, or linseed, was ground, combined with elm bark and made into a poultice. The oil extracted from linseed is still used in many ways including ink, paint, etc. The flowers of the plant were used in making yellow dye. (Miller, 1976). The fibers of the plant were spun and woven into linen.

Linum usitatissimum was a common American garden species in the 17th and 18th centuries (Favretti, 1962) and the plant is often mentioned as being very important to the colonists (Carrier, 1923; Secor, 1974).

"Flax had been a common crop on the farms in England in the sixteenth century, being a subject of legislative encouragement, and was cultivated among the first crops in New England as well as in New York and Pennsylvania…The amount raised in any particular settlement depended a great deal upon the ability of the population to prepare the fiber and spin and weave it. There seems to have been no particular difficulty in the strictly agricultural operations with flax, but getting it through the processes of household manufacture involved many difficult and disagreeable tasks. For the first few years of the new settlement the people wore the clothes they had brought with them, or else traded for European goods. Only after the fur trade had failed and they had settled down to self-sufficient agriculture did the cultivation of flax begin in earnest…The Germans who settled at Germantown, Pennsylvania, were expert linen weavers and grew much flax. In the Swedish settlements on the Delaware flax was raised for the household manufacture of linen, and also in East New Jersey." (Bidwell, 1941).

Burnaby, while traveling through Pennsylvania in 1759-1760, commented on the export trade of the colony with Great Britain, the West Indies, other parts of North America and various parts of Europe and Africa and listed flax and flaxseed among the principal exports. (Burnaby, 1775). In 1749, Kalm reported that 10 ships carrying linseed alone were sent to Ireland. At that time flaxseed was worth 8 shillings a bushel or twice that of wheat. The annual export of flaxseed from Pennsylvania after the French and Indian War (post-1763) average "15,000 hhds. at 405 a value of £30,000." (Carrier, 1923).

Malva neglecta (Common mallow)
An annual or biennial herb (weed), the mallow was naturalized from Europe and is now spread throughout the United States. It is commonly found in cultivated fields, waste places, roadsides and lawns. Season- April to October (U.S.D.A., 1971).

Foa annua (Annual bluegrass)
Bluegrass was originally introduced from Europe, now widespread throughout the country. It is found in open grounds, lawns, pastures, waste places, and openings in woods, and flourishes in the spring. (Hitchcock, 1971).

Potamogeton sp., P. pusillus, P. spirillus (Small pondweed, Pondweed)
Potamogeton is a large genus composed of over 100 species of aquatic plants, nearly 40 of which are native to North America. These weed plants are found on the bottom of ponds, lake margins and in shallow streams. These aquatic perennials are inedible. (Martin and Barkley, 1961).

Sisyrinchium atlanticum (Blue-eyed grass)
Native to this area, *Sisyrinchium atlanticum* is found extensively today in the Pine Barrens of New Jersey. Some members of this genus are used medicinally as a remedy for constipation. (Leighton, 1976).

Sorbus sp. (Ash)
Three species were available to the settlers of America:

Sorbus americana (American mountain ash or dogberry also known as American service of Roane Tree)- Available in the 18th century and popular as garden tree in the 19th century. (Leighton, 1976; Favretti, 1962).

Sorbus aucuparia (European mountain ash or rowan tree also known as European service tree)- also available in the 18th century and popular as garden tree in the 19th century. (Leighton, 1976; Favretti, 1962).

Sorbus domestica or *torminalis* (Service tree or sorbus)- Listed by Favretti (1962) as a popular garden tree in the 17th century.

Species: Description unavailable considered inedible

Lechea villosa (Fern or pinweed)
A member of the *Cistaceae* family, native to northeastern United States (Montgomery, 1978).

Lycium halimifolium (Matrimony-vine)
A member of the nightshade family, *Solanaceae*. See section on *Solanaceae*.

Pilea pumila(Clearweed)
A member of *Urticaceae* family, found in northeastern United States. (Montgomery, 1978).

Solanum rostratum
Utricularia intermedia

POTENTIAL HISTORICAL FOOD SOURCES

Leighton (1976) described the following fruits and buts as those cultivated in Colonial America:

Apples- Rhode Island Greening, Newton Pippin, Aesopus Spitzenburg, Pearmain, Vandeviers, Codlins, Red Streaks, Golden Pippins, etc.
Apricots- popular in 18th century, grew best in south
Cherries- see section on recovered species
Currants- American black currant in Pennsylvania
Figs- imported in 1700's
Gooseberries (*Ribes sp*.)- Native to United States, introduced to settlers by Indians, used for pies, tarts, sauces, preserves, wine (Angier, 1974).
Grapes- see section on recovered species
Mulberries- see section on recovered species
Nectarines- native to North India; introduced 18th century
Nuts- American varieties included chestnut, hickories, walnuts, butternuts.
Peaches- see section on recovered species
Pears- at least 36 varieties were carefully cultivated including Bartlett (Bon Chretien), Bergamot, Warden, Sugar Pear, Seckel
Plums- see section on recovered species
Pomegranates- sent repeatedly to colonies for cultivation. Popular as an exotic in Philadelphia.

Quince (*Cydonia oblonga*)- popular in colonies from 17th century. Eaten raw or made into relish or liquor. Garden tree.
Raspberries- see section on recovered species
Strawberries- see section on recovered species

The following vegetables were described by Leighton (1976) as being cultivated in Colonial America:

Artichokes- *Cynara spinosa* or Chardon and *Helianthus sp*. or Jerusalem artichoke which was eaten as a root.
Asparagus
Beans- *Faba sp*. or Windsor; *Phaseolus sp*. or kidney, also snap, bushel or sugar beans
Cabbage- *Brassica sp.* – Savoy, Battersea, White, Cabbage family also includes Broccoli and Cauliflower
Carrots- *Daucus sp*.- orange and white
Celery- *Apium sp*.
Celeriac- *Apium dulce degener*, *Apium radice rapacea* or turnip
Celadine- *Majus chelidonium*- medicinal
Chamomile- *Chamomelum sp*. or *Anthemis sp*.- medicinal
Clary- *Sclarea sp*.
Comfrey- *Symphytum sp*.- medicinal
Cresses, Water- *Sisymbrium nasturtium*
Cress, Indian- *Nasturtium inducum nasis tormentum*- like radish, Peruvian
Cucumber- *Cucumis sp*. primarily *Cucumis sativus vulgaris* (common cucumber)
Elecampane- *Helenium sp*.- medicinal
Endive- *Endiva cichorium*- succory
Eschalot
Featherfew- *Matricaria sp*. or *Parthenium sp*.- medicinal
Fennel- *Foenieulum sp*.
Garlick- *Allium sp*.
Ground Ivy- *Hedera Terrestris* or *Glechoma*- medicinal
Horseradish- *Cochlearia sp*.
Honeysuckle- *Caprifolium sp*.
Lavender- *Lavendule a lavendo*
Lettuces- *Lactuca sp*.- common garden, Imperial, Dutch Brown
Marjoram- *Origanum sp*.- herb
Marshmallow- *Althaea sp*.- medicinal
Melon- Canteloupe, Zatta, Diabekr
Mint- *Mentha sp*.
Millet- White, yellow, Guinea corn- used in puddings
Mugwort- *Artemisia sp*.- medicinal for gout
Mullein- *Verbascum sp*.
Onion- *Cepa sp*. red Spanish onion, white Spanish onion, Scallion
Parsley- *Apium hortense*
Parsnips- *Pastinaca sativa*
Peas- *Pisum sativum*- Charlton Hotspur, Reading Hotspur, Master Hotspur, marrowfat
Pepper- *Capsicum sp*.
Potatoes- *Solanum sp*.
Radish- *Raphanus sativus*- Scarlet, London short topped
Rosemary- *Rosemarinus sp*.
Rue- *Ruta sp*.- medicinal

Sage- *Salvia, salus vitae*- tea
Salsify- *Tragopogon sp*.- roots and stalks eaten
Spinach- *Spinacia sp*.
Tansy- *Tanacetum sp*.
Thyme- *Thymus sp*.
Turnip- *Rapa sp*.- white and purple

The vegetables grown by Thomas Jefferson show the full extent of the 18th century vegetable garden, at least for the wealthy if not for the common man. In addition to those listed above, Leighton (1976) described Jefferson as growing the following vegetables:

Angelica, balm, basil, over 40 varieties of beans, beets, caper, capsicum, chickpeas, chickory, chives, cole, colewort, collards, corn (15 varieties), corn salad, cymling (*Cucurbita verrucosa*), eggplant, gherkin, gourd, hyssop, kale, leeks, lentils, maize, mangel-wurzel (scarcity root), mustard, nasturtium, okra, orach, oyster plant, peendars (peanuts), peppergrass (Lepidium sativum), pimpernel, potato pumpkin, pumpkin, pumpion (early name for pumpkin), white pumpkin, rape, rhubarb, savory, sea kale, sorrel, succory, tarragon, tomatoes (after 1800).

Bernard M'Mahon, perhaps the greatest nurseryman in America at the turn of the 19th century, listed "Aromatic, Pot and Sweet Herbs" and "Seeds of Medicinal Plants" available at that time. The spelling and capitalization are M'Mahon's.

"Aromatic, Pot and Sweet Herbs"

Anise	*Pimpinella Anisum*
Sweet Basil	*Ocynum Basilicum*
Bus Basil	*Ocynum minimum*
Caraway	*Carum Carui*
Clary	*Salvia Sclarea*
Coriander	*Coriandrum satrrim*
Chamomile	*Anthemis nobilis*
Dill	*Anethum graveolens*
Common Fennel	*Anethum Foeniculum*
Sweet Fennel	*A. V. dulce*
Hyssop	*Hyssopus officinalis*
Lavender	*Lavendula Spica*
Pot marigold	*Calendula Officinalis*
Sweet Marjoram	*Origanum Majorana*
Pot Marjoram	*Origanum Onites*
Winter Sweet Marjoram	*Origanum Heracleoticum*
Spearmint	*Mentha viridis*
Peppermint	*Mentha piperita*
Pennyroyal Mint	*Mentha pulegium*
Rosemary	*Rosmarinum officinalis*
Common Sage	*Salvia officinalis*
Summer Savoy	*Satureia hortensis*
Winter Savoy	*Satureia montana*
Smallage	*Apium graveolens*
Tarragon	*Artemisia Dracunculus*
Common Thyme	*Thymus vulgaris*
Lemon-Scented Thyme	*Thymus Serpyllum*

"Seeds of Medicinal Plants"

Garden Angelica	*Angelica Archangelica*
Large Balsam Apple	*Monardica Charantia*
Small Balsam Apple	*Monardica Balsamina*
Bugloss	*Anchusa officinalis*
Carduus Benedictus	*Centaurca Benedicta*
Celadine	*Chelidonium majur*
Comfrey	*Symphytum officinale*
Bitter Cucumber	*Cucumis Colicinthus*
Elecampane	*Inula Helenium*
Fenugreek	*Trigonella Faenum-Graecum*
Feverfew	*Matricaria Parthenium*
Foxglove	*Digitalis purpurea*
Gramwell	*Lithospermum officinale*
Ground Ivy	*Glecoma Lederacea*
Hemlock	*Comium maculatum*
Horehound	*Marrubium vulgare*
Hound's-Tongue	*Cynoglossum officinale*
Indian Physic	*Spirea trifoliata*
Blue Lobelia	*Lobelia siphilitica*
Liquorice (roots)	*Glycyirhiza glabra*
Lovage	*Ligusticum Levisticum*
Dyer's Madder	*Rubia tinctorum*
Marsh Mallow	*Althaea officinalis*
Sweet Milfoil	*Achillea Argeratum*
Horse Mint	*Monarda punctata*
Mugwort	*Artemisia vulgaris*
Nep or Cat-mint	*Nepeta Cataria*
Palma Christi	*Ricinum communis*
Red Check-weed	*Anagallis arvensis*
Carolina Pink-root	*Spigelia marilandica*
Poppy	*Papaver somnifera*
Rattlesnake-root	*Polygala Senega*
Garden Rue	*Ruta graveolins*
True Turkey Rhubarb	*Rheum palmatum*
Common English do	*Rheum Rhaponicum*
Monk's Rhubarb	*Rumex alpinus*
Officinal Scurry-grass	*Cochlearia officinalis*
Virginian Snake-root	*Aristolochia Serpentaria*
Southernwood	*Artemisia Abrotanum*
Virginian Speedwell	*Veronica virginica*
Tansey	*Tanacetum vulgare*
Thoroughwort	*Eupatorium perfoliatum*
Virginian Tobacco	*Nicotiana Tabacum*
English Tobacco	*Nicotiana rustica*
Holy Thistle	*Carduus marianum*
Winter Cherry	*Physalia Aikekengr*
Wormword	*Artemisia Absinthum*
Worm-seed	*Chenopodium anthelminiscuta*

(Leighton, 1976).

Pennsylvania Agriculture

Grain:

Wheat was the most important crop in Pennsylvania. Although corn led wheat production in the other colonies, the reserve was true in Pennsylvania. The climate and soil of the colony were extremely favorable for wheat and it made Pennsylvania rich. Wheat was the main cash crop and in constant demand for exportation. At first spring and summer what were grown, but winter wheat soon proved superior. This was the state of affairs until after the Revolution when corn became the dominant crop as wheat moved further west into the newly opened lands of Ohio (Fletcher, 1971).

Corn, although unknown in Europe, was quickly adopted by the early settlers, who learned its cultivation and uses from the Indians. The Indians had sweet corn, pop corn, and two kinds of field corn, flint and dent. Corn was used both as a food and as livestock feed by settlers. In western Pennsylvania it was distilled and transported to market as liquor (Fletcher, 1971).

Rye was grown by almost every farmer in the colony and was used for flour, thatch, and making baskets. Here, again, the western section of Pennsylvania distilled the grain and sold it as whiskey (Fletcher, 1971).

Barley was first grown by German settlers for the production of beer although it too could be used for bread flour. Oats were grown as livestock feed and used only for food by the Scotch-Irish. Buckwheat was grown on the poorest land and valued as a poultry feed and as flour for "pancakes." (Fletcher, 1971).

Root crops:

Potatoes, although Penn encouraged their planting, were not cultivated on a large scale until about 1790. Many considered the potato poisonous, and it was not until after the Revolution when new varieties were introduced that public demand for it grew (Fletcher, 1971).

Turnips, carrots, mangel-wurtzels and rutabagas were considered livestock feed although not widely grown by the average farmer (Fletcher, 1971).

Peas and Beans:

Both peas and beans were essential field crops in the early colonies. However, pea production was abandoned by 1749 due to destruction by the weevil. Beans were grown primarily for home use (Fletcher, 1971).

Horticulture:

"Horticulture was a comparatively minor aspect of colonial agriculture. Fruits, vegetables, flowers, and ornamental trees and shrubs, while eminently desirable, were not essential to the pioneer family as bread and meat, since a considerable supply of fruit could be secured from the wild. Horticulture is the last of the specialized phases of agriculture to be developed commercially in a new country; it is a refinement that is dependent on a high degree of civilization." (Fletcher, 1971).

The wild fruits of the land- strawberries, raspberries, blackberries, gooseberries, mulberries, dewberries, cranberries, huckleberries, plums and grapes- were extensively gathered. Peaches also grew wild although not native to the area. The wild varieties of apples and cherries were not very agreeable to the settlers and more satisfactory varieties were introduced as were varieties of pear, apricot, and quince.

Orchards were essential to every farm and consisted primarily of apples (Newton or Newtown Pippin, Spitzenberg, Vandeveers, Golden Russetting and Golden Pippen) although cherries (Black Heart), peaches (Cling Stone and Clear Stone), and pears were common. Apples were used fresh, dried or stored for winter, made into cider, or used as livestock feed along with peaches.

"Tree fruits were grown primarily to drink, frequently to feed hogs, and only incidentally to eat." Colonials avoided drinking water for sanitary reasons as well as Old World customs.

The upper classes consumed imported wine, whereas the middle classes drank cider, perry (pear cider), peach brandy, peach vinegar, and various homemade fermented fruit juices. The lower classes drank rum and apple jack. Cider was the most popular drink until after 1830. The arrival of the Scotch-Irish in 1720 brought with it the preference for whiskey, although it was more than a century before it overtook cider in popularity.

The beginnings of commercial fruit growing in Pennsylvania started about 1750 when Christian Leman established a small nursery in Germantown. The "first large commercial nursery in America" was started about the same time on Long Island. The first seed house in America was opened by David Landreth and Son near what is now 12th and Market Streets, Philadelphia. The seed house had an extensive collection of fruit trees.

By 1800, six seed houses existed in Philadelphia:

David & Cuthbert Landreth, 12th & Market
John Patterson, Race St. between 12th & 13th
John Sprowl, Plumb near 5th St.
Philip Surns, 334 North 2nd St.
Noel Townsend, 173 North St.
Zorns, also 334 2nd St. (Way & Groff: 1799)

The William Coxe nursery in Burlington, New Jersey was established in 1806, and "most of the grafted fruit trees in Pennsylvania between 1750 and 1820 came from the Prince, Landreth and Coxe nurseries." (Fletcher, 1971).

"Philadelphia was a center of amateur interest in fruit growing" and "Benjamin Franklin, John Bartram, William Coxe, Richard Peters, W.D. Brincle, William Hamilton, and Humphrey Marshall" were among the principle advocates.

Vegetables:

Vegetables were grown in limited quantity and variety and strictly for home use until after 1800. In 1685 the following vegetables were available: Kidney beans, English Peas, turnips, carrots, onions, leeks, radishes, cabbages, pumpkins, muskmelons, watermelons, squashes, cucumbers, "sinnels," "coshaws," buck-hen, "colworts," cauliflower, asparagus, parsnips, potatoes. (Fletcher, 1971).

A few years later colonial gardeners could plant sweet corn, tomatoes (after 1820), celery, beets, lettuce, eggplants, spinach, peppers and sweet potatoes. A great deal of these vegetables were the responsibility of the German settlers of Pennsylvania who brought many seeds with them and greatly improved the quality and variety of vegetables. However, it must be stated that it was not until after 1780 that most gardens had such variety; until then, turnips, onions, and cabbages were the principal vegetables in all gardens, including the Germans.

Marketing:

Although most farm produce was consumed on the farms, increasing surpluses were brought to the city in attempts to sell or barter for other necessary goods. Wheat was always sold for export. Only farmers within one hundred miles of the market found it advantageous to transport their goods, either over poor roads by wagon or by river rafts.

From the first, marketing was strictly regulated. The first market in Philadelphia was a shed opened in 1693 on High Street (now Market) between First (Front) and Second Streets. Market days were Wednesday and Saturday.

A permanent market house was built in 1710, and a larger market house was erected in 1720. Both these houses were on the same site as the original market house. In 1773 the market was rebuilt and enlarged. Johann David Schoepf gave an account of the market in 1783: "Astonishment is excited not only by the extraordinary store of provisions, but also by the cleanliness and good order in which the stock is exposed for sale. The market-house proper consists of two open halls which extend from First to Third Streets, and additional space on both sides. Market Street and adjoining streets swarm with buyers and sellers. On the evenings before the chief market days (they are Wednesdays and Saturdays) all the bells in the city are rung. People from a distance, especially the Germans, come into Philadelphia in great covered wagons loaded with all manner of provender, bringing with them rations for themselves and feed for their horses for they sleep in their wagons." (Fletcher, 1971). It must be noted that the principal marketplace in Philadelphia was located no more than one and one-half blocks from the Area F site area.

All types of household goods, produce, diary products, food and livestock were available on market days. Kalm in describing the Philadelphia marketplace in 1750 remarked, "Provisions are always to be got fresh here, and for that reason most of the inhabitants never buy more at a time than what will be sufficient till the next market day…You are sure to find on market days every produce of the season which the country affords. But on other days they are sought for in vain…In the summer there is a market almost every day, for the victuals do not keeps well in the great heat…" (Benson, 1937).

Legally, corn, wheat, rye, barley, oats, tobacco, hemp, flax, pork and beef were accepted as currency at the current market price and were considered as money except in those cases when the terms of a contract specified payment in coin. However, storekeepers and merchants were often more lenient and accepted whiskey, mault, candlewick, tallow, beeswax, ginsing, snakeroot, fur pelts, and linen as well as those products listed above as payment for store goods.

Storekeepers by the latter part of the 18th century carried a wide assortment of goods including the following: "boards, shingles, timber, wheat, rye, buckwheat, flaxseed, clover seed, timothy seed, wool, beeswax, feathers, chestnuts, hickory nuts, hides, elderberries, furs, eggs, butter, cheese, tow cloth, linen, etc. This list might be extended very considerably." Indeed, many goods were

imported from Europe (glassware, hardware, crockery, dress material, iron, thread, powder, shot) and the West Indies (salt, molasses, sugar, tea, spices, indigo, run, chocolate, etc). (Fletcher, 1971).

Fresh fruit was not sold in stores until the late 1790's. Dried fruit was not plentiful either. Few casks of dried prune, raisins and currants were imported and then rarely traveled further than the seaport cities. Even dried apples and peaches which were produced locally brought good prices. (Johnson, 1961).

Fruits which are now commonplace were exotic and usually only available to the wealthy. Lemons and oranges imported from Sicily were first available commercially in 1832. Pineapples, coconuts, and bananas were available slightly earlier from the West Indies, Cuba, and Central America although in limited quantities. (Johnson, 1961).

By the mid-19th century even items once considered exotic in seaport cities were commonplace in Eastern inland towns. Johnson (1961) listed the following items as examples: chocolate, lemons, figs, oranges, raisins, ginger, cloves, cassia, cinnamon, spice, red pepper, black pepper, nutmegs, codfish, mackerel, tea, coffee, salaratus (baking soda), sugar, sugar loaf, and salt as well as various liquors and herbs as medicine.

The availability of goods did not necessarily mean affordability or acceptability by the common people. In 1816 the following prices were charged for store merchandise: brandy $3.00/gal., rum $.28/pint, whiskey $.31/quart, tea $1.50/lb., tobacco $.37½/lb., butter $.12½/lb., eggs $.06/dozen. (Johnson, 1961). The high price of tea precluded its use by the average family as few were willing to barter their products for such a luxury. Only after the Revolution did tea and coffee become popular beverages in America.

Salt and sugar were two items in constant demand primarily due to their role as preservants, although honey and/or maple syrup were sometimes substituted for the latter. Salt was used in preserving meats, fish, butter and vegetables. Fruits which were not fried were preserved by cooking them in an excess of sugar or honey. Other methods of food preservation included being placed in root cellars, buried in sand, or wrapped in paper.

Trade:

Of all the early settlements in North America, Philadelphia had the easiest time of all in securing food supplies from outside sources. By the time Penn's colonists arrived, the Swedes already had a thriving agricultural settlement and provided the new arrivals with corn and beef. Other provisions were imported from established settlements in New York and New England. Less than a year after founding the colony, Penn wrote, "the greatest hardship we have suffered, hath been Salt-Meat, which by Fowl in Winter, and Fish in Summer, together with some Poultry, Lamb, Mutton, Veal, and plenty of Venison the best part of the year, hath been made very passable." (Bidwell, 1941).

Very soon thereafter, however, the colony began producing agricultural surpluses. The lack of an industrial population in America meant that practically no home market existed for these surpluses. The only exception to this was a small market in the main cities composed of fishermen and tradesmen. The rest of the population were farmers, either in full or part-time capacity as was the case for tavernkeepers, doctors, or shopowners. The products produced in surplus were essentially the same as those produced in England and Northern Europe, thereby denying, except in cases of crop failure, a European market.

British laws of 1661 and 1663 prohibited the export of any American products except to British territories and no goods were to be imported to British colonies except those laden in England, on English-built ships with an English master and a crew at least three fourths of which were English. Therefore, to find a market for their products, Pennsylvanians had to defy British laws and try to develop trade with other countries particularly the West Indies. To the colonists the term "West Indies" applied not only to the Dutch, French, and Portuguese West Indies but to the whole area of Central and South America including Cuba. By 1690 Pennsylvania was exporting its main cash crop, wheat, to the West Indies whose land was consumed by a specialized crop-sugar. Sugar production was so profitable land and labor could not be spared to cultivate food crops (Bidwell, 1941). The West Indies quickly became Pennsylvania's principal outlet for her goods and Philadelphia a major port of West Indian Triangular trade. Pennsylvania exported apples (pippins), Indian corn, corn meal, peas, beans, biscuit, bread, flour, wheat, butter, cheese, beef, pork, poultry, sheep, hogs, horses, planks and timber. In return the West Indies exported rum, sugar, molasses, salt, Jamaican pepper, allspice, ginger, chocolate, coffee, wine, beer, pimento, sage, tamarinds, lemons, oranges, pineapples, melons, coconuts, cotton, indigo, silver and negroes for slaves.

During the colonial period, from two to five times as many ships sailed between Philadelphia and Great Britain. The following figures show just how heavy ship traffic was in Philadelphia:

YEAR	INBOUND	OUTBOUND
1733	190	185
1734	210	191
1735	199	212
1740	307	208
1744	229	271
1745	280	301
1746	273	293
1768	528	641
1769	698	678
1770	750	769
1771	719	741
1772	730	759

(U.S.D.C., 1975; Benson, 1937).

Although Pennsylvania's trade with the West Indies exceeded that with Britain, Britain continued to be the principal supplier of household goods, clothing, hardware, tools, favorite garden seeds, and toys. The import value of these goods exceeded Pennsylvania's export goods to England by almost ten times. To diminish this deficit, the colony was forced to sell her agricultural surpluses to other countries for cash which she subsequently remitted to England.

An example of the value of these agricultural exports was given by Carrier (1923) for the year 1763:

Biscuit flour, 350,000 barrels at 20 s	£350,000
Wheat, 1,000,000 qrs. at 20 s	100,000
Beans, peas, oats, Indian corn, other grain	12,000
Salt beef, pork, hams, bacon & venison	45,000
Beeswax 20,000 lb. at 1 s	1,000
Tongues, butter & cheese	10,000

Deer & sundry other sorts of skins	50,000
Livestock & horses	20,000
Flax seed 15,000 hhds. at 40 s	30,000
Total	£618,000

As noted above, Pennsylvania's grain and flour were not the colony's only exports. Besides those already mentioned for the West Indies, Pennsylvania exported hemp, flax, iron, furs, deerskins, beeswax, pipe staves, fish, rye, oats, barley, buckwheat, peas and potash. These products were traded worldwide to places such as Ireland, Portugal, Spain, Holland, France, Italy, Turkey, Africa, Asia, South Sea Islands, East Indies, China, as well as every part of North America. In return they received:

Grapes	Malaga, Spain, Portugal, France, Italy
Almonds	Malaga, Spain
Figs	Turkey
Lemons	Lisbon, Malaga, Bermuda
Oranges	Seville, Malta, West Indies
Citrons	Madeira
Olives	France, Italy, Portugal, Spain
Dates	Barbary, Africa, Arabia
Pepper	East Indies
Nutmegs	East Indies
Cinnamon	China
Cloves	Dutch trade

(Hunt, 1837).

These items, as well as tea, brandies, wine, coffee, gunpowder, cheese, sailcloth, silk and cordage had to be smuggled into port due to the British shipping regulations.

The food and seed imports legally shipped to the colonies by way of England were listed by Mason (1968).

Almonds, allspice, anchovies, barley, beans, brandy, broccoli, cabbage, cardamon, carraway, cauliflower, cheese, chocolate, citron, clover, cloves, coffee, corn salad, cream of tartar, cress seed, cucumber, currants, endive seed, juniper berries (Medicinal), lemons, lettuce seed, macaroni, mace, melon seed, mustard, nutmeg, oats, oatmeal, olives, onion seed, parsnip seeds, peaches, peas, pepper, pickles, prunes, raisins, radishes, rape seed, rhubarb, rice, saffron, salt, spinach, sugar, tea, tobacco, and turnips.

INTERPRETATIONS

Feature Interpretations

114 South Front Street, Room A, Feature 1

This feature was described by Crozier (1977b) as a delimited concentration of mortar and stone, with remains of wooden beams, probably a coal bin although analysis was not complete at that time. Further investigations revealed that this feature was a mortar bed with wooden sleepers functioning as an embedment for an 1856 yellow pine floor. Seed analysis revealed no floral remains.

114 South Front Street, Room B, Feature 1

This feature was a circular, brick-lined structure, described as probably being a water well dating from the 18th and utilized into the 19th century. No floral remains were recovered from this feature and therefore the identity of the feature should indeed be considered a well.

114 South Front Street, Room C, Feature 2/2A

These features, circular brick –lined structures, 2a found within and near the bottom of Feature 2, were privies of double-shaft construction. The basal level (2a , Bag 74) yielded no floral remains. Level 2 (2a, Bag 73) revealed seeds in type and number suggestive of privy deposits. In addition to woodland fruit species, an edible and medicinal species was recovered along with aquatic weed species and several edible weed/grass species. Level 3 (2, Bag 53) also suggestive of privy deposits, with the presence of woodland fruit species, and an edible weed species. A drastic change in seed content from the previous levels was noted in levels 4-8. Level 4 (2, Bag 36) contained only minimal remains of an edible weed species. Level 5 (2, Bag 35) also contained minimal remains of one woodland fruit species, an edible/medicinal species, a wild medicinal species, and inedible weed and grass species. Level 6 (2, Bag 29) revealed no plant remains. Level 8 (2, Bag 21) also contained minimal remains of woodland fruit species and two wild medicinal plant species. Levels 7 and 9 were not tested as soil samples were unavailable.

The feature apparently served as a privy and later was abandoned for some other use. Levels 1-3 dated from the second half of the 18th century to the beginning of the 19th century. Levels 4-9 dated from the 19th century. Somewhere around the turn of the 19th century the function of the feature changed. Although the minimal remains recovered from the 19th century levels makes interpretation difficult, the feature could possibly have functioned as a refuse receptacle. Faunal analysis of the feature, upon completion, should give additional insight as to the feature's identity.

Seasonality-
Level 2: June-November
Level 3: June-October
Level 4: May-August
Level 5: June-November
Level 8: June-September

114 South Front Street, Room C, Feature 3
This feature, a circular brick and stone-lined structure was described by Crozier (1977b) as being a probable well. Seed analysis, however, indicates this feature to be a privy. The feature is composed of 8 distinct levels. No floral remains were recovered from the basal level (Bag 60).

Level 2 (Bag 59) contained seeds indicative of a privy including woodland fruit species, edible wild species, medicinal species, and aquatic weed species. The medicinal species present, *Actaea alba* is interesting in that it was used primarily as a remedy for "the Plague" or yellowfever among other conditions. As Philadelphia was often the scene of yellow-fever epidemics in the 18th century, the presence of *Actaea alba* could indicate the importance of wild plants in attempting to control the common diseases and ailments of that time. Minimal amounts of charcoal were also present from Level 2.

The seeds recovered from Level 3 (Bag 58) also included woodland fruit species, edible weed species, aquatic weed species, and medicinal species including *Actaea alba* and *Datura stramonium*, a narcotic. Some seeds from this level experienced charring.

The number of species present declined in level 5 (SS 111B) and in addition to the common fruit species, included the seeds of an aquatic tuber and of the cranberry. Minimal charring and charcoal was present in this level.

The number of species continued to decline in level 6 (Bag 28) and in fact only minimal remains were recovered from this level. The species recovered were raspberry and the inedible dogwood. It most likely can assumed that level 6 as well as level 7 were fill layers. Level 7 (Bag 23) contained only two seeds, raspberry and cinquefoil, an edible and medicinal weed species.

The seeds recovered from level 8 again were indicative of privy deposits consisting of primarily woodland fruit species. A medicinal species present, *Euonymus atropurpureus*, was used as a remedy for fever among other ailments and as with *Actaea alba*, could have been utilized to combat yellowfever.

Seasonality-
Level 2: June-September
Level 3: June-September
Level 4: July-September
Level 5: June-September
Level 6: June-September
Level 7: June-September
Level 8: June-September

Yoh, Room A, Feature 1

This feature, a brick-lined privy, was composed of six levels. The basal level (Bag 88), unfortunately, was not tested for floral remains as the soil sample was missing, however, a mean date of 1750 was ascertained by ceramic analysis. Level 2 (Bag 86), mean date 1760, yielded primarily woodland fruit and nut species, although inedible weed species characteristic of wetlands and waste areas were also present. Level 3 (Bag 83), mean date 1795, again noted the presence if wetland weed species as well as species common to waste areas and woodland fruit species. Level 4 (Bag 72), noted the presence of a woodland fruit, a species of maple, and an aquatic weed species. Level 5 (Bag 69) was disturbed and level 6 exhibited no floral remains.

Seasonality-
Level 2: June-September
Level 3: June-September
Level 4: June-September

Yoh, Room A, Feature 2
This feature, a circular soil discoloration most likely the basal portion of an unlined privy, consisted of three layers, all of which yielded floral remains. The basal level (Bag 76) contained only one seed of a woodland fruit species. Level 2 (Bag 75) contained a combination of edible and inedible species characteristic of wetland and waste areas and several species of woodland fruit species. Level 3 (Bag 17) exhibited a wide range of floral remains including several species of woodland fruits, grasses, weeds characteristic of wetland and waste areas, edible weed species, and medicinal species. The most interesting species recovered as *Linum usitatissimum*, flax,

which indicates economic activity. Only level 3 has been dated; relative ceramic dates ranged between 1740-1800; kaolin pipe dated 1747 by the Harrington-Binford method.

Seasonality-
Level 1: June-September
Level 2: April-October
Level 3: April-October

Yoh, Room C, Feature 1

This feature, a circular brick-lined privy, was composed of essentially ten levels. Level 1 (Bag 92), the basal level, was not tested as soil samples were unavailable. Levels 2-8 (Bags 91, 89, 87, 82 and 80) yielded essentially the identical varieties of woodland fruit species, aquatic weed species, and a native grass species. The only notable exceptions were an edible/medicinal species in level 3 (SS 151D), an inedible weed species in level 5 (Bag 87), and an edible cucurbit in level 7-8 (Bags 80-82). No floral remains were recovered from levels 9 and 10 (Bags 78-79), as well as on the surface or from soil tested below the feature. The feature seems to have been in use throughout the second half of the 18th century.

Seasonality-
Level 2: July
Level 3: June-October
Level 4: June-September
Level 5: May-November
Level 5-6: June-September
Level 6: June-October
Level 7: June-September
Level 7-8: June-November
Level 8: June-September

Yoh, Room C, Feature 2
This feature, a disturbed, relatively shallow circular, brick-lined privy, dates from the latter part of the eighteenth and first half of the nineteenth century. It consists of essentially 3 levels. Level 1 (Bag 68), with a ceramic date of 1775-1822, yielded no floral remains. The seeds recovered from level 2 (Bag 67) were of woodland fruit species and an aquatic weed species. A stoneware bottle excavated from this level also contained woodland fruit species. Level 2, 1775-1800, also contained charcoal remains. Level 3 (Bag 65), also dating from the 19th century was disturbed and no floral remains were recovered.

Seasonality-
Level 2: June-October

Yoh, Room F, Feature 1

This feature, a circular (irregular) 18th century privy with a wooden support liner, consisted of at least 10 levels. The basal level, level 1 (SS 227), was sterile and exhibited no floral remains. Level 2 (Bag 133), composed of charcoal and coprolitic material, yielded primarily edible species; woodland fruits, farmland/garden vegetable species and imported fruit and nuts; also present were inedible aquatic weed species indicative of a nearby wetland area.

Level 3 (Bag 130) was similar in composition to level 2. Content, however, differed primarily in a reduction in species with woodland fruit species predominant. A farmland/garden vegetable species was present along with a naturalized fruit species. The inedible aquatic weed species present were the same as in level 2.

Level 4 (Bag 129) yielded woodland fruit species and aquatic weed species. Some seeds exhibited charring, presumably caused by chemical reaction.

Level 5 (Bag 128), again containing some coprolitic material, yielded a greater variety of woodland fruit and nut species than the previous level. A farmland/garden vegetable species was also recovered. Several edible wild plants (weeds) were represented as were inedible grass and tree species, and aquatic weed species.

A concentration of clam shells separated levels 5 and 6. The plant remains recovered from level 6 (Bag 126) were similar to those recovered from level 5 with the following exceptions: a reduction in the number of edible weed species, a reduction in the number of woodland fruit species, and an absence of grass species.

A further reduction in the number of woodland fruit species was noted in level 7 (Bag 125). This level also yielded aquatic weed species and a grass species. Some charcoal was contained in the soil although no signs of charring were exhibited on the seeds.

Level 8 (Bag 124) yielded no plant remains. Limited plant remains were recovered from level 9 (Bag 123) and consisted of woodland plant species, aquatic weed species, and a grass species.

Unfortunately, level 10 was not examined as the soil samples were unavailable for testing. Samples from level 10a were tested and again revealed woodland fruit species, an edible/medicinal plant species, a weed species cultivated for use as a narcotic, i.e. *Datura stramonium*, and inedible wetland weed species.

Throughout the various levels of this feature it seems that will woodland fruit and nut species were being continuously exploited and were extremely important even with the importation of various species and the opportunity of cultivating more popular European varieties of these same species. Edible weed species were also exploited during this time indicating the importance of wild plants in the colonial diet. Wetland/aquatic vegetation still existed in the area during the feature's utilization.

Prior to the American unrest (level 2), a wide variety of plant species were being exploited including imported almonds and coconuts. Those levels dating around the time of the Revolution revealed no imported species and level 5, in particular, noted the presence of edible weed species, as well as native nuts. As levels 6-9 have a relatively wide date range it is more difficult to assess their importance, yet it must be noted that only wild plants are present. Imported species, present in level 2, never regained their popularity during the lifetime of the feature.

Seasonality-
Levels 2-10: June-October

Yoh, Room F, Feature 2

This feature was described by Crozier (1977b) as a circular soil discoloration, probable privy with no support liner in evidence. Recovery techniques produced only one seed, raspberry, and therefore according to seed analysis the feature was not a privy.

Yoh, Room F, Feature 3

A circular, mortared rock structure, probably functioning as some type of support, yielded only two seeds, raspberry.

Yoh, Room F, Feature 7

A mortared brick structure, probably associated with a coal-fired furnace, yielded minimal floral remains, raspberry.

Anthony Morris Site, Room B, Feature 1

This feature, also described by Crozier (1977b) as a circular soil discoloration, probable well or privy with no support liner in evidence. Seed analysis revealed no floral remains and therefore the identity of the feature was not a privy and should be considered a well unless future research deems otherwise.

An important local ordinance passed by the city in 1769, and often referred to regarding historic archaeology in Philadelphia, prohibited privy depth from being any deeper than twenty feet. The regulation apparently was not readily enforced until the Board of Health was established in 1818. The features excavated at Area F seem to bear this out as no evidence of layers filled expressly for this purpose during the 1769-1818 interim were encountered.

As suggested by Keepax (1977) and discussed earlier in *Sources of Seeds Recovered from Archaeological Soils*, "high seed concentrations sandwiched between layers with few seeds consist largely of genuine ancient seeds." As can be seen above and in the feature maps, eight of the fourteen features tested exhibited this layering. These eight features have been identified as privies. The seeds recovered from these features should indeed be considered of colonial origin due to this layering as well as for the reasons given in *Sources of Seeds*. These seeds were of primarily edible species in large quantities and can be considered the result of direct deposition by man. Although weekly trash collection was assigned to this section of Philadelphia in 1764, the collection service has been recorded as being grossly inefficient and at times trash lined the streets three feet deep. No trash pits were located during excavation and therefore some seeds recovered from privies could possibly be the result of trash deposition.

These features not identified as privies i.e. wells, foundations, mortar concentrations and unidentified features exhibited either no remains or sequences of seed identities different from those of privies and in fact, it seems the identities of features can be determined by such sequences. For example, 114 S. Front St., Room B, Feature 1, has been identified as a well. No floral remains were recovered from this feature and therefore it would be impossible for the feature to be classified as a privy. 114 S. Front St., Room C, Feature 2/2A, is unusual in that according to seed analysis the function of the feature changed sometime around the turn of the 19th century. The basal section of the feature can be identified as a privy, yet beginning with level 4 the seeds recovered indicated a different function, possibly for a refuse receptacle.

The seeds from such non-privy features usually consist of minimal quantities of inedible species, grasses, weeds and even minimal numbers of edible wild seeds or medicinal seeds. This

distinction between the seed composition of privy and non-privy features was first observed by the author during the floral analysis of another historic site, Route 18 Archaeological Salvage Site, New Brunswick, New Jersey. At Route 18, a site similar in location and time span to Area F, the 18 features tested were evenly divided between wells and privies and a definite distinction in seed composition was evident. However, the total species present at Route 18 in both privy and non-privy features was greater than Area F thereby making the distinction much clearer (Table 3). Route 18 differed from Area F in that it was the site of three taverns rather than being primarily residential and perhaps this could account for the additional species present.

Of the 138 soil samples tested for floral remains, 76 or 55% contained floral remains. Three of these samples were composed of coprolitic material and contained 12 of the 60 floral species present on the site. 9 of the 12 species were common edibles. The 3 inedible species were present in larger quantities than in any of the other samples. Associated samples and artifact washes contained 13 additional species, 10 of which were edible and included two imported species. The 3 inedible species of the associated samples were of such nature and quantity that they very well could have been the result of seed rain. (Table 4).

A great number of edible species are present in the coprolitic samples than in any of the other samples tested. Inedible species, although not more numerous in terms of species, were present in larger quantities in the coprolitic samples than in other samples. These inedible species, which will be discussed later in greater detail, could have been preserved in greater numbers due to accidental deposition adjacent to coprolitic material. Coprolitic associated samples contained the same quantity of edibles and inedibles as non-coprolitic samples.

The edible species recovered from the coprolitic materials represented 41% of the total species present on the site and 67% of the total edible species present. 62% of the total species present were edible.

Caution must be taken in forming implications from the study of the composition of coprolitic material. Although coprolites can contain a great deal of information regarding diet, “they do not necessarily reflect all the foodstuffs eaten, as even some keratinous materials are capable of digestion by the human gut” (Calder, 1977).

The majority of plant species recovered in seed analysis were woodland fruit and nut species. These species, for the most part, grew locally in the wild although some e.g. raspberry, strawberry, grapes, peach, were transplanted to gardens. The garden varieties, however, are indistinguishable from wild varieties. Very few cultivated species of plants were recovered from Area F and most belonged to the family *Cucurbitaceae*. It is important to reiterate that the absence of certain species in the archaeological record does not necessarily exclude them from the list of exploited species and that it is the nature of the plant itself that is largely responsible for its inclusion or non-inclusion in the archaeological record.

It is also important to distinguish between actual and potential food sources. Actual food sources include those edible species present in the archaeological record, associated with coprolitic material, and/or historically documented as such. Potential food sources include those edible species historically documented as food sources yet absent from the archaeological record, or those edible species archaeologically recovered yet not historically documented as food sources.

In this section, *Potential Historical Food Sources*, a variety of different types of food sources which were historically documented are listed. Of the 16 species of fruits listed by Leighton (1976) as being cultivated in Colonial America, seven (cherries, grapes, mulberries, peaches,

plums, raspberries and strawberries) were archaeologically represented. Many of the most popular fruit varieties were not represented archaeologically, again due to the nature and uses of the plant itself. Apples, pears, and quince, for example, cultivated in nearly every garden and farm, were not recovered. These fruits were grown primarily to be converted to cider and/or liquor or for livestock feed, and therefore would not be expected to be represented archaeologically, at least in any quantity. The varieties of grapes recovered, *Vitis aestivalis* and *Vitis vinifera*, were unsuitable for wine production in North America, and were used primarily for eating or in preserves. *Vitis labrusca*, the principal wine-making grape, was not recovered archaeologically. Apricots, currants, figs, gooseberries, and nectarines, were as popular as the other varieties according to historic sources, and yet were not recovered even though they very well could have been preserved considering the nature of the plants.

In addition to those fruits listed by Leighton (1976), six other fruits were historically documented and archaeologically recovered: blueberry, cranberry, elderberry, huckleberry, watermelon, and coconut. All, with the exception of watermelon and coconut were wild species. The presence of elderberries notes that not all of the elderberries collected were converted to wine, but probably were made into jam.

Of the nut species listed by Leighton (1976) hickories and butternuts were the two species noticeably absent from the archaeological record. Native species of black walnut and chestnut were archaeologically represented, as was an imported species of almond.

The vegetables that have been historically documented as colonial food sources are nearly totally absent from the archaeologically record. Forty-seven species of vegetables were described by Leighton (1976) as being cultivated by Thomas Jefferson. Of these the only ones recovered archaeologically were members of the cress family (*Cruciferae*) including black mustard, and members of the melon/squash/pumpkin family (*Cucurbitaceae*).

The dearth of vegetable species in the archaeological record is not really surprising due to the fact that most species of vegetables are consumed before they are allowed to go to seed or the seed itself has a soft coating and is itself consumed. It is important to note the consequences such an absence would have regarding the interpretation of archaeological sites, particularly prehistoric sites. Where documentation is not available concerning the variety of vegetables exploited, it could be assumed that only those species recovered were being exploited by the site's population. As seen in Area F, only approximately 6.6% of the potential vegetable species available were recovered in the floral analysis. Therefore, it must be assumed that approximately 93.4% of the potential vegetable species will not be archaeologically represented. This figure could be even higher considering that the preservation of floral remains at Area F was extremely good. Obviously, the archaeological record could be seriously skewed by not recognizing that such a situation exists.

Although a number of grains and root crops were cultivated, none were represented archaeologically. One edible, wild, aquatic tuber, *Sagittaria platyphylla* (Arrowhead), however, was recovered. Here, again, this really is not too surprising as root crops would be consumed before going to seed, and grains would probably have been cultivated, threshed and milled somewhere outside of the immediate environs with only the flour finding its way into the homes in the site area.

In comparison of those medicinal species recovered from Area F and M'Mahon's list of medicinal species available at the turn of the 19th century, it was noted that 47 of the 48 species listed by M'Mahon were not represented. The only medicinal plant in common was *Chenopodium*

sp. (wormseed). Six potential medicinal species recovered at Area F yet not historically documented were *Actaea alba, Euonymus atropurpureus, Hedeoma pulegioides, Potentilla sp., Stachysolympica,* and *Trifolium sp*. An additional medicinal plant recovered at Area F, belonging to *Cruciferae* (Cress family) was historically documented as a vegetable.

None of the 27 species of "Aromatic, Pot, and Sweet Herbs" listed by M'Mahon were represented archaeology although a number of edible weeds that were recovered have been described as being used as pot herbs. These include, among others, *Portulaca oleracea* (purslane) and *Chicorium intybus* (Chicory).

Although not considered either actual or potential food sources, it is interesting to note that of the 15 inedible species recovered at Area F, only a few are historically documented. These include *Linum usitatissimum* (flax), *Datura stramonium* (jimsonweed) and several species of trees-maple, ash, and dogwood. Although several species of the family *Gramineae* have been historically documented, no mention of those recovered at Area F, *Poa annua* and *Sisyrinchium atlanticum*, has been found. Of those five species recovered of which no description is available, obviously there is no historical documentation.

Therefore, upon review of the comparison of those species archaeologically recovered and those historically documented it becomes clear that although a large number of historically documented plant are not represented archaeologically, seed analysis has uncovered a number of species and information otherwise undocumented. Even though rather detailed listings have been made of the fruit and vegetable species cultivated during colonial times in Philadelphia, those plant species considered weeds or of little economic importance were often overlooked. These are exactly the types of vegetation used for homemade medicinal recipes or for food in times of severe economic stress. Through the type of analysis presented in this thesis, it was possible to identify several species which were not previously known to have been exploited during colonial times. The use of such analysis allows a more expanded insight into site subsistence even in an area as well documented as Philadelphia. The impact of such analysis on less well documented or undocumented historic sites would be even greater. Floral analyses of prehistoric sites often discounts the significance of weeds and/or plants considered to be of little economic value in favor of those species traditionally regarded as being importance to subsistence or in order to establish the origin of domestication of such species. As seen above, these species cannot be discounted as they often serve significant purposes and could sustain populations in times of stress. Indeed, these stressful times themselves can be identified through floral analysis as will be discussed in more detail below.

By interpreting floral remains against a background of historic documentation, perhaps one can see the possible significance of such remains in terms of diet, environment, the history of the site and/or the site's uses (Dennell, 1970).

Although a number of exploited plants, cultivated species in particular, may not be represented in the Area F archaeological record, it is evident that wild species played an importance role in the colonial diet. This could be expected in the more outlying regions of the country, however, it is surprising to note the degree of reliance on wild plants in a city as cosmopolitan as colonial Philadelphia. As noted earlier in the historical section, Philadelphia was a major port of America and received in trade foodstuffs from all parts of the world.

Even though these imported foodstuffs were readily available, very few were recovered archaeologically. The dearth of imported species in the archaeological record could be representative of several factors:

-Economic infeasibility
-Dietary preference
-Trade restrictions
-Differential preservation

Despite the availability of imported species, it may not have been economically feasible for the population on general to purchase such foodstuffs, especially when native varieties of produce were so abundant and available at more affordable prices. It is, however, interesting at least in the case of the Robert Smith residence, 114 South Front Street, that a wider range of plant species were not recovered. Smith, a wealthy merchant, could well have afforded to purchase a more extensive range of produce that that recovered. This could be a reflection of Smith's personal preference as to how to expend his resources, the family's dietary preferences, or differential preservation of the seeds themselves. Another factor to be considered is that, beginning with the political difficulties which led to the Revolutionary War, trade restrictions, both imposed by the British and self-imposed as a method of patriotic support, limited and at times even completely halted the amount of goods imported. After the end of the war, when goods were again available from a number of countries throughout the world, patriotism prevailed and imported goods were often disregarded in favor of American products. This practice continued at least until the beginning of the 19th century. It therefore seems likely that if imported produce was to be recovered archaeologically, it would be located in pre-war or 19th century deposits. Although no imported remains were present in the 19th century deposits, pre-war deposits did yield limited imported remains.

In regards to dietary preference, it must be stated that traditional European varieties and their American counterparts were undoubtedly the most popular types of produce and were extensively cultivated and/or gathered and seeds of the traditional European plants were always in demand.

The identification of seeds from archaeological sites can determine the habitat of the area, be it natural or culturally altered. Although generalizations can be made by the presence of woodland fruit species, weeds are often more indicative of the immediate local habitat often indicating waste areas, wetlands, open areas, cultivated fields, etc. An interesting example of the determination of local natural habitat and its alteration by man was noted at Area F by examining plant species of aquatic origin.

Several species (*Sagittaria platyphylla, Potentilla sp., Barbarea vulgaris, Potamogeton spirillus, Potamogeton pusillus, Potamogeton sp., Amaranthus tuberculatus, Carex sp.*) of wetland/aquatic plants were recovered from seven of the features tested (114 S. Front Street, Room C, Feature 2/2A; 114 S. Front Street, Room C, Feature 3; Yoh, Room A, Features 1 and 2; Yoh, Room C, Features 1 and 2; Yoh, Room F, Feature 1). All levels from which these aquatic species were recovered dated from the 18th century. (Table 5). Although some wetland plants could be expected to be recovered simply due to the site's proximity to the Delaware River, it seems important to cite several points:

-Six of the eight species recovered are specifically described as flourishing in marshes, swamps, or along slow-moving streams. The remaining two species were noted only as wetland species.
-Dock Creek, approximately 1½ blocks from the site area, was often described in colonial times as a swampy area. After the 18th century yellow fever epidemics, Dock Creek was paved in the first years of the 19th century in an attempt to eliminate an unhealthful situation.
-No wetland species were recovered from the 19th century deposits.

Since the various wetland species were no longer present after the time period when Dock Creek was paved, it seems a likely assumption that these species originated from Dock Creek and not the Delaware River.

This discovery could have important consequences for archaeology in the historic section of Philadelphia. Relative dating of features and/or feature levels by ceramic content or other means is often inadequate and it is not uncommon to encounter features with dates spanning a century or more. The paving of Dock Creek in the first years of the 19th century and the consequent elimination of the aquatic plants associated with it could be used as a temporal index. By utilizing such an index, in conjunction with other dating methods, more definitive dating of features and their individual levels can be achieved.

Four of the aquatic species present were edible and have been considered in conjunction with the other edible weed species. However, inedible species, those of the genera *Carex* and *Potamogeton,* must be considered as they are found throughout the features in some quantity. As the historical descriptions of these plants can be found in the section on recovered species, that information will not be repeated here.

The majority of the seeds of these two genera were recovered from privies. Since privies usually contain edible species deposited by man, the uses and means of deposition of the seeds of the genera *Carex* and *Potamogeton* must be discussed. Species of the *Carex* genus have been known to have been collected and used as hay and forage for livestock. It is not known whether the same can be claimed for the various species of *Potamogeton*. It is known that in the 18th century livestock was prevalent in the area, and at the time almost every household in Philadelphia owned a cow, horse, or other livestock. The presence of stables on the site (Figure 4) bears this out. The lack of forage for livestock in Pennsylvania has been discussed and it is a likely possibility that these weed species were collected in an attempt to remedy this situation.

By the early 19th century, forage plants naturalized from Europe were readily available thereby reducing the need for gathering weeds for such a purpose and minimizing the effect the paving of Dock Creek would otherwise have had. It could be proposed that the lack of aquatic plants present in features could simply be a result of the increase in naturalized forage and not to the paving of Dock Creek. If this were the case, aquatic species could be expected to be represented at least in limited quantities due to seed rain in the variety of features present. However, no aquatic species were recovered after the paving date and it must be remembered that only half of the aquatic species present could be considered as alternatives to forage. Naturalized forage was present in the Philadelphia area as early as 1685 although not well established until 1780. It also seems that once naturalized forage was available, a decline in the gathered weed forage would be apparent. Such a decline has not been noted.

The reason why these species were represented in features such as privies is a matter of conjecture. Whether they were deposited by man as refuse or as seed rain is not known. The quantity of seeds alone would tend to preclude the possibility of total deposition as seed rain, although the size of the seeds would lend itself to such a possibility and indeed at least a limited quantity of seeds should be considered the result of seed rain.

As discussed in the interpretation of 114 S. Front Street, Room C, Feature 3, two of the several medicinal species were of particular interest. *Actaea alba* and *Euonymus atropurpureus* were both wild plants used to treat fevers, yellowfever, and “the Plague.” The presence of such plants is not unusual as Philadelphia was the scene of several yellowfever epidemics in the 18th century. However, the presence of these species at historic sites with a less well-documented history could

indeed indicate that the site had been the scene of yellowfever cases. As *Euonymus atropurpureus* in particular was used by the Indians for a variety of fevers, prehistoric occurrence could again be indicative of such ailments.

Fourteen species of plants classified as edible weeds were recovered from five of the features tested (114 South Front Street, Room C, Feature 2/2A; 114 South Front Street, Room C, Feature 3; Yoh, Room A, Feature 2; Yoh, Room C, Feature 1; Yoh, Room F, Feature 1). The fourteen species are as follows and include four wetland species:

Amaranthus blitoides, A. retroflexus, A. tuberculatus, Barbarea vulgaris, Brassica nigra, Chenopodium ambrosioides, Chicorium intybus, Cruciferae, Hedeoma pulegioides, Physalis heterophylla, Portulaca oleracea, Potentilla sp., Sagittaria platyphylla, Solanaceae (Table 6).

These species could have been used in a variety of ways including as a salad or pot herb, a fruit, a tuber, a tea, in breadstuffs or medicinally.

Most of the species were retrieved in minimal numbers from levels which spanned a wide range of dates due to the inadequacy of ceramic material for relative dating. However, a certain pattern can be discerned in at lease one feature, Yoh, Room F, Feature 1, (Figure 23), where dating of crucial layers was sufficiently narrow to enable coordination with important political and economic events.

Levels 2 and 3 of this feature dated prior to 1770 and revealed only minimal amounts of edible weeds. No edible weeds were present in level 4 (1770-1775). Level 5 (1775) noted a substantial increase in edible weeds, which could very well be linked to the Revolutionary War and imposed trade embargoes. Food products available prior to the war, and present in levels 2 and 3, were restricted and wild species recovered from level 5 were *Portulaca oleracea,* used as a salad or pot herb or whose seeds are used in breadstuffs, and a species of the genus Solanaceae, whose berries were used in baking and preserves. The presence of edible weeds declined drastically in level 6 and were absent from all of the succeeding levels with the exception of level 10A.

The type of analysis performed on Yoh, Room F, Feature 1, could have significant consequences for both historic and prehistoric archaeology. By analyzing the total seed content of a feature and through comparison of content by level, it is possible to determine periods of economic stress. Level 5 in comparison to the other levels of the feature showed a definite increase in edible weed species and decrease of species previously exploited. The dating of level 5 coincided with a period of political and economic tension the results of which are evident in the varieties of seeds recovered. The possibility of dating feature levels in historic sites has an added advantage in that seed content can be coordinated with known events. However, the same method could be used to determine periods of economic stress prehistorically. Caution must be exerted in order that fill layers are not misconstrued for “stress” layers. As level 5 was composed of coprolitic material and contained a large variety of other edible seeds, it is certain that this indeed was not a fill layer.

The presence of edible wild species, especially weeds, in archaeological deposits does not necessarily indicate its specific selection as a food source. However, the recovery of such species from privy and/or coprolitic deposits seems to be a positive indicator of such selection.

The use of seed analysis to interpret the past has a number of benefits and/or advantages for both historic and prehistoric archaeology. Some of these benefits have already been discussed, both generally and specifically.

With regards to historic archaeology, seed analysis allows the identification of plant remains to the species level permitting a more complete interpretation of the function of each plant. The identification of species also enables the determination of the soil and environmental conditions necessary for existence.

Through seed analysis the identification and/or use of features can be determined i.e. wells, privies, as well as determining a variety of economic activities which could have occurred to the site. Area F was primarily residential during the 18th century and although activities such as threshing would not be represented, an everyday activity was suggested by the presence of flax.

Through comparison of historically documented food sources and those plants represented archaeologically, it was determined which known food sources were not preserved in the archaeological record as well as which of the plants that were archaeologically represented were not historically documented. The implications of such findings are significant. Because recovered species are used as an indicator of diet and potential food sources it is important to realize just how much of the actual food sources are not represented in the archaeological record. Disregarding such a point could seriously skew the interpretation of site subsistence for both historic and prehistoric sites. Recovered species which are not historically documented could expand our knowledge e.g. of medicines used and/or diseases or ailments suffered by the site's inhabitants.

As Philadelphia was the commercial, political, and scientific center of the colonies, it was historically well documented. Even so, the seed analysis of Area F sharpened our insight of those plant species utilized. Most areas of interest to historic archaeology would probably not be documented as well as Philadelphia, thereby increasing the impact of seed analysis in recording the plant resources available and exploited in those areas.

Periods of stress can be detected through the comparison of the species recovered by level in a feature. A dramatic change in species, especially one from domesticated to wild species, is indicative of such stress. An example of stress has been described in this paper.

Comparison of species between features could possibly detect changes in time or even cultural and/or social differences e.g. features used by different ethnic groups. It would be interesting to compare the species recovered from privies excavated in areas known to have been inhabited by different ethnic groups. However, it is suspected that distinct differences would not occur until the 19th century.

As noted in this thesis, seed analysis can also be used in conjuncture with ceramic analysis, etc. as a dating method. The analysis of aquatic weed species by various levels with dates spanning a wide range of time in conjuncture with an historic event i.e. paving of Dock Creek permitted a more defined date to be assessed to those levels.

In the feature interpretations, the seasonality of the plants recovered from each level were given. Even though seasonality of each level can be estimated, the nature of the recovered species often precludes anything more definite. In the case of fruits, for example, the majority of which ripen from June-September, preservation in jams or by the variety of methods described in the historic section, would allow deposition throughout the year e.g. raspberries. Larger fruits e.g. peaches can be more indicative of seasonality as the seeds would be removed before preservation. Such large seeds, however, would not be expected to be deposited in privies in any quantity.

Deposition of weed seeds by seed rain often can be a better indicator of seasonality than those species deposited by man.

Seasonality of prehistoric sites, however, can usually be established as preservation was limited and deposition usually occurred when the plant was in season. A plant which is in season only a short period of time e.g. strawberry is an extremely good indicator of seasonality.

Other benefits available to prehistoric archaeology through seed analysis include determination of climate, economic activities occurring on the site and the use of the site, and periods of stress, as described above.

As with historic sites, seed analysis allows identification of plant remains to the species level thereby permitting a more complete interpretation of the function of each plant and the identification of potential food sources. It must, however, be reiterated that, as seen in this thesis, much of the actual food sources exploited by a site's inhabitants is missing from the archaeological record and too much importance must not be assessed to those species recovered as they represent only a portion of what was actually consumed.

CONCLUSIONS AND RECOMMENDATIONS

The analysis of floral remains of archaeological sites, such as proposed by this thesis, represents a new direction for historical archaeology and an important aspect for both historic and prehistoric archaeology. Floral remains in archaeology have been too long ignored or relegated to simply laundry lists in site reports. Seed analysis has been disregarded in favor of pollen analysis. As seen in this thesis, seed analysis offers unique advantages in the interpretation of botanical remains and more accurately represents local vegetation. The combined utilization of seed, pollen, and phytolith analyses could produce more complete interpretations than hitherto known.

The use of seed analysis in conjunction with historic documentation has had significant results. The cosmopolitan city of Philadelphia was seen to be one relying heavily on native wild species even though imported and cultivated species were readily accessible. Events and tensions occurring in the city during the 18th and first part of the 19th century have been represented archaeologically with changes in diet and natural habitat. The use of recovered species as an indicator of food sources must be carefully evaluated as the importance of edible weeds and other wild species are very often underrated and as a great deal of the actual food sources will not often be archaeologically represented.

By following the program set forth in this thesis and through further research it is hoped that a great deal more information regarding subsistence, the economic importance of various plant species, and the reliability of recovered floral remains as an indicator of actual food sources can be elicited. Through comparison of remains retrieved from a variety of circumstances i.e. urban sites vs. rural sites, private residences vs. taverns, sites of different ethnic origin, features of different time periods, etc. it is expected that distinct patterns of utilization will evolve. It is recommended that this same type of analysis be repeated for numerous sites in Philadelphia, e.g. those areas not serviced by trash collection in the 18th century, residential areas occupied pre- and post- Revolutionary War, additional sites in the proximity of Dock Creek, etc.

Seed analysis, obviously can be a valuable tool for both the historic and prehistoric archaeologist, and although a few problems exist with its use, they are overshadowed by its potential for improved site interpretation and it should not be relegated to its former limited or non-existent role in archaeology.

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TABLES

Table 1. Area F Species Idenfication List

EDIBLE SPECIES		EDIBLE/ MEDICINAL SPECIES		MEDICINAL SPECIES		INEDIBLE SPECIES		SPECIES: DESCRIPTION UNAVAILABLE CONSIDERED INEDIBLE	
Amaranthus blitoides	Prostate pigweed	*Chenopodium ambrosioides*	Wormseed/ Goosefoot	*Actaea alba*	White baneberry	*Acalypha rhomboides*	Tree-seeded mercury/spurge	*Lechea villosa*	Fern or pinweed
Amaranthus retroflexus	Redroot pigweed	*Cruciferae*	Mustard/Cress family	*Euonymus atropurpureus*	Wahoo	*Acer sp.*	Maple	*Lycium halimifolium*	Matrimony-vine
Amaranthus tuberculatus	Water hemp	*Hedeoma pulegioides*	American pennyroyal	*Stachys olympica*	Lamb's ears	*Cornus racemosa*	Gray or Penicled Dogwood	*Pilea pumila*	Clearweed
Barbarea vulgaris	Wintercress or Yellow Rocket	*Potentilla sp.*	Cinquefoil			*Cyperaceae* , Carex sp.	Sedge	*Solanum rostratum*	Buffalo bur
Brassica nigra	Black mustard	*Trifolium sp.*	Clover			*Datura stramonium*	Jimsonweed	*Utricularia intermedia*	Bladderwort
Castanea dentata	American chestnut					*Euphorbia sp.*	Spurge		
Chicorium intybus	Chicory					*Gramineae sp.*	Grass		
						Linum usitatissimum	Flax		
	Watermelon					*Malva neglecta*	Common mallow		
Cocos nucifera	Coconut					*Poa annua*	Annual bluegrass		
Cucurbitaceae	Melon/squash family					*Potamogeton sp.*	Pondweed		
Fragaria virginiana	Strawberry					*Potamogeton pusillus*	Small pondweed		
Gaylussacia baccata	Huckleberry					*Potamogeton spirillus*	Pondweed		
Juglans nigra	Black walnut					*Sisyrinchium atlanticum*	Blue-eyed grass		
Morus alba	Mulberry					Sorbus sp.	Ash		
Physalis heterophylla	Groundcherry								
Portulaca oleracea	Purslane								
Prunus americana	Prune								
	Sour cherry								
Prunus dulcis	Almond								
Prunus pensylvanica	Pin cherry								
Prunus persica	Peach								
Prunus virginiana	Choke cherry								
Rubus acaulis	Raspberry family								
Rubus occidentalis	Black raspberry								
Sagittaria platyphylla	Arrowhead								
Sambucus canadensis	Elderberry								
Solanaceae	Nightshade family: Solanum nigrum or S. americanum								
Vaccinium macrocarpon	Large cranberry								
Vaccinium myrtilloides	Sourtop blueberry								
Vitis aestivalis	Grape								
Vitis vinifera	Grape								

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
114 S. Front, Room A	SS# 32A	*Carex sp.*	1		1	
		Rubus occidentalis	2		1	
			3			
114 S. Front, Room C, Fea. 2A	Bag 74, Artifact wash	*Rubus occidentalis*	5		1	
	Bag 73	*Amaranthus tuberculatus*	8			Sample contained charcoal
		Brassica nigra	1		1	
		Carex sp.	138+			
		Fragaria virginiana	194+			
		Prunus pensylvanica	1		1	
		Rubus occidentalis	960		19	
		Sambucus canadensis	8		2	
		Solanum rostratum	1		1	
		Trifolium sp.	53+			
		Vitis aestivalis	2		1	
		Vitis vinifera	38		19	
	SS# 132	*Carex sp.*	19			
		Potamogeton sp.	23			
		Rubus occidentalis	115		2	
		Sambucus canadensis	1		1	
			1567			
114 S. Front, Room C	SS# 104N	*Carex sp.*	3			
		Rubus occidentalis	4		1	
		Unidentified frags.	4			
	SS# 104I	*Carex sp.*	1		1	
		Unidentified	1		1	charred
114 S. Front, Room C, Fea. 2	Bag 53	*Carex sp.*	242			
		Citrullus sp.	1		1	
		Fragaria virginiana	375		7	
		Rubus occidentalis	330		6	
		Vitis aestivalis	10		5	inc. frags
		Unidentified	4			
	Bag 53 pH (50g)	*Carex sp.*	10			
		Fragaria virginiana	25		1	
		Rubus occidentalis	26		1	
		Vitis aestivalis	1		1	
	Bag 53, Artifact wash	*Carex sp.*	150			
		Rubus occidentalis	1500		30	
		Solanaceae	1		1	
		Vitis aestivalis	39		19	
	SS# 104L	*Hedeoma pulegioides*	2	3	1	
	SS# 104H	*Portulaca oleracea*	2		1	
	SS# 104M	*Brassica nigra*	1	1	1	
		Poa annua	1	1	1	charred
		Rubus occidentalis	2	2	1	
		Utricularia intermedia	1	1	1	
	SS# 104E	*Rubus occidentalis*	1		1	
	SS# 104A	*Rubus occidentalis*	1		1	
		Unidentified frags.	3			
	Bag 21	*Cichorium intybus*	3	42	1	
		Hedeoma pulegioides	1	14	1	
			2745	2798		
114 S. Front, Room C, Fea. 3	Bag 59	*Cruciferae*	1		1	
		Fragaria virginiana	4		1	
		Lechea villosa	2			
		Lycium halimifolium	1		1	
		Potamogeton sp.	5			

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
		Rubus occidentalis	342		7	
		Trifolium sp.	3			
		Vaccinium sp.	1			
		Vitis sp.	5			
		Unidentified	4			frags.
	SS# 118	*Actaea alba*	1		1	sample contained charcoal
		Carex sp.	1		1	
		Fragaria virginiana	1		1	
		Morus alba	1		1	
		Rubus occidentalis	148		3	
		Trifolium sp.	4			
		Vitis vinifera	3		1	frags.
	Bag 58	*Barbarea vulgaris*	1		1	
		Carex sp.	6			
		Cornus racemosa	1		1	
		Potamogeton sp.	31			
		Potamogeton pusillus	3			
		Rubus occidentalis	503		10	
		Sambucus canadensis	2		1	
		Sisyrinchium atlanticum	2			
		Solanum rostratum	2		1	
		Stachys olympica	1		1	
		Vitis vinifera	3		1	frags.
		Unidentified frags.	1		1	charred
		Unidentified frags.	3			
114 S. Front, Room C, Fea. 3	Bag 56	*Barbarea vulgaris*	1	2		
		Carex sp.	15	23		
		Potamogeton sp.	19	29		
		Prunus pensylvanica	3	5	5	
		Rubus occidentalis	178	267	5	
		Sambucus canadensis	1	2	1	
		Sisyrinchium atlanticum	1	2		
		Solanum rostratum	1	2		frags.
		Trifolium sp.	25	38		
		Vaccinium myrtilloides	1	2	1	
		Vitis sp.	6	9	3	frags.
		Unidentified frags.	11	17		
	Bag 56, Artifact wash	*Carex sp.*	30			
		Rubus occidentalis	400		8	
		Vitis aestivalis	2		1	
	Bag 54	*Rubus occidentalis*	35		1	
		Vitis aestivalis	2		1	frags.
		Unidentified	10			
	Bag 54, Artifact wash	*Cucurbitaceae*	1		1	
		Rubus occidentalis	250		5	
	SS# 110	*Carex sp.*	12			
		Datura stramonium	1		1	
		Rubus occidentalis	124		2	
		Trifolium sp.	6			
		Vitis vinifera	3		1	
	SS# 111C	*Actaea alba*	1		1	
		Carex sp.	24			
		Prunus pensylvanica	2		2	charred
114 S. Front, Room C, Fea. 3	SS# 111C	*Rubus occidentalis*	248		5	
		Sambucus canadensis	1		1	
		Trifolium sp.	29			
		Vitis aestivalis	3			

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
	SS# 108	*Carex sp.*	13			sample contained charcoal
		Fragaria virginiana	4			
		Rubus occidentalis	280			
		Trifolium sp.	20			
		Vitis aestivalis	6			
		Unidentified	2			
		Unidentified	4			charred
	Bag 32	*Rubus occidentalis*	78	195	3	minimal charring in sample
		Trifolium sp.	5	13		
		Vaccinium macrocarpon	1	3	1	
		Vitis aestivalis	4	10	5	
	Bag 32, Artifact wash	*Rubus occidentalis*	150		3	
		Vitis aestivalis	1		1	
		Unidentified	1		1	
	SS# 111B	*Carex sp.*	5			sample contained charcoal
		Rubus occidentalis	75		1	
		Sagittaria platyphylla	1		1	
		Trifolium sp.	7			
		Vitis aestivalis	2		1	
114 S. Front, Room C, Fea. 3	SS# 111A	*Carex sp.*	1		1	
		Cornus racemosa	1		1	
		Rubus occidentalis	26		1	
114 S. Front, Room C, Fea. 3	Bag 23	*Rubus occidentalis*	1	3	1	
		Potentilla simplex	1	3	1	
	Bag 22	*Rubus occidentalis*	2	14	1	
	SS# 111D	*Euonymus atropurpureus*	1		1	sample contained charcoal
		Fragaria virginiana	2		1	
		Morus alba	3			
		Rubus occidentalis	234		4	
		Trifolium sp.	7			
		Vitis aestivalis	3		1	
		Unidentified	1		1	
			3467	3752		
Yoh, Room A, Fea. 1	Bag 86	*Acalypha rhomboidea*	1			sample- charcoal
		Castanea dentata	1		1	charred
		Fragaria virginiana	4		1	shell casing
		Gaylussacia baccata	1		1	
		Potamogeton spirillus	1		1	
		Potamogeton sp.	22			
		Rubus occidentalis	256		5	
		Sorbus sp.	1		1	
		Vitis aestivalis	2		1	
		Unidentified frags.	8			
	Bag 83	*Euphorbia sp.*	1	1	1	sample contained charcoal
		Fragaria virginiana	2	2	1	
		Pilea pumila				
		Potamogeton sp.	21	25		
		Rubus occidentalis	86	103	2	
		Vitis aestivalis	1	1	1	
Yoh, Room A, Fea. 1	SS# 136	*Acer sp.*	1		1	minimal charring in sample
		Potamogeton sp.	9			
		Rubus occidentalis	62		1	
			482	503		
Yoh, Room A, Fea. 2	SS# 140C	*Rubus occidentalis*	1		1	
	SS# 140B	*Carex sp.*	1		1	
		Malva neglecta	1		1	
		Physalis heterophylla	2			
		Rubus occidentalis	17		1	

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
		Sambucus canadensis	11		3	
	SS# 140A	*Amaranthus blitoides*	1		1	
		Linum usitatissimum	1		1	
		Potamogeton sp.	1		1	
		Rubus occidentalis	197		4	
		Sambucus canadensis	6		2	
	Bag 17	*Acalypha rhomboidea*	1		1	
		Fragaria virginiana	25		1	
		Linum usitatissimum	4			
		Malva neglecta	2			
		Potamogeton sp.	8			
		Rubus occidentalis	468		9	
		Sambucus canadensis	2		1	
		Vitis sp.	2		1	
		Unidentified	5			
	SS# 139C	*Carex sp.*	5			
		Fragaria virginiana	22		1	
		Gramineae sp.	2		1	
Yoh, Room A, Fea. 2	SS# 139C	*Linum usitatissimum*	1		1	
		Malva neglecta	1		1	
		Potamogeton sp.	19			
		Rubus occidentalis	529		10	
		Sambucus canadensis	1		1	frag.
		Vitis aestivalis	12		6	
		Unidentified	2			
	SS# 139B	*Linum usitatissimum*	1	1	1	
		Potamogeton sp.	15	15		
		Rubus occidentalis	140	140	2	
		Vitis sp.	1	1	1	
		Unidentified	2	2	2	
		Unidentified frags.	2	2		
	SS# 139A	*Chenopodium ambrosioides*	1		1	
		Potamogeton sp.	2			
		Rubus occidentalis	92		2	
		Unidentified	1		1	
			1607	1607		
Yoh, Room C, Fea. 1	SS# 151B	*Rubus occidentalis*	11		1	Charcoal
	SS# 151C	*Rubus occidentalis*	9		1	sample contained charcoal
		Sisyrinchium atlanticum	3		1	
		Vaccinium sp.	1		1	
	SS# 151D	*Fragaria virginiana*	11		1	Sample contained charcoal
		Potamogeton sp.	10			
		Rubus occidentalis	410			
		Vitis aestivalis	22		11	
		Unidentified	3			
Yoh, Room C, Fea. 1	Bag 90	*Rubus occidentalis*	109		2	
		Potamogeton sp.	15			
		Sisyrinchium atlanticum	2		1	
	Bag 90A	*Carex sp.*	2			
		Chenopodium ambrosioides	1		1	
		Potamogeton sp.	11			
		Rubus occidentalis	255		5	
		Sambucus canadensis	1		1	
		Sisyrinchium atlanticum	13			
	Bag 90A Bottle	*Rubus occidentalis*	51		1	
		Potamogeton sp.	26			
		Unidentified frags.	2			
	Bag 90A Vessel	*Rubus occidentalis*	64		1	
		Potamogeton sp.	7			

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
		Sisyrinchium atlanticum	1		1	
		Unidentified frag.	1			
	SS# 151E	*Rubus occidentalis*	12		1	Sample contained charcoal
		Sisyrinchium atlanticum	6			
	SS# 151F	*Rubus occidentalis*	18		1	Charcoal
	Bag 87	*Potamogeton sp.*	8		1	
		Rubus occidentalis	78		1	
		Sambucus canadensis	1		1	
		Sisyrinchium atlanticum	3		1	
		Solanum rostratum	2			
		Unidentified	1		1	
		Unidentified frags.	2			
Yoh, Room C, Fea.1	SS# 151H	*Carex sp.*	2	2		Sample contained charcoal
		Potamogeton sp.	63	69		
		Rubus occidentalis	50	55	1	
		Sambucus canadensis	5	6	2	
		Sisyrinchium atlanticum	2	2	1	
		Vitis aestivalis	2	2	1	
	Bag 82	*Potamogeton sp.*	6	7		
		Rubus occidentalis	29	32		
	SS# 151G	*Potamogeton sp.*	4			Charcoal
		Rubus occidentalis	47		1	
	SS# 151M	*Potamogeton sp.*	1			Charcoal
		Rubus occidentalis	1		1	
	SS# 151I	*Cucurbita sp.*	1		1	Charcoal
		Potamogeton sp.	14			
		Rubus occidentalis	8		1	
		Sambucus canadensis	3		1	
		Sisyrinchium atlanticum	2		1	
		Vitis vinifera	1		1	
	SS# 151J	*Potamogeton sp.*	1		1	Charcoal
		Rubus occidentalis	9		1	
		Sisyrinchium atlanticum	1		1	
	SS# 151L	*Rubus occidentalis*	7		1	Charcoal
		Sisyrinchium atlanticum	4			
			1435	1451		
Yoh, Room C, Fea. 2	Bag 67	*Potamogeton sp.*	56	78		
		Rubus occidentalis	23	32	1	
		Sambucus canadensis	5	7	2	
		Unidentified	1	1	1	
	Bag 67, Artifact wash stoneware bottle	*Prunus pensylvanica*	2		2	
		Rubus occidentalis	8		1	
		Sambucus canadensis	3		1	
	SS# 134C	*Rubus occidentalis*	1		1	Sample contained charcoal
		Sambucus canadensis	8		2	
		Unidentified frag.	1		1	
	Bag 85	*Potamogeton sp.*	100	110		
		Rubus occidentalis	243	267	5	
		Sambucus canadensis	18	20	6	
		Unidentified frags.	3	3		
			472	541		
Yoh, Room F, Fea. 1	Bag 133	*Carex sp.*	1			Coprolitic material & charcoal in sample
		Rubus occidentalis	2		1	
		Vitis aestivalis	7		4	
		Unidentified	1		1	
		Unidentified frags.	2			

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
	Bag 133, Artifact wash	*Carex sp.*	6			
		Citrullus lanatus	12		1	
		Cocos nucifera	1		1	
		Cucurbitaceae	5		1	
		Prunus americana	2		2	
		Prunus cerasus	10		10	
Yoh, Room F, Fea. 1	Bag 133, Artifact wash	*Prunus dulcis*	1		1	
		Prunus pensylvanica	70		70	
		Prunus persica	6		6	
		Rubus occidentalis	16		1	
		Vitis aestivalis	5		3	
	Bag 133 Pitcher	*Carex sp.*	3			
		Cucurbitaceae	1		1	
		Fragaria virginiana	55		2	
		Potamogeton pusillus	3			
		Potamogeton spirillus	1		1	
		Potamogeton sp.	33			
		Prunus pensylvanica	6		6	
		Prunus virginiana	1		1	
		Rubus occidentalis	104		2	
		Sambucus canadensis	1		1	
		Solanaceae	3		1	
		Vitis aestivalis	9		5	
		Unidentified frags.	4			
	Bag 133 Vessel	*Carex sp.*	1		1	
		Cucurbitaceae	1		1	
		Potamogeton sp.	12			
		Rubus occidentalis	61			
		Sambucus canadensis	1		1	
		Vitis aestivalis	4		2	
	Bag 130	*Cucurbitaceae*	4		1	Coprolitic material & charcoal in sample
		Potamogeton sp.	78			
		Prunus pensylvanica	3		3	
		Rubus occidentalis	665		13	
		Vitis aestivalis	69		35	
		Unidentified	4			charred
Yoh, Room F, Fea. 1	SS# 225	*Carex sp.*	20			
		Fragaria virginiana	24		1	
		Morus alba	2			
		Potamogeton pusillus	3			
		Potamogeton sp.	51			
		Rubus acaulis	1		1	
		Rubus occidentalis	405		8	
		Solanaceae	1		1	
		Vitis aestivalis	23		12	
		Vitis vinifera	5		3	
		Vitis sp.	2		1	frags.
	Bag 129	*Potamogeton sp.*	14	14		All remains charred- charcoal in sample
		Prunus cerasus	3	3	3	
		Rubus occidentalis	2	2	1	
		Vitis aestivalis	7	7	4	
	Bag 129-1	*Carex sp.*	6			
		Fragaria virginiana	1		1	
		Potamogeton pusillus	4			
		Potamogeton sp.	11			

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
		Rubus occidentalis	228		4	
		Vitis aestivalis	1		1	
		Unidentified				
	Bag 128	*Amaranthus blitoides*	1	1	1	
		Carex sp.	40	40		
		Cornus racemosa	2	2	1	
		Cucurbitaceae	5	5	1	
		Fragaria virginiana	8	8	1	
		Portulaca oleracea	3	3	3	
		Potamogeton pusillus	1	1	1	
		Potamogeton sp.	71	71		
Yoh, Room F, Fea. 1	Bag 128	*Prunus pensylvanica*	3	3	3	
		Prunus persica	1	1	1	
		Prunus virginiana	13	13	13	
		Rubus occidentalis	456	456	9	
		Sisyrinchium sp.	1	1	1	
		Solanaceae	7	7		
		Vitis aestivalis	5	5	3	
		Vitis vinifera	6	6	3	
		Vitis sp.	10	10	3	frags.
		Unidentified frags.				
	Bag 128, Artifact wash	*Carex sp.*	4			
		Juglans nigra	1		1	
		Prunus cerasus	3		3	
		Prunus pensylvanica	2		2	
		Prunus persica	6		6	
		Rubus occidentalis	100		2	
		Vitis aestivalis	4		2	
	Bag 128-1	*Carex sp.*	255			
		Cucurbitaceae	2		1	
		Fragaria virginiana	26		1	
		Potamogeton pusillus	54			
		Potamogeton sp.	290			
		Prunus pensylvanica	82		82	
		Prunus virginiana	12		12	
		Rubus occidentalis	976		19	
		Sambucus canadensis	1		1	
		Solanaceae	1		1	
		Vitis aestivalis	17		9	
		Vitis vinifera	6		3	
		Unidentified	1		1	
Yoh, Room F, Fea. 1	Bag 128-2	*Carex sp.*	53			
		Cucurbitaceae	1		1	
		Portulaca oleracea	9		1	
		Potamogeton pusillus	18			
		Potamogeton sp.	136			
		Prunus pensylvanica	67		67	poor condition
		Rubus occidentalis	722		14	
		Sambucus canadensis	2		1	
		Solanaceae	16			
		Vitis aestivalis	13		7	
		Vitis vinifera	4		2	
		Unidentified frags.	11			
	Bag 128 Bottle	*Amaranthus retroflexus*	1	2	1	
		Carex sp.	49	103		
		Cucurbitaceae	3	6	1	
		Fragaria virginiana	8	17	1	
		Potamogeton sp.	46	97		
		Prunus pensylvanica	6	13	13	

Table 2. Area F Floral Identification

PROVENIENCE	SAMPLE NO.	IDENTIFICATION	QUANTITY: ACTUAL	QUANTITY: ADJUSTED	MNI	COMMENTS
		Prunus virginiana	4	8	8	
		Rubus occidentalis	292	613	12	
		Sambucus canadensis	1	2	1	
		Solanaceae	1	2	1	
		Vitis aestivalis	10	21	10	
		Vitis vinifera	6	13	6	
		Unidentified frags.	14	29		
	Bag 126	*Carex sp.*	13	16		
		Cornus racemosa	1	1	1	
		Fragaria virginiana	1	1	1	
		Potamogeton pusillus	3	4		
		Potamogeton sp.	14	17		
Yoh, Room F, Fea. 1	Bag 126	*Rubus occidentalis*	119	143	3	
		Vitis aestivalis	1	1	1	
	Bag 126, Artifact wash	*Prunus persica*	12	13		
		Rubus occidentalis	500	10		
		Vitis aestivalis	51	26		
		Unidentified	1	1		
	SS# 197H	*Amaranthus retroflexus*	1		1	sample contained charcoal
		Carex sp.	4			
		Potamogeton pusillus	5			
		Potamogeton sp.	26			
		Rubus occidentalis	162		3	
		Sambucus canadensis	10		3	
		Sisyrinchium atlanticum	1		1	
		Vitis aestivalis	4		2	
		Unidentified	1		1	
		Unidentified frag.	1		1	
	Bag 125	*Carex sp.*	1	7		
		Potamogeton sp.	3	22		
		Rubus occidentalis	39	289	5	
		Sambucus canadensis	1	7	2	
	SS# 197C	*Carex sp.*	1		1	
		Potamogeton sp.	1		1	
		Rubus occidentalis	8		1	
		Sisyrinchium atlanticum	1		1	
		Vitis aestivalis	2		1	
	SS# 186A	*Carex sp.*	1	1	1	All remains charred- sample mostly charcoal
		Potamogeton sp.	36	40		
		Rubus occidentalis	185	204	4	
		Vitis aestivalis	15	17	9	
Yoh, Room F, Fea. 1	SS# 186A	*Unidentified frag.*	3	3		
	SS# 186B	*Cruciferae*	1		1	frag.
		Datura stramonium	1		1	
		Potamogeton sp.	2			
		Rubus occidentalis	6			
		Sambucus canadensis	2		1	
		Sisyrinchium atlanticum	2		1	
		Vitis aestivalis	2		1	
			7344	8166		
Yoh, Room F, Fea. 2	SS# 192	*Rubus occidentalis*	1		1	
			1			
Yoh, Room F, Fea. 3	SS# 187	*Rubus occidentalis*	2		1	
			2			
Yoh, Room F, Fea. 7	SS# 182	*Rubus occidentalis*	7		1	
			7			
Area F		Site Total	19,132	20,398		

Table 3. Floral Analysis: Route 18 Archaeological Salvage Project

PROVENIENCE	SAMPLE NO.	SCIENTIFIC NAME	COMMON NAME	QUANTITY
Fea. 4 (well)	MI-1-137	*Prunus persica*	Peach	1
		Araehis hypogaea	Peanut	1
	SS# 42	*Setaria lutescens*	Bristlegrass	1
		Aquilegia Canadensis	Columbine	1
		Amaranthus retroflexus	Pigweed	27
		Vaccinium myrtilloides	Sour blueberry	5
		Eleusine indica	Goosegrass	8
		Amaranthus tuberculatus	Water hemp	22
		Spartina pectinata	Cordgrass	2
		Lonicera tatarica	Honeysuckle	3
		Eragrostis oleracea	Purslane	1
		Polygonum aviculare	Prostrate Knotweed	2
	SS# 48	*Chenopodium album*	Lamb's quarters	9
		Eleusine indica	Goosegrass	1
	SS# 49	*Chenopodium album*	Lamb's quarters	2
		Ambrosia artemisiaefolia	Ragweed	1
		Euphorbia sp.	Spurge	1
	SS# 50	*Setaria lutescens*	Bristlegrass	4
		Eleusine indica	Goosegrass	2
		Chenopodium album	Lamb's quarters	5
		Amaranthus retroflexus	Pigweed	4
		Trifolium repens	White clover	1
Fea. 4 (well)	SS# 51	*Chenopodium album*	Lamb's quarters	2
		Ambrosia artemisiaefolia	Ragweed	5
		Pensteman hirsutus	Penstemon	3
		Chenopodium album	Lamb's quarters	27
		Amaranthus retroflexus	Pigweed	49
		Eleusine indica	Goosegrass	49
		Rubus occidentalis	Black raspberry	3
		Ranunculus pensylvanicu	Buttercup	1
		Asclepias syriaca	Milkweed	2
		Eragrostis cilianensis	Stinkgrass	86
		Portulaca oleracea	Purslane	16
		Spartina pectinata	Cordgrass	4
		Cirsium arvense	Canadian thistle	1
		Vaccinium myrtilloides	Sour blueberry	18
		Polygonum aviculare	Prostrate Knotweed	3
				376
Fea. 7 (well)	SS# 56	*Portulaca oleracea*	Purslane	2
		Rubus occidentalis	Black raspberry	1
		Hedeoma pulegioides	Pennyroyal	2
		Datura stramonium	Jimsonweed	1
		Chenopodium album	Lamb's quarters	2
		Sisyrinchium mucronatu	Bluegrass	2
	SS# 59	*Rubus occidentalis*	Black raspberry	1
	SS# 61	*Rubus occidentalis*	Black raspberry	2
		Portulaca oleracea	Purslane	5
Fea. 7 (well)	SS# 61	*Chenopodium album*	Lamb's quarters	7
		Eragrostis cilianensis	Stinkgrass	3
		Vaccinium myrtilloides	Sour blueberry	1
		Sisyrinchium mucronatu	Bluegrass	4
	SS# 65	*Hedeoma pulegioides*	Pennyroyal	6
		Lepidium campestre	Pepperweed	1
		Vaccinium myrtilloides	Sour blueberry	1
		Sisyrinchium mucronatu	Bluegrass	2
	SS# 66	*Hedeoma pulegioides*	Pennyroyal	12
		Amaranthus retroflexus	Pigweed	14
		Rubus occidentalis	Black raspberry	17
		Portulaca oleracea	Purslane	70
		Datura stramonium	Jimsonweed	2
		Eragrostis cilianensis	Stinkgrass	500
				658
Fea. 11 (privy)	MI-1-203	*Prunus cerasus*	Sour cherry	20
		Prunus americanus	Plum	1

Table 3. Floral Analysis: Route 18 Archaeological Salvage Project

PROVENIENCE	SAMPLE NO.	SCIENTIFIC NAME	COMMON NAME	QUANTITY
		Arachis hypogaea	Peanut	1
		Prunus persica	Peach	3
		Citrullus lanatus	Watermelon	2
		Vitis vinifera	Grape	57
		Rubus occidentalis	Black raspberry	1
		Castanea dentata	American chestnut	3
		Pyrus communis	Pear	3
		Lagenaria siceraria	Gourd	1
		Malus pumila	Apple	1
		Prunus pensylvanica	Pin cherry	1
Fea. 11 (privy)	MI-1-204	*Citrullus lanatus*	Watermelon	8
		Prunus cerasus	Sour cherry	7
		Rubus occidentalis	Black raspberry	3
		Vitis vinifera	Grape	1
	SS# 110	*Prunus cerasus*	Sour cherry	1
		Rubus occidentalis	Black raspberry	32
		Trifolium repens	White clover	5
		Fragaria virginiana	Strawberry	8
		Cyperus schweinitzii	Flatsedge	1
		Vaccinium macrocarpon	Cranberry	8
		Amaranthus blitoides	Prostrate pigweed	3
	SS# 111	*Prunus cerasus*	Sour cherry	1
		Vitis vinifera	Grape	13
		Prenanthes alba	White lettuce	1
		Fragaria virginiana	Strawberry	107
		Arbutus menziesii	Madrone	1
		Trifolium repens	White clover	59
		Ceanothus americanus	New Jersey tea	2
		Rubus occidentalis	Black raspberry	521
		Prunus americanus	Plum	1
		Citrullus lanatus	Watermelon	1
		Cornus racemosa	Grey dogwood	2
		Pyrus communis	Pear	4
		Hibiscus militaris	Rosemallow	10
		Setaria lutescens	Bristlegrass	1
		Helianthemum bicknelli	Fern	42
		Artemisia absinthium	Wormwood	69
		Hippuris vulgaris	Mare's tail	70
		Vaccinium myrtilloides	Sour blueberry	1
Fea. 12 (privy)	MI-1-178	*Trifolium repens*	White clover	240
		Prunus cerasus	Sour cherry	4
		Citrus aurantium	Orange	2
		Lagenaria siceraria	Gourd	14
		Prunus pensylvanica	Pin cherry	128
		Triticum aestivum	Wheat	2
	SS# 82	*Rubus occidentalis*	Black raspberry	1305
		Vitis vinifera	Grape	44
		Trifolium repens	White clover	37
		Fragaria virginiana	Strawberry	3
		Lepidium campestre	Pepperweed	50
		Prunus pensylvanica	Pin cherry	4
		Sambucus canadensis	Elderberry	3
		Pinus sp.	Pine	1
	SS# 87	*Rubus occidentalis*	Black raspberry	12
		Lepidium campestre	Pepperweed	4
		Trifolium repens	White clover	5
	SS# 88	*Rubus occidentalis*	Black raspberry	23
		Vitis vinifera	Grape	1
		Portulaca oleracea	Purslane	1
		Fragaria virginiana	Strawberry	10
		Lepidium campestre	Pepperweed	5
		Amaranthus blitoides	Prostrate pigweed	1
TOTAL				7346

Table 4. Floral Species Recovered from Coprolitic Material and Associated Deposits

EDIBLE SPECIES FROM COPROLITIS DEPOSITS	INEDIBLE SPECIES FROM COPROLITIC DEPOSITS	EDIBLE SPECIES OF ASSOCIATED DEPOSITS	INEDIBLE SPECIES OF ASSOCIATED DEPOSITS
Cucurbitaceae	*Carex sp.*	*Amaranthus blitoides*	*Cornus racemosa*
Fragaria virginiana	*Potamogeton pusillus*	*Amaranthus retroflexus*	*Potamogeton spirillus*
Prunus pensylvanica	*Potamogeton sp.*	*Citrullus lanatus*	*Sisyrinchium sp.*
Prunus virginiana		*Cocos nucifera*	
Rubus occidentalis		*Juglans nigra*	
Sambucus canadensis		*Portulaca oleracea*	
Solanaceae		*Prunus americana*	
Vitis aestivalis		*Prunus cerasus*	
Vitis vinifera		*Prunus dulcis*	
		Prunus persica	

Table 5: Wetland/Aquatic Seed Distribution

PROVENIENCE	LEVEL	SAMPLE NO.	SEED IDENTITY	QUANTITY	DATE
114. S. Front St.,					
Room C, Fea. 2A	2	Bag 73	*Amaranthus tuberculatus*	8	1750-1800
			Carex sp.	138+	
	2	SS# 132	*Carex sp.*	19	1750-1800
			Potamogeton sp.	23	
114 S. Front St.,					
Room C, Fea. 2	3	SS# 104N	*Carex sp.*	3	1760-1800
	3	SS# 104I	*Carex sp.*	1	1760-1800
	3	Bag 53	*Carex sp.*	1	1760-1800
114 S. Front St.,					
Room C, Fea. 3	2	Bag 59	*Potamogeton sp.*	5	1740-1775
	2	SS# 118	*Carex sp.*	1	1740-1775
	3	Bag 58	*Barbarea vulgaris*	1	1740-1775
			Carex	6	
			Potamogeton sp.	31+	
			Potamogeton pusillus	3	
	4	Bag 56	*Barbarea vulgaris*	2 adjusted	1745-1795
			Carex sp.	23 adjusted	
			Potamogeton sp.	29 adjusted	
	4	SS# 110	*Carex sp.*	12	1745-1795
	4	SS# 111C	*Carex sp.*	24	1745-1795
	4	SS# 108	*Carex sp.*	13	1745-1795
	5	SS# 111B	*Carex sp.*	5	1750-1800
			Sagittaria platyphylla	1	
	7	SS# 111A	*Carex sp.*	1	1750-1800
	7	Bag 23	*Potentilla simplex*	3 adjusted	1750-1800
					1720-1800
Yoh, Room A, Fea. 1	2	Bag 86	*Potamogeton spirillus*	1	(1760)
			Potamogeton sp.	22	
					1750-1800
	3	Bag 83	*Potamogeton sp.*	25 adjusted	(1795)
	4	SS# 136	*Potamogeton sp.*	9	1795-1800
Yoh, Room A, Fea. 2	2	SS# 140B	*Carex sp.*	1	1740-1800
	3	SS# 140A	*Potamogeton sp.*	1	1740-1800
	3	Bag 17	*Potamogeton sp.*	8	1740-1800
	3	SS# 139C	*Carex sp.*	5	1740-1800
			Potamogeton sp.	19	1740-1800
	3	SS# 139B	*Potamogeton sp.*	15	1740-1800
	3	SS# 139A	*Potamogeton sp.*	2	1740-1800
Yoh, Room C, Fea. 1	3	SS# 151D	*Potamogeton sp.*	10	1720-1775
	3	Bag 90	*Potamogeton sp.*	15	1700-1775
	2-3	Bag 90A	*Potamogeton sp.*	44	1700-1805
		Bag 90A	*Carex sp.*	2	
	5	Bag 87	*Potamogeton sp.*	8	1700-1800
	6	SS# 151H	*Carex sp.*	2 adjusted	1700-1760
			Potamogeton sp.	69 adjusted	
	6-7	Bag 82	*Potamogeton sp.*	7 adjusted	1700-1760
	7	SS# 151G	*Potamogeton sp.*	4	1700-1760
	7-8	SS# 151M	*Potamogeton sp.*	1	1700-1760
	8	SS# 151I	*Potamogeton sp.*	14	1750-1800
	8	SS# 151J	*Potamogeton sp.*	1	1750-1800
Yoh, Room C, Fea. 2	2	Bag 67	*Potamogeton sp.*	78 adjusted	1775-1800
		Bag 85	*Potamogeton sp.*	110 adjusted	1745-1795
Yoh, Room F, Fea. 1	2	Bag 133	*Carex sp.*	5	1700-1770

Table 5: Wetland/Aquatic Seed Distribution

		Potamogeton spirillus	1	
		Potamogeton pusillus	3	
		Potamogeton sp.	45	
3	Bag 130	*Potamogeton sp.*	78	1700-1770
3	SS# 225	*Carex sp.*	20	1700-1770
		Potamogeton sp.	51	
		Potamogeton pusillus	3	
4	Bag 129	*Potamogeton sp.*	14	1700-1775
4	Bag 129-1	*Carex sp.*	6	1775
		Potamogeton pusillus	4	
		Potamogeton sp.	11	
5	Bag 128	*Carex sp.*	143 adjusted	
		Potamogeton pusillus	1	
		Potamogeton sp.	168 adjusted	
5	Bag 128-1	*Carex sp.*	255	1775
		Potamogeton pusillus	54	
		Potamogeton sp.	290	
5	Bag 128-2	*Carex sp.*	53	1775
		Potamogeton pusillus	18	
		Potamogeton sp.	136	
6	Bag 126	*Carex sp.*	16 adjusted	1775-1800
		Potamogeton pusillus	4 adjusted	
		Potamogeton sp.	17 adjusted	
6	SS# 197H	*Carex sp.*	4	1775-1800
		Potamogeton pusillus	5	
		Potamogeton sp.	26	
7	Bag 125	*Carex sp.*	1	1775-1800
		Potamogeton sp.	3	
9	SS# 197C	*Carex sp.*	1	1775-1800
		Potamogeton sp.	1	
10a	SS# 186A	*Carex sp.*	1 adjusted	18th century
		Potamogeton sp.	40 adjusted	
10a	SS# 186B	*Potamogeton sp.*	2	18th century

Table 6. Edible Weed Seed Distribution

PROVENIENCE	LEVEL	SAMPLE NO.	SEED IDENTITY	QUANTITY	DATE
114 S. Front St., Room C, Fea. 2/2A	2	Bag 73	*Amaranthus tuberculatus*	8	1750-1800
	2	Bag 73	*Brassica nigra*	1	1750-1800
	3	Bag 53	*Solanaceae*	1	1760-1800
	4	SS# 104H	*Portulaca oleracea*	2	1800
	4	SS# 104L	*Hedeoma pulegioides*	2	1800
	5	SS# 104M	*Brassica nigra*	1	1800
	8	Bag 21	*Chicorium intybus*	3	1800
	8	Bag 21	*Hedeoma pulegioides*	1	1800
114 S. Front St., Room C, Fea. 3	2	Bag 59	*Cruciferae*	1	1740-1775
	3	Bag 58	*Barbarea vulgaris*	1	1740-1775
	4	Bag 56	*Barbarea vulgaris*	1	1745-1795
	5	SS# 111B	*Sagittaria platyphylla*	1	1750-1800
	7	Bag 23	*Potentilla sp.*	1	1750-1800
Yoh, Room A, Fea. 2	2	SS# 140B	*Physalis heterophylla*	2	
	3	SS# 140A	*Amaranthus blitoides*	1	1740-1800
	3	SS# 139A	*Chenopodium ambrosioides*	1	1740-1800
Yoh, Room C, Fea. 1	2-3	Bag 90A	*Chenopodium ambrosioides*	1	1700-1805
Yoh, Room F, Fea. 1	2	Bag 133	*Solanaceae*	3	1700-1770
	3	SS# 225	*Solanaceae*	1	1700-1770
	5	Bag 128	*Amaranthus blitoides*	1	1775
	5	Bag 128	*Amaranthus retroflexus*	1	1775
	5	Bag 128	*Portulaca oleracea*	12	1775
	5	Bag 128	*Solanaceae*	25	1775
	6	SS# 197H	*Amaranthus retroflexus*	1	1775-1800
	10a	SS# 186B	*Cruciferae*	1	18th century

APPENDIX IV:

Paleoethnobotany and Parasitology of Area F

by
Leslie E. Raymer and Dr. Karl J. Reinhard

PALEOETHNOBOTANY AND PARASITOLOGY OF AREA F, PHILADELPHIA, PENNSYLVANIA

Report submitted to:

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New South Associates Technical Report # 1282

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

I. INTRODUCTION

John Milner Associates, Inc., under the direction of Ms. Juliette Gerhardt, undertook analysis of artifact assemblages recovered from the 1977 excavation conducted by Temple University at Area F, Philadelphia. Twenty-eight flotation samples from 10 contexts (93 liters) were submitted for archaeobotanical analysis (Appendix A). The macroplant samples that were examined in this study were derived from eight shaft features associated with mid-eighteenth through early nineteenth-century occupation of Area F. Thirty-five samples from these same contexts were subjected to parasitological analysis by Dr. Karl Reinhard.

The primary objectives of the archaeobotanical analysis were to examine plant use and refuse disposal patterns as they were manifested in the Area F features exposed during data recovery. This enabled us to gain a perspective on subsistence patterns and land use practices of the Area F eighteenth and early nineteenth-century inhabitants. The current Area F archaeobotanical data set was compared to Area F macroplant remains studied by Roberta Taylor (1981) as part of her Master's thesis research and two other Phase III data recoveries conducted in the Independence Mall area of Philadelphia by John Milner Associates--the Liberty Bell (Block 1, South Sixth Street) and Independence Visitor Center (Block 2, Market Street) projects. The current analysis was based upon 30+ year-old unfloated soil samples, while the Taylor study was conducted in the late 70s when the macroplant remains were first excavated. The comparative data provided valuable information on the socioeconomic status of the Area F residents relative to their neighbors in the Market Street and South Sixth Street localities of Philadelphia and of the effects of long-term storage of soil samples.

Parasitological analysis was undertaken in order to gain a perspective on parasitism and the overall health of the resident population. A comparison of parasite egg concentrations with other sites was then done to determine the relative health threat posed by parasites. Key archaeobotanical and parasitological analysis research questions were the following:

(1) Do patterns of plant use change over time?
(2) Does the macroplant assemblage offer evidence of the economic status of the residents?
(3) Does the macroplant assemblage provide evidence of exotic imported foods, home gardening, gathering of locally available wild plants on the lots, and/or ornamental plantings on the lots?
(4) Does the macroplant assemblage offer evidence of what the local environment was like?
(5) What is the overall health of the resident population? Did they suffer from significant levels of parasitism?

II. ANALYSIS PROCEDURES

MACROPLANT ANALYSIS METHODS

Twenty-eight one to five-liter flotation samples were floated by John Milner Associates, Inc. staff members. The samples were subjected to machine-assisted water separation in a Shell Mound Archaeological Project (SMAP) type flotation machine (Pearsall 1989; Watson 1976). The heavy fraction insert of the system was screened with 0.8 mm mesh.

In the laboratory, a randomly split 25 percent sample of each flotation light fraction was weighed, and then passed through nested geologic sieves (4.0 mm, 2.0 mm, 1.0 mm, 0.71 mm, 0.5 mm). Each size-graded light fraction was fully sorted under low magnification (6-25x). All of the material that was greater than 2.0 mm was pulled from the sample matrices and was quantified by material type, weight, and count. Material that was smaller than 2.0 mm was sorted, but only charred and uncharred seeds were removed. All 28 flotation heavy fractions were sorted in order to verify the flotation separation, which seems to have been excellent (i.e., vast majority of seeds were found in light fractions). Wood charcoal identifications were made on material recovered from the four flotation samples which contained adequate quantities of wood. The remaining 24 samples were excluded from wood analysis, due to small quantities of recovered carbonized wood.

Four comparison ratios (species ubiquity, species richness, species density, relative proportions of identified wood and plant remains) were utilized to study the macroplant remains. In ubiquity analysis, the occurrence of each plant type is expressed as a percentage of the total number of proveniences in which a particular taxon is present. This measure ascribes equal weight to the physical presence of a given taxon, regardless of the abundance of that plant type in a particular sample. Therefore, a sample that contains one seed of a given taxon is equivalent to a sample containing several hundred of the same seed. This offers a way to assess the relative importance of various plant species and gives an indication of how common each plant type is at the site. Ubiquity analysis is utilized in the analysis of plant food remains to assess the relative importance and meaning of the seed assemblage.

The richness of the macroplant assemblage from the Area F privies was calculated and graphically displayed in order to compare and contrast dietary richness of the occupants of the Area F site with the eighteenth and nineteenth-century diet of high and low income individuals from other urban settings. This was accomplished by counting the number of plant taxa recovered from 10 Area F components from eight shafts and comparing these data with other eighteenth and nineteenth-century Philadelphia contexts (the Independence Visitor Center and Liberty Bell projects at Independence Mall) and organizing the plant data by presumed economic importance of each plant taxon.

The analytical procedure of species density was used to quantify the macroplant remains associated with each temporal unit. Species Density measures the count or weight of a plant taxon per liter of processed soil. This measure allows a comparison of the relative densities of different plant taxa and is useful for standardizing raw count/weight data. In this study, density measures were used to calculate the count density of each category of macroplant remains on the basis of presumed economic importance and the entire seed assemblage from each temporal component per liter of floated soil.

Finally, the relative proportions of the identified wood charcoal and each category of macroplant remains associated with each temporal component of each feature and the entire population of sampled features were presented. These data allowed an assessment of differential wood use at this eighteenth through nineteenth-century urban occupation and assessment of relative importance and/or preservation of economically important plant taxa.

PARASITOLOGICAL ANALYSIS METHODS

Thirty-five samples were submitted for parasite analysis. The samples were examined for color or texture indicators of nightsoil origin such as organic content, presence of apparent lime, and absence of trash and artifacts.

Materials and Methods

The parasitological methods have been developed and perfected by Reinhard over the last 25 years based on experimentation with clinical and archaeological sediment analysis methods (Reinhard et al. 1986; Warnock and Reinhard 1992). The main goals of this work have been the identification of the diversity and quantity of parasite eggs by taxon in sediments. Identification of taxa is based on laboratory atlases of medical, veterinary, and wildlife parasite eggs, with comparison of eggs with reference collections in the palynologist's laboratory, and with his experience of working in veterinary and wildlife diagnostic labs.

The goal of quantification is to determine the approximate numbers of eggs per milliliter of sediment. Quantification is based on extracting and concentrating eggs from the sediments. Reinhard et al. (1986) presented the comparative results of clinical, chemical, and dilution methods for parasite analysis of sediments. Clinical methods of parasite egg flotation were unproductive due to the failure of ancient eggs to respond to flotation media because of changes in buoyancy of the eggs over time and the fact that the eggs were often trapped in soil matrices. Dilution methods were effective with sediments that contained large numbers of eggs, but when the numbers of eggs were less that 1,000 eggs per ml, the method was not reliable. Chemical extraction of eggs using hydrochloric acid and hydrofluoric acid was very effective in releasing the eggs, cleaning the eggs, and dissolving the soil matrix. Warnock and Reinhard (1992) presented a modified palynological procedure with the application of pollen concentration methods of extract and quantify the numbers of eggs per ml of sediment.

The samples were processed following the general methods of Warnock and Reinhard (1992) with some refinement based on analysis of historic sites in recent years (Fisher et al., in press). For this analysis, *Lycopodium* spore batch 212761 was used. Previous analysis shows that approximately 12,500 spores are present in each tablet (values presented from different analyses of tablets are 12,432, 12,489, and 12,542). The parasite eggs were quantified for 0.02 milliliters of processed sediment for each sample in order to standardize the results of each analysis. The samples were then scanned and an additional 0.06 to 0.08 milliliters of processed sediment to identify trace parasite eggs.

Sediment was removed from each sample bag. The sediment was freed of large fragments of detritus. A search for artifacts in the sediment was done. Thirty milliliters were removed from the loose sediments. Then, three *Lycopodium* spore tablets were added to each 30 ml sample (about 1,250 *Lycopodium* spores were added to each milliliter of sediment). The spore tablets were dissolved in a few drops of hydrochloric acid in 100 ml beakers. The sediment sample was then added to the beaker. If there was a reaction with the hydrochloric acid, distilled water was added

with 5 milliliters of acid. Finally, more water and dilute acid was added until the reaction between the acid and the sediments stopped.

Once dissolved in acid, the samples were transferred to 300-milliliter beakers and treated with the swirl technique. The contents of the beaker were swirled until all particles were in suspension. The beaker was placed on a flat surface for 30 seconds. After 30 seconds, the fluid was poured through a 300-micrometer mesh. This was repeated twice. The macrofossils on the mesh were examined for indicators of nightsoil, especially the presence of *Rubus* seeds. Then the screened fluid was concentrated by centrifugation in 50 ml centrifuge tubes. The sediments were washed three times in distilled water.

Preliminary scans were made of the samples to determine if further chemical processing was necessary. Samples with a high content of fine silicates required further processing. The sediments were transferred into 500-milliliter polypropylene beakers. Hydrofluoric acid was added to each beaker and the sediments were thoroughly mixed in the acid. The samples were left in the hydrofluoric acid for 24 hours and were stirred occasionally during this period. Then the sediments were concentrated by centrifugation in 50-milliliter centrifuge tubes. The acid was disposed into a hazardous materials container. The sediments in the tubes were then washed three times in distilled water.

Drops of the sediments were transferred to glass microscope slides with Pasteur pipettes. The sediment drops were mixed with glycerin and covered with glass cover slips. For each sample, 25 *Lycopodium* spores were counted along with all parasite eggs found in the process of counting the spores. After counting, at least three more microscope preparations were counted to assess the presence of trace amounts of parasite eggs. The concentrations of eggs of each species was calculated using the following formula:

Egg concentration = ((p/m) x e)/ v, in which p = parasite eggs counted, m = marker *Lycopodium* spores counted, e = *Lycopodium* spores added, and v = volume of sediment.

Identification of the genera of the parasite eggs was done by morphological analysis. In the case of trichurid eggs, the dimensions of the eggs were measured and compared to those of trichurid species from a variety of hosts including humans, domestic animals, and rodents that commonly infest habitations.

ARCHAEOBOTANICAL AND PARASITOLOGICAL STUDY DATASETS

This section presents the data upon which the archaeobotanical and parasitological studies were based. The macroplant remains studied by New South Associates, Inc. during this analysis are summarized in Tables 1 through 8 and Figure 1. Relative comparative data is presented in Tables 9 through 11 and Figures 2 and 3. The Latin nomenclature, principal uses, and habitats of the macroplant assemblage are presented in Table 1. Raw counts of all seeds recovered by flotation are presented in Table 2. The density (count per liter of floated soil) of the macroplant assemblage is presented in Table 3. Wood charcoal weights, densities (weight in grams per liter), and data on the identified wood charcoal assemblage is tabulated in Table 4. This table presents counts of identified wood specimens and the relative proportions of the identified wood. Percentage values in this table list each taxon as a proportion of all identified wood fragments.

The total number of seeds associated with each economic plant category are tabulated in Table 5. The relative proportions of economically important plant categories are presented in Table 6. The counts and densities (#/L) of plant remains associated with each time period are presented in

Tables 7 and 8. Finally, macroplant remains studied by Roberta Taylor (1981) as part of her Master's thesis research are presented in Tables 9 to 11. These tables tabulate numbers of identified taxa (Table 9), total numbers of seeds associated with each economic plant category (Table 10), and proportions of economically important plant categories (Table 11). Figures 1 through 3 tabulate the numbers of economic taxa associated with the seven dated Area F contexts (Figure 1), four upper class residential, two middle class residential and two middle class commercial contexts at Block 1 (Figure 2), and four middle class commercial contexts at Block 2 (Figure 3). These graphs organize the plant data by presumed economic importance of each taxon. Individual plant taxa found in the Block 1 and 2 privy contexts are tabulated in Appendix B. The comparative data set was exclusively restricted to privy data because these features generally provide an excellent preservational environment and plant remains found in these privies provide direct evidence of diet. Additionally, by limiting our study to privy data, we controlled for differing preservational conditions found in different feature types. The macroplant raw data are tabulated in Appendix A. Ethnohistoric data on the potential environments and uses of the identified macroplant assemblage are presented in Appendix C.

The parasitological analysis data is tabulated in Tables 12 through 16. The sample provenience data and raw counts of parasite eggs are presented in Tables 12 and 13. Calculated numbers of parasite eggs per milliliter of sediment are tabulated in Table 14. The calculated egg concentrations are presented by dated provenience in Table 15. The minimum and maximum egg concentrations associated with selected households is presented in Table 16. Figure 4 illustrates images of nematodes and nematode eggs. In this figure, the upper images are of a free-living, non-parasitic nematode. The left hand image in the lower row is a free-living nematode larvae. Free living worms were relatively common in these samples; this shows that dehydration of the samples did not harm these delicate structures. The lower right images are of *Trichuris trichiura*, c.f. eggs. Note that one of the eggs is filled with an air bubble. Figure 5 illustrates the variation in ascarid and trichurid eggs in Feature YohA1. Parasite egg concentrations found in Features YohA2 (Figure 6), YohC1 (Figure 7), 114C2 (Figure 8), and YohF1 (Figure 9) are presented in Figures 6 through 9. Figure 9 shows the egg variation in Feature YohF1. The upper level shows few eggs, probably because this level did not contain a high concentration of nightsoil. The middle level shows a spike of both parasite species in the latest nightsoil deposits. It is clear that the lowermost level represented an earlier period when *A. lumbricoides* infection was controlled relative to whipworm.

III. MACROPLANT ANALYSIS AND INTERPRETATION

OCCUPATIONAL HISTORY

Area F

The Area F locality, which is bordered by Front and Second streets on the east and west and Ionic and Gatzmer streets on the north and south, is one of the oldest parts of Philadelphia. The first lot in this block was surveyed in 1682, in the first two months after the arrival of William Penn in the colony. The initial lots that were laid out on this block were large and deep. For example, the first lot placed in the block measured 102 feet north-south by 396 feet east-west. By the middle of the eighteenth-century, these capacious lots were subdivided into smaller parcels and three east-west oriented alleys were added to the interior of the block in order to accommodate more residences (Cotter et al. 1992). The same properties, and many of the same structures were in use throughout the eighteenth and first half of the nineteenth centuries. Moreover, the configuration of the lots as it was manifested in the 1750s was stable until the mid-nineteenth century, when the area was gradually cleared of its eighteenth and early nineteenth-century structures, which were replaced with much larger commercial buildings. After this time, the eighteenth and early nineteenth-century deposits were capped by these commercial buildings, parking lots, etc.

The Area F macroplant assemblage derived from mixed residential and business use of the Area F locality from circa 1750 to 1825. During this period, the project area was populated by artisans and tradesmen who located their businesses and homes there. Occupants of Area F included an optician, bakers, a gunsmith, a silversmith, tavern keepers, small store owners, a mariner, a glass manufacturer, and a furniture carver/gilder. Macroplant remains from five privies (YohA1, YohC1, YohF1, 114C2, 114C3) associated with four Area F addresses (75 South Second Street, 13 Gray's Alley, 1-3 Gray's Alley, 58 South Front Street) comprised the bulk of the archaeobotanical assemblage from the current study. Three features (YohF2, YohF3A, 114B1) which were not high clearly associated with specific residences or time periods, yielded minor quantities of macroplant remains.

Feature YohA1 was associated with a house built in 1763 at 75 South Second Street. This feature was utilized in the 1790s by the household of William Richardson, an optician and optical instrument maker who lived at this address with five other people. Subsequent owner-occupants of this residence included a gunsmith (1803) and silversmith/umbrella manufacturer (1815). The YohA1 privy deposit (Analytical Stratum I) dated between circa 1790 and 1825. The privy was filled in around 1829.

Feature YohC1 (Analytical Stratum I), which had a TPQ of 1750, was associated with a house that was built in 1702. The privy deposit from this feature appears to date to the ownership and occupancy of William Annis, a mariner, and his family in the late 1740s. William Annis died in 1748, a year or two after his wife Patience. The privy was filled in 1750.

Feature YohF1, which was located at 1-3 Gray's Alley, had a long and relatively complex use-life. This privy was utilized from circa 1769 until it was filled in 1825. The privy was shared throughout this period by the occupants of two dwellings located on the lot by 1720 and the workers at the bake house and frame granary built on the lot by William Gray in 1738. Throughout this period, the occupants of the two 1-3 Gray's Alley residences were renters. Three temporally discrete deposits were identified in the YohF1 privy. Analytical Stratum I, which dated to circa 1769, corresponded to the ownership of this property by William Gray and later

Mary Weyman. Analytical Stratum II dated from circa 1783 to 1800, corresponding to the ownership of Thomas Bond Jr.and his tenants. The final fill deposit, Analytical Stratum III, associated with owner John Elliott, an apothecary and looking-glass manufacturer who lived next door, closed the privy circa 1825.

Two privies were associated with occupation of the 58 South Front Street address from circa 1687 until about 1823. The first privy, 114C3, which was filled in circa 1783, was used from 1769 until 1783 by the household of Hercules Courtney, a carver and gilder who maintained his shop, home, and a tavern at this address. The house located at this address was almost 100 years old when Courtney occupied it in the 1760s. A second house was built at 58 South Front Street in the 1790s, when the lot was purchased by merchant Robert Smith who located his home and dry goods store at this address. The Feature 114C2 privy (in use from circa 1791-1823) is associated with the Smith household. Smith was a middle class businessman who was influential in Philadelphia and maintained a large household (up to 24 people). Smith was probably the most well-to-do occupant of Area F during the 1760 to 1825 period.

Block 1 (Liberty Bell Project)

The Block 1 archaeobotanical assemblage derived from five strata from two privies (Features E and G) associated with two South Sixth (# 5 and 7) Street addresses (Raymer 2003). During the first quarter of the nineteenth century, Block 1 was populated by middle class artisans and tradesmen who located their businesses and homes in the area. Occupants of the locality at this time included a cabinetmaker, a merchant, and a coachmaker. Residential occupation of Block 1, South Sixth Street locality was similar to the nineteenth-century occupation of Area F. The initial mixed residential and business use of Block 1 extended from circa 1800 through the 1820s. The nature of occupation of the project area began to change in the 1830s. South Sixth Street, like the entire Independence Mall area was transformed from a mixed use residential and business street to a business thoroughfare. Occupancy of the locality became almost exclusively business-oriented during this time.

The first occupants of the 5 and 7 South Sixth Street addresses were middle class owner occupants who located their homes and businesses at these addresses. Alexander Turnbull, a cabinetmaker, located his business at 5 South Sixth Street in 1801 and lived at this address until 1828. The early nineteenth-century deposit in the Feature G privy (1800 to 1828) was associated with the Turnbull household. Thomas Ogle, a coachmaker, rented and later purchased a house located at 7 South Sixth Street between 1790 and 1800. The first deposit of Feature E was associated with the Ogle household. By 1820, the Ogles no longer lived in the vicinity.

J. H. Watson, a maker of boots and shoes, located his business at 5 South Sixth between 1855 and 1859. By 1890, three businesses were established at this address. These businesses, which included a paper company and a feed and seed business, were located at the 5 and 7 street addresses until circa 1930, when most of the Block 1 property was vacant. Two privy deposits are associated with the post 1830 commercial occupation of Block 1. These consist of Feature E (1830s-1850s) and Feature G (1830s-1850s). Presumably macroplant remains deposited within these mid-nineteenth-century contexts were primarily associated with business owners and their employees who worked at the addresses where these features were located. Macroplant remains associated with mid-nineteenth-century commercial use of Block 1 consist of a limited array of fruits, vegetables, and condiments that are probably reflective of midday meals eaten at these addresses by owners and their employees.

Block 2 (Independence Visitor Center)

The occupational history reflected within Area F and Block 1 was mirrored in Block 2, Market Street, which was also situated within the Independence Mall locality. The Independence Visitor Center (IVC) samples were derived from four late eighteenth through mid-nineteenth-century wood-lined privies associated with an upper middle class residential neighborhood located within Independence Mall (Raymer 2002). The privies dated to residential and commercial use of the Block 2 locality between 1790 and 1855.

During the 1790s, the Block 2 locality was a fashionable residential street that was populated by well-to-do owner occupants. Occupants of the locality at this time included physicians, an ironmonger, a cooper, a tailor, a notary, an accountant, and well-to-do merchants. Two privies, Features B, Level 8 and E, Level 4/5, associated with the 1790s occupation were sampled for macroplant remains. The Feature B privy was utilized by a well-to-do merchant in the 1790s. Plant food remains associated with this privy bear witness to the high status lifestyle of the eighteenth-century occupant. The Feature E privy was utilized in the 1790s by the household of an accountant who lived a simple, uncluttered life. The archaeobotanical assemblage was reflective of the simplicity of his lifestyle and diet.

The nature of occupation of the project area began to change in the early 1800s. Market Street was transformed from a fashionable residential street to a business thoroughfare in the first quarter of the nineteenth century. Occupancy of Block 2 became more mixed during this time and thus more closely resembled the Area F and Block 1 localities, which always represented a mixed residential/business use. The circa 1820 to 1830 deposit of the Feature B privy was associated with the household and business of two well-to-do merchants who manufactured and marketed plain and fancy combs. Plant food remains associated with this (Everly) occupation were reflective of this merchant's wealth and high status. Overall, the Block 2 occupants seem to have been higher status individuals than the occupants of both Area F and Block 1 during the same time period.

By the early 1840s, residential occupation of Block 2, like that of Block 1, had decreased markedly and much of the land use was exclusively commercial. This mixed commercial and residential use of Block 2 extended from the 1840s until 1856, when a massive fire destroyed over 44 buildings in the project area. Four privy deposits are associated with the 1840 to 1855 commercial occupation of Block 2 [Feature C (1842); Feature E (1845-1855), Feature H (1845-1855), Feature B (1850)]. Presumably macroplant remains deposited within these mid-nineteenth-century contexts were primarily associated with business owners and their employees who worked at the addresses where these features were located. Macroplant assemblages associated with this time period were certainly lacking in diversity and indicators of a rich, leisurely diet such as fancy nuts and exotic imports (coconut, English walnut, olive, peanuts). Macroplant remains associated with mid-nineteenth-century commercial use of Block 2 like that of Block 1, was reflective of midday meals of non-resident business owners and workers.

PRESERVATION OF THE AREA F MACROPLANT ASSEMBLAGE

Macroplant remains recovered by the current study included 26.2 grams of greater than 2.0 mm wood charcoal and 22,617 seeds (3 charred, 22,614 uncharred). All of the identified seeds and other plant parts, both charred and uncharred, were analyzed in this study. The three carbonized seeds recovered from the samples are interpreted as unquestionable archaeological remains. The origin of the uncharred seeds was more problematical. The entire seed assemblage was analyzed in this historic sites study. Uncharred seeds are frequently excluded from macroplant studies

because they are interpreted as modern intrusions into archaeological deposits (Lopinot and Brussell 1982; Miller 1989; Minnis 1981). Several studies have assessed problems associated with the long-term preservation of uncharred seeds in open-air sites in mesic environments (Miksicek 1987; Miller 1989). Uncharred seeds are rarely preserved for many years in open-air, moist soils and are poorly preserved in open-air, dry soils (Miksicek 1987). However, when suitable environmental conditions exist, fresh seeds will last for long periods of time (Miller 1989: 50).

Because the project locality was occupied from the eighteenth through the early nineteenth centuries, the likelihood of recovering uncharred seeds from the archaeological deposits was greatly increased. Extensive studies of macroplant assemblages from eighteenth and nineteenth century archaeological sites conducted by Raymer and others have shown that even the most fragile seeds are frequently preserved in both features and midden deposits, particularly when the sites are rapidly and deeply buried (see Raymer 1998, 2002, 2003). With this in mind, the origins and antiquity of each plant taxon were carefully assessed.

The evidence suggests that the entire uncharred seed assemblage dated to the time of the site's occupation and use. First, all of the analyzed features were shaft privies that were sealed from 100 to 250 years ago. Privies provide particularly excellent microenvironments for the long-term preservation of uncharred seeds. Most of the privies were lined, which would have reduced the chances of post-depositional disturbance by rodents and tree roots.

Second, the local environmental conditions in the project locality indicated that the deposit was waterlogged throughout much of its post-depositional history. Consequently, these buried features approximated many wet sites, wherein organic matter remains in an excellent state of preservation due to the inundated condition of a given archaeological deposit.

Third, all of the features were deeply buried, which greatly reduced the chances of postdepositional intrusion of modern seeds into the archaeological deposit. Since the late nineteenth century, the site area had been covered by a thick layer of overlying fill on which large commercial buildings and parking lots had been constructed. Keepax (1977) and Bocek (1986), in separate studies of agents of postdepositional bioturbation, have shown that the majority of modern seeds are found in the upper 50 centimeters of a given soil column. The Area F features under study were covered by far more than 50 centimeters of fill.

Finally, further evidence lies with the seeds themselves. Much of the seed assemblage, with particular emphasis placed on the fruits and certain vegetables, originated from food remains that were obviously directly deposited in fecal material. The blackberry/raspberry, blueberry, chokecherry, elderberry, fig, strawberry, watermelon, squash, tomatillo, and tomato seeds were ingested and later expelled by the site inhabitants. Indeed, these taxa are virtually ubiquitous in historic period privies (see Raymer 1998, 2002, 2003). Also, the majority of the seeds were mineralized, which greatly increased the durability of uncharred macroplant remains. Also, many of the seeds had fecal material directly adhering to them.

OVERALL RECOVERY

The recovery of macroplant remains was excellent, and provided important clues about changes in plant use over time, subsistence practices, and changes in the local ecology. Macroplant remains recovered through flotation included 26.2 grams of greater than 2.0 mm wood charcoal, 17 unidentifiable seeds, and 22,600 specifically identifiable seeds. This recovery yielded an overall count density of 243 seeds per liter of floated soil (Table 3). As has already been

discussed, the entire seed assemblage was assumed to date to the eighteenth and nineteenth-century occupation of Area F. Ninety-nine percent of the identified seeds (exotic, condiments, fruits, vegetables—see Tables 2, 5) almost certainly derived from plant food remains. Most of the wood charcoal probably originated from household fuel from heating and cooking fires. Other remains found in the flotation samples included a variety of small artifacts and zooarchaeological remains that were forwarded to the principal archaeologist for separate study.

Macroplant remains recovered through flotation of the Liberty Bell soil samples included 194.53 grams of wood charcoal, 12 unidentifiable seeds, and 60,305 specifically identifiable seeds and other reproductive structures (nutshell). This recovery yielded an overall count density of 503 seeds per liter of floated soil (Raymer 2003). Identifiable macroplant remains consisted of 5 fragments of carbonized nutmast and 60,300 seeds and fruit pits. The IVC assemblage included 8 unknown seeds, 4 unidentifiable seeds, and 27,327 specifically identifiable seeds and other reproductive structures (nutshell, cucurbit rind). This recovery yielded an overall count density of 497 seeds per liter of floated soil (Raymer 2002). Identifiable macroplant remains consisted of 8 fragments of nutmast and 27,319 seeds and fruit pits. One of the principal differences between the 2005 Area F and the IVC and Liberty Bell macroplant assemblages lay in the lower seed density found in the Area F deposit. These lower seed densities appeared to correlate to a lower economic status of the Area F residents. However, they may also have been related to the vagaries of differential preservation. These two possibilities are discussed in the following sections.

DENSITY OF AREA F MACROPLANT REMAINS

Seed densities were markedly different in each Area F analyzed context, ranging from a high density of 1,064 seeds per liter to a phenomenally low density of less than 1 seed per liter of floated soil (Table 3). The greatest density of macroplant remains was found in the circa 1791 to 1823 deposit recovered from Feature 114C2, which was associated with the residence and store located at 58 South Front Street during this time period. Robert Smith, the merchant who lived at and operated his store from this address for 31 years beginning in the 1790s, was the most well-to-do resident of Area F. The very high seed density associated with this feature was principally derived from two fruits, blackberry/raspberry (505 seeds/L) and strawberry (410 seeds/L). The exceptionally high density (and proportion) of these two taxa may reflect home processing of these fruits into wines, jellies, and/or pies that were sold in the Smith store.

The seed densities from four privy deposits exhibited more modest, but still high, densities ranging from 135 to 367 seeds per liter of floated soil. These privy deposits derived from two strata from Feature YohF1 (Analytical Stratum I, II), Feature 114C3, and Feature YohA1. Feature 114C3, which was associated with the Courtney residence, shop, and tavern located at 58 South Front Street between 1769 and 1784, yielded 224 seeds per liter. The Feature YohA1 privy sample produced 188 seeds per liter. This feature, which was in use for 25 years (1790-1825), was associated with the owner occupancy of an optician (1790s), a gunsmith (1803), and a silversmith (1815). High densities were also associated with Analytical Stratum I (135 seeds/L) and II (367 seeds/L) of Feature YohF1. This privy, which was shared by two rental properties and a bake house located at 1-3 Gray's Alley, exhibited the longest use life of any Area F shaft feature. The privy, which contained three discreet datable deposits, was in continuous use from 1760 through 1825. Analytical Strata I and II date from 1769 to 1800. Analytical Stratum III, which was associated with the 1825 filling episode of this shaft feature, had an exceptionally low (5 seeds/L) density of macroplant remains.

Seed densities were atypically low in five feature contexts (YohC1, YohF1 Analytical Stratum III, YohF2, YohF3A, 114B1), ranging from 0 (YohF2) to 36 (Yoh C2) seeds per liter of floated

soil. The low density of seeds found within three of the features (YohF2, YohF3A, 114B1) was not unexpected, given the poor context and scarcity of artifacts found in these features. These three features will not be further discussed in this study. However, the low density of seeds found in Analytical Stratum III of Feature Yoh F1 and YohC1 was somewhat unexpected, given the context, long use-lives (15 to 65 years), and much greater seed densities of the other Area F privies. The low density of Feature YohF1, Analytical Stratum III relative to Analytical Strata I and II is explained by the absence of nightsoil and the nature of the deposit as fill associated with its final infilling and abandonment.

The Feature YohC1 flotation sample, which contained only 36 seeds per liter of soil, dated to 1750 and was associated with the 13 Gray's Alley residence owned and occupied by a mariner, William Annis and his family. In addition to this low density of seeds, the diversity of economically important plants found within this feature was low (only four fruit taxa—Table 2). Annis and his wife died of illness in 1748. The feature was subsequently filled in 1750, when the property was sold by the Annis' heirs. The Yoh C-1 deposit represents the briefest period of use (1 to 2 years) of any of the sampled Area F privies included in the present study. This short use life may have contributed to the exceptionally low seed density of the flotation sample from this feature. The low density may also be related to illness and death in the Annis family. The privy may have been cleaned out shortly after they died—this would seem likely if their illness involved dysentery or heavy diarrhea. On the other hand, the low seed density from this feature sample may have resulted from sampling bias or differential preservation.

COMPARISON OF 2005 AREA F ARCHAEOBOTANICAL ASSEMBLAGE AND TAYLOR'S 1981 ARCHAEOBOTANICAL ASSEMBLAGE

The possibility of differential preservation was evaluated by comparing the Feature YohC1 macroplant assemblage from the present study to that found by Roberta Taylor in her 1981 study of 138 Area F botanical samples. Macroplant remains from Taylor's analysis of 87 samples from eight features are tabulated in Tables 9 through 11 (these data were extracted from Taylor 1981, Table 2, which reported 91 samples). Macroplant remains identified by Taylor (1981) consisted of 18,962 specifically seeds and other reproductive structures (nutshell). Forty-nine categories of seeds and other plant parts were identified, and included 2 exotic imports, 2 condiments, 3 vegetables, 12 fruits, 2 nuts, 4 possible ornamentals, 9 edible herbs, 16 herbaceous weeds, and three grasses (Table 9). Twenty of these taxa represented definite economically important plant foods (exotics, fruits, condiments, vegetables, nuts). Four plants, burning bush, gray dogwood, maple, and flax, may have been ornamentals. The remaining twenty-five taxa derived from nine edible herbaceous plants and 16 non-economic weeds and grasses.

The relative proportion of the definite economically important plant foods was high within the Taylor study macroplant assemblage (Table 11). Eighty-five percent of the identified taxa were fruits (84.7%), exotics (0.01%), vegetables (0.1%), and nuts (0.01%). Fruit seeds, which by far comprised the greatest proportion of the Taylor study plant assemblage, comprised from 67 to 95 percent of the identified plant taxa. However, these proportions of definite economically important plants were significantly lower than those of the 2005 Area F study, where the proportion of definite economic plants was 99 percent (Table 6). The Block 1 (Liberty Bell) and Block 2 (IVC) Independence Mall archaeobotanical assemblages were likewise comprised of 99 percent economic plants (see Raymer 2002; 2003). Fruits comprised 98 to 99 percent of these economic categories in all three studies. Naturally occurring edible herbs, which may represent gathered plant food remains, accounted for one percent of the Taylor assemblage and possible ornamentals comprised 0.1 percent of the identified seeds. These proportions were similar to the 2005 Area F, Block 1, and Block 2 archaeobotanical studies.

Taylor identified a 14 percent proportion of non-economic weeds and grasses in her Area F samples. This proportion of weeds was much greater than the weeds identified in the current Area F archaeobotanical study, which was less than one percent (Table 6). Additionally, the Block 1 (Liberty Bell) and Block 2 (IVC) studies yielded equally low proportions of herbaceous weeds and grasses (0.1%-Block 2; Block 1 had no herbaceous weeds). The proportion of weed seeds in the Taylor study features ranged from 5.2 to 33.4 percent (Table 11). Ninety-six percent (N=2556) of the 2,655 non-economic weed seeds Taylor identified derived from two wetland species, pondweed and sedge. Cotter et al. (1992) speculated that the high proportion of these wetland plants may have resulted from the proximity of Dock Creek to Area F. While this explanation provides a valid reason for the high proportion of marsh-loving plant seeds in the Taylor assemblage, it does not account for the vast difference in proportions and numbers of edible herb and weed seeds between the 1981 Taylor and 2005 New South Associates archaeobotanical studies. We believe these differences may be a result of deterioration of the macroplant assemblage in the 30 year old unfloated bulk soil samples that comprised the 2005 New South Associates archaeobotanical data set.

During the course of the present study, the authors re-examined some of the Taylor samples and thus were able to compare the condition of seeds that were floated in the 1970s shortly after the completion of the Area F excavations to that of those that were floated in 2005 after almost 30 years of storage. Our observations suggested that there may have been some seed loss in the present study due to deterioration of the macroplant remains over time in the unfloated soil samples. We noted a greater proportion of fragmentary seeds in the 2005 samples and a lower presence of weedy herbs. The seeds of the majority of these herbaceous species are more fragile that fruit seeds and pits and are also generally less well represented in privy macroplant samples. Therefore, there would logically be fewer herbaceous weeds present after three decades of deterioration in the unfloated soil samples. The deterioration of seeds in unfloated soil samples noted by this study offers a powerful statement that curation facilities should insist that all macroplant samples be floated and thoroughly dried prior to long term storage and permanent curation.

Seventeen of the Taylor study samples originated from Feature YohC1, the Annis family privy (Table 9). These samples produced 1,427 seeds from seven potential plant food taxa and four non-economic weeds and grasses. This is a considerably higher seed count than the 218 seeds recovered from six 1-liter Feature YohC1 samples included in the present study (see Appendix A). Taylor identified 11 taxa, whereas the present study identified only six plant species. These data suggest that the Taylor samples contained a higher density and diversity of macroplant remains than those included in the current study.

However, if each of the 17 Taylor samples are considered to represent 1-liter flotation samples (which seems likely, given the preponderance of 1-liter samples in the present study and the long-standing convention of collecting 1-liter flotation samples from historic sites privies), then the potential density of seeds recorded by Taylor for this feature was 83 seeds per liter of floated soil (see Table 9). While this potential seed density is over twice as great as that of the present study (see Table 3), the Feature YohC1 potential count density is considerably lower than that from the seven other features studied by Taylor. These features exhibited potential seed densities ranging from 156 to 522 seeds per liter of floated soil, which are in keeping with densities recorded by the authors in the present (2005) Area F study (Tables 3, 9). The overall seed densities for the Taylor and 2005 Area F studies were likewise very similar. The potential seed density for the 87 Taylor samples was 218 seeds per liter of floated soil. The 2005 Area F archaeobotanical study yielded a seed density of 243 seeds per liter.

Macroplant remains from five features (114C2, 114C3, YohA1, YohC1, YohF1) were included in both the 1981 Taylor and 2005 John Milner Associates' studies. The 1981 Taylor sample potential densities from these features were: 114C2 – 248 seeds/L, 114C3 – 191 seeds/L, YohA1 – 157 seeds/L, and YohF1 – 302 seeds/L. The 2005 New South Study seed densities were: 114C2 – 1164 seeds/L, 114C3 – 224 seeds/L, YohA1 – 188 seeds/L, and YohF1 – 5, 135, 367 seeds/L. The densities from these four features, like those of Feature YohC1, were basically comparable. Therefore, we propose that the low density of seeds found in YohC1 is not related by the vagaries of differential preservation. It seems more likely that either short use life and/or the illness and death in the Annis family accounted for this uncharacteristically low seed density.

These data also indicate that the much greater seed densities recorded in the Block 1 (Liberty Bell) and Block 2 (IVC) projects were not a result of seed loss due to differential preservation of the Area F macroplant assemblage relative to those of Blocks 1 and 2. The lower density of seeds found in Area F may be reflective of the lower economic status of the Area F residents. Comparison of seed densities associated with individual Block 1 and 2 features at each site suggests that this may indeed be the case. The IVC privies, which were associated with three upper middle class owner occupied residential/business households that dated from circa 1790 to 1830 and five mid-nineteenth-century non-residential businesses, represented the highest status occupation of the Independence Mall project area. Overall seed densities of the three upper middle class privies were: Feature B (1790)—895 seeds/L; Feature E (1790)—423 seeds/L; and Feature B (1820-1830)—395 seeds/L (Appendix B).

These densities were significantly greater than all but one (Feature 114C2) of the Area F contexts (Table 2). This feature was used by a circa 1791 to 1823 middle class resident owner living at 58 South Front Street. As has already been discussed, the Feature 114C2 privy was associated with the highest status residence in the Area F project area. The Block 2 business-oriented samples also contained much greater seed densities than Area F. Overall seed densities associated with privies from the mid-nineteenth-century, exclusively business-oriented occupation of Block 2 were: Feature C (1842)—454 seeds/L; Feature E (1845-55)—259 seeds/L; Feature H (1845-1855)—1140 seeds/L; and Feature B (1850)—386 seeds/L.

The Block 1 (Liberty Bell) privy samples also yielded overall seed densities that were significantly greater than those of Area F. The Liberty Bell privies, like those from the IVC project, were associated with both middle class owner occupied residential/business households (two contexts) that dated from circa 1800 to 1825 and mid-nineteenth-century non-residential businesses (two contexts). The Liberty Bell residential occupation was associated with middle class owner occupants who located their businesses and their homes on their lots. Mid-nineteenth-century business use of the Liberty Bell project area was similar to that of the IVC project area. The principle difference between the Liberty Bell and IVC occupations was the slightly lower status of the early nineteenth-century Liberty Bell residential/business occupation.

However, with the exception of the circa 1791 to 1823 occupation of 58 South Front Street at Area F, the overall status of the Liberty Bell occupants was likely greater than that of their contemporaries living in the Area F locality, at least with regard to their plant food choices. Overall seed densities of the two Liberty Bell residential privies were: Feature E (1800)—1.3 seeds/L and Feature G (1800-1820)—875 seeds/L (Appendix B). Seed densities found in the two privy deposits associated with post-1830, exclusively business-related use of the Liberty Bell project area were: Feature E (1830s)—422 seeds/L and Feature G (1830s)—419 seeds/L.

DIVERSITY OF AREA F SEED ASSEMBLAGE

The Area F macroplant assemblage was diverse as well as abundant. Thirty-one genera of seeds and other plant parts were identified, and included 1 exotic import (coffee), 2 condiments (mustard, pepper), 12 fruits, 5 vegetables, 4 edible herbs, and 7 herbaceous weeds/grasses (Tables 1, 5). Many of these taxa are virtually ubiquitous in both rural and urban eighteenth and nineteenth-century Euro-american archaeological deposits. Undeniably archaeological, uncharred specimens of the majority of these taxa are often preserved in eighteenth and nineteenth-century contexts, particularly in deep shaft features such as privies and wells (see Raymer 1998; 2002; 2003).

Twenty of these taxa represented definite economically important plant foods (fruits, exotic, condiment, vegetables). Many, if not most, of these plant foods were likely acquired through market purchases. Others, particularly the fruits, may have originated from ornamental plantings in the yards and/or gathered wild resources in the project area. The exotic (which were acquired through a long distance trading network) and field crops (sunflower, wheat) likely represented market purchases of the Area F inhabitants. The exotic was not locally available and these field crops required substantial spaces for successful cultivation. The condiment, fruits, and other vegetables (squash, tomatillo, tomato) could have been planted by the residents, however, the small size of the yards, the mixed business and residential use of the project area, and the notable (and somewhat uncharacteristic) lack of naturally occurring herbaceous plants suggested these taxa represented market purchases as well.

The 12 fruit taxa could have been collected from ornamental plantings in the yardlots and/or naturally occurring trees and shrubs in the project locality. On the other hand, all of these taxa can also represent market purchases. Four may represent gathered foodstuffs that functioned as seasonally available dietary supplements. These taxa minimally were indicators of local disturbance, and documented economically useful weeds growing on the Area F yardlots in the eighteenth and nineteenth centuries. Low numbers and diversity of edible and inedible herbaceous plants were also found in the IVC and Liberty Bell assemblages (Raymer 2002; 2003). The low abundance and ubiquity of these herbs indicated that open spaces were uncommon in the project locality and suggested that these remains represent non-utilized, naturally deposited seed rain.

This impressive variety of definite economically important plant taxa was mirrored in early to mid nineteenth-century macroplant assemblage (24 total taxa) found at the Block 1 (Liberty Bell) site. The Liberty Bell assemblage contained 1 exotic import (coffee), 3 vegetables, 12 fruits, 1 condiment (pepper), 2 nuts (hickory, acorn), and 5 edible herbs (Appendix B). Nineteen Block 1 taxa represented definite economic plants (exotics, fruits, condiments, vegetables, nutmast, ornamental-bottle gourd). While the overall array of plant taxa found in the Liberty Bell and Area F macroplant assemblages were basically identical, there was one notable difference. No nut taxa were identified in the 2005 Area F macroplant analysis. However, Taylor identified a small quantity of nutshell in her 1981 study.

The diversity of the Area F and Block 1 macroplant assemblages was trumped by the late eighteenth through early nineteenth-century macroplant assemblage associated with upper middle class occupation of Block 2 (IVC). The IVC macoplant assemblage consisted of 48 taxa that were comprised of 5 exotic imports (coconut, coffee, English walnut, olive, peanut), 5 vegetables, 16 fruits, 3 ornamentals, 4 condiments (coriander, mustard, pepper, sage), 5 nuts (hazelnut, black walnut, hickory, acorn, pecan), 6 edible herbs, and 4 weeds/grasses (Appendix B). Thirty-five IVC taxa represented definite economic plants (exotics, fruits, condiments, vegetables, nuts,

ornamental-bottle gourd). There were significant differences between the IVC and Area F macroplant assemblages including a greater number and variety of exotic imports, condiments, and nuts. These differences likely reflective of the greater purchasing power of the upper middle class IVC households. These taxa, most particularly the exotics and nuts, likely represented 'fancy' table foods that were purchased by the IVC residents both because they had the disposable income and as a marker of their status.

UBIQUITY OF AREA F MACROPLANT REMAINS

The percentage-presence of the 31 taxa recovered from the Area F samples was highly variable ranging from one sample each to an overall high ubiquity of 90 percent (blackberry/raspberry). The overall ubiquity of 25 taxa was markedly low, ranging from one to two samples each. The exotic, both condiments, 3 vegetables (sunflower, tomato, wheat), 3 edible herbs (clover, pigweed, pokeweed), 3 weeds (composite family, grass, spurge), and 4 fruits (blueberry, chokeberry, peach, watermelon) were found in one sample each (10% ubiquity). Three fruits (apple, cherry, plum), 2 vegetables (tomatillo, squash), 1 edible herb (goosefoot), and 3 weeds were found in two samples each (20% ubiquity).

Six taxa including one weed and five fruits exhibited higher percentage presences. Jimsonweed was found in three privies. Elderberry and strawberry exhibited 60 percent ubiquities. Fig and grape were found in seven privies each (70% ubiquity). Finally, blackberry/raspberry was recovered from 90 percent of the privies. The greater ubiquity of the five fruits indicated that they were common dietary components at Area F. Given these ubiquities, it is not surprising that fruits represented 99 percent of the identified macroplant assemblage from Area F (Table 6). Blackberry/raspberry seeds comprised 67 percent of the identified fruit assemblage.

ASSEMBLAGE COMPOSITION

This section presents a discussion of the seeds and other plant parts recovered during this analysis. The specifically identified seed taxa were broken into six broad categories based on their presumed economic importance (Table 1). These were exotics, condiments, fruits, vegetables, edible herbaceous plants, and herbaceous weeds/grasses. The first four categories represent definite economically important food plants. Evidence will be presented that the edible herbaceous plants, herbaceous weeds, and grasses probably represented naturally deposited yard weeds. The numbers and distribution of each plant taxon are discussed in this section. The uses and natural environments of each plant taxa are presented in Appendix C.

Exotics

The first plant category consists of one plant resource, coffee, that was acquired through a long-distance trading network. Coffee was imported into the Northeast from the tropics, probably via commercial ships offloading cargo in northeastern ports. The fruits of this tropical plant became an important commercial import in the nineteenth century (Hedrick 1972; Root 1980). Coffee beans were found in Feature YohA1, which dated from 1790 to 1825. Coffee was also found in a single Block 1 (Liberty Bell) residential context.

Exotics were much more common in the upper class strata from the IVC privies. These exotics included coffee bean, coconut, olive, English walnut, and peanut. Olives were probably imported into the Americas from southern Europe. English walnuts were first introduced into the United States during the Colonial Period, however, this European native was never very successful in the Northeast. The walnuts found in 1790 and 1830 deposits in IVC Feature B likely represented

European imports that were purchased in local Philadelphia markets. Like the tropical imports, the peanuts were probably delivered to Philadelphia markets from the southern United States on commercial ships. Peanuts were not commonly imported into the Northeast until the mid-nineteenth century (see Appendix C).

These exotic plant foods probably represented table snacks consumed by the wealthy inhabitants of these households. The recovery of these five exotic imports from late eighteenth and early nineteenth-century deposits at Block 2 (IVC) indicates that wealthy residents of Philadelphia had phenomenal access to plant foods from throughout the world at a much earlier date than other northern cities. These exotic plant foods were imported from far-flung regions of the world including northern and southern Europe, from the southern United States, and from Latin America. Their marked absence from early deposits at Area F and Block 1 suggests that these residents were less wealthy (and thus had less free cash for exotic delicacies) than their Block 2 (IVC) counterparts.

The early appearance of these exotics in Philadelphia attests to the early importance of this city as an international market city. The common occurrence of these presumably expensive imports in domestic refuse in Block 2 and their virtual absence from neighboring Area F and Block 1 contexts attests to the wealth and prestige of the IVC inhabitants in the first quarter of the nineteenth century.

Condiments

Two condiments, mustard and pepper, were present in the Area F samples. Three mustard seeds were found in the mid-eighteenth-century (Analytical Stratum I) deposit of Feature YohF1. A single pepper seed was associated with the eighteenth-century privy (Feature 114C3) located at 58 South Front Street. Pepper was the only condiment found at the Liberty Bell site. Condiments, like exotics, were much more common in the IVC macroplant assemblage than either the Area F or Liberty Bell contexts. Four condiments were found in the Block 2 privies, including coriander, mustard, pepper, and sage. Coriander and mustard seeds were found in one early nineteenth and one mid-nineteenth century stratum. Pepper came from 1790 and 1820-1830 residential, and 1845-1855 commercial deposits at IVC. A single sage seed was recovered from an 1830 deposit. The recovery of these condiments documented probable seasonings and vegetables that were consumed by the wealthy eighteenth and nineteenth-century IVC inhabitants. The common occurrence of these spices in the 1790 to 1830 IVC archaeological deposits indicated that spices were more commonly consumed by the early nineteenth-century residential occupants of IVC than they were by the commercial interests using the project locality in the 1840s and 1850s, both the residential and business occupants of Block 1 (Liberty Bell), and the residential occupants of Area F.

Fruits

Twelve varieties of economically important fruits were retrieved by flotation (Table 1). Sixty-seven percent of the fruit seeds and pits derived from a single taxa, blackberry/raspberry. Fig, grape, and strawberry collectively accounted for 33 percent of the fruit seed assemblage. Fruit seeds and pits collectively accounted for 99 percent of the plant food assemblage (Table 6). All of these fruits were once cultivated, but more than half of the taxa are widely distributed in the wild as well (blackberry/raspberry, blueberry, cherry, chokeberry, elderberry, fig, grape, plum, strawberry). This pattern is mirrored in both the Block 2 (IVC) and Block 1 (Liberty Bell) archaeobotanical assemblages (Appendix B).

These fruits were consumed fresh, were used as ingredients in pies, and were commonly preserved in a variety of ways, most notably as jellies and jams. Several fruits, including cherries, plums, grapes, elderberries, and blackberries/raspberries, were made into wine (Fernald and Kinsey 1958; Medve and Medve 1990). All 12 varieties of fruits were utilized in the eighteenth and nineteenth centuries as medicines by both professional physicians and laymen. These seeds documented the use of fruits that were either purchased at local markets, grown in kitchen gardens, and/or as lawn trees by the site inhabitants.

The recovery of these 12 economically important fruit-producing species indicated that the Area F residents relied on seasonal fresh fruits and preservation of these fruits through home canning and/or winemaking for a significant portion of their diet. The similar distribution of fruit seeds found in early residential and late commercial privy strata at IVC indicated that this consumption pattern was common among the social elites of Philadelphia as well as their less wealthy counterparts who lived in Area F. The density and variety of fruits associated with the Area F, Liberty Bell, and IVC macroplant assemblages is similar to other middle and upper income households in the Northeast (see Raymer 1998).

Vegetables

Sixteen seeds from five vegetables (tomatillo, squash, sunflower, tomato, wheat) were found in the Area F privies. The majority of the vegetable seed assemblage derived from tomatillo and squash seeds. Tomatillo seeds were found in the YohA1 and YohF1 (Analytical Stratum II) privy deposits. Squash seeds came from YohF1, Analytical Strata II and III. One tomato seed was recovered from a mid-eighteenth-century context (Feature YohF1, Analytical Stratum I). A single sunflower was found in Feature 114C2. A wheat grain came from Feature YohF1, Analytical Stratum II. The sunflower and wheat were undoubtedly purchased at market, since it is highly unlikely that these field crops were grown in the confined spaces of Area F urban gardens. Tomatoes, squash, and tomatillo, on the other hand, are easily propagated in small gardens. These domesticates could have been either purchased at market or grown by the inhabitants, or both. Five vegetables were found in the IVC archaeobotanical assemblage (tomatillo, squash, sunflower, tomato, wheat). Tomatoes and squash/pumpkin were consumed by both the early residential occupants (1790-1830) and the later mid-nineteenth-century commercial occupants (Raymer 2002). All of these domesticates derived from either discarded burned kitchen trash (sunflower, wheat) or fecal material (squash/pumpkin, tomato, tomatillo).

The recovery of tomato from the circa 1769 deposits of Area F and pre-1820 deposits of both the Liberty Bell and IVC sites documented early consumption of this garden vegetable in Philadelphia. This added further support to our contention that Philadelphia residents had exceptionally early access to foods that were not common in the elsewhere in the eastern United States until the mid-nineteenth century. Tomatoes were first widely consumed in the mid-nineteenth century in the United States (Smith 1994). Tomatoes are thought to have originated in South America, and migrated north into Central America. Tomato cultivation became very common in the United States by the 1800's, where the fruits were used in sauces, stews, and preserved for later use by canning. Tomato seeds are commonly found in mid to late nineteenth-century contexts, where the seeds of this plant are almost ubiquitous (see Raymer 1998).

Naturally Occurring Edible Herbaceous Plants, Non-Economic Weedy Herbs, and Grasses

Four plants are recorded as edible herbs, five as non-economic herbaceous weeds, and two as grasses (Appendix C, Table 1). All of the edible herbs have a long history of use as edible wild plant foods, both by Native Americans and immigrants of European and African descent. All of

these plants are recorded as historic dietary supplements. All four have been used historically as potherbs, and the seeds of two can be ground for flour. Additionally, all four are recorded as medicinal herbs. Edible herb seeds were exceptionally sparse within the privies. This pattern was also found in the Gateway and Liberty Bell archaeobotanical assemblages.

Only six edible herb seeds and 20 herbaceous weeds/grasses were collected from 10 dated shaft feature contexts. The context and condition of the seeds, as well as other plants associated with the edible herbs and weeds found within the privies suggested that these macroremains dated to the eighteenth and nineteenth century occupations. The condition of the seeds was suggestive of relative age, since most of the seeds were heavily mineralized, and some had fecal material adhering to them. As has already been discussed, herb seeds may have been under-represented in the 2005 Area F samples, due to some degree of deterioration during the 30 year storage of these unfloated soil samples. Edible herbs were under-represented in the 1981 Taylor study, but non-economic weeds, most particularly two wetland taxa, were quite common.

These plants may have represented naturally deposited seed rain. On the other hand, these plants may represent remains of gathered plant foods. There is ample evidence in the historic record to indicate that both urban and rural Americans supplemented their diets to some degree with gathered greens in the eighteenth and nineteenth centuries. There was also a great deal of interest in naturally occurring medicinal remedies during this period. Minimally, these seeds documented what potentially economically useful plants were available for harvest in the urban landscape.

WOOD CHARCOAL ANALYSIS

Presumably the wood charcoal that was found within the Area F privies represented spent fuelwood that was used for cooking and heating the resident's homes. Wood charcoal found in fire-related features may not be representative of the full spectrum of tree species growing in the site locality at the time this site was occupied, since the inhabitants likely selectively utilized certain species for fuel and/or building materials. For instance, numerous studies of macroplant assemblages conducted by Raymer and others indicated that oaks and hickories were consistently selected for fuelwoods throughout the eastern United States. These species are therefore often dominant in fire-related features.

The number of identified wood specimens from each flotation context are presented in Table 4. This table first presents the numbers of identified fragments from each dated context. The second part of Table 4 presents the relative proportions of the identified wood charcoal assemblage (exclusive of unidentifiable fragments) associated with each analyzed context. Only three privies contained sufficient wood for identification. Seven wood charcoal taxa are identified within the features. Examination of the relative proportions of identified wood taxa indicated that hickory, oak, and pine were proportionately represented in the identified wood charcoal assemblage. Maple, sycamore, and ash represented lesser proportions. Examination of the identified wood proportions from two eighteenth-century privy deposits (YohF1, Analytical Stratum II; 114C3) indicated that oak and hickory were preferred fuelwoods. Oaks represented 86 percent of the YohF1 wood and oaks and hickory represented 74 percent of the 114C3 wood. Pine comprised 70 percent of the wood charcoal from Feature 114B1 (well), a low priority Area F feature.

Nine wood charcoal taxa are identified in the IVC features (Raymer 2002). Oaks represented the highest proportion of specifically identified wood, accounting for 55 percent of the flotation sample wood specimens. Oaks were the most ubiquitous and abundant taxa identified in the wood charcoal assemblage. Oak is a highly prized fuelwood that was identified in 73 percent of the features. The next most abundant taxa identified at this site, which is also an excellent fuelwood,

was hickory. Hickory accounted for 25 percent of the overall wood charcoal assemblage and was identified in 64 percent of the sampled features. Therefore, oaks and hickories together accounted for from 80 to 90 percent of the identified wood specimens. The high proportion of these two superlative fuelwoods, in combination with their high ubiquity, suggested that the IVC residents purchased much of their firewood at market rather than foraging for it locally. Hardwoods such as oaks and hickories are generally preferred fuel sources, because of their superior burning characteristics. These, and other common hardwood fuel sources such as maple and elm, produce high heat values, have excellent coaling qualities, and produce few sparks and little smoke.

COMPARISON OF FLORAL DIVERSITY AT AREA F, BLOCK 1, AND BLOCK 2

Figures 1 through 3 tabulated the number of economic taxa associated with the Area F, Block 1 (Liberty Bell), and Block 2 (IVC) privies. These graphs organized the plant data by presumed economic importance of each taxon. Area F plant taxa are enumerated in Table 1. Individual plant taxa found in each Liberty Bell and IVC privy are tabulated in Appendix C. These data were utilized to compare and contrast dietary richness of the occupants of Area F with the eighteenth and early nineteenth-century diet of middle and upper class owner occupants from the Independence Mall sites in Philadelphia. Privy data were exclusively utilized because these features generally provided an excellent preservational environment. Additionally, plant remains found in privies provided direct evidence of diet.

The IVC samples were derived from three privy contexts associated with an upper middle class residential neighborhood and four mid-nineteenth-century commercial contexts (Raymer 2002). Three privies dated to residential use of the Block 2 locality between 1790 and 1820 (Figure 3). These privies documented upper class plant food use in the Independence Mall locale. The Liberty Bell locality was fully developed by 1800. During the first quarter of the nineteenth century, the locality was populated by middle class artisans and tradesmen, who located their businesses and homes in the area. Two Liberty Bell privy deposits were associated with these middle class tradesmen's homes (Figure 2). These privies documented a middle class occupation of Independence Mall. The IVC and Liberty Bell areas were transformed from residential streets to business thoroughfares in the first quarter of the nineteenth century. After 1830, use of both areas was exclusively commercial. Two Liberty Bell and four IVC privy contexts were associated with this commercial occupation. Plant food remains found within these contexts originated from mid-day meals consumed by owners and employees of the businesses located at these addresses.

Comparison of the number and kind of recovered taxa from the seven middle class artisan contexts at Area F to that of three contexts associated with upper middle class residents of the IVC locality (Feature B-1790, Feature B-1820-1830, Feature E-1790) and middle class residents of the Liberty Bell locality revealed striking differences and similarities in the macroplant remains from these features. The macroplant assemblages from these features suggested that the occupants of Area F were not as high status as either the IVC or Liberty Bell residents.

First, with one exception, the IVC upper middle class floral assemblages contained a higher number of plant taxa and greater diversity of economically important plant food types than the middle class Area F privies. Two of these privies contained 25 or more plant taxa (Figure 3). These features also contained a rich array of exotic imports, nuts, and condiments. Three of four Liberty Bell privy contexts contained greater than 13 plant taxa and four or more classes of plant food remains. The plant food assemblages associated with these middle and upper class residential occupations indicated the rich and varied plant food diet of well-to-do merchants and craftsmen in eighteenth-century Philadelphia. In contrast, only two of seven Area F privies contained more than 10 plant food taxa. Nuts were absent, and condiments and exotic imports

were scarce. These data offered evidence of the less varied diet of the Area F relative to the middle and upper class residents of the IVC and Liberty Bell localities.

Second, three of the four features associated with clearly middle and upper class residential housing in Philadelphia (Independence Mall) contained all six classes of plant food remains (Figures 2-3). The fourth Philadelphia privy, Feature E, was anomalous. This feature, which contained only nine taxa from three plant food categories (edible herb, vegetable, fruit), more closely resembled the Area F features. Only one of the seven Area F privies contained more than three plant food categories (see Figure 1 legend).

One IVC privy did not meet our expectations for plant food assemblages associated with upper middle class late eighteenth through early nineteenth-century residential housing. The 1790 Feature E privy, unlike other high-class residential households at IVC, exhibited low numbers and diversity of economically important plant taxa (Figure 3). The Feature E privy was associated with a residence utilized by the household of an accountant, William Simmons, who never married, was a workaholic, and lived a simple, uncluttered life. The simplicity of his lifestyle was reflected in the artifact assemblage recovered from Feature E, which consisted of extremely plain china. The macroplant assemblage associated with Simmons' ownership of this property also showed that the simplicity of his lifestyle extended to his diet. The Simmons archaeobotanical assemblage consisted of only six fruits, wheat, and three naturally occurring herbaceous weeds (Raymer 2002). Simmons economic position indicated that he could have afforded the same exotics as the other three well-to-do Philadelphia households.

These macroplant data indicate that the relationship between economic status and plant food use is not seamless, and that factors such as ethnic preference and choice also play an important role in what plant food assemblages will be recovered from urban historic settings. However, the data presented in Figures 1 through 3 indicate that an overall pattern of greater food choice is commonly associated with upper middle class households in the late eighteenth through early nineteenth centuries. This is particularly true of upper class households located in Philadelphia (Raymer 2002, 2003). The plant food assemblages from the two high status Philadelphia households (Feature B, 1790; Feature B, 1820-1830) included exotic imports (coconut, coffee, English walnut, peanuts), nutmast (hickory, acorn, hazelnut, black walnut), a variety of spices, a wide variety of both domesticated and naturally occurring fruit taxa, and a modest variety of domesticated vegetables and edible herbs (Appendix C).

With the exception of coffee, exotic plant foods obtained through international trade were absent from both the Area F and Liberty Bell assemblages. Exotic imports are generally scarce in plant food assemblages dating prior to the mid-nineteenth century throughout the eastern United States (Raymer 1998). The presence of these imports at the Independence Mall sites offered evidence of the exceptional, early access that upper class residents in Philadelphia in the late eighteenth century had to exotic trade goods (in the form of imported plant foods from as far afield as Europe and Latin America) and high status foodstuffs such as spices and nuts relative to other contemporary urban occupations.

Interestingly, all privies from all three Independence Mall macroplant studies contained tomato seeds. Tomatoes were found in contexts dating between 1769 and 1820. The absence of tomato from pre-1820 to 1830 contexts was expected, since historical references adamantly state that tomatoes were not planted in North America prior to the 1820s and were uncommon before circa 1850. The recovery of small numbers of tomato seeds from unquestionable mid-eighteenth-century sealed privy contexts indicates the early use of this plant in Philadelphia.

IV. PARASITOLOGICAL ANALYSIS AND INTERPRETATION

INTRODUCTION

The archaeoparasitological analysis of 35 archived sediment samples excavated from historic Philadelphia was undertaken. The analysis of these samples had several goals. First, the various proveniences were assessed for parasite egg abundance to determine the prevalence of parasite eggs in sediments from the site. Second, the fact that several of the samples were stratigraphically controlled provided an opportunity to explore how parasite eggs are vertically distributed in archaeological features. Third, the presence of samples recovered from inside of vessels allowed assessment of the value of such samples with regard to parasite egg recovery. Finally, the results of this study were compared with older studies I have done of Philadelphia historic sites.

The study was hampered by the incomplete provenience information on many sample bags regarding stratigraphic depth. However, all samples had room and feature numbers so that each sample could be placed in a general context. These samples were different from any analyzed by the Reinhard during the past three years. This was due to the fact that these soils samples were dry. In one respect, this facilitated the screening process of processing. However, there was concern that the desiccation of the soils would harm the parasite eggs.

RESULTS

Clearly, the drying of the soils did not damage parasite egg preservation or hamper recovery. Although some parasite eggs contained air bubbles, centrifugation prevented the loss of these abnormally buoyant eggs. Only two taxa of parasites were encountered. *Trichuris* eggs consistent in size and shape with the human whipworm, *T. trichiura*, were commonly found. Some of these had air bubbles inside of them. This is a rare phenomenon that has only been seen by Reinhard in dry sediments. Also, ascarid eggs consistent in size and shape with the human and pig giant roundworms *Ascaris suum* and *A. lumbricoides* were commonly found. Since no pig whipworm eggs were discovered, we inferred that the ascarid eggs were most likely from the human-infective species, *A. lumbricoides*. Also, free-living nematodes were found which shows that the processing methods resulted in the recovery of delicate worms (Figure 4).

With the exception of Feature 114B1 (well), all features were positive for parasite eggs. Sediments from a redware vessel, a green bottle, and a pitcher also contained parasite eggs. The parasite eggs concentration values varied by feature. Feature YohA1 had a maximum of 23,750 *A. lumbricoides* and 10,167 *T. trichiura* eggs. These maximum values occurred in different levels for the parasite taxa. Feature YohA2 had a maximum of 3,500 *A. lumbricoides* and 3,300 *T. trichiura* eggs, occurring in different levels. Feature YohC1 had a maximum of 7,100 *A. lumbricoides* and 3,300 *T. trichiura* eggs in the same level. Feature 114C2 had a maximum of 800 *A. lumbricoides* and 2,550 *T. trichiura* eggs in different levels. Feature 114C3 had a maximum of 3,800 *A. lumbricoides* and 10,150 *T. trichiura* eggs in different levels. Feature YohF1 had a maximum of 2,300 *A. lumbricoides* and 4,250 *T. trichiura* eggs in the same level.

One interesting result was that the concentration of eggs from the two parasite species did not always correlate. For example, Figure 5 shows the distribution of eggs in three stratigraphic samples from Feature YohA1. In this case, as the concentration of eggs increased towards the center for one species, while the concentrations declined for the other. This can be explained by the relative ease of treatment for *A. lubricoides*, a parasite that lives in the intestinal lumen versus *T. trichiura*, a parasite that burrows into the mucosa of the intestine. There are more effective

remedies for lumen dwelling nematodes, especially *A. lubricoides* which is a noticeable parasite. People are much more likely to be aware of their ascarid infection when they pass foot-long white worms. Therefore, decline in ascarid egg count could easily be explained by medical treatment. Another factor to be considered is relative egg production. *Ascaris lubricoides* females lay about 240,000 eggs per day versus *T. trichiura* females which lay an estimated 1,000 to 7,000 eggs per day. Therefore, elimination of even one ascarid female will result in a dramatic drop in ascarid eggs relative to trichurid. The samples from strata, features, and rooms that had relatively low ascarid counts likely derived from fecal material deposited by people who had access to vermifuges.

This analysis provided the authors the first opportunity to evaluate the content of vessels for parasite eggs. The vessels ranged from a pitcher to a bottle. The pitcher contained 3,000 *A. lumbricoides* and 3,300 *T. trichiura* eggs. These were among the highest egg concentrations for Feature YohA2. A redware vessel of unknown shape contained contained 150 *A. lumbricoides* and 400 *T. trichiura* eggs, which were relatively low values for Feature YohF1. The green bottle contained 1,350 *A. lumbricoides* and 3,400 *T. trichiura* eggs. These are very interesting concentration values because sediment from the same stratigraphic level contained only 550 *A. lumbricoides* and 900 *T. trichiura* eggs per ml.

These three vessel samples suggest that sampling sediment from inside of ceramic or glass vessels provides good archaeo-parasitological data, especially if the vessels have narrow apertures such as the pitcher and bottle. Apparently with the glass bottle, the sediment inside the bottle retained higher parasite concentrations, perhaps because sediment outside the bottle was altered by post depositional processes that removed or destroyed eggs. However, the eggs that entered the bottle mixed with the original contents of the bottle such that the eggs were trapped in a brown, organic matrix that did not react thoroughly with the processing chemicals.

The stratigraphic distribution of eggs was first explored by Reinhard, Mrozowski, and Oloski (1986) and by Reinhard, Araújo, Hermann, and Ferreira (1986). In these articles, but especially in the latter, it was discovered that the vertical distribution of parasite eggs is highly concentrated in the upper or lower levels of latrines. This is in part because deposition of infected feces over-saturates confined areas with parasite eggs. This over-saturation becomes even more extreme as latrine sediments decompose and compress in the post-depositional phase of archaeological site formation. However, Reinhard has had little opportunity to explore the distribution of eggs in the past four years because archaeologists generally send night soil deposits identified in the field without samples from above or below the nightsoil. This project allowed examination of the distribution of parasite eggs in stratigraphic association.

Figure 5 shows the distribution of eggs in Feature YohA1. The total concentration of eggs was highest in the uppermost stratum (29,250 eggs per ml), declined in the next lowest stratum (26,334 eggs per ml), and was lowest in the bottom of the feature (2,750 eggs per ml). Figure 6 showed the distribution of eggs in Feature YohA2. The total concentration of eggs had the reverse pattern of YohA1 in that the eggs were most concentrated in the lowest level. There were no eggs in the uppermost level and 5,375 eggs per ml in the lower level. Figure 7 showed the egg concentration for Feature 114C2. The pattern here was similar to YohA2. The data for Feature 114C2 was most interesting because of the depth of the feature. There is a general congruence of egg concentration for the two parasite species. The maximum concentration is at the top of the feature. However, there is a spike of parasite eggs in a lower level. Whether this represents secondary deposition of eggs to a lower level by post-occupation, archaeological site formation processes or an actual early use of the feature as a latrine is unknown.

In general, the stratigraphic distribution of the eggs follows previously reported observations in which eggs are concentrated in well-defined areas. The data reported here are comparable with previous analyses of Philadelphia. Relatively low concentrations were calculated for latrines from the Meadows Site, an early Colonial occupation. The maximum concentrations for the Meadows site were 6,700 *A. lumbricoides* and 4,800 *T. trichiura* eggs per ml. The IVC data recovery project represents a later mid-nineteenth century occupation of the Independence Mall locality. The maximum values were 4,754 *A. lumbricoides* and 12,639 *T. trichiura* eggs per ml.

Parasitism, Status, Occupation, and Household

A number of household-level factors influence the degree of parasitism (Herrmann and Schultz 1986). The demographic nature of the household is very important. Parasites, especially those that have direct life cycles, tend to infect children more than adults. Therefore, households with more young children have greater levels of parasitism than those with few young children. Economics also play a major role in the level of household parasitism. Those households that can afford medicine and medical visits will have a greater chance of controlling parasitism. Other factors are more subtle.

For example, Reinhard et al. (1986) found that the artisan class of Revolutionary Period Providence, Rhode Island had household gardens and open latrine pits compared to the merchant class, which had closed privies and no gardens. The open latrines located near gardens promoted the contamination of food plants with parasite eggs. Crowding was also more associated with poorer classes. Since direct life cycle diseases (like Ascaris and whipworm infestations) are dependent upon high population densities, poorer families living in crowded urban settings often become trapped in a never-ending cycle of systemic parasitism. Hygiene is a final consideration. For those households in which hand washing was customary, parasitism was reduced.

Occupation and household data were discussed in Chapter III. The parasite egg concentrations relative to cultural factors are presented in Table 16. The lowest parasite egg concentrations were found in Feature 114C2, which dated from 1791 to 1823 and was associated with the Robert Smith household at 58 South Front Street. Smith was apparently the most affluent and influential household head represented in this study. His family had the means to control parasitism among all of the members of the large household living at this address (up to 24 people).

Two eighteenth-century households that utilized the Feature YohC1 (Annis family, 13 Gray's Alley) and 114C3 (Courtney family, 58 South Front Street) privies had moderate levels of parasitism. The Annis household was headed by a mariner, William, who lived there with his large family. William and his wife Patience died at this address of yellow fever in 1748. The Courtney privy (114C3) was associated with a residence, shop, and tavern. Both of these eighteeth-century households were large. The Annis family was not particularly adept at controlling *Ascaris* infection but had relatively low whipworm concentrations. The opposite was true of the Courtney household, which had higher whipworm egg concentrations. This may have resulted from communal use of the 58 South Front Street (114C3) latrine by tavern clients.

Feature YohF1 can best be described as communal. This facility, located at 1-3 Gray's Alley, was shared by two renter households, a bake house, and possibly a cooper shop. One would anticipate that high egg concentrations would be associated with communal use of this privy. However, this was not the case. The egg concentrations were low in these contexts, which suggested that actual use was more restricted to the two households and bake house.

The Feature YohA1 privy associated with the circa 1790 to 1825 household located at 75 South Second Street produced anomalous results. This residence was occupied by middle class resident owners (artisans). The egg concentrations for both species were highest in this latrine. Little is known about the residents of this household, or about how many people used the privy. It appeared that this residence was a “hot spot” for infection and disease transmission.

The relative numbers of parasite eggs in the latrines reflected the relative risk of other diarrheal diseases. Protozoa parasites, such as *Giardia lamblia, Entamoeba histolytica*, *Isospora belli*, and bacteria such as *Salmonella*, *Shigella*, *Escherichia coli*, and *Vibrio cholerae*, etc. are transmitted by fecal contamination. Because increased fecal contamination was represented by high ascarid and trichurid egg counts, the risk for these diarrheal diseases may have been high at the Area F site.

V. SUMMARY

This analysis concluded that the entire seed assemblage dated to the time of the site's occupation and use. Additionally, most of the identified plant taxa could have provided the residents with locally procured herbal remedies, since many of these taxa were utilized in nineteenth-century America as medicines. Many, if not most, of these plant foods were likely acquired through market purchases. Others, particularly the fruits, may have originated from ornamental plantings in the yards and/or gathered wild resources in the project area. The exotic (which was acquired through a long distance trading network) and field crops probably represented market purchases. The garden vegetables (tomatillo, squash, tomato) may have originated from kitchen gardens on the lots. The exotic was not locally available and vegetable gardens require substantial spaces for successful cultivation. The condiment could have been grown in herb gardens planted by the residents, however, the small size of the yards associated with these dwellings coupled with the relative rarity naturally occurring herbaceous weeds suggested these taxa represent market purchases as well.

The 12 fruit taxa could have been collected from ornamental plantings in the yardlots and/or naturally occurring trees and shrubs in the project locality. On the other hand, all of these taxa can also represent market purchases. Four edible herbs may represent gathered foodstuffs that functioned as seasonally available dietary supplements. However, these edible herbs may represent incidentally deposited natural seed rain, since these taxa are common invaders of disturbed habitats. These taxa minimally are indicators of local disturbance, and document economically useful weeds growing on the Area F yardlots in the late eighteenth and early nineteenth centuries.

Comparison of the Area F, Liberty Bell, and IVC macroplant assemblages indicated that the Area F residents may have been of lower economic status than either the Liberty Bell or Gateway inhabitants. Comparison of the 2005 New South and 1981 Taylor archaeobotanical assemblages indicated that the 30 year old unfloated soil samples which comprised the 2005 study may have suffered some seed deterioration. However, comparison of these Area F samples with those from Liberty bell and IVC suggested that the loss was minimal and thus valid conclusions could be drawn from the 2005 Area F macroplant study. Intrasite comparison of the 10 privy contexts indicated that the macroplant assemblage associated with the Annis occupation may be sparse due to illness and death in the Annis family in 1748.

Finally, parasitological analysis showed that the threat of fecal borne parasitism was constant in early Philadelphia and suggested that fecal-borne disease caused by pathogens associated with *A. lumbricoides* and *T. trichiura* occurred in Philadelphia throughout the eighteenth and nineteenth-centuries. These included protozoa parasites such as *Giardia lamblia, Entamoeba histolytica,* or *Cryptosporidium* and bacteria such as *Vibrio cholerae, Campylobacter, Salmonella, Shigella,* or *Escherichia coli*.

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Tables

Table 1. Common Names, Latin Nomenclature, and Economic Uses of Macroplant Assemblage.

Major Use	Common Name	Scientific Name	Family	Vegetative Type	Edible	Edible Part	Medicinal	Ornamental	Poison	Weed	Common Name	H
Exotic Beverage	Coffee Bean	*Coffea arabica*	Rubiaceae	Shrub	X	Bean	X				Coffee Bean	Imported Cult
Condiment	Mustard	*Brassica sp.*	Cruciferae	Annual/perennial herb	X	Greens, Spice	X			X	Mustard	Cultigen; distu
Condiment	Pepper	*Capsicum annuum*	Solanaceae	Annual herb	X	Spice, vegetable	X				Pepper	Cultigen; rare naturalized
Fruit	Blackberry/ Raspberry	*Rubus sp.*	Rosaceae	Shrub	X	Fruit	X			X	Blackberry/Raspberry	Cultigen, fenc
Fruit	Blueberry	*Vaccinium sp.*	Ericaceae	Shrub	X	Fruit	X	X			Blueberry	Woods, cleari
Fruit	Cherry	*Prunus sp.*	Rosaceae	Small tree	X	Fruit	X	X			Cherry	Cultigen; freq
Fruit	Chokecherry	*Aronia sp.*	Rosaceae	Shrub	x	Fruit		X			Possible Chokeberry	Low woods, w
Fruit	Common Apple	*Malus pumila*	Rosaceae	Small tree	X	Fruit	X	X			Common Apple	Cultigen; old
Fruit	Elderberry	*Sambucus canadensis*	Caprifoliaceae	Shrub	X	Fruit	X	X			Elderberry	Moist soil, me
Fruit	Fig	*Ficus sp.*	Moraceae	Shrub	X	Fruit	X				Fig	Cultigen
Fruit	Grape	*Vitis sp.*	Vitaceae	Vine	X	Fruit	X				Grape	Cultigen; low
Fruit	Peach	*Prunus persica*	Rosaceae	Small tree	X	Fruit	X				Peach	Cultigen; freq
Fruit	Plum	*Prunus sp.*	Rosaceae	Small tree	X	Fruit	X	X			Plum	Cultigen; woo
Fruit	Strawberry	*Frageria sp.*	Rosaceae	Herb	X	Fruit	X				Strawberry	Cultigen, old f
Fruit	Watermelon	*Citrullus vulgaris*	Cucurbitaceae	Domesticate	X	Fruit	X				Watermelon	Cultigen
Vegetable	Squash	*Cucurbita sp.*	Cucurbitaceae	Domesticate	X	Fruit	X				Squash/Pumpkin Seed	Cultigen
Vegetable	Cucurbit	*Cucurbita sp.*	Cucurbitaceae	Domesticate	X	Fruit	X				Squash/Pumpkin Seed	Cultigen
Vegetable	Sunflower	*Helianthus sp.*	Compositae	Domesticate	X	Grain	X	X			Sunflower	Cultigen; natu fields/pastures
Vegetable	Tomatillo	*Physalis sp.*	Solanaceae	Domesticate	X	Fruit	X			X	Ground Cherry	Fields and ope
Vegetable	Tomato	*Lycopersicon esculentum*	Solanaceae	Domesticate	X	Fruit					Tomato	Cultigen, volu sludge
Vegetable	Wheat	*Triticum aestivum*	Gramineae	Domesticate	X	Grain					Wheat	Cultigen
Edible Herb	Clover	*Trifolium sp.*	Fabaceae	Perennial herb	X	Leaf, flower, seed	X			X	Clover	Waste places
Edible Herb	Goosefoot	*Chenopodium sp.*	Chenopodiaceae	Annual herb	X	Greens, Seeds	X			X	Goosefoot	Distrurbed soi
Edible Herb	Pigweed	*Amaranthus sp.*	Amaranthaceae	Annual herb	X	Greens, Seeds	X	X		X	Pigweed	Fields, pasture
Edible Herb	Pokeweed	*Phytolacca americana*	Phytolaccaceae	Perennial herb	X	Greens	X		X	X	Pokeweed	Fields, waste p
Weed	Bulrush	*Scirpus sp.*	Cyperaceae	Annual/perennial herb						X	Bulrush	Ditches, marsl
Weed	Composite Family		Compositae							X	Composite Family	
Weed-Grass	Crabgrass	*Digitaria sp.*	Gramineae	Grass						X	Crabgrass	Waste places;
Weed	Flatsedge	*Cyperus sp.*	Cyperaceae	Annual/perennial herb						X	Flatsedge	Waste places,
Weed-Grass	Grass Family		Gramineae	Grass						X	Grass Family	
Weed	Jimsonweed	*Datura stramonium*	Solanaceae	Annual herb			X	X	X	X	Jimsonweed	Waste places,
Weed	Spurge	*Euphorbia sp.*	Euphorbiaceae	Annual/perennial herb						X	Spurge	Waste places,

Table 2. Identified Seed Assemblage.

Provenience Bag Number	TOTAL	YohA1	YohC1	YohF1	YohF1	YohF1 125	YohF2 118	114C2 53	114C3	YohF3A 114	114B1 63
AS		I	I	I	II	III	II/III	I	I		
Volume (L)	93.0	13	6	19	16	5	3	7	18	2	4
Depth (ft)		.9-3.0	2.3-8.5		6-8.5	9.8-8.45		8.15-5.27	3.6-5.9	14.70	10.15
Address		75 S 2nd St	13 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley		58 S. Front St	58 S. Front St		
Inhabitants & Principal Property Uses		Resident Owners Artisans	Resident Owner Mariner	Resident Owner Commercial	Resident Renter Commercial	Resident Renter Shop		Resident Owner Shop	Residen t Owner Tavern		
Date Range		1790-1825	1750	1769	1783-1800	1800-1825		1791-1823	1769-1784		
Coffee	1	1									
TOTAL EXOTICS	1	1									
Mustard	3			3							
Pepper	1								1		
TOTAL CONDIMENTS	4			3					1		
Apple	4	2			2						
cf. Blueberry	1				1						
Blackberry/Raspberry	15091	2183	179	1930	3855	23		3535	3381	4	1
Cherry	50			11	39						
Chokeberry	1				1						
Elderberry	67	7	1	9	24			16	10		
Fig	3546	191	24	408	1542	1		884	496		
Grape	671	40	7	142	221			138	122	1	
Peach	1			1							
Plum	2			1	1						
Strawberry	3117	17	3	49	159			2871	18		
Watermelon	2				2						

TOTAL FRUITS	22553	2440	214	2551	5847	24		7444	4027	5	1
Tomatillo	5	2			3						
Squash	8			3	5						
Sunflower	1							1			
Tomato	1			1							
Wheat	1			1							
TOTAL VEGETABLES	16	2		5	8			1			
Clover	1										1
Goosefoot	2	1						1			
Pigweed	2				2						
Pokeweed	1								1		
TOTAL EDIBLE HERBS	6	1			2			1	1		1
Composite Family	2	2									
Bulrush	3				2					1	
Crabgrass	5								1	4	
Flatsedge	3				2					1	
Grass	1			1							
Jimsonweed	5		1		1				3		
Spurge	1				1						
TOTAL WEEDS	20	2	1	1	6				4	6	
cf Labaiatae	2								2		
Unidentifiable	14	1	3	4	1	1		2	2		
Unknown	1	1									
TOTAL OTHER	17	2	3	4	1	1		2	4		
TOTAL SEEDS	22617	2448	218	2564	5864	25		7448	4037	11	2
Total Seed Density (gm/L)	243	188	36	135	367	5		1064	224	6	1
Poppy	142	13	54	22	38				15		

Table 3. Density (#/L) of Seeds.

Provenience		YohA1	YohC1	YohF1	YohF1	YohF1	114C2	114C3
Analytical Stratum (AS)		I	I	I	II	III	I	I
Volume (L)	93	13	6	19	16	5	7	18
Depth (ft)		.9-3.0	2.3-8.5		6-8.5	9.8-8.45	8.15-5.27	3.6-5.9
Address		75 S 2nd St	13 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	58 S. Front St	58 S. Front St
Inhabitants & Principal Property Uses		Resident Owners Artisans	Resident Owner Mariner	Resident Renter Commercial	Resident Renter Commercial	Resident Renter Shop	Resident Owner Shop	Resident Owner Tavern
Date Range		1790-1825	1750	1769	1783-1800	1800-1825	1791-1823	1769-1784
Coffee	0.01	0.08						
TOTAL EXOTICS (1 taxon)	0.01	0.08						
Mustard	0.03			0.16				
Pepper	0.01							0.06
TOTAL CONDIMENTS (2 taxa)	0.04			0.16				0.06
Apple	0.04	0.15			0.13			
cf. Blueberry	0.01				0.06			
Blackberry/Raspberry	162.27	167.92	29.83	101.58	240.94	4.60	505.00	187.83
Cherry	0.54			0.58	2.44			
Chokeberry	0.01				0.06			
Elderberry	0.72	0.54	0.17	0.47	1.50		2.29	0.56
Fig	38.13	14.69	4.00	21.47	96.38	0.20	126.29	27.56
Grape	7.22	3.08	1.17	7.47	13.81		19.71	6.78
Peach	0.01			0.05				
Plum	0.02			0.05	0.06			
Strawberry	33.52	1.31	0.50	2.58	9.94		410.14	1.00
Watermelon	0.02				0.13			
TOTAL FRUITS (12 taxa)	242.51	187.69	35.67	134.26	365.44	4.80	1063.43	223.72
Tomatillo	0.05	0.15			0.19			
Squash	0.09			0.16	0.31			
Sunflower	0.01						0.14	
Tomato	0.01			0.05				
Wheat	0.01			0.05				
TOTAL VEGETABLES (5 taxa)	0.17	0.15		0.26	0.50		0.14	
Clover	0.01							
Goosefoot	0.02	0.08					0.14	
Pigweed	0.02				0.13			
Pokeweed	0.01							0.06
TOTAL EDIBLE HERBS (4 taxa)	0.06	0.08			0.13		0.14	0.06
Composite Family	0.02	0.15						
Bulrush	0.03				0.13			
Crabgrass	0.05							0.06
Flatsedge	0.03				0.13			
Grass	0.01			0.05				
Jimsonweed	0.05		0.17		0.06			0.17
Spurge	0.01				0.06			
TOTAL WEEDS (7 taxa)	0.22	0.15	0.17	0.05	0.38			0.22
TOTAL SEEDS	243.19	188.31	36.33	134.95	366.50	5.00	1064.00	224.28

Table 4. Wood Charcoal Weights, Densities (gm/L), Numbers of Identified Specimens, and Relative Proportions of Identified Specimens.

Provenience Bag Number	TOTAL	YohA1	YohC1	YohF1	YohF1	YohF1 125	YohF2 118	114C2 53	114C3	YohF3A 114	114B1 63
Analyical Stratum (AS)		I	I	I	II	III	II/III	I	I		
Volume (L)	93.0	13	6	19	16	5	3	7	18	2	4
Depth (ft)		.9-3.0	2.3-8.5		6-8.5	9.8-8.45		8.15-5.27	3.6-5.9	14.70	10.15
Address		75 S 2nd St	13 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley		58 S. Front St	58 S. Front St		
Inhabitants & Principal Property Uses		Resident Owners Artisans	Resident Owner Mariner	Resident Owner Commercial	Resident Renter Commercial	Resident Renter Shop		Resident Owner Shop	Resident Owner Tavern		
Date Range		1790-1825	1750	1769	1783-1800	1800-1825		1791-1823	1769-1784		
Wood Charcoal (Wt gm)	26.2	1.8	1.1	1.1	6.6	0.1	0.4	1.5	8.5	0.1	5.0
Wood Density (gm/L)	0.282	0.138	0.183	0.058	0.413	0.020	0.133	0.214	0.472	0.050	1.250
Identified Wood Counts											
Ash	1								1		
Hickory	17								16		1
Maple	8								6		2
Red Oak	20				8				10		2
Sycamore	2								2		
White Oak	15				11				3		1
Pine	15				1						14
Unidentifiable	4				2				2		
TOTAL WOOD	82				22				40		20
Ash	1.2%								2.5%		
Hickory	20.7%								40.0%		5.0%
Maple	9.8%								15.0%		10.0%
Red Oak	24.4%				36.4%				25.0%		10.0%
Sycamore	2.4%								5.0%		
White Oak	18.3%				50.0%				7.5%		5.0%
Pine	18.3%				4.5%						70.0%
Unidentifiable	4.9%				9.1%				5.0%		
TOTAL WOOD	100.0%				100.0%				100.0%		100.0%

Table 5. Total Macroplant Remains by Economic Category.

Provenience Bag Number	TOTAL	YohA1	YohC1	YohF1	YohF1	YohF1 125	114C2 53	114C3	YohF3A 114	114B1 63
Analytical Stratum		I	I	I	II	III	I	I	unk	unk
Volume (L)	93	13	6	19	16	5	7	18	2	4
Depth (ft)		.9-3.0	2.3-8.5		6-8.5	9.8-8.45	8.15-5.27	3.6-5.9	14.70	10.15
Address		75 S 2nd St	13 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	58 S. Front St	58 S. Front St	unk	unk
Inhabitants and Principal Property Uses		Resident Owners Artisans	Resident Owner Mariner	Resident Owner Commercial	Resident Renter Commercial	Resident Renter Shop	Resident Owner Shop	Resident Owner Tavern	unk	unk
Date Range		1790-1825	1750	1769	1783-1800	1800-1825	1791-1823	1769-1784	unk	unk
EXOTICS (1 taxon)	1	1								
CONDIMENTS (2 taxa)	4			3				1		
FRUITS (12 taxa)	22553	2440	214	2551	5847	24	7444	4027	5	1
VEGETABLES (5 taxa)	16	2		5	8		1			
EDIBLE HERBS (4 taxa)	6	1			2		1	1		1
WEEDS (7 taxa)	20	2	1	1	6			4	6	
TOTAL SEEDS	22600	2446	215	2560	5863	24	7446	4033	11	2

Table 6. Relative Proportions of Each Plant Category.

Provenience Bag Number	TOTAL	Yoh-A1	Yoh-C1	Yoh-F1	Yoh-F1	Yoh-F1 125	114-C2 53	114-C3	Yoh-F3A 114	114-B1 63
Analytical Stratum		I	I	I	II	III	I	I	unk	unk
Volume (L)	93	13	6	19	16	5	7	18	2	4
Depth (ft)		.9-3.0	2.3-8.5		6-8.5	9.8-8.45	8.15-5.27	3.6-5.9	14.70	10.15
Address		75 S 2nd St	13 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	1-3 Gray's Alley	58 S. Front St	58 S. Front St	unk	unk
Inhabitants & Principal Property Uses		Resident Owners Artisans	Resident Owner Mariner	Resident Owner Commercial	Resident Renter Commercial	Resident Renter Shop	Resident Owner Shop	Resident Owner Tavern	unk	unk
Date Range		1790-1825	1750	1769	1783-1800	1800-1825	1791-1823	1769-1784	unk	unk
EXOTICS (1 taxon)	0.00%	0.04%								
CONDIMENTS (2 taxa)	0.02%			0.12%				0.02%		
FRUITS (12 taxa)	99.79%	99.75%	99.53%	99.65%	99.73%	100.00%	99.97%	99.85%	45.45%	50.00%
VEGETABLES (5 taxa)	0.07%	0.08%		0.20%	0.14%		0.01%			
EDIBLE HERBS (4 taxa)	0.03%	0.04%			0.03%		0.01%	0.02%		50.00%
WEEDS (7 taxa)	0.09%	0.08%	0.47%	0.04%	0.10%			0.10%	54.55%	

Table 7. Macroplant Remains from Each Time Period.

	1750-1769 YohC1 YohF1 AS I	1769-1784 114C3	1783-1800 YohF1 AS II	1790-1825 YohA1 114C2 YohF1 AS III
Volume (L)	25	18	16	25
EXOTICS (1 taxon)				1
CONDIMENTS (2 taxa)	3	1		
FRUITS (12 taxa)	2765	4027	5847	9908
VEGETABLES (5 taxa)	5		8	3
EDIBLE HERBS (4 taxa)		1	2	2
WEEDS (7 taxa)	2	4	6	2
TOTAL SEEDS	2775	4033	5863	9916

Table 8. Density (#/L) of Macroplant Remains from Each Time Period.

	1750-1769 YohC1 YohF1 AS I	1769-1784 114C3	1783-1800 YohF1 AS II	1790-1825 YohA1 114C2 YohF1 AS III
Volume (L)	25	18	16	25
EXOTICS (1 taxon)				.004
CONDIMENTS (2 taxa)	.12	0.1		
FRUITS (12 taxa)	110	224	365	396
VEGETABLES (5 taxa)	0.2		0.5	0.1
EDIBLE HERBS (4 taxa)		0.1	0.1	0.1
WEEDS (7 taxa)	0.1	0.2	0.4	0.1
TOTAL SEED Density	111	224	366	397

Table 9. Identified Macroplant Assemblage from Taylor's 1981 Area F Archaeobotanical Study.

Major Use	Taxon	Latin Name	TOTAL	114 C2A	114 C2	114 C3	Yoh A1	Yoh A2	Yoh C1	Yoh C2	Yoh F1
Exotic	Almond	*Prunus dulcis*	1								1
Exotic	Coconut	*Cocos nucifera*	1								1
		Total Exotics	2								2
Condiment	Chicory	*Chicorium*	3		3						
Condiment	Mustard	*Brassica*	3	1	1	1					
		Total Condiments	6	1	4	1					
Fruit	Blackberry/ raspberry	*Rubus*	14365	1080	1864	3071	404	1444	1168	275	5049
Fruit	Blueberry	*Vaccinium*	4			3			1		
Fruit	Cherry	*Prunus*	293	1		5				2	285
Fruit	Elderberry	*Sambucus canadensis*	96	9		4		20	10	34	19
Fruit	Grape	*Vitis*	464	40	50	43	3	15	25		288
Fruit	Huckleberry	*Gaylussacia*	1				1				
Fruit	Mountain ash	*Sorbus*	1				1				
Fruit	Mulberry	*Morus*	6			4					2
Fruit	Peach	*Prunus persica*	25								25
Fruit	Plum	*Prunus*	2								2
Fruit	Strawberry	*Frageria*	792	194	400	11	6	47	11		123
Fruit	Watermelon	*Citrullus vulgaris*	13		1						12
		Total Fruits	16062	1324	2315	3141	415	1526	1215	311	5805
Vegetable	Cucurbit	Cucurbitaceae	24			1			1		22
Vegetable	Tomatillo	*Physalis*	2					2			
		Total Vegetables	26			1		2	1		22
Nut	American chestnut	*Castanea dentata*	1				1				
Nut	Black Walnut	*Juglans nigra*	1								1
		Total Nuts	2				1				1
Ornamental	Burning bush	*Euonymus*	1			1					
Ornamental	Gray Dogwood	*Cornus racemosa*	5			2					3
Ornamental	Maple	*Acer*	1				1				
Ornamental	Flax	*Linum*	7					7			
		Total Ornamental	14			3	1	7			3
Edible herb	Arrowhead	*Sagittaria*	1			1					
Edible herb	Cinquefoil	*Potentilla*	1			1					
Edible herb	Clover	*Trifolium*	159	53		106					
Edible herb	Goosefoot	*Chenopodium*	2					1	1		
Edible herb	Lambs ears	*Stachys olympica*	1			1					
Edible herb	Pennyroyal	*Hedeoma*	3		3						
Edible herb	Pigweed	*Amaranthus*	12	8				1			3
Edible herb	Purslane	*Portulaca*	14		2						12
Edible herb	Wintercress	*Barbarea*	2			2					
		Total Edible Herb	195	61	5	111		2	1		15
Weed	Bladderwort	*Utricularia intermedia*	1		1						
Weed	Buffalo bur	*Solanum rostratum*	6	1		3			2		
Weed	Clearweed	*Pilea pumila*									
Weed	Copperleaf	*Acalypha*	2				1	1			
Weed	Jimsonweed	*Datura stramonium*	2			1					1
Weed	Mallow	*Malva*	4					4			
Weed	Matrimony-vine	*Lycium halimifolium*	1			1					
Weed	Nightshade	*Solanum*	30		1						29

Table 9. (continued)

Major Use	Taxon	Latin Name	TOTAL	114 C2A	114 C2	114 C3	Yoh A1	Yoh A2	Yoh C1	Yoh C2	Yoh F1
Weed	Pinweed	*Lechea*	2			2					
Weed	Pondweed	*Potamogeton spirillus*	1418	23		58	53	45	167	156	916
Weed	Sedge	*Carex sp.*	1138	157	406	107		6	4		458
Weed	Spurge	*Euphorbia*	1				1				
Weed	White baneberry	*Actaea alba*	2			2					
Grass	Annual Bluegrass	*Poa annua*	1		1						
Grass	Blue-eyed grass	*Sisyrinchium atlanticum*	45			3			37		5
Grass	Grass family	Gramineae	2					2			
		Total Weeds	2655	181	409	177	55	58	210	156	1409
		Total	18962	1567	2733	3434	472	1595	1427	467	7257

Table 10. Total Macroplant Remains by Economic Category (Taylor 1981).

	TOTAL	114 C2A	114 C2	114 C3	Yoh A1	Yoh A2	Yoh C1	Yoh C2	Yoh F1
Exotics	2								2
Condiments	6	1	4	1					
Fruits	16062	1324	2315	3141	415	1526	1215	311	5805
Vegetables	26			1		2	1		22
Nuts	2				1				1
Ornamental	14			3	1	7			3
Edible Herb	195	61	5	111		2	1		15
Weeds	2655	181	409	177	55	58	210	156	1409
Total	18962	1567	2733	3434	472	1595	1427	467	7257

Table 11. Relative Proportions of Each Plant Category (Taylor 1981).

	TOTAL	114 C2A	114 C2	114 C3	YOH A1	YOH A2	YOH C1	YOH C2	YOH F1
Exotics	0.0%								0.0%
Condiments	0.0%	0.1%	0.1%	0.0%					
Fruits	84.7%	84.5%	84.7%	91.5%	87.9%	95.7%	85.1%	66.6%	80.0%
Vegetables	0.1%			0.0%		0.1%	0.1%		0.3%
Nuts	0.0%				0.2%				0.0%
Ornamental	0.1%			0.1%	0.2%	0.4%			0.0%
Edible Herb	1.0%	3.9%	0.2%	3.2%		0.1%	0.1%		0.2%
Weeds	14.0%	11.6%	15.0%	5.2%	11.7%	3.6%	14.7%	33.4%	19.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 12. Provenience Data for Lab Numbers Assigned to Parasite Samples.

Lab #	Bag #	SS #	Building	Rm	Fea	Elevation	Comment
1	17	139c	Yoh	A	2		Contents of pitcher
2		134d	114	C	2	6.30	
3		140b	Yoh	A	2	7.40	
4		122	114	C	2	4.66	
5	128		Yoh	F3	1		
6	128		Yoh	F	1	7-6	
7	129		Yoh	F	1		Contents of redware vessel
8	129		Yoh	F	1		
9		186b	Yoh	F	1		West wall dark lens
10	126		Yoh	F	1		
11		104c	114	C	2	13.20	
12	126	197h	Yoh	F	1	8.45	
13		134a	114	C	2	9.00	
14		138c	114	B	1	1.80	
15	89		Yoh	C	1		
16		104e	114	C	2	12.00	
17	17		Yoh	A	2	9.0-7.6	
18	128	131b	Yoh	F	1	7-4.7	Soil from green bottle
19		134c	114	C	2	8.00	
20			114	C	2	7.00	
21	130		Yoh	F	1		Remaining soil in bag
22	133		Yoh	F	1		
23	72		Yoh	A	1	5.5-3.0	
24		140c	Yoh	A	2	7.20	
25		151a	Yoh	C	1	4.72	Wet sand near bottom
26		104n	114	C	2	5.27	
27		132	114	C	2a	3.62	
28	85		Yoh	C	1	7.05-5.49	Fill of fallen wall from Fea 2
29	87		Yoh	C	1		5.67-4.27W, 5.67-4.55E
30	59		114	C	3	4.6-3.2	
31	58		114	C	3	5.6-4.6	
32	82		Yoh	C	1	7.55-5.67	
33	86		Yoh	A	1	1.10	
34	83		Yoh	A	1	3.0-1.1	
35			Yoh	C	1		Center 2.74-2.33, edge 3.35-2.85

Table 13. Raw counts of parasite eggs and Lycopodium tablets for a minumum of three microscope preparations.

Lab #	Bag #	SS #	Building	Rm	Fea	Elevation	Lycopodium	Ascaris lumbricoides	Trichuris trichiura
1	17	139c	Yoh	A	2		25	60	66
2		134d	114	C	2	6.30	25	0	0
3		140b	Yoh	A	2	7.40	25	16	26
4		122	114	C	2	4.66	25	1	1
5	128		Yoh	F3	1		25	9	31
6	128		Yoh	F	1	7-6	25	11	18
7	129		Yoh	F	1		25	3	8
8	129		Yoh	F	1		25	8	22
9		186b	Yoh	F	1		25	1	82
10	126		Yoh	F	1		25	46	85
11		104c	114	C	2	13.20	25	0	0
12	126	197h	Yoh	F	1	8.45	25	3	78
13		134a	114	C	2	9.00	25	0	0
14		138c	114	B	1	1.80	12	0	0
15	89		Yoh	C	1		25	1	6
16		104e	114	C	2	12.00	25	0	0
17	17		Yoh	A	2	9.0-7.6	10	28	15
18	128	131b	Yoh	F	1	7-4.7	25	27	68
19		134c	114	C	2	8.00	25	16	12
20			114	C	2	7.00	16	0	0
21	130		Yoh	F	1		25	7	11
22	133		Yoh	F	1		25	3	19
23	72		Yoh	A	1	5.5-3.0	25	31	24
24		140c	Yoh	A	2	7.20	25	0	0
25		151a	Yoh	C	1	4.72	266	0	3
26		104n	114	C	2	5.27	25	3	1
27		132	114	C	2a	3.62	25	15	51
28	85		Yoh	C	1	7.05-5.49	25	9	5
29	87		Yoh	C	1		25	4	2
30	59		114	C	3	4.6-3.2	30	89	172
31	58		114	C	3	5.6-4.6	25	74	203
32	82		Yoh	C	1	7.55-5.67	25	142	66
33	86		Yoh	A	1	1.10	5	95	22
34	83		Yoh	A	1	3.0-1.1	15	194	122
35			Yoh	C	1		25	11	13

Table 14. Calculation of numbers of parasite eggs per milliliter of sediment.

Lab #	Bag #	SS #	Building	Rm	Fea	Elevation	Lycopodium	Ascaris lumbricoides	Trichuris trichiura
1	17	139c	Yoh	A	2		25	3000	3300
2		134d	114	C	2	6.30	25	0	0
3		140b	Yoh	A	2	7.40	25	800	1300
4		122	114	C	2	4.66	25	300	300
5	128		Yoh	F3	1		25	450	1550
6	128		Yoh	F	1	7-6	25	550	900
7	129		Yoh	F	1		25	150	400
8	129		Yoh	F	1		25	400	1100
9		186b	Yoh	F	1		25	50	4100
10	126		Yoh	F	1		25	2300	4250
11		104c	114	C	2	13.20	25	0	0
12	126	197h	Yoh	F	1	8.45	25	150	3900
13		134a	114	C	2	9.00	25	0	0
14		138c	114	B	1	1.80	12	0	0
15	89		Yoh	C	1		25	60	300
16		104e	114	C	2	12.00	25	0	0
17	17		Yoh	A	2	9.0-7.6	10	3500	1875
18	128	131b	Yoh	F	1	7-4.7	25	1350	3400
19		134c	114	C	2	8.00	25	800	600
20			114	C	2	7.00	16	0	0
21	130		Yoh	F	1		25	350	550
22	133		Yoh	F	1		25	150	950
23	72		Yoh	A	1	5.5-3.0	25	1550	1200
24		140c	Yoh	A	2	7.20	25	0	0
25		151a	Yoh	C	1	4.72	266	0	42
26		104n	114	C	2	5.27	25	150	50
27		132	114	C	2a	3.62	25	750	2550
28	85		Yoh	C	1	7.05-5.49	25	450	250
29	87		Yoh	C	1		25	200	100
30	59		114	C	3	4.6-3.2	25	3800	7300
31	58		114	C	3	5.6-4.6	25	3700	10150
32	82		Yoh	C	1	7.55-5.67	25	7100	3300
33	86		Yoh	A	1	1.10	5	23750	5500
34	83		Yoh	A	1	3.0-1.1	15	16167	10167
35			Yoh	C	1		25	550	650

Table 15. Calculated egg concentrations sorted by provenience.

Lab #	Bag #	SS #	Building	Rm	Fea	Stratum	Date Range	Lycopodium	Ascaris lumbricoides	Trichuris trichiura
14		138c	114	B	1	unk	unk	12		
2		134d	114	C	2	I	1791-1823	25		
4		122	114	C	2	I	1791-1823	25	300	300
11		104c	114	C	2	I	1791-1823	25		
13		134a	114	C	2	I	1791-1823	25		
16		104e	114	C	2	I	1791-1823	25		
19		134c	114	C	2	I	1791-1823	25	800	600
20			114	C	2	I	1791-1823	16		
26		104n	114	C	2	I	1791-1823	25	150	50
27		132	114	C	2a	I	1791-1823	25	750	2550
30	59		114	C	3	I	1769-1784	25	3800	7300
31	58		114	C	3	I	1769-1784	25	3700	10150
23	72		Yoh	A	1	I	1790-1825	25	1550	1200
33	86		Yoh	A	1	I	1790-1825	5	23750	5500
34	83		Yoh	A	1	I	1790-1825	15	16167	10167
1	17	139c	Yoh	A	2	unk	unk	25	3000	3300
3		140b	Yoh	A	2	unk	unk	25	800	1300
17	17		Yoh	A	2	unk	unk	10	3500	1875
24		140c	Yoh	A	2	unk	unk	25		
15	89		Yoh	C	1	I	1750	25	60	300
25		151a	Yoh	C	1	I	1750	266		42
28	85		Yoh	C	1	I	1750	25	450	250
29	87		Yoh	C	1	I	1750	25	200	100
32	82		Yoh	C	1	I	1750	25	7100	3300
35			Yoh	C	1	I	1750	25	550	650
7	129		Yoh	F	1	I	1760	25	150	400
8	129		Yoh	F	1	I	1760	25	400	1100
21	130		Yoh	F	1	I	1760	25	350	550
22	133		Yoh	F	1	I	1760	25	150	950
5	128		Yoh	F	1	II	1783-1800	25	450	1550
6	128		Yoh	F	1	II	1783-1800	25	550	900
9		186b	Yoh	F	1	II	1783-1800	25	50	4100
10	126		Yoh	F	1	II	1783-1800	25	2300	4250
12	126	197h	Yoh	F	1	II	1783-1800	25	150	3900
18	128	131b	Yoh	F	1	II	1783-1800	25	1350	3400

Table 16. Minimum and Maximum Egg Concentrations with Associated Household Data.

Provenience	YohA1	YohC1	YohF1	114C2	114C3
Address	75 S 2nd St	13 Gray's Alley	1-3 Gray's Alley	58 S. Front St	58 S. Front St
Inhabitants & Principal Property Uses	Resident Owners Artisans	Resident Owner Mariner	Resident Owner Commercial	Resident Owner Shop	Resident Renter Tavern
Date Range	1790-1825	1750	1769	1791-1823	1769-1784
Parasite Taxa					
Ascarid	1550-23750	0-7100	150-2300	0-800	3800-3700
Trichurid	1200-10167	42-3300	400-4250	0-2250	7300-10150

Figures

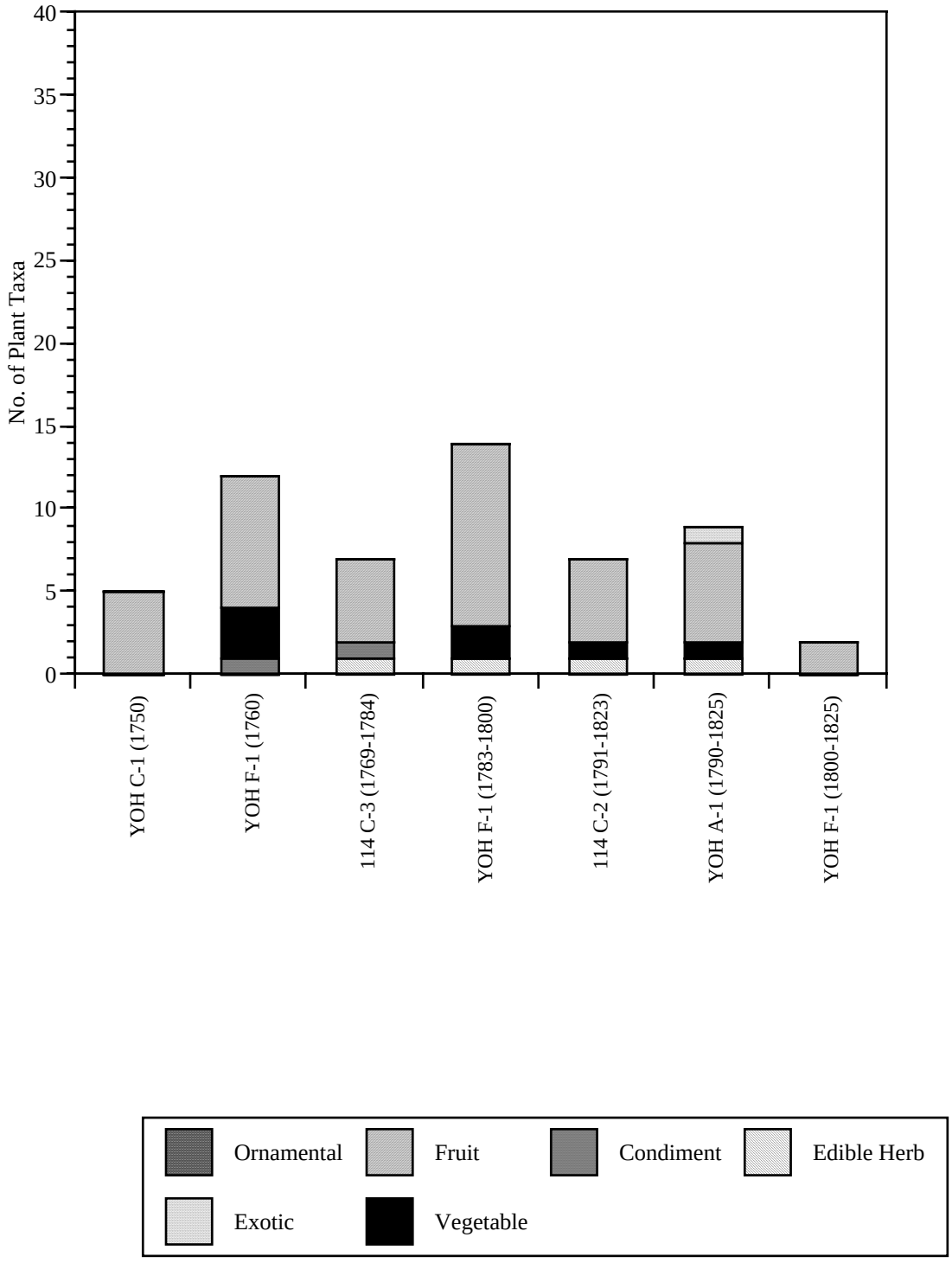


Figure 1. Floral Assemblages from Area F Middle Income Privies.

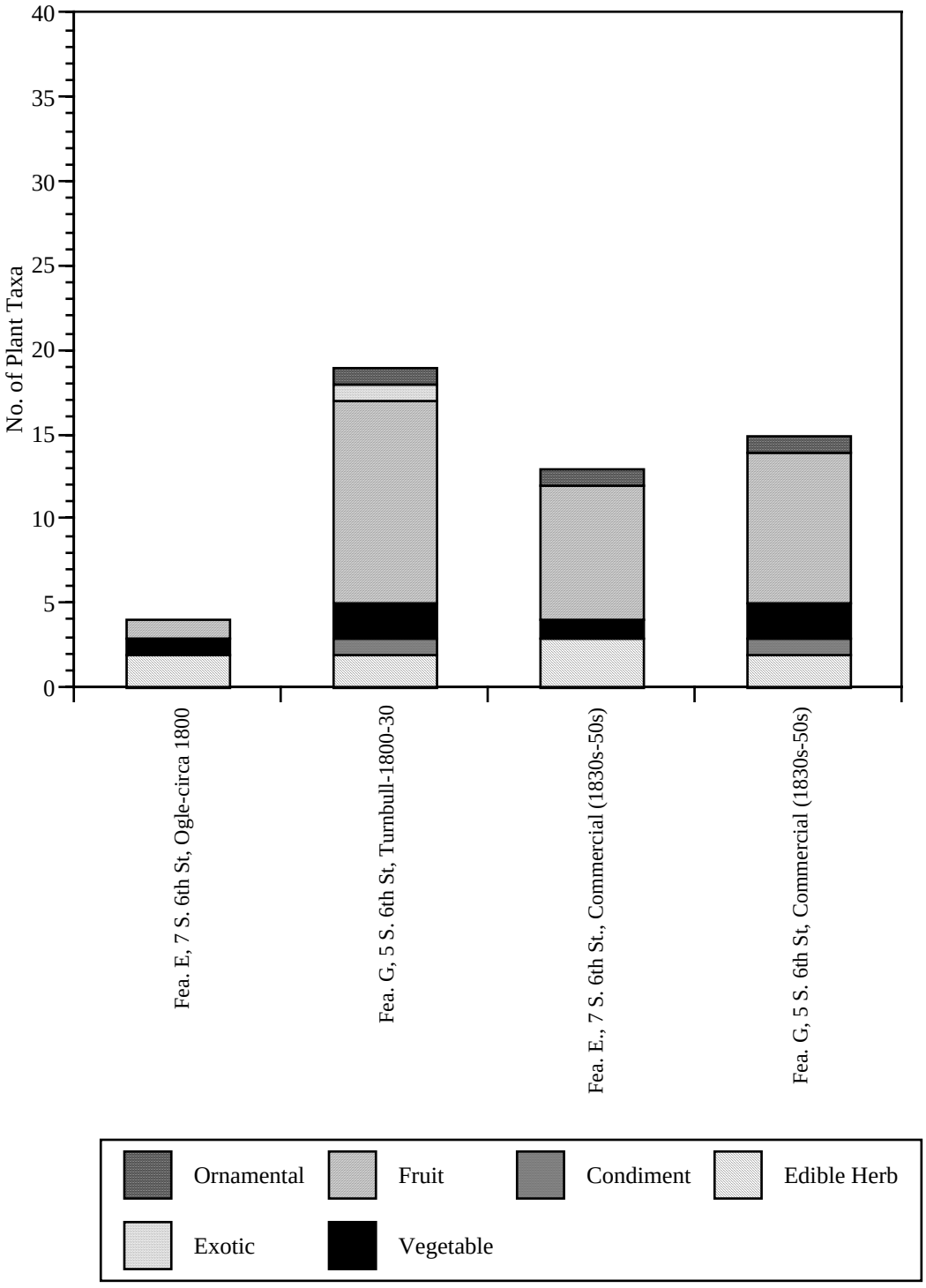


Figure 2. Floral assemblages from Block 1 (Liberty Bell) Middle Income Privies.

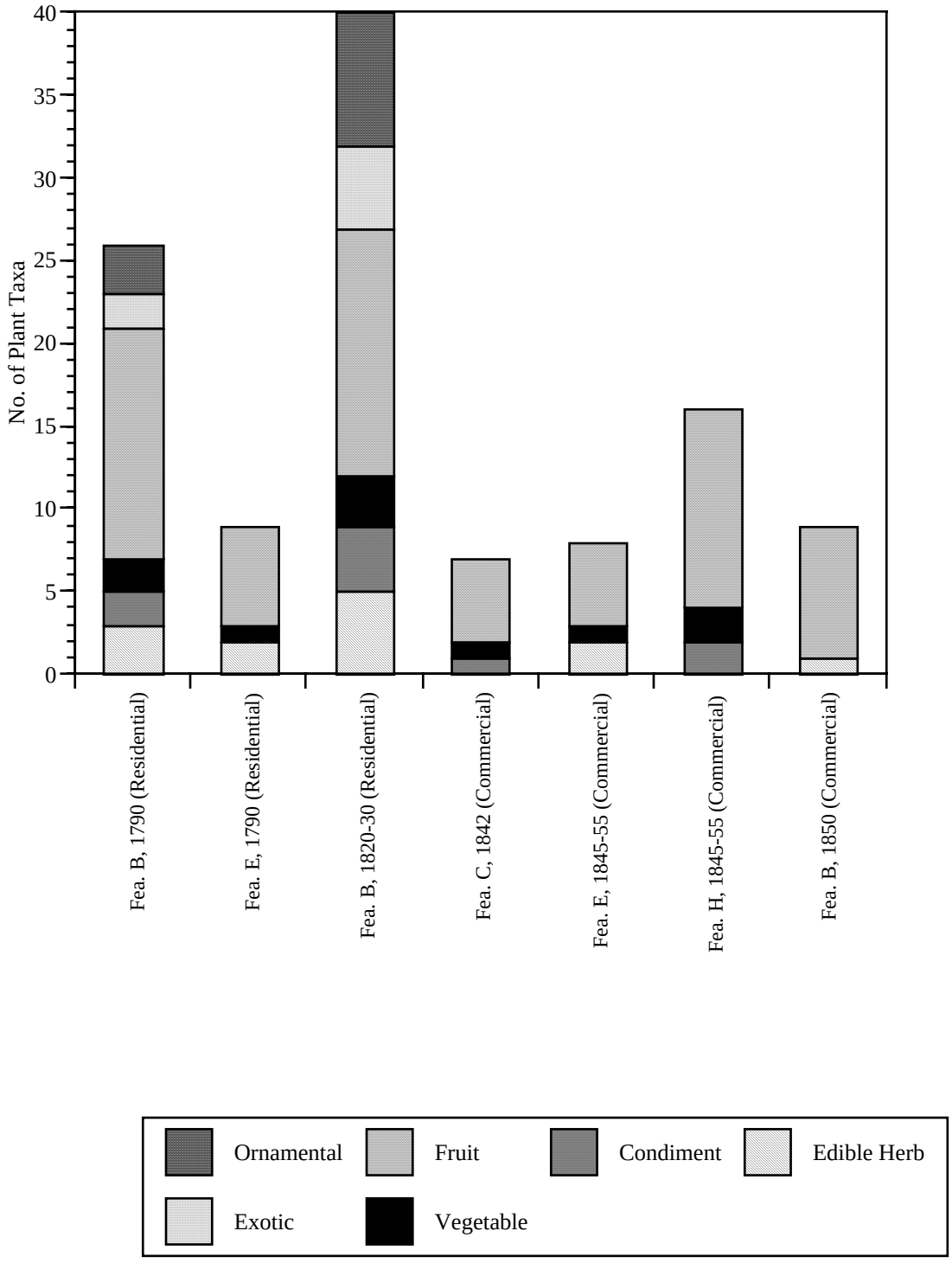


Figure 3. Floral Assemblages from Block 2 (Independence Visitor Center) Middle and Upper Income Privies.

Figure 4: Images of Nematodes and Nematode Eggs.

Figure 5: The Variation of Ascarid and Trichurid Eggs in Feature YOHA1.

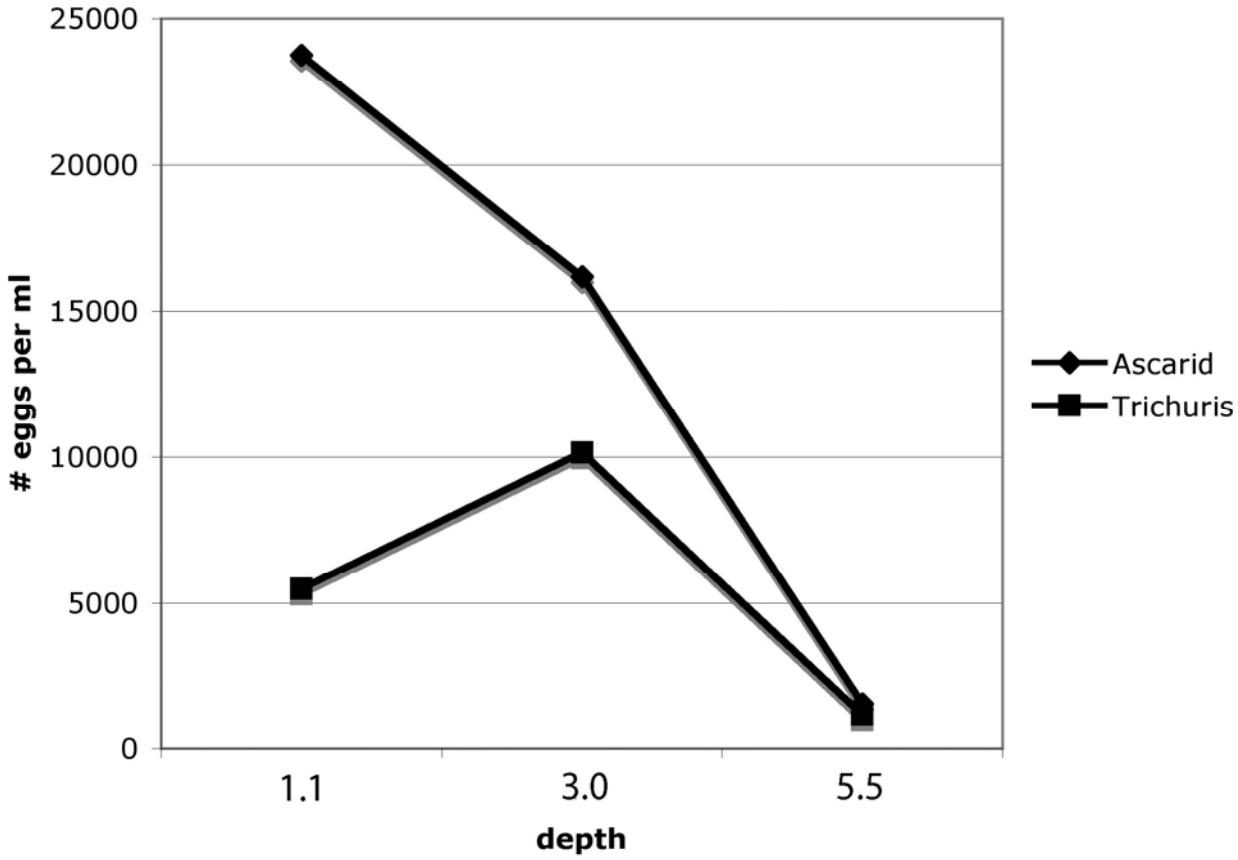


Figure 6: Egg Concentrations from YOHA2.

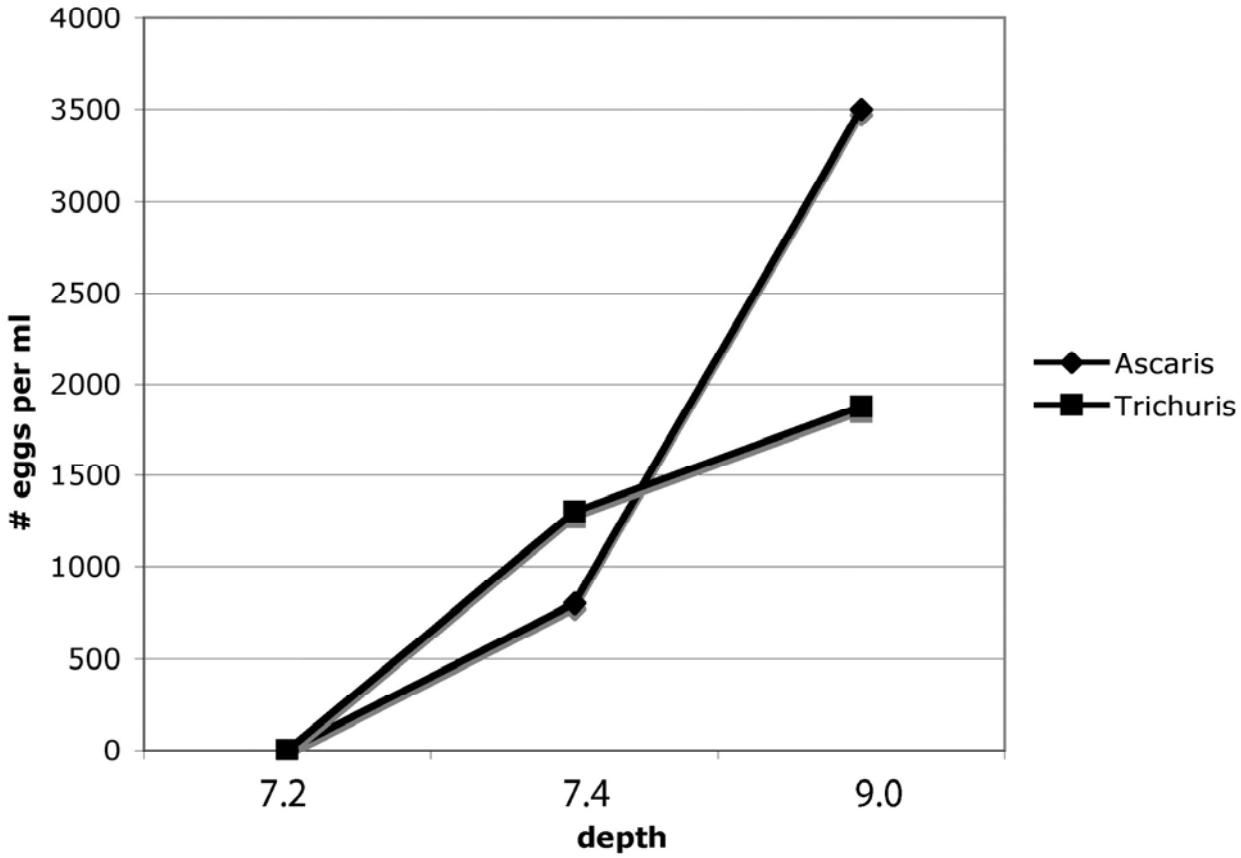


Figure 7: Egg Concentrations from YOHC1.

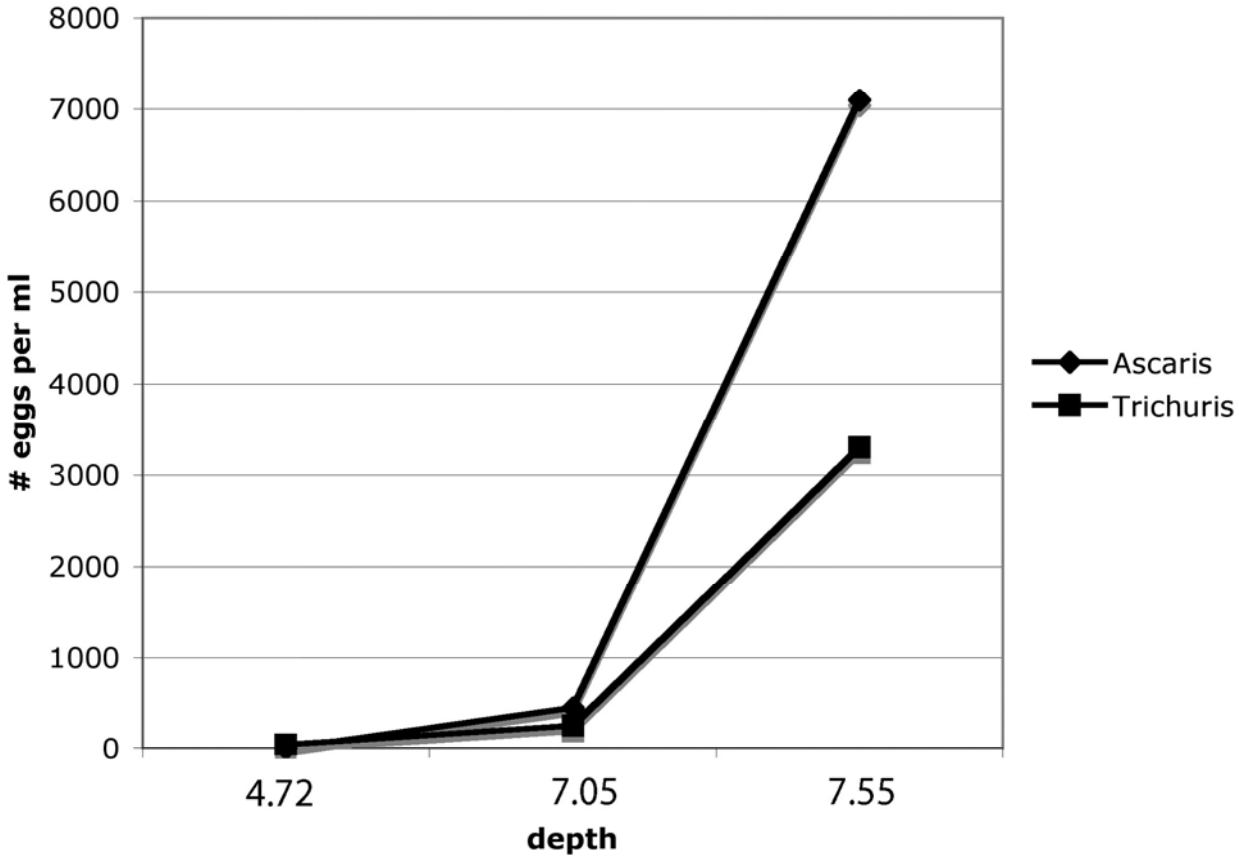


Figure 8: Egg Concentrations from 114C2.

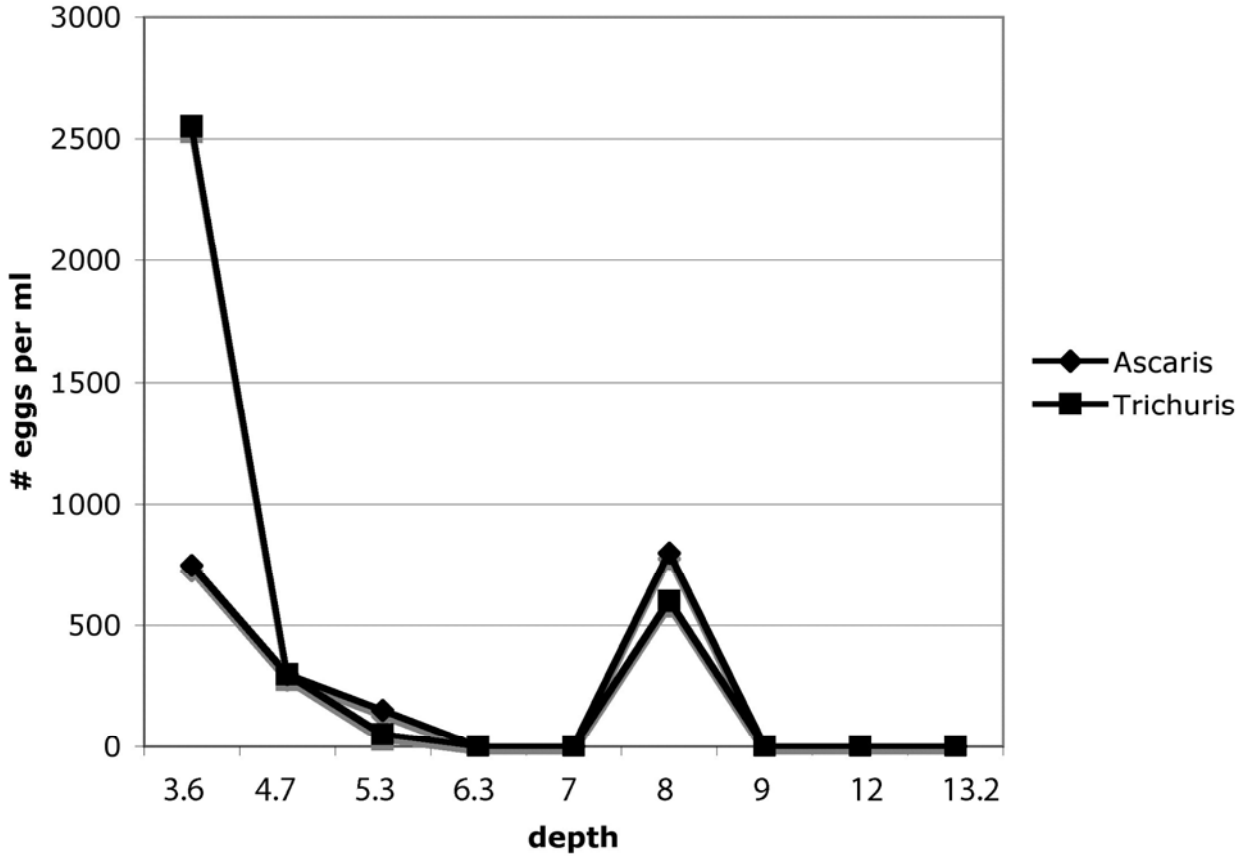
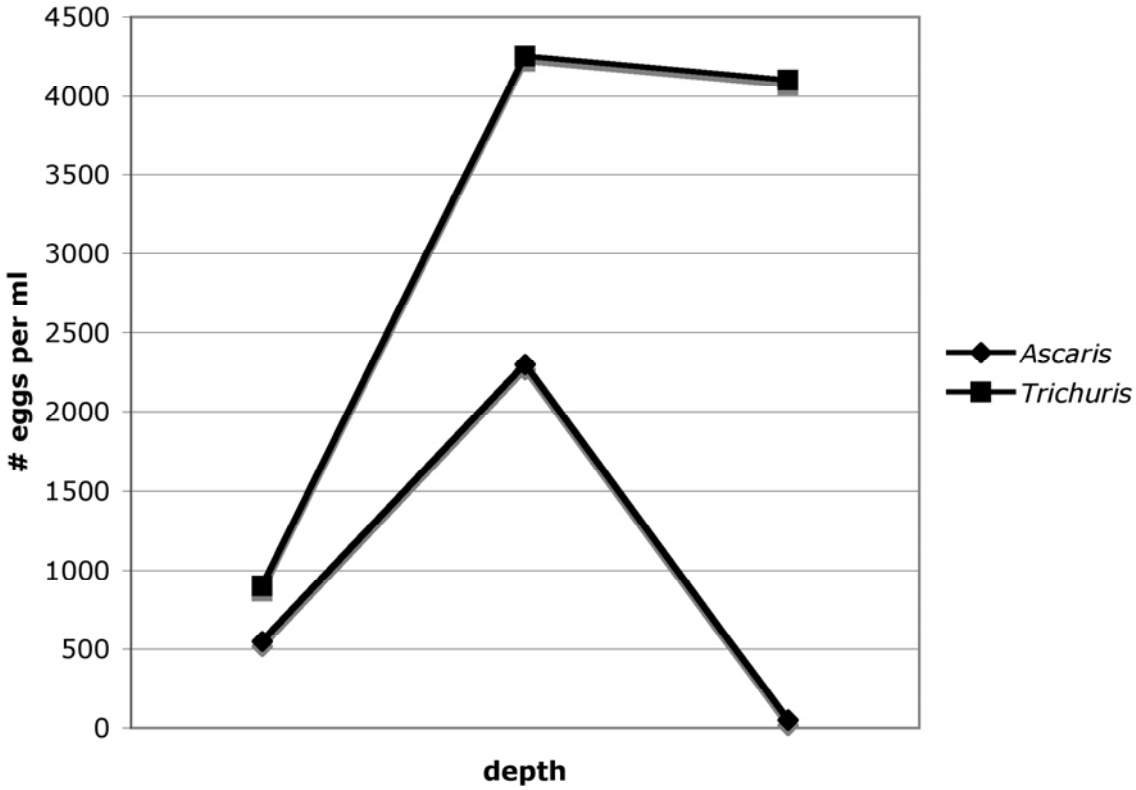


Figure 9. Egg Concentrations from YOHF1.



Appendix A. Macroplant Raw Data.

Appendix A. Macroplant Analysis Data.

	Prov	YOHA1	YOHA1	YOHA1	YOHA1	YOHC1	YOHC1	YOHC1	YOHC1	YOHC1	YOHC1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF1	YOHF2	114C2	114C3	114C3	114C3	YOHF3A	114B1	
	Bag #	83	83	86	86	91	90	89	87a	85	78	129	130	133	133	126	128	126	128	126	128	125	118	53	56	58	59	114	63	
	Soil Sample #		149a		149b	151c	151d	151e	151f	151m	151o				226			220	222	223	225	219			110	112	115	191	125	Total
	AS	I	I	I	I	I	I	I	I	I	I	I	I	I	I	II	II	II	II	II	II	III	II/III	I	I	I	I			
	Volume (L)	2	5	1	5	1	1	1	1	1	1	1	1	2	3	2	1	4	1	5	3	5	3	7	5	6	7	2	4	81.0
	Depth (ft)	3.0-1.1	1.10	1.10	0.90	2.36	3.00	3.97	5.72	7.50	8.55				0.43			8.45	7.00	6.00	2.23	9.8-8.45		8.15-5.27	5.95	5.60	3.60	14.70	10.15	
	Wood Charcoal	0.6	1.1	0.1		0.1	0.1	0.1	0.6	0.1	0.1	0.1	0.9		0.1	0.5	0.1	4.6	0.1	1.0	0.3	0.1	0.4	1.5	1.1	1.4	6.0	0.1	5.0	26.2
Exotic	Coffee		1																											1
Condiment	Mustard												3																	3
Condiment	Pepper																										1			1
Fruit	Apple	2															1				1									4
Fruit	cf. Blueberry																				1									1
Fruit	Blackberry/ Raspberry	457	903	288	535	13	112	15	36	2	1	53	544	397	936	374	591	116	442	1506	826	23		3535	785	821	1775	4	1	15091
Fruit	Cherry											3	7	1			9	1		29										50
Fruit	Chokeberry																1													1
Fruit	Elderberry	5		2					1				1	1	7	1		12			11			16	4		6			67
Fruit	Fig	76	30	59	26	2	8	2	10	2		43	79	68	218	227	759	20	145	220	171	1		884	239	163	94			3546
Fruit	Grape	16	1	9	14		6		1			13	34	17	78	13	85	5	6	43	69			138	56	59	7	1		671
Fruit	Peach											1																		1
Fruit	Plum											1								1										2
Fruit	Strawberry	9	2		6		2	1					3	4	42	21	2			129	7			2871	1		17			3117
Fruit	Watermelon															2														2
Vegetable	Ground Cherry		1		1															2	1									5
Vegetable	Squash												1	2						5										8
Grain	Sunflower																							1						1
Vegetable	Tomato														1															1
Grain	Wheat												1																	1
Edible Herb	Clover																												1	1
Edible Herb	Goosefoot				1																			1						2
Edible Herb	Pigweed																	2												2
Edible Herb	Pokeweed																										1			1
Weed	Composite Family				2																									2
Weed	Bulrush															1		1										1		3
Weed	Crabgrass																								1			4		5
Weed	Flatsedge															1		1										1		3
Weed	Grass													1																1
Weed	Jimsonweed							1										1									3			5
Weed	Spurge																		1											1
Other	cf Labaiatae																										2			2
Other	Unidentifiable		1						2	1		2	2				1					1		2	1		1			14
Other	Unknown				1																									1
Wood ID																														
	Ash																										1			
	Hickory																								6		10		1	
	Maple																								6				2	
	Red Oak																	8							6		4		2	
	Sycamore																										2			
	White Oak																	11									3		1	
	Pine																	1											14	
	Unidentifiable																	2							2					
		565	939	358	586	15	128	19	50	5	1	116	675	491	1282	640	1449	159	594	1935	1087	25		7448	1087	1043	1907	11	2	22617
	Poppy			13							54		22						22		16				15					142

Appendix B. Identified Seed Taxa from Blocks 1 and 2

Appendix B. Idenified Seed Taxa from Blocks 1 (Liberty Bell) and 2 (Independence Visitor Center).

Feature	B	E	B	C	E	H	B	E	G	E	G
Age	1790	1790	1820-1830	1842	1845-55	1845-55	1850	circa 1800	1820-1830	1830s	Post-1830
	Owner	Owner	Owner					Ogle 7	Turnbull	Commerical	Commercial
Level	Occupant	Occupant	Occupant	Commercial	Commercial	Commercial	Commercial	S. 6th St.	5 S. 6th St.	7 S. 6th St.	5 S. 6th St.
Exotic											
Coconut			X								
Coffee Bean			X						X		
English Walnut	X		X								
Olive			X								
Peanut Shell	X		X								
Fruit											
Apple	X		X		X	X	X		X	X	X
Blackberry/Raspberry	X	X	X	X	X	X	X	X	X	X	X
Blueberry	X		X			X			X		
Cherry	X		X			X			X	X	X
Possible Chokeberry	X	X	X	X		X	X				
Elderberry		X	X		X		X		X	X	X
Fig	X	X	X	X	X	X	X		X	X	X
Grape	X	X	X	X		X	X		X	X	X
Huckleberry	X		X			X	X				
Canteloupe/Muskmelon	X		X			X					
Mulberry						X				X	
Peach	X		X						X		X
Persimmon	X		X						X		
Plum	X		X						X		X
Strawberry	X	X	X	X	X	X	X		X	X	X
Watermelon	X		X			X					
Condiment											
Coriander			X			X					
Mustard	X		X	X							
Pepper	X		X			X			X		X
Sage			X								
Vegetable											
Ground Cherry			X								
Squash	X		X			X			X		
Sunflower	X										X
Tomato			X	X		X		X	X	X	X
Wheat (ch)		X			X						
Ornamental											
Bottle Gourd			X								
Tupelo			X								
Gray Dogwood			X								
Nut-Bearing Shade Tree											
Hazelnut	X		X								
Black Walnut	X		X								
Hickory			X						X	X	
Oak Acorn			X								X
Pecan	X		X								
Edible Herb											
Cinquefoil										X	
Clover		X									
Dock (ch)		X	X		X						X
Goosefoot					X		X	X	X		
Goosefoot (album)			X								
Knotweed	X		X								
Mallow								X	X	X	
Pigweed	X		X								
Pokeweed	X		X							X	X
Herbaceous Weed/Grass											
Jimsonweed							X				
Nightshade	X										
Ragweed	X		X								
Sumpweed	X		X								
Grass Family		X		X							

Appendix C. Macroplant Assemblage Use Histories and Natural Environments

Condiments

Mustard

Approximately 100 species of mustard (*Brassica* sp.) are found in the northern temperate parts of the Eastern Hemisphere (Bailey 1949). The mustards, many of which were introduced from Europe and Asia, are annual herbaceous plants that are common noxious weeds of old fields, roadsides, and other waste places. Bailey (1949) discusses 18 domesticated species of *Brassica*, including cabbage, cauliflower, broccoli, cresses, radishes, and brussel sprouts. The young leaves of mustard plants are consumed as a salad green and cooked as a potherb. The seeds are used as a seasoning for meats and salads and in the production of table mustard (Gillespie 1959; Hall 1976).

Mustards were widely used folk remedies and commonly prescribed by nineteenth-century physicians. Indeed, mustard was so popular among physicians that it is mentioned in virtually every medical text published in the nineteenth century (Crellin and Philpott 1989). The most common use for mustard seeds was in the application of heat-producing poultices for the topical treatment of respiratory ailments, lumbago, rheumatism, and strains (Angier 1978; Crellin and Philpott 1989). The seeds were taken internally as a cough medicine, emetic, and laxative (Angier 1978; Krochmal and Krochmal 1973).

Pepper

Peppers are native annual and perennial herbs of Central and South America that have been cultivated for centuries by both Native Americans and Europeans. This popular spice and fresh vegetable was transported to Spain by Columbus in 1493. It was first cultivated in England in 1548 (Hedrick 1972; Ward 1941). Favretti and Favretti (1990) report that peppers were a popular garden crop in eighteenth-century North America. Jefferson first cultivated peppers in 1768 (Leighton 1976). Naturalized pepper plants are naturalized as rare garden escapes from New York to Florida and in Texas, Louisiana, Arizona, and New Mexico (Radford et al 1968). Peppers were used in eighteenth and nineteenth America as a medicinal remedy (Crellin and Philpott 1989). It is not surprising that peppers were principally used as a stimulant.

Fruits

Blackberry/Raspberry

Shrubs of the genus *Rubus*, (refers to all *Rubus* sp., including blackberries, dewberries, raspberries, etc.) were apparently a prized fruit in nineteenth-century American households, as blackberry/raspberry seeds are virtually ubiquitous in nineteenth-century archaeobotanical assemblages in the United States. Blackberry/raspberries, which are distributed throughout the eastern United States, commonly form thickets along fence rows and roadsides, within old fields, and other disturbed habitats. The succulent berries are available for harvest from the late spring through midsummer (Bailey 1949; Radford et al 1968). The berries are eaten fresh, prepared as a fresh fruit beverage, and made into jellies, jams, pies, and wine (Fernald and Kinsey 1958; Gillespie 1959; Hall 1976; Medve and Medve 1990; Peterson 1977).

Rubus fruits were highly regarded as a virtual medicinal panacea throughout the nineteenth century, both by professional medical practitioners and in folk medicine. Griffith, in his influential Medical Botany (1847), extolled the value of blackberry root as an astringent medicine (diarrhea treatment). Teas made from dried blackberry/raspberry root bark were used to control

diarrhea, as a blood purifier, and as a spring tonic. Dried blackberry roots were sold commercially in the nineteenth century. Finally, decoctions of the roots were gargled for sore throats and to cure mouth ulcers. Berry juice, which was used as a diarrhea cure and to control upset stomachs, was stored in the form of blackberry brandy and a thick syrup. (Angier 1978; Coon 1963; Crellin and Philpott 1989; Krochmal and Krochmal 1973).

Blueberry

Blueberries, *Vaccinium* sp., were apparently a prized fruit in nineteenth-century American households, as blueberry seeds are common constituents of nineteenth-century archaeobotanical assemblages in the eastern United States. Approximately 150 species are found in the United States, several of which are cultivated for their edible fruit and as ornamentals (Bailey 1949). Blueberries favor acidic soils, and flourish in a wide variety of habitats including both dry and moist woodlands, swamps, and dry, rocky settings at high altitudes. These shrubs and small trees often form dense thickets in the wild, in both upland and lowland settings (Bailey 1949; Britton and Brown 1970).

Bailey (1949) discusses nine species that are cultivated in the United States. The blueberry, along with huckleberry, is a member of the heath family (Ericaceae). In the wild, blueberry fruits are available for harvest in June and July (Britton and Brown 1970). Blueberries were eaten fresh, preserved by drying and as jams and jellies, and used as ingredients in a variety of prepared dishes. Blueberries were stewed, added to fruit pies, made into muffins and tarts, and mixed with other fruits in summer puddings (Angier 1974; Gillespie 1959; Hall 1976; Peterson 1977). Root (1980) reports that wild blueberries are consumed as often as domesticated varieties in the United States.

Blueberries were chiefly valued as a folk medicine in nineteenth-century America, however, their medicinal value was also mentioned in such influential medical treatises as Griffith (1847) and Rafinesque (1828-30). Blueberries were used in the nineteenth century as an astringent and diuretic medicine (Crellin and Philpott 1989; Krochmal and Krochmal 1973). Griffith (1847) stated that the fruit, leaves, and root bark were useful in the treatment of mouth sores, diarrhea, and other bowel complaints. Rafinesque (1828-30) discussed this taxon as a diarrhea cure. The berries were once rendered into a syrup-like beverage that was consumed for chronic dysentery. The leaves and root bark were made into a tea that was administered as a treatment for sore throats and diarrhea (Angier 1978; Krochmal and Krochmal 1973).

Cherry

Cherry trees, which grow to a height of forty or more feet, are common understory trees in deciduous forests throughout the eastern United States. These small fruit trees, which were widely cultivated in the nineteenth century and also widespread in the wild, were popular lawn and garden trees in the Eastern United States (Favretti and Favretti 1990; Leighton 1987). Wild cherry trees, including both Native American and naturalized European species, favor a variety of habitats including streambanks, pastures, alluvial woods, roadsides, fence rows, and old fields (Radford et al. 1968). European colonists developed cultivated varieties of native American wild cherries shortly after they arrived in the New World. The principal varieties were the common American wild cherry (*Prunus virginiana*) and the black cherry (*Prunus serotina*). Domesticated European cherries, which included the common cooking cherry (*Prunus cerasus*) and sweet cherry (*Prunus avium*), were transported to the Americas with the first European colonists. These domesticates frequently escaped cultivation and have become widely naturalized in the eastern United States (Radford et al 1968; Root 1980).

Both domesticated and wild cherries were eaten fresh and made into wines, pies, jellies, and cold drinks (Angier 1974; Gillespie 1959; Hall 1976; Peterson 1977). Wild cherry bark (*Prunus serotina* and *P. virginiana*) was widely used in the nineteenth century in a variety of medicinal remedies. According to Crellin and Philpott (1989), it was once one of the most popular home remedies in America. Cherry bark was frequently a primary ingredient in commercially produced cough medicines. Bark tea was widely touted as a treatment for coughs, colds, measles, intestinal worms, indigestion, and tuberculosis (Crellin and Philpott 1989; Krochmal and Krochmal 1973). The berries were used as a treatment for diarrhea (Angier 1978; Krochmal and Krochmal 1973). In Appalachia, bark tea was administered to women during childbirth to relieve pain and muscular soreness (Coon 1963; Krochmal and Krochmal 1973).

Chokeberry

Chokeberries are small perennial shrubs that are native throughout the eastern United States. Three taxa are found in the northern United States and Canada (Britton and Brown 1970). Chokeberries are common understory components of wet woods, swamps, and floodplain habitats (Radford et al. 1968). Chokeberries were grown in eighteenth-century gardens both for ornamentation (principally as a hedging) and as a wildlife food (Favretti and Favretti 1990). The fruits, which are available for harvest from March through June, were occasionally made into jellies (Fernald and Kinsey 1958). Chokeberries were not apparently utilized as a medicinal home remedy in historic America (Angier 1978; Coon 1963; Cox 1985; Crellin and Philpott 1989; Duke 1992; Foster and Duke 1990; Grieve 1931; Justice 1939; Krochmal and Krochmal 1973; Krochmal et al 1969; Massey 1942; Millspaugh 1884).

Common Apple

The common apple, *Malus pumila*, a member of the rose family, is a common domesticate throughout Europe, Asia, and North America (Root 1980). Bailey (1949) states that approximately 25 species grow wild in the northern temperate zone of both hemispheres. The common apple was introduced to the New World by the first European colonists. The Pilgrims apparently planted apples shortly after their arrival in Massachusetts. The governor of the Plymouth Colony purchased 200 acres of land from another colonist in 1649 that contained a three year old apple orchard made up of 500 trees. By 1741, apples were being exported from New England to the West Indies (Root 1980). Since its introduction, this small domesticate, which seldom exceeds 20 feet in height, has escaped cultivation and become widely naturalized in the eastern United States (Bailey 1949; Britton and Brown 1970; Radford et al. 1968). Apples were commonly planted in the nineteenth century as lawn and garden ornamentals and as a source of seasonal fresh fruit (Favretti and Favretti 1990; Leighton 1987). Apples were consumed fresh, and prepared as jams, jellies, wines, ciders, vinegars, fresh juices, applesauces, apple butter, brandies, pies, and cakes. They may also be baked, fried, stewed, spiced, candied, or used in mincemeat or chutney (Angier 1974; Gillespie 1959; Hall 1976; Peterson 1977).

Apples have long been prized as a health preservative; the fresh fruits, apple cider, apple vinegar, and bark have been used as home cures for ailments such as diarrhea, constipation, upset stomach, bilious ailments, fever, and scurvy. Apple bark was apparently in regular use in the eighteenth century (Crellin and Philpott 1989). Rafinesque (1828-1830) stated in his early nineteenth-century medical treatise that the bark had medicinal properties similar to cherry bark. The pharmaceutical company Parke-Davis marketed an extract of apple bark in the 1890s as a tonic and a medicine for the reduction of fevers. In addition to the fresh fruit and bark of this popular domesticate, apple cider and apple vinegar enjoyed minor medical reputations in the

nineteenth century. Apple cider was regarded as a treatment for “putrid fever” and vinegar was sometimes sprinkled in sickrooms as an air purifier (Crellin and Philpott 1989:61).

Elderberry

Like blackberry/raspberry, elderberry seeds are found in most archaeobotanical assemblages in the East. About 20 species of elderberries (*Sambucus* sp.) occur in the temperate and subtropical regions of both hemispheres. Five species are commonly cultivated (Bailey 1949). Elderberries grow in moist soils bordering field edges or swamps. This deciduous shrub or small tree, which grows from 5 to 30 feet tall, flowers in the spring and fruits in October. Elderberry trees are found throughout North America and Europe in moist woods, roadside ditches, thickets, stream banks, and marsh edges (Angier 1974; Coon 1963; Radford et al 1968).

Elderberries were principally grown in the nineteenth century for food, medicine, and ornamentation. Both native and imported varieties were planted as garden and yard ornamentals in the late eighteenth and nineteenth centuries (Favretti and Favretti 1990; Leighton 1987). Crellin and Philpott (1989) report that elderberry bushes were planted around American homes so that the plant would be readily available for the production of medicine. Both imported European *elder (Sambucus nigra*) and native elderberry (*S. canadensis*) were employed in nineteenth-century domestic medicine in America. Elderberry was used to treat skin conditions, as a purgative, and as a diuretic (Crellin and Philpott 1989). Its popularity apparently declined in the latter half of the nineteenth century (Griffith 1847). The dried inner bark was commonly prescribed as a purgative in the past. Ointments made from the crushed leaves were applied to bruises and sprains and thickened fruit juice was administered internally for coughs and colds. The dried flowers, which were once listed in the United States Pharmacopoeia, were used as a topical treatment for sunburn, to relieve itching, and to remove freckles (Coon 1963). Elderberry has been used in folk remedies as a cureall for "abrasions, asthma, bronchitis, bruises, burns, cancer, chafing, cold, dropsy, epilepsy, fever, gout, headache, neuralgia, psoriasis, rheumatism, skin ailments, sores, sore throat, swelling, syphilis, and toothache" (Duke 1992:423).

The primary edible portions of the elderberry are its fruits and flowers. The fruits were eaten fresh, made into wine and tea, processed for jellies and jams, added to pancake and muffin batter, and used as pie filling. The flower clusters were added to pancake, waffle, and muffin batter, made into tea, battered and fried as fritters, made into tea, and made into sweet-smelling wine (Fernald and Kinsey 1958; Gillespie 1959; Hall 1976; Medve and Medve 1990; Peterson 1977). Green blossoms were pickled and served in place of capers (Bryan and Castle 1974; Hedrick 1972). Elderberries may have been planted on the lots, since these weedy shrubs are easily propagated in crowded urban settings. The fruits were probably also available for purchase in city markets.

Fig

Fig seeds are almost ubiquitous in both eighteenth and nineteenth-century contexts. They are particularly prevalent in privies. The genus *Ficus* includes trees, shrubs, and climbing vines and consists of more 2,000 species in tropical and subtropical countries. One species of fig, *Ficus carica,* is grown for its edible fruit, while many other varieties are cultivated for shade and as ornamentals (Bailey 1949). Figs occasionally persist in old gardens and yards from Virginia south to Florida and westward to Texas (Britton and Brown 1970). Archaeological evidence has shown that figs were cultivated by the Egyptians, and there are numerous references to the fig in the Bible. Figs were also a favorite fruit of the Greeks and Romans. Figs were first cultivated in

England in the sixteenth century. By the Time of Elizabeth I, dried figs were kept in practically every English household to make sweet puddings (Root 1980).

European varieties of fig trees were first introduced into the New World in 1520, when they were imported by the Spanish (Condit 1947). Cultivated figs were first mentioned in the British colonies in Virginia in 1669; Bartram noted figs growing in the ruins of Fort Frederica, Georgia in 1773 (Hedrick 1972). Figs are preserved in a variety of ways, including canning, candying, and as jams. Low grade figs are sometimes distilled into alcohol (Condit 1947). Figs can be eaten raw or dried, but are more commonly used as a sweetener in desserts. According to Bryan and Castle (1974), these succulent fruits are most commonly consumed dried in the United States.

Figs had a limited reputation as a medicine in the 1800s. According to Crellin and Philpott (1989), the fruits were always more highly regarded as a nutritious food than as a medicinal remedy. During the nineteenth century, the principal medicinal value attributed to figs was as a gentle laxative. Griffith (1847:576) discussed the employment of figs in cases of habitual constipation and mentioned their use in poultices.

Grape

Wild grapes are found throughout Europe, Asia, and the Americas bordering watercourses and within deciduous forests. Virtually every variety of Old World grape, both wild and domesticated, is derived from a single species, *Vitis vinifera.* Approximately two dozen species of grapes are native to North America. The most well known eastern varieties are the fox grape, *Vitis labrusca*, and the muscadine, *Vitis rotundifolia.* The European grape was imported into the Americas by the first colonists. Columbus introduced this variety to Haiti in 1494. European grapes were introduced into California, where they flourished, in the late eighteenth and early nineteenth centuries by Spanish missionaries. Numerous attempts were made to establish European grapes in the eastern United States in the seventeenth and eighteenth centuries, all of which failed due to the susceptibility of this species to phylloxera and mildew. Native fox grapes were crossed with the European grape to produce such well-known domesticated varieties as Catawba, Concord, and Delaware grapes. Muscadines, which are native to the southeastern United States, were domesticated by European colonists and are popular as a table grape and in domestic winemaking (Hall 1976; Hedrick 1972; Radford et al 1968; Root 1980; Ward 1941).

Domesticated grapes were grown throughout the United States and Mexico in the nineteenth century in kitchen gardens and in commercial vineyards. Grapes were consumed fresh, and also made into jelly, juice, wine, raisins, and pies (Hall 1976; Hedrick 1972; Root 1980). Although grapes were chiefly prized as a fresh fruit and in the production of wine, Hedrick (1972) notes that the fruits were used in the treatment of scurvy, and Coon (1963) and Angier (1978) claim that the fruits aid the body in removing toxins from the kidneys by neutralizing uric acid. According to Crellin and Philpott (1989), the primary medicinal use of grapes involved imbibing wine as a stimulant and mixing other medicines with wine, presumably to make the medicines more palatable.

Peach

The peach was first brought to the New World by the Spanish, where it was immediately adopted by the Native Americans (Root 1980). Peach pits were transported to New England in 1629 by the Massachusetts Bay Colony. By the mid-seventeenth century, European explorers reported Native American groups cultivating peaches in such widely separated regions as Pennsylvania and Florida. Indeed, peaches were so widely distributed in the East by the mid-eighteenth

century, that Bartram regarded this fruit as a native American plant (Hedrick 1972). Peach trees were grown in the nineteenth century as ornamentals and as a source of their edible fruits (Leighton 1987).

Peaches were consumed as a fresh dessert fruit, and also made into jams and jellies, juice, wine, and pies. Although principally prized for their edible fruit, peaches were also used in a variety of home medicinal remedies by eighteenth and nineteenth-century Americans (Crellin and Philpott; Krochmal et al. 1969). The flowers were described as a treatment for fever and pains in the Colonial Period. The fruits, leaves, kernels, and flowers were used as home remedies for stomach ailments, liver problems, and as a laxative in the nineteenth century (Crellin and Philpott 1989). Peaches were not apparently highly regarded by nineteenth-century American physicians, as this fruit was not even mentioned in such influential nineteenth-century medicinal texts as Griffith (1847) and Johnson (1884).

Plum

Approximately 150 to 175 species of plum, most of which produce edible fruits, occur in the northern temperate zone, Asia, and the American tropics. Nine species of these small trees and shrubs, which grow to a maximum height of 35 feet, grow wild in the northern United States and Canada. Plums were principally grown in the nineteenth century for food, shade, and ornamentation. The fruits also had a minor reputation as a medicinal remedy for constipation. The fruits provide a rich and reliable food source for many animal species. Plum trees favor dry, sandy soils and are commonly found in dry woods, in sandy soils in waste places, and along the coast and on beaches (Bailey 1949; Britton and Brown 1970; Radford et al 1968).

These small fruit trees were popular lawn and garden trees in the nineteenth century (Favretti and Favretti 1990; Leighton 1987). Bailey (1949) discusses 12 species of domesticated plums, and asserts that these economically important stone fruits, second only to the peach in commercial production, are mainly valued as ornamentals and for their succulent fruits. Four species of plums account for the majority of commercially marketed fruits in the United States: the European, or common plum (*Prunus domestica*); the Japanese plum (*P. salicina*); the native American plum (*P. americana*); and the damson plum (*P. insititia*), another European variety (Root 1980).

One hundred and fifty types of plum were listed in nineteenth-century nursery catalogs. The European plum was imported into the United States by the first British and French colonists. A memorandum dated March 16, 1629 was issued by the Massachusetts Bay colony requesting the transshipment of domesticated European plum pits (Root 1980). The native American plum, whose natural range extends from Maine to Florida and to the west as far as Utah and Manitoba, was first encountered by the Pilgrims in 1621 (Hedrick 1972; Root 1980). Native wild plums were deliberately planted by New England Indians and to the south by the Cherokees around their dwellings, but the Indians did not cultivate the trees. Domesticated varieties of *Prunus americana* were developed by Euroamerican immigrants in the eighteenth and nineteenth century (Root 1980). Virtually all of the imported European plum species have escaped cultivation and now grow wild in the East.

Like cherries, domesticated and wild plums were eaten fresh and prepared as conserves, desserts, and beverages. Plums were made into jams and jellies, mixed with sweeter fruits in pies, and added to fruit compotes. Plums were used to make sweet wine, and have been used to flavor liquor (Angier 1974; Gillespie 1959; Hall 1976; Peterson 1977). Crellin and Philpott (1989) found little evidence that plums were a popular medicine in nineteenth-century America. Unlike

cherries, which were highly regarded by both professional doctors and laymen as a virtual medical panacea, plums were only recommended as a laxative, in the form of prunes.

Strawberry

Strawberry fruits, which grow wild in old fields and along woodland borders, ripen from March to June (Angier 1974; Medve and Medve 1990; Radford et al 1968). Strawberries have appeared throughout world history as a source of food and medicine. Root (1980) reports that wild strawberries were first grown in European gardens in the fourteenth century. They became popular dessert fruits in the seventeenth and eighteenth centuries. Early explorers reported dense strawberry patches in the meadows and woodlands of the eastern United States and Canada.

The native North American wild strawberry is regarded as having better coloring, a richer flavor, and a larger size than its European cousins (Root 1980). Strawberries were not readily available in urban markets in the United States until the mid-nineteenth century due to their perishability. Prior to this time, this berry was commonly grown in kitchen gardens for home consumption. Strawberries became common in New York City after the opening of the Erie Railroad in 1847, since the rail line enabled large quantities of the perishable fruit to be shipped quickly and cheaply to urban markets. For example, 80,000 baskets of strawberries were delivered to New York in one night in 1847. New York became the largest market in the world for strawberries in the latter half of the nineteenth century (Root 1980).

Strawberries are eaten fresh and used to make jellies and jams, pies, fresh drinks, and wine (Fernald and Kinsey 1958; Medve and Medve 1990). The young leaves can be consumed fresh in salads or cooked as a spinach-like potherb (Angier 1974). Like blackberry/raspberry, strawberries were highly regarded in nineteenth-century folk medicine as a panacea, with almost every portion of the plant having a reported medicinal value (Crellin and Philpott 1989; Duke 1992). The berries were used as a mild laxative, to reduce fevers, to treat kidney stones and gout, and were once used as a cosmetic (Angier 1978; Coon 1963; Crellin and Philpott 1989; Krochmal and Krochmal 1973). Teas made from the leaves were used as a preventative for scurvy and to treat diarrhea. Infusions made from the roots were used in the treatment of urinary disorders (Coon 1963; Krochmal and Krochmal 1973). Strawberry leaves were used in Appalachia as a gout remedy and refrigerant (Krochmal et al 1969).

Watermelon

Watermelon seeds, *Citrullus vulgaris* probably originated from fruits purchased from local fruit stands. The recovery of watermelon seeds from late eighteenth through nineteenth-century contexts shows that watermelons were available in New York throughout the site's occupational history. Four species of *Citrullus* are native to tropical regions of Africa. Watermelons are grown all over the world today for their edible fruits (Bailey 1949). Watermelons, which are not native to North America, were brought to the New World by European colonists.

Like cantaloupe/muskmelon, watermelons were not a highly esteemed herbal remedy among nineteenth-century professional medical doctors. The only medical property regularly attributed to watermelons was their value as a diuretic (Crellin and Philpott 1989; Grieve 1931). According to Grieve (1931), watermelon seeds were useful as a treatment for urinary tract disorders and constipation. She also claims that both watermelon seeds and cantaloupe/muskmelon seeds are useful remedies for intestinal worms, having the same properties as pumpkin (*Cucurbita* sp.) seeds. She notes that pumpkin seeds were a popular worm treatment, particularly in the case of tapeworm infestations.

Naturally Occurring Edible Herbaceous Plants

Clover

Clover, *Trifolium* sp. is a biennial or perennial herbaceous legume which is a common constituent of disturbed habitats such as old fields, clearings, and roadsides. Fourteen species of Trifolium are naturally occurring in the northern United States and Canada. Clovers found growing wild in the Northeast include both native American and naturalized European varieties. Clover fruits are available for harvest from April through September (Radford et al 1968; Britton and Brown 1970). Clover grows throughout North America, and is a favored forage of many types of wildlife, including grazing ungulates, birds, and bears (Angier 1974). Clover has been utilized by humans as both a food source and herbal medicinal remedy (Cox 1985; Peterson 1977). European red clover, *Trifolium pratense,* is widely planted as a livestock feed in the United States (Hedrick 1972).

Native Americans ate both raw and cooked clovers. The roots were steamed or smoked while the leaves were quickly cooked and eaten (Angier 1974; Hedrick 1972). The seed-filled dried blossoms were used in Ireland to make breads that were used as famine foods (Hedrick 1972; Krochmal and Krochmal 1973). The entire plant can be harvested when in full bloom. Clover greens can be boiled and eaten as a protein-rich potherb. The dried flowerheads make a flavorful herbal tea and can be ground for flour (Cox 1985; Peterson 1977). Cox (1985) discusses three naturalized European clover species (*Trifolium agrarium,* hop clover, *T. pratense,* red clover, *T. repens,* white clover) as both edible and medicinal herbs. He states that the dried flower heads were once used as an herbal remedy for whooping cough and as an astringent medicine for skin sores.

Krochmal and Krochmal (1973) list red clover as a treatment for coughs and sores. Clovers have long been employed as an expectorant and an ointment for ulcers (Coon 1963). Clovers were marketed in the nineteenth century by Shaker communities as remedies for ìcancerous ulcers, corns, and burnsî (Crellin and Philpott 1989:161). The Parke-Davis company sold preparations of red clover in the 1890s as a sedative, as an external treatment for skin ulcers, and as a treatment for whooping cough (Crellin and Philpott 1989).

Goosefoot

Goosefoot (*Chenopodium album*), also known as lambsquarters, has long been valued as a nutritious wild plant food. This annual herbaceous plant, which grows in disturbed habitats, is a common weed growing around human habitations throughout the continental United States (Britton and Brown 1970; Radford et al 1968). A single plant can produce up to 100,000 seeds. Young goosefoot leaves are cooked as a spinach-like potherb, eaten raw in salads, or added to soups, and the seeds can be ground for flour or consumed as a cereal (Cox 1985; Fernald and Kinsey 1958; Hall 1976; Gillespie 1959; Hedrick 1972; Medve and Medve 1990; Peterson 1977). Goosefoot greens and seeds have been used historically as a gathered dietary supplement. Euroamerican pioneers reportedly added goosefoot flour to breads, cookies, muffins, and pancakes (Duke 1992). Goosefoot seeds were mixed with wheat to extend the crop in times of famine in Europe (Krochmal and Krochmal 1973). Several species of *Chenopodium* were cultivated in the nineteenth century as medicinal herbs and garden ornamentals (Coffey 1993; Favretti and Favretti 1990; Leighton 1987). Lambsquarters (*Chenopodium album*) was not recorded in the literature reviewed for this report as a medicinal herb (Angier 1978; Coon 1963;

Cox 1985; Crellin and Philpott 1989; Duke 1992; Foster and Duke 1990; Grieve 1931; Krochmal and Krochmal 1973; Krochmal et al 1969; Massey 1942; Millspaugh 1884).

Pigweed

Pigweed is an annual herbaceous plant that sometimes grows over eight feet tall. Pigweed fruits are available for harvest from June until first frost. This plant is a common weed in old fields, pastures, and other disturbed habitats (Britton and Brown 1970; Medve and Medve 1990; Radford et al 1968). The young leaves of pigweed can be eaten raw or cooked as a spinach-like potherb. Dried leaves are added to soups. The dehusked seeds are ground into flour, which is used to make porridge, muffins, and hotcakes (Angier 1974; Cox 1985; Gillespie 1959; Hall 1976). Duke (1992) reports that pigweed flowers can be boiled and eaten and that the seeds of some species can be roasted and popped like miniature popcorn. Pigweeds (*Amaranthus hybridus, A. caudatus, A. hypochnodriacus, A. tricolor*) were grown as garden ornamentals from the late eighteenth through the nineteenth centuries (Favretti and Favretti 1990; Leighton 1987).

Pigweed, particularly *Amaranthus hybridus* and *A. retroflexus*, has a minor reputation as a medicinal plant, largely because of its mildly astringent qualities (Coon 1963). It was apparently not highly regarded by the medical profession, as it is not even mentioned in Crellin and Philpott's (1989) exhaustive monograph on medicinal herbs. Pigweed was once used to quell internal bleeding, dysentery, and diarrhea (Angier 1978; Coffey 1993; Coon 1963; Krochmal and Krochmal 1973). Pigweed was believed to reduce excessive menstrual flows and internal hemorrhaging. It was also administered as a treatment for stomach ulcers (Angier 1978; Krochmal and Krochmal 1973).

Pokeweed

Pokeweed, *Phytolacca americana*, is an indigenous North American herbaceous weed that grows along the entire eastern seaboard, from Quebec to Florida. Pokeweed favors rich, low ground in open wooded areas, pastures and fields, and disturbed areas. The crimson berries, whose juice has been used as a food and wine coloring, paint pigment, dye, and ink substitute, are available for harvest from May until first frost (Cox 1985; Radford et al 1968).

Young pokeweed shoots and leaves are harvested and consumed as a potherb. The young stalks can be cooked and eaten like asparagus or pickled and stored for later consumption. The leaves are cooked as a spinach-like potherb (Cox 1985; Gillespie 1959; Hall 1976). The young leaves are canned and stored for future use in the Appalachians (Krochmal and Krochmal 1973). The shoots of this herb have been, and still are, cultivated in the United States. Cox (1985) found gardeners cultivating pokeweed in southern Missouri and Gillespie (1959) stated that this plant was still sold commercially in West Virginia in the 1950s. Pokeweed was imported into Europe, where it is still cultivated as a garden vegetable (Angier 1974; Cox 1985; Hall 1976).

Pokeweed was widely used as a folk remedy during the eighteenth and nineteenth centuries in the United States (Cox 1985; Crellin and Philpott 1989; Krochmal and Krochmal 1973; Massey 1942). Indeed, this plant was in such high regard among both laymen and professional medical practitioners that it became known as a virtual cure-all during the nineteenth century. The principal medicinal value attributed to this plant was as a cure for rheumatism. In eighteenth and nineteenth-century America, pokeweed roots and berries were widely prescribed as treatments for rheumatism, skin conditions, syphilis, and as a laxative (Crellin and Philpott 1989).
A 1912 survey of physicians referenced in Crellin and Philpott's (1989) monograph on herbal medicine found that pokeweed was still a popular botanical remedy in the early twentieth century.

Early settlers used pokeberry juice to treat skin conditions; dried leaves were used to make poultices that were applied as a topical treatment for sore eyes, wounds, and ulcers (Coon 1963; Krochmal and Krochmal 1973). The roots were once gathered by pharmaceutical companies for commercial sale as an emetic (Angier 1978).

Non-economic Weeds and Grasses

Jimsonweed

Jimsonweed, *Datura stramonium,* is a widely naturalized endemic weed that was imported from Europe and grows abundantly on garbage heaps (Millspaugh 1884). This taxa, which is extremely poisonous, was planted in nineteenth-century gardens as an ornamental flower and is recorded as a narcotic, medicinal herb (Crellin and Philpott 1989; Leighton 1987). Jimsonweed is recorded as a medicinal herb that although extremely poisonous, was used as an antispasmodic, topical treatment for skin conditions, antiasthmatic, and sedative (Crellin and Philpott 1989; Krochmal and Krochmal 1973; Krochmal et al 1969). All parts of the plant are to some degree toxic, especially the seeds. The most common use of this herbaceous weed was as a treatment for the spasmodic coughing associated with asthma. The plant was burned and the smoke was inhaled by the asthma sufferer. The plant juices, flowers, leaves, and roots were also made into salves and poultices that were variously used as topical treatments for sores, boils, pimples, swellings, and skin ulcers (Crellin and Philpott 1989; Krochmal and Krochmal 1973). Crellin and Philpott (1989) reiterate the value of this plant as an inhalant for asthma patients and state that jimsonweed cigarettes are available today in some parts of the world.

Sedge Family

Two sedge family taxa were recovered. These include bulrush (*Scirpus* sp.) and flatsedge (*Cyperus* sp.). Both of these taxa are regarded as noxious weeds in the United States. These weedy species are not recorded as medicinal herbs, and only two sedge family species -- great bulrush (*Scirpus validus or S. acutus*) and chufa (*Cyperus esculentus*) -- are recorded as edible (Angier 1978; Coon 1963; Cox 1985; Crellin and Philpott 1989; Duke 1992; Foster and Duke 1990; Grieve 1931; Krochmal and Krochmal 1973; Krochmal et al 1969; Massey 1942; Millspaugh 1884). Hence, it is likely that these seeds represent naturally occurring weeds rather than remnants of economic plants.

Thirty-one genera of bulrush are recorded by Britton and Brown (1970) as growing in the Northeast. These annual and perennial herbaceous plants frequent wet habitats such as ditches and marshes. Flatsedge (*Cyperus* sp.) is a large genus made up of several dozen species that is a common weed throughout the United States. These sedge family genera fruit throughout the summer and early fall and grow in disturbed habitats and ditches. Most members of the sedge family are regarded as endemic weeds with no economic value.

Two sedge family taxa, bulrush (*Scirpus validus or S. acutus*) and chufa (*Cyperus esculentus*) are recorded as food plants. The tubers of chufa (*Cyperus esculentus*), which are cultivated in many parts of the world and have a long history of use as food, can be eaten raw, boiled as a vegetable, or dried and ground into flour. The dried tubers have also been ground and used as a coffee substitute (Hall 1976; Peterson 1977). Great bulrush (*Scirpus validus or S. acutus*), which grows in marshy locations throughout the United States, produces edible pollen, shoots, seeds, and rootstocks. The rootstock, which was highly regarded by Native Americans as source of starch and sugar, can be ground for flour or used as a potato substitute. The seeds and pollen can be used

for flour and the shoots can be cooked as a potherb (Hall 1976; Medve and Medve 1990; Peterson 1977). Bulrush roots can also be chewed to help alleviate thirst (Saunders 1934).

Spurge

The spurges, *Euphorbia* sp., are a large family of annual and perennial herbaceous herbs and shrubs. Spurge fruits are available for harvest in the spring and summer months (Cox 1985; Kay and Lees 1913; Radford et al 1968). This genus is distributed throughout the United States; Cox (1985) records six species as natives of the northeastern United States. Radford et al (1968) discuss twenty species that are found in the southern states. Several varieties of spurge are documented by Favretti and Favretti (1990) and Leighton (1987) as late eighteenth and nineteenth-century ornamental flowers (*Euphorbia lathyrus, E. marginata, E. corollata, E. variegata*). Three of these ornamentals have escaped cultivation (*Euphorbia lathyrus, E. marginata, E. corollata, E. variegata*), and two, *Euphorbia lathyrus and Euphorbia corollata,* are widely naturalized weeds in the eastern United States. Spurges are a widely distributed naturally occurring weed that is commonly associated with disturbed habitats such as yards, roadsides, and farm fields (Cox 1985; Kay and Lees 1913; Radford et al 1968).

Some species of *Euphorbia* were utilized as medicinal home remedies in the nineteenth century. Two varieties of spurge, *Euphorbia corollata* (flowering spurge) and *Euphorbia maculata* (spotted spurge), are recorded as medicinal herbs that were utilized in the first half of the nineteenth century as a laxative and emetic (Crellin and Philpott 1989; Krochmal and Krochmal 1973). Spurge was prescribed in the same fashion as milkweed (*Asclepias* sp.). Parke-Davis marketed a preparation of spurge as a laxative in 1900. According to Crellin and Philpott (1989), spurge was less popular than other laxatives, and was primarily resorted to as a last resort after other laxatives had proven ineffective.

Grasses

At least two grass taxa were recognized, including crabgrass and an unknown grass. Crabgrass is a common annual weed of sandy soils that is frequently found in lawns, gardens, and old fields. Both crabgrass and goosegrass are common constituents of urban nineteenth-century archeobotanical assemblages. These grass taxa likely represent yardweeds that grew naturally on the lots.

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APPENDIX V:

Faunal Analysis of the Area F Site

by

Claudia Milne

TABLE OF CONTENTS

List of Tables

LIST OF TABLES

Introduction

The Area F features yielded a total 9,719 bones and bone fragments. Of the total number recovered, 8,457 bones and fragments were associated with eight specific deposits. Analysis focused on four prolific deposits: Yoh Building, Room F, Feature 1 (YohF1), a wood-lined privy that included two eighteenth-century deposits that may have been associated with a bake house and a complex of buildings at 1-3 Gray's Alley; a stone-lined privy at 58 South Front Street (later 114 South Front Street, Room C, Feature 3 or 114C3) with an eighteenth-century deposit that may have been associated with a tavern; a later, brick-lined double privy at this address with a late eighteenth to early nineteenth century deposit associated with merchant Robert Smith (114 South Front Street, Room C, Feature 2/2A or 114C2); and another brick-lined privy (Yoh Building, Room C, Feature 1 or YohC1) with a mid eighteenth-century assemblage associated with a mariner's residence on Morris or Gray's Alley. These Area F deposits were notable for the quantity of data as well as the presence of several unusual species.

In addition to Area F, several large-scale development projects within the City of Philadelphia have yielded large, well-preserved archeological assemblages that date from the eighteenth and nineteenth-centuries. In addition to the fauna recovered from Area F, contemporaneous deposits were recovered from the Chiller Plant/Merchants' Exchange (Andrews 1999) and Blocks 1 and 2 at Independence Mall undertaken by the National Park Service (Yamin 2002; 2004). Analysis of the faunal data from the Area F features and comparison with previously excavated sites adds depth and another facet of understanding to daily life and diet in old Philadelphia. The foods recovered from the Area F assemblages were predominantly from mammals with mutton often the preference; however, the earliest feature, YohF1, yielded a variety of fish species, both local and commercial catches. Bird remains made up anywhere from 19 to 39 percent of a given feature, but chicken frequently made up large portions of the bird assemblages.

At the beginning of the period represented by these features and deposits, Philadelphia's markets were already part of a specialized procurement system similar to most northeastern cities (see Bowen 1998; Henn 1985) that resulted in the removal of animal husbandry from the home. Animals were raised by specialists primarily for market slaughter, not for secondary products such as wool, milk, or hides, and urban residents chose their meals from a relatively narrow range of species. The range of available species decreased as the nineteenth century progressed, the age of the animals at time of slaughter narrowed, and the fabrication of meat cuts became even more specific. These changes were first seen in the large domestic mammals and then, as technology improved and production became even more specialized, with the gradual disappearance of game species and smaller, local fishes from the archeological record. Therefore, the earliest deposits from Area F (e.g., YohF1, 114C3, and YohC1) were expected to yield a wider range of species and body parts than those with later dates; however, there was no deer identified in these features (although two deer fragments were identified in a non-analytical context) and there was only a minimal amount of wild bird and local fish bones. The uniform cuts and narrow range of species seen in the Area F assemblages make necessary a reassessment of presumed eighteenth-century butchery practices in Philadelphia.

Analysis of the Area F artifacts took into account possible social and economic differences represented by the assemblages. Wealthy families might have access to species and cuts that others did not and boarding houses or taverns might present more fabricated or standardized assemblages due to their commercial nature. Potential tavern assemblages included those recovered from YohF1 and 114C3. The assemblage from 114C2 was potentially associated with the occupation of a wealthy merchant while YohC1 may have been associated with an occupation

of lower economic and social status. Dietary, social, and economic comparisons were made using Feature B (AS I) from the Independence Visitor Center site or Block 2, Feature G (AS II) from the Liberty Bell or Block 1 associated with the household of cabinetmaker Alexander Turnbull circa 1825 (Yamin 2002; 2004), and the mid-to-late eighteenth century Chiller Plant/Feature 2 assemblage from Independence National Historical Park (Andrews 1999).

Methods and Materials

With historic assemblages, particularly those from urban areas, butchery frequently took place off-site at established market locations. This resulted in mammalian or meat assemblages that lack specific body parts (e.g., skull and foot bones) due to disposal at the site of initial or primary butchery. It must also be noted that the faunal assemblages recovered from domestic sites consist only of "bone-in" cuts. Secondary cuts such as rolled roasts, bacon, and sausages leave no evidence behind. Fortunately modern items such as the boneless chicken breast do not become common until late in the twentieth-century and for most historic-period assemblages, the small fauna - birds and fish - were purchased whole, leaving lots of bones behind.

The distribution of body parts provided information about animal husbandry and market practices. For the most part, the bird assemblages yield skulls, large numbers of body parts, and feet indicative of the processing and disposal of whole birds on the site. The same pattern was seen for a number of the fish species including catfish, mackerel and shad. Most were processed as whole animals while the Atlantic cod (see YohF1) were likely procured without heads and therefore were a commercial catch purchased salted or dried.

Where possible, each bone or bone fragment was identified to species using conventional zooarcheological techniques (e.g., Grayson 1979, 1984; Klein and Cruz-Uribe 1984). Measurements of the bones were also taken following von den Driesch (1976). When this level of identification was not possible, fragments were grouped into higher order taxonomic categories. Almost all caprine remains were classified as "sheep/goat" although no goat was identified. Bone fragments not identifiable to species or family were assigned categories such as large or medium mammal (mostly fragments from the sheep or pigs). Where possible, age data was recorded based on the fusion of the long bones and eruption and observed wear of teeth (after Bull 1982; Grant 1982, Grigson 1982). Fragments classified as indeterminate mammals were eliminated from dietary calculations as they could not be categorized into a specific class or size.

The importance of each species was quantified in several ways. Relative abundance was calculated by adding all fragments identified as a given species. However, this number of identified specimens per taxon or NISP does not account for multiple bones from a single animal/cut of meat or for variability in the survival and identification of certain elements. A second estimate of the relative importance used the element or body part most frequently identified to calculate the minimum number of individuals (MNI) per species present in the assemblage (Grayson 1984; Klein and Cruz-Uribe 1984). However, with historic period assemblages, butchery practices and preferences may skew a MNI sample so that it appeared a particular animal or species was favored when in fact the preference expressed was for a singular cut of meat. Calculation of the minimum number of retail meat cuts (MNMC) present is a more meaningful method of analysis with most historic-period assemblages (Schulz and Gust 1983; Lyman 1987). Where possible, the bones of the large mammals were assigned to specific cuts based on standard fabrication and butchery practices (i.e., Ashbrook 1955; Lobel and Lobel 1975; Mettler 1986). Additionally, the potential meat weights of the food animals were calculated based on the weight of the archeological bone. This biomass calculation assumes that any two

dimensions of an animal grow at an exponential rate rather than a linear one and that a specific quantity of bone represents a predictable amount of tissue (Reitz and Cordier 1983).

In addition to domestic chicken, several species of duck, goose, and pigeon were present. Generally, the bones were from mature birds. When identification to species level was not possible, broader categories were used (e.g., large or small *Galliforme*). Unidentifiable fragments from small chickens, pheasants, or partridges were designated "*Gallus* species." Immature birds, similar to what modern Americans consume as small roasting birds, were coded as "*Gallus* immature." "Medium bird" served as a catchall category for unidentifiable fragments from chickens, hens, and ducks. When species-level identification of the ducks and geese was not possible, the ducks were classified as subfamily *Anatinae* while geese were coded *Anserinae.* The term *Anseriforme* was used for the bones that were indistinguishable between the two.

Almost all of the fish present in the Area F features were available in local waters at some time of the year. Certain fish (i.e., herring and mackerel) were more readily available or preferred in a preserved or salted state. However, in the YohF1 assemblage, the mackerel appeared to have been fresh. Others, like shad and Atlantic cod, were available both fresh and preserved. The distribution of fish bones provided some information as to which form of fish was likely to be present. Scales and spines from fish were eliminated from calculations so as not to over represent the number of fish in each assemblage.

The Fauna from the Area F Features

The eight deposits identified during the Area F excavation included a mid-to-late eighteenth-century wood lined privy (YohF1) from which several thousand bones were recovered, a small late nineteenth-century assemblage from a stone-lined privy (114C3), and a mid-eighteenth century brick-lined privy located on Morris or Gray's Alley (YohC1). All deposits are briefly discussed, however, the majority of the analysis and report focused on the deposits that yielded the greatest number of bones. These included YohF1 (AS I and AS II) with a number of butchered meat bones, 114C3, and YohC1, another assemblage with a concentration of large meat mammals.

Even in urban centers with established market places, eighteenth-century butchery techniques resulted in larger, more complete cuts of domestic food mammals than might be found on later archeological sites or in modern refuse (Landon 1989; Bowen 1992). These were still standard cuts, but the preference and method resulted in larger cuts of meat. The meat in these assemblages was from large domestic mammals-cattle, sheep, and pigs. Goat is rarely identified in assemblages from the eastern United States and none was present here. Even at relatively early dates, urban centers relied almost entirely on domestic mammals with occasional supplements of small amounts of venison. In Philadelphia, a small number of deer bones were recovered from the mid-nineteenth-century Feature B (AS V) at the Independence Visitor Center (Block 2 of Independence Mall). These seemed to be the remains of specific haunches or leg cuts (Milne and Yamin 2002). Deer was identified in Chiller Plant/ Feature 2, a privy circa 1750-1780 from Independence National Historical Park excavated in 1998, but only as a bone handle rather than dietary remains (Andrews 1999:18).

A similar reliance on domestic rather than wild birds was also common, although game birds were more prevalent than game meats. Status, both economic and social, seemed to have determined the role of poultry in the diet. For urban assemblages from the late eighteenth and into the nineteenth centuries, consumption of large quantities of bird seemed to correlate with relative

wealth. Birds, including chickens, were frequently more expensive per pound than beef. Based on intact and discrete assemblages from Philadelphia and New York City (Crabtree and Milne 2000; Yamin 2002; 2004) as well as research in Detroit (Branster and Martin 1987) and Boston (Landon 1996), less affluent households relied on meat and local fish while birds, both wild and domestic, were consumed with less frequency. In faunal assemblages associated with households of some economic standing, bird remains generally made up at least a quarter of the total faunal assemblage.

As the investigation focused on diet, the remains of commensal species (dogs, cats and rodents) were not included in dietary analysis. Large numbers of these animals are recovered, often fairly intact, from urban assemblages and seem related to waste disposal practices. Cats, dogs, and rodents were present in all of the Area F deposits and an entire raccoon was recovered from a non-feature context (3320-49; a circular stain in basement Room B at 114 South Front Street). Information on commensal species and non-food items was included in the stratigraphic summaries of the deposits. In addition to these non-food species several other classes of bones were removed from the calculations of dietary remains. Indeterminate spines and scales from various fish were eliminated as they were not easily identifiable to species and had potential to inflate the number of fish present. Fragments identified only as indeterminate mammal were also eliminated as there was no simple way to classify them or quantify their importance.

Yoh Building, Room F, Feature 1

A total of 4,644 bones and fragments were recovered from three levels within YohF1, a wood-lined privy. Analysis of glass and ceramics dated the earliest strata (AS I) in this privy to 1769. This deposit may have been associated with a tavern on an adjacent lot run by Hercules Courtney circa 1769 to 1783; however, due to the nature of food preparation in the eighteenth and early nineteenth centuries, tavern assemblages can appear similar to those of domestic residences (Beisaw 2000) rather than distinctly commercial deposits. The most interesting feature of this assemblage was the large numbers of butchered bone. Almost a third of the large mammal bones had some evidence of butchery. The beef cuts along with the codfish bodies and shad heads in AS I lend it a distinctly processed and standardized feel. These did not appear to be animals fabricated in the home kitchen. The beef in AS II of the same feature presented a different profile, with large and whole cuts that were not particularly standard. The pork and mutton in AS II appeared far more regular and while AS I contained large numbers of shad and codfish, AS II was dominated by the remains of catfish, but almost entirely in the form of butchery waste with no evidence of fillets.

Of the 1,620 bones recovered from YohF1, AS I, bones identified as food remains totaled 1,153, once indeterminate mammal fragments, spines/rays from unknown fish, and companion species were removed from calculations. Within AS I, commensal species accounted for 133 bones (from cats, dogs and rodents). This assemblage included the remains of at least three cats, a dog, a puppy, and parts of five rats. An additional 70 bones and fragments from the same lots were simply labeled “small” mammal. The assumption was that these bones were also the remains of cats and dogs, but were too fragmented or weathered to be definitively identified.

Altogether 2,497 bones and fragments were recovered from YohF1, AS II. This total included commensal species and indeterminate fragments. Elimination of those bones not associated with diet resulted in an assemblage with a total of 1,259 bones and fragments identified as the remains of food. Two hundred and sixty-five bones from at least five cats were recovered (most from 3220-126). Another 148 bones and fragments, parts of five dogs were also recovered. There were

also 111 small mammal bones, parts of either the cats or the dogs. A single mouse bone was recovered, but there were 112 bones from eight rats, 12 bones from at least two squirrels, and another 207 bones identified as "rodent." Thirteen large sections of turtle shell were recovered as were 20 bones or most parts of a small falcon or hawk. This was closest in measurements to *Accipiter gentiles*, a Northern Goshawk, an inhabitant of deciduous woodlands of the eastern United States (Peterson 1980; Gilbert et al 1985). Eighty-eight indeterminate fish spines and scales were eliminated from the food section as were 250 indeterminate mammal fragments, many of which were calcine or burnt.

The third strata or AS III of YohF1 yielded 527 bones and fragments. Of this number, 320 bones were identified as the remains of meals. Bones removed from dietary calculations included cat (3), unknown mammal (115), rat and rodent bones (19), turtle shell (38), fish spines and rays (14), and a small number of indeterminate fragments (14). The position of this stratum closer to the "top" of the feature was evident in the number of weathered or chewed bones and about 25 percent of the bones showed some sort of damage from exposure.

114 South Front Street, Room C, Feature 3

Altogether 1,037 bones and fragments were recovered from two levels within 114C3, a brick and stone-lined privy. A total of 1,018 bones and bone fragments were recovered from the earliest level (AS I) dated to 1783. This assemblage may have been associated with Hercules Courtney's/Samuel Green's operation of a tavern. When commensal species and indeterminate fragments were removed, a total of 501 bones remained. Of the bones eliminated from the food calculations, 202 came from at least 11 cats (including three kittens), another 170 were generally indeterminate fragments, along with three from a dog's mandible, 13 weathered carapace fragments from a small turtle, 101 spines and scales from unknown fish, and 24 bones from at least two rats, and two squirrels. The second strata (AS II) identified within the privy dated to the late nineteenth century and yielded just 19 mammal bones.

114 South Front Street, Room C, Feature 2/2A

A total of 763 bones and fragments was recovered from two deposits within the brick-lined, double-shaft privy associated with the nineteenth-century occupation of 58 South Front Street Elimination of commensal species and unidentifiable fragments included 75 bones from four cats and another 23 fragments identified as small mammal, probably portions of these same cats. Seven bones from two small jays or catbirds of the Family *Corvidae* and a single mouse or vole leg bone were also recovered. Nine bones from two small rabbits were recovered. Without evidence of butchery or cooking, it was difficult to determine if these factored into the diet or were commensal species disposed of along with the cats and rats. Forty-one bones from at least four rats were recovered, three of which showed evidence of burning, which raises the possibility some of these animals were burnt with the trash. The condition of some bones offered additional depositional information. A small number (21) were encrusted with mortar or some type of plaster (all but one from 3220-104I). Exclusion of these species and the 121 indeterminate and unidentified fragments left 448 bones and fragments as the remains of meals. These included large cuts of beef, pork, mutton and veal, game and domestic birds, and a limited number of small fish. Based on the assemblages from other areas of the Area F site and Philadelphia in general it was expected that bird would make up about a quarter of the assemblage. This deposit contained more bird than others and some variety in the avian assemblage. Passenger pigeon, ordinary "rock dove," two species of duck as well as goose, turkey and several types of chicken were all present.

Yoh Building, Room C, Feature 1, AS I

Altogether 1,964 bones and fragments were recovered from AS I of this mid-eighteenth century privy, associated with a mariner's residence on Morris or Gray's Alley. Of the total recovered, 1,196 can be attributed to the remains of meals. The indeterminate mammal fragments (762) were excluded as it was unclear where to assign them. Other bones eliminated from dietary consideration included a single bone from a finch or swift and one from a small cat or dog. With respect to the food assemblage, the three meat mammals had an unusual distribution. Only the ribs and vertebrae of the cattle were present with a complete lack of any other body part. The remains of sheep completely dominated the assemblage.

Food Remains from Yoh Building, Room F, Feature 1

Yoh Building, Room F, Feature 1, AS I (*TPQ* 1760*)*

The food bones recovered from the earliest strata (AS I) of the wood-lined privy totaled 1,153. About half of the food assemblage was made up of the remains of large meat mammals–cattle, sheep, and pigs (Table 1). In terms of biomass, consumption of the three meats was relatively equal. Preservation was excellent and a number of specific meat cuts were identifiable. Interestingly, lots of the meat had been fabricated into all manner of cuts and fully a quarter of all the bones showed evidence of some type of butchery. Differences were apparent in that almost half of the cattle bones were butchered, while slightly less than ten percent of the pig was butchered. Most parts of a large rabbit were also included in the food calculations. There was no evidence of butchery or burning, however, the rabbit may have been part of the food assemblage. Good preservation and recovery also resulted in an assemblage in which almost 29 percent of the identifiable bones were the remains of birds, mostly chicken species. Fish comprised the remaining 20 percent, dominated by the remains of shad and Atlantic cod. Based on the skeletal elements present – a limited number vertebrae and skull bones that travel with the processed fillets (Perdikaris 1996; 1998) –, codfish was almost certainly a commercial product purchased salted or dried.

Table 1. Food Remains from YohF1, AS I

	NISP	% NISP	MNI	% MNI	Bioms	% Biomas
Cow; *Bos Taurus*	42	3.6	2	4.2	28.78	26.1
Cow - Immature	33	2.9	2	4.2	6.36	5.8
Sheep/Goat; *Ovis/Capra*	127	11.0	4	8.3	20.71	18.8
Pig; *Sus scrofa*	161	14.0	5	10.4	22.26	20.2
Pig – Immature	11	1.0	1	2.1	1.77	1.6
Rabbit; *Sylvilagus* species	27	2.3	1	2.1	0.68	0.6
Large Mamma1	73	6.3	---	---	16.44	14.9
Medium Mammal	110	9.5	---	---	4.99	4.5
Chicken; *Gallus gallus*	64	5.6	5	10.4	2.40	2.2
Chicken – Immature	17	1.5	2	4.2	0.33	0.3
Turkey; *M. gallopavo*	8	0.7	1	2.1	0.57	0.5
Pheasant Species; *Phasianidae*	11	1.0	2	4.2	0.23	0.2
***Gallus* species**	24	2.1	2	4.2	0.60	0.5
***Gallus* species-small**	5	0.4	1	2.1	0.11	0.0
Pigeon; *Columbidae* sp.	8	0.7	1	2.1	0.07	0.0
Duck; *Anatinae*	20	1.7	3	6.3	0.51	0.5
Goose; *Anserinae*	1	0.0	1	2.1	0.27	0.2
Medium Bird	163	14.1	---	---	0.99	0.9
Medium Bird – Immature	8	0.7	2	4.2	0.07	0.0
Catfish; *Ictalurus* species	8	0.7	1	2.1	0.14	0.1

Atlantic Cod; *G. morhua*	84	7.3	3	6.3	1.39	1.3
Sheepshead Porgy	6	0.5	1	2.1	0.25	0.2
Bass – Indet	2	0.2	1	2.1	0.00	0.0
Mackerel; *S. scombus*	17	1.5	2	4.2	0.03	0.0
Shad; *Alosa sapidissima*	105	9.1	4	8.3	0.34	0.3
Herring; *Clupea harengus*	5	0.4	1	2.1	0.00	0.0
Indet Fish	13	1.1	---	---	---	---
TOTAL	1153	99.9	48	100.4	110.29	99.7

In terms of overall numbers, cattle were the least prevalent of the large food mammals recovered from AS I. The MNI of two was based on the distal left femur although a variety of beef cuts were present. Other than a preference for cuts from the long bones, mostly roasts, no specific cut was represented. Much of this assemblage was butchered (31 of 42 bones were either sawn or chopped through). The majority of the butchered assemblage was larger, roast cuts. It is not clear whether this represented the personal preferences of a household, the time period and cooking technology available (braising, hearth, and oven cooking rather than stovetop) or a tavern menu. In examining the parts present, almost all of the beef assemblage (90 percent) came from the body of the animal with few bones representing either the head or feet of the animals (Table 2). The sheep presented a more regular distribution, while the remains of the pig were heavily skewed toward the feet of the animal. The overabundance of foot bones seemed to have been related to the structure of the foot itself, with its large number of bones (including unfused phalanges), rather than a concentrated diet of pigs' feet and hocks.

Table 2. Body Part Distribution of the Large Domestic Mammals, YohF1, AS I

	Head (n)	% Head	Body (n)	% Body	Feet (n)	% Feet	NISP
COW NORMAL		**29.7**		**42.2**		**28.1**	
Cow – Mature	0	0.0	38	90.5	4	9.5	42
Cow – Immature	11	33.3	12	36.4	10	30.3	33
SHEEP NORMAL		**29.7**		**42.2**		**28.1**	
Sheep – Mature	18	14.2	72	56.7	36	28.3	127
PIG NORMAL		**28.2**		**34.5**		**37.3**	
Pig – Mature	27	16.8	31	19.3	103	64.0	161
Pig - Immature	0	0.0	11	100.0	0	0.0	11

Based on the butchery evidence and the body parts present, the cattle had already undergone both primary and secondary butchering. The 12 cuts of beef were mostly present as larger roasts including one from the shank (tibia), one from the ribs, two large joint roasts from mid-forelimb (radii/humeri intersection), and a large chuck roast (distal scapula and proximal humerus). Fragmented stew or steak cuts were present in bones from the thoracic spine and the upper hindlimb cuts. Cuts identified as veal came from beef cattle under a year in age. These seemed to be more complete animals or larger primary cuts (including some skull fragments) and almost none exhibited butchery marks. A single cervical vertebra, the atlas, was sawn through axially; perhaps during initial splitting of the animal. Specific cuts of meat included at least two complete butchery units from lower hindshank, possible large leg roasts, a large loin roast, and at least one large roast from the forelimb along with two other indeterminate forelimb cuts.

At least four sheep, including one very large animal, were necessary to account for the mutton in this deposit. Although no longer widely consumed, mutton was a preferred meat for much of the eighteenth and nineteenth centuries. The mutton in the AS I deposit was primarily in large cuts from the limbs and bodies of the animal (see Table 2). Most of the bones identified as "skull" were actually the first two cervical vertebrae that may have actually traveled with the body rather than the head of the animal during initial butchery. Based on the limited number of bones identified from the skull, some degree of processing took place off-site and/or there was disposal

of butchery waste in some other area. More than a third of the bones were butchered and included cuts from all parts of the body. Thirty-one specific cuts were identified (Table 3) including favored cuts from the chuck or shoulder, loin, and the legs. There were six chuck or shoulder roasts (including two whole scapulae), nine mostly intact loin roasts (six of which were sawn through the neck of the ilium), another five shank roasts from the lower legs and metapodial bones, five cuts from the tibia which might have been part of a larger leg o' mutton, and finally a number of split thoracic vertebrae which might have represented a rack of mutton or chops.

Table 3. Large Domestic Mammals from YohF1, AS I

	NISP	% NISP	MNI	% MNI	MNMC	% MNMC	Biomass (kg)	% Bio-mass
Cow; *Bos taurus*	42	11.2	2	14.3	12	16.9	28.78	36.0
Cow - Immature;	33	8.8	2	14.3	8	11.3	6.36	8.0
Sheep/Goat; *Ovis/Capra*	127	34.0	4	28.6	31	43.7	20.71	25.9
Pig; *Sus scrofa*	161	43.1	5	35.7	18	25.4	22.26	27.9
Pig – Immature	11	2.9	1	7.1	2	2.8	1.77	2.2
TOTAL	374	100.0	14	100.0	71	100.1	79.88	100.0

In terms of the total number of bones, pig seemed to be the preferred meat animal; however, much of the pork was represented by lower shank, hock and foot bones (metapodia and phalanges). The hock and foot of the pig were present in greater numbers than corresponding body parts for other animals; therefore the higher NISP for pig may be over-represented. Parts of at least six pigs were present, one immature and five mature. The large number of bones from the lower leg (and skull) may indicate a form of primary butchery, preference for specific cuts, or consumption of the cheapest cuts of meat. Although most parts of the pig were represented, there was a clear preference for hindlimb and foot cuts (see Table 2). For example, of the 20 meat cuts identified, 11 were hams from the shank. Of the 11, seven were from the hind- rather than fore-limb. The 27 skull bones were well within a normal distribution range, but when compared with the beef and mutton assemblages indicated larger portions or bigger primary cuts from the pig were available. Immature pig was also present and at least three bones were cut into specific portions. This might represent kitchen butchery of the smaller animal; however, all three of the cuts appeared to have been made with a professional saw.

Five mature chickens were represented in AS I (left tarsometatarsus). These were mostly birds of a similar size and fully developed. Two other chickens were identified and both were immature birds, similar in size to modern three-pound roasters. In the bird assemblage most identifiable elements were those of the foot and leg bones as not all body parts were present. Several other birds from the chicken family were also identified. These included two small birds, possibly hens, identified only as "*Gallus* species" as well as two birds identified as part of the *Phasianidae* or pheasant family. Since pheasants were introduced from Europe and Asia early in the nineteenth century, these specimens may be as yet unidentified relatives of the domestic chicken.

Potentially wild fowl were represented by three ducks – two mallards and a third, large bird not identified to species – and a goose. The goose was represented by a single, large segment of the humerus, weathered, but still relatively intact. This large bone was cleanly cut through at the distal end, and one of just two bird bones with evidence of butchery. The second was the burnt femur or leg bone of a mature chicken that had been cut through.

All of the codfish were "stockfish" of a similar commercial size. None of the cod showed evidence of butchery, but the repetitive skull elements present (including the cleithrum and post temporal) were those considered signatures of commercial fisheries (Perdikaris 1996). A similar

codfish distribution was seen in Feature B, AS II from Block 2 (Milne 2002). This Area F feature also yielded a small sample of some type of catfish or sucker. A much greater concentration of catfish bones were recovered from the later level, AS II; however these eight catfish bones may have migrated within the feature (all but one from 3220-129) or represent a different refuse deposit as six of the eight were bones from the head. Shad bones accounted for nine percent of the food NISP and at least four of these fish were present. The shad were almost entirely bones from the skull while herring, a popular preserved fish was represented by just five tiny vertebrae. The limited number of bones from the herring may be a factor of excavation as these are frequently recovered using fine mesh or water-screening. Like the shad, the mackerel may have been present as fresh fish since only skull elements were present. In preserved or brined shad or mackerel, one would expect to see vertebrae as well. Six bones represented Sheepshead Porgy. Although now extinct in the waters around New York, this local fish was common to bays and inlets along the Atlantic Coast and can still be found in the Chesapeake region. This porgy was also identified in the Blocks 1 and 2 and Chiller Plant assemblages (Andrews 1999; Yamin 2002; 2004). The fish and beef assemblages present an interesting contradiction in terms of consumption. Both the beef and the codfish seem very processed and standardized, while the pig, shad, porgy and mackerel seem to indicate a degree of fabrication and processing at home.

Yoh Building, Room F, Feature 1, AS II (*TPQ* 1783)

Like the food assemblage recovered from AS I, this deposit was dominated by the remains of the large food mammals (55 percent of the assemblage NISP), but fish and bird made up significant portions of the food assemblage (Table 4). In terms of available tissue or biomass, beef and veal were favored; however, considerable quantities of sheep and pig bones were also present. The fish (26 percent of the NISP) were dominated by the remains of an indeterminate species of catfish. At least 12 individual catfish were present, represented almost entirely by bones from the skull. While heavily based on chicken and related species, the bird assemblage, with 19 percent of the NISP, included both pigeon and mourning dove as well as duck and goose.

Table 4. Food Remains from YohF1, AS II

	NISP	% NISP	MNI	% MNI	Bioms	% Biomas
Cow; *Bos taurus*	76	6.0	3	6.0	54.51	44.7
Cow - Immature	50	4.0	3	6.0	12.04	9.9
Sheep/Goat; *Ovis/Capra*	83	6.6	4	8.0	15.17	12.4
Pig; *Sus scrofa*	302	24.0	5	10.0	15.41	12.6
Rabbit; *Sylvilagus* species	3	0.2	1	2.0	0.00	0.0
Large Mammal	47	3.7	---	---	13.88	11.4
Medium Mammal	129	10.2	---	---	5.97	4.9
Mammal – Immature	2	0.2	1	2.0	0.01	0.0
Chicken; *Gallus gallus*	12	1.0	1	2.0	0.21	0.2
Pheasant Species; *Ps*	3	0.2	1	2.0	0.14	0.1
***Gallus* species**	26	2.1	---	---	0.43	0.4
***Gallus* - Immature**	36	2.9	3	6.0	0.40	0.4
***Galliforme* – small**	7	0.6	1	2.0	0.20	0.1
Pigeon; *Columbidae* Sp.	17	1.4	2	4.0	0.06	0.0
M. Dove; *Zenaida macroura*	21	1.7	2	4.0	0.07	0.0
Duck; *Anatinae*	23	1.8	3	6.0	0.82	0.7
Goose; *Anserinae*	4	0.3	1	2.0	0.51	0.4
Large Bird	2	0.2	---	---	0.07	0.0
Medium Bird	86	6.8	---	---	0.38	0.3
Catfish; *Ictalurus* species	294	23.4	12	24.0	1.50	1.2
Shad; *Alosa sapidissima*	25	2.0	2	4.0	0.05	0.0
Indet Herring; *Clupidae*	2	0.2	1	2.0	0.00	0.0

Flounder; *Pleuronectidae* Sp.	1	0.0	1	2.0	0.00	0.0
Mackerel; *Scomber scombus*	5	0.4	2	4.0	0.00	0.0
Indet Fish	3	0.2	1	2.0	0.11	0.0
TOTAL	1259	100.1	50	100.0	121.94	99.7

Thirty-six of the 76 bones from mature cows provided evidence of butchery. At least three animals were necessary to account for the assemblage. This was a larger beef assemblage than found in AS I and more parts of the animals were present The number of skull and hock fragments was closer to a "normal" body part distribution than seen in AS I (Table 5). However, similar to the assemblage from AS I, the emphasis was on cuts from the body. Although this was a small sample, the age range present in the beef was expected in a pre-nineteenth-century assemblage. Both older and younger animals were represented, but the preference was for older animals. Based on the fusion of the long bones and tooth wear at least two were older than 36-40 months at death and the third, slightly younger at 24 to 36 months. Based on bone fusion, the immature cattle in the assemblage (three additional animals) were all younger than 12 to 18 months and at least one of the animals was less than seven months (unfused pelvis). When compared to the cattle assemblage, the mutton and pork in the assemblage were more standardized. The cuts were repetitive and came from mature animals of relatively similar sizes and ages. For the pork, these animals ranged in age from slightly less than one year to just about two years in age while the mutton came from animals more than 24 months of age.

Table 5. Body Part Distribution of the Large Domestic Mammals, YohF1, AS II

	Head (n)	% Head	Body (n)	% Body	Feet (n)	% Feet	NISP
COW NORMAL		**29.7**		**42.2**		**28.1**	
Cow – Mature	18	23.7	43	56.6	15	19.7	76
Cow – Immature	2	4.0	26	52.0	22	44.0	50
SHEEP NORMAL		**29.7**		**42.2**		**28.1**	
Sheep – Mature	7	8.4	45	54.2	31	37.3	83
PIG NORMAL		**28.2**		**34.5**		**37.3**	
Pig – Mature	13	4.3	14	4.6	275	91.0	302

Twenty distinct beef cuts were identified, but leg cuts from the long bones in the form of large roasts were preferred. The cuts were from all parts of the upper and lower limbs without a discernable preference for a particular body part or cut. With the exception of two rib roasts (represented by large sections of 15 ribs), there were few axial or spinal elements present. The distribution and processing of bones looks much like what a late-eighteenth century faunal assemblage was expected to be: primitive in the fabrication of cuts, with most parts of the animal represented (including head and hoof), large roast cuts and few if any processed chops, steaks or secondary cuts. Butchery marks consisting of sawing, cutting and chopping were present on about a quarter of the beef and veal bones. Distinctive veal cuts were harder to identify as there was less butchery evidence and some of the parts identified may have been the same large joint roasts; however, a minimum of 15 cuts were present including one large loin and leg roast, four large shank roasts (or eight smaller sections, if metapodia traveled separately), a large section of the chuck or shoulder, and several indiscernible cuts from the femur and humerus.

The mutton in the assemblage came from at least four mature sheep. Based on the large number of similar leg elements (femur, tibia, and astragulus/calcaneous) and lack of butchery marks, it appears that, for the most part, whole leg cuts were present. If the whole leg was considered, there were a minimum number of thirteen large roasts; however, if the legs were divided into smaller sections (e.g., loin, butt, and shank end), there were as many as 28 smaller leg roasts from both the hind and front limbs (21 from the hind limb including loin; 7 from the front limb including

the chuck or shoulder). Other sheep bones include two fragments from the thoracic vertebrae and a small number from the skull.

Based on the metapodial/phalange counts, five pigs were present in the AS II assemblage; however, most other parts of the animal were not present. With respect to specific cuts of meat, the pig was generally less butchered than the cow and present in larger segments. This assemblage was different in so far as there was a decided presence of foot/hock bones rather than most sections of the animal (see Table 5).

All cuts of meat were not equal and based on both MNMC and biomass, beef was the preferred followed by mutton and veal, which were present in relatively equal quantities (Table 6). Although pig bones dominate the NISP calculations, these numbers are artificially high due to several factors: the large number of pigs' feet/hocks identified in the assemblage, the structure of the pigs' hock and its greater number of individual bones, and finally, the number of unfused segments in the feet of pigs slaughtered under two years of age. This still represents a decided pattern in the pig assemblage, but whether this was the result of dietary preferences or disposal pattern is not clear.

Table 6. Large Domestic Mammals from YohF1, AS II

	NISP	% NISP	MNI	% MNI	MNMC	% MNMC	Biomass (kg)	% Bio-mass
Cow; *Bos taurus*	76	14.9	3	20.0	20	33.3	54.51	56.1
Cow - Immature;	50	9.9	3	20.0	15	25.0	12.04	12.4
Sheep/Goat; *Ovis/Capra*	83	16.2	4	26.7	13	21.7	15.17	15.6
Pig; *Sus scrofa*	302	59.1	5	33.3	12	20.0	15.41	15.9
TOTAL	511	100.1	15	100.0	60	100.0	97.13	100.0

The small number of chicken bones were all intact and well preserved, but represent just a single male bird. However, several varieties of *Gallus* or chicken-like birds were present which may have included distinct breeds, domesticated birds, partridges, and ptarmigans (see Table 4). The variety in the bird assemblage continued with 23 relatively intact duck bones that represented four individuals from three different species – mallard, black and wood ducks. Although pigeon was identified in AS I, in addition to the ordinary "rock" dove, at least two mourning doves were present in AS II. There was no butchery or evidence of cooking and it is equally possible that these were commensal rather than dietary species.

Twelve individual catfish or suckers were identified (a total of 295 bones), all of which were from the skull. These fish accounted for 24 percent of the food NISP (see Table 4) and the distribution of bones appears to be the result of processing of fillets that were consumed and disposed of elsewhere. One striking difference in the AS I and AS II assemblages was the species of fish present. The fish from AS I were dominated by the presence of at least four shad and commercially fished Atlantic cod (17 percent of the assemblage NISP) while AS II yielded the 12 catfish heads, but limited amounts of shad and no codfish. Other fish present in AS II in rather small quantities included two mackerel (based on size), a herring, and a single flounder (species unknown) skull fragment. White catfish was identified in Chiller Plant/Feature 2 as was an unidentified sucker fish (Andrews 1999).

Yoh Building, Room F, Feature 1, AS III (*TPQ* 1825)

Although many of the same species were present, the food assemblage from AS III was limited in size. Beef cattle were the most important large food mammal in terms of biomass, but sheep

produced the largest number of individual bones (Table 7). Bird made up 26 percent of the food remains and chicken, duck and goose were present. Just 15 percent of the food remains were fish, but these included shad, striped bass, herring, and a smaller bass species.

Table 7. Food Remains from YohF1, AS III

	NISP	% NISP	MNI	% MNI	Bioms	% Biomas
Cow; *Bos taurus*	26	8.1	2	9.5	21.38	45.7
Cow - Immature	1	0.3	1	4.8	0.30	0.6
Sheep/Goat; *Ovis/Capra*	37	11.6	2	9.5	5.75	12.3
Pig; *Sus scrofa*	19	5.9	1	4.8	2.00	4.3
Rabbit; *Sylvilagus* sp.	3	0.9	1	4.8	0.05	0.1
Large Mammal	47	14.7	---	---	12.41	26.5
Medium Mammal	55	17.2	---	---	3.12	6.7
Chicken; *Gallus gallus*	14	4.4	2	9.5	0.29	0.6
Pheasant Species; *Ps*	3	0.9	1	4.8	0.14	0.3
***Gallus* species**	2	0.3	1	4.8	0.02	0.0
***Galliforme* – large**	6	1.9	---	---	0.27	0.6
Duck; *Anatinae*	3	0.9	1	4.8	0.07	0.1
Goose; *Anserinae*	5	1.6	3	14.3	0.43	0.3
Large Bird	4	1.3	---	---	0.06	0.1
Medium Bird	41	12.8	---	---	0.34	0.7
Indet Bird	6	1.9	---	---	0.11	0.2
Catfish; *Ictalurus* species	3	0.9	1	4.8	0.02	0.0
Shad; *Alosa sapidissima*	27	8.4	2	9.5	0.05	0.1
Indet Herring; *Clupidae*	1	0.3	1	4.8	0.00	0.0
Striped Bass; *M. Saxatilis*	1	0.3	1	4.8	0.00	0.0
Bass Sp. Indet; *Serranidae*	2	0.3	1	4.8	0.02	0.0
Indet Fish	14	4.4	---	---	0.00	0.0
TOTAL	320	99.3	21	100.3	46.83	99.2

About half of the beef assemblage was butchered. These cuts included large roasts from the loin and chuck as well as steaks cut from sirloin. Most parts of the body were represented including a large section of the left mandible that was quite weathered; however, the vast majority of the assemblage came from the body of the animals–including ribs and vertebrae. At least one element, a large section of scapula, came from an immature animal. Although there was some butchery evident on the sheep vertebrae and ribs – primary splitting of the animal – much of this assemblage was made up of large sections of long bones. Most of one animal was present from head to foot, with some elements from a second animal of similar size. Both animals were older than a year, but less than four years in age, meat animals rather than wool or milk producers. In contrast to the beef assemblage, there was almost no butchery of the pig. In terms of total counts and tissue present, pork seemed to be the least important meat. Most portions of a single animal under a year in age were present, many of which were weathered or rodent gnawed.

Domestic chicken was limited in number and seemed to belong to one bird with some elements from a second animal of similar size. The large "gallus" bones were probably the remains of turkey, but they could not be definitively identified as such. A single duck was present only as skull fragments while the goose MNI of two was based on large sections of the left humerus. Three elements from the leg of a pheasant were also recovered. Although the fish made up 15 percent of the total NISP, they accounted for less than one percent of the biomass. With the exception of the shad, all of the species were represented by very limited numbers. The catfish was present as three skull fragments, the herring by a single element, and the shad by 26 skull fragments and a single vertebra.

114 South Front Street, Room C, Feature 3

The brick and stone-lined privy designated 114C3 contained two deposits, AS I dated to 1783 and AS II to circa 1870. The assemblage recovered in AS I was probably associated with the occupation of 58 South Front Street by Hercules Courtney, a carver, gilder and tavern keeper between 1769 and 1783.

Food Remains from 114 South Front Street, Room C, Feature 3, AS I (*TPQ* 1783)

When commensal species and unidentified fragments were eliminated the food assemblage from 114C3 totaled just 501 bones and fragments (Table 8). The remains of the large food mammals accounted for 64 percent of the NISP, more than any other Area F feature. Numerically, sheep seemed to be the most important food animal in terms of both total count and number of individuals. Bird comprised 10 percent of the assemblage, but a limited number of species was present. With the exception of a small quantity of duck and pigeon, all the bird in the assemblage was chicken or a closely related species. The leg bones of four domestic chickens were present, as were representative elements from most other parts of the birds. The greater quantity of leg bones may indicate differential disposal and the presence of more waste products. With respect to the fish assemblage, at least four small bass were present, all within a range of about three pounds. These were a mix of white perch and small striped bass, but these species are very close in structure and difficult to tell apart, especially in smaller and more gracile specimens.

Table 8. Food Remains from 114 S. Front Street, Room C, Feature 3, AS I

	NISP	% NISP	MNI	% MNI	Bioms	% Biomas
Cow; *Bos taurus*	63	12.6	3	9.1	32.71	43.4
Cow - Immature	23	4.6	3	9.1	7.67	10.2
Sheep/Goat; *Ovis/Capra*	80	16.0	7	21.2	16.65	22.1
Pig; *Sus scrofa*	35	7.0	2	6.1	6.29	8.3
Pig – Immature	4	0.8	1	3.0	0.03	0.0
Large Mammal	38	7.6	---	---	5.38	7.1
Medium Mammal	77	15.4	---	---	4.64	6.2
Chicken; *Gallus gallus*	65	13.0	4	12.1	1.40	1.9
***Gallus* – Large**	2	0.4	1	3.0	0.09	0.1
***Gallus* – Small**	1	0.2	1	3.0	0.00	0.0
***Gallus* - Immature**	6	1.2	2	6.1	0.16	0.2
Duck/Goose; *Anseriforme*	5	1.0	1	3.0	0.12	0.2
Pigeon; *Columbidae* sp.	2	0.4	1	3.0	0.00	0.0
Medium Bird	9	1.8	---	---	0.07	0.0
Indet Bird	5	1.0	---	---	0.02	0.0
Bass Sp – *Serranidae*	56	11.2	4	12.1	0.08	0.1
Shad; *Alosa sapidissima*	1	0.2	1	3.0	0.00	0.0
Sheepshead; *A. probatocephalus*	1	0.2	1	3.0	0.05	0.0
Flounder Sp; *Pleuronectidae*	1	0.2	1	3.0	0.00	0.0
Indet Fish	27	5.4	---	---	0.06	0.0
TOTAL	501	100.2	33	99.8	75.42	99.8

The cattle assemblage was somewhat oddly distributed. Parts of at least three mature animals were present, but this MNI was based on mandible and skull fragments. There were relatively few long bones present although more than half of the assemblage (34) came from the axial skeleton, the spine and ribs, of the animals (Table 9). Twenty-four of the 63 bones provided evidence of butchery and included 18 bones from the ribs and spine. There were also several long bones that had been chopped or hacked (while ribs and spine were sawn through). At least three young or

immature cattle were also present (right scapula). A small number of skull and mandible fragments were recovered, but the assemblage was mostly comprised of bones from the limbs and shanks. Similar to the veal recovered in YohF1, none of the bones provided evidence of butchery, most were present in large roasting segments, and all of the animals under seven months of age (unfused scapula and pelvis). Although the classification of medium mammal was generally assumed to be the remains of sheep and pigs, in this assemblage, this category may have also included the remains of immature cattle.

Table 9. Body Part Distribution of the Large Domestic Mammals, 114C3 (AS I)

	Head (n)	% Head	Body (n)	% Body	Feet (n)	% Feet	NISP
COW NORMAL		**29.7**		**42.2**		**28.1**	
Cow – Mature	11	17.5	47	74.6	5	7.9	63
Cow – Immature	6	26.1	14	60.9	3	13.0	23
SHEEP NORMAL		**29.7**		**42.2**		**28.1**	
Sheep – Mature	19	23.8	54	67.5	7	8.8	80
PIG NORMAL		**28.2**		**34.5**		**37.3**	
Pig – Mature	19	54.3	12	34.3	4	11.4	35
Pig – Immature	2	50.0	2	50.0	---	---	4

With skull fragments eliminated from calculations, 15 beef cuts were identified (Table 10). There was no patterning nor repetitive butchery and most seemed to be single cuts. These included two from the hock (one fore and one rear), at least two indistinct cuts from the femur or round, three indistinct cuts from the forearm or chuck (two butchered), and a fourth that seemed to be a steak cut from the scapula. Large cuts and potential roasts were identified from the loin (ilium), shank (tibia), and large sections of the ribs. Several vertebrae, from both the ribs and the loin, were sawn into steak cuts. There was no butchery on the bones of the immature cattle or veal; however potentially available cuts included two large loin roasts, four roasts from the chuck or shoulder, one of which may have been a large joint roast that included most of the humerus or upper arm, one large roast from the hindshank (tibia and astragulus/calcaneous), and a second shank cut, as well as bits from the neck and skull.

Table 10. Large Domestic Mammals 114 S. Front Street, Room C, Feature 3 (AS I)

	NISP	% NISP	MNI	% MNI	MNMC	% MNMC	Biomass (kg)	% Bio-mass
Cow; *Bos taurus*	63	30.7	3	18.8	15	24.6	32.71	51.6
Cow - Immature;	23	11.2	3	18.8	10	16.4	7.67	12.1
Sheep/Goat; *Ovis/Capra*	80	39.0	7	43.8	26	42.6	16.65	26.3
Pig; *Sus scrofa*	35	17.1	2	12.5	8	13.1	6.29	9.9
Pig – Immature	4	2.0	1	6.3	2	3.3	0.03	0.1
TOTAL	205	100.0	16	100.2	61	100.0	63.35	100.0

Mutton was the most important of the three meats. Sheep made up 21 percent of the total food NISP and when the large mammals were considered, about 40 percent of the NISP, and 43 percent of the meat cuts present (see Table 10). The remains of at least seven mature sheep were represented (count included six whole right scapulae). At least one animal came with most of its head intact, but without shanks and/or feet. All of the sheep appeared to be older than two years, but less than 36 to 48 months in age. Most of the long bones were not butchered, although butchery was apparent on a small number of axial elements including the pelvis and the spine. This may have been evidence of primary stage butchery in which the animals were split in half. Although some of the mutton might have been processed or purchased in large sections, much of this assemblage appears to have been fabricated as large roasts. At minimum, there were 26

separate cuts, although if smaller cuts (butt end, shanks, shank end legs etc.) rather than whole limbs were considered as many as 36 cuts may have been present. The preference was for cuts from the limbs – at least 15 from the forelimb and seven from the hindlimb. Chuck or shoulder of mutton was common with 10 separate scapulae, mostly intact. Other roasts included two from the loin – an entire pelvic bone, sawn through the ends, and a second large pelvic section without evidence of butchery. The ever-popular leg of mutton was evident in at least seven cuts from large sections of the tibia. Two mostly complete, femur or upper leg bones may have been part of larger, whole leg cuts, but it seems that separate and smaller roasts were more likely as there was no evidence of the proximal tibia.

In terms of numbers, pork and the pigs were the least important of the three meat animals (see Table 10). Just eight meat cuts were identified including head and foot cuts. Although there were two hams from the loin (one from an animal under a year in age) and two from the upper shanks (radius/tibia), these did not appear to be high status meals. Both the bird and fish assemblages were relatively small and limited in species. The fish were notable for the presence of four small bass – both stripers and perch.

114 South Front Street, Room C, Feature 3, AS II (*TPQ* 1870)

From the late nineteenth-century levels of 114C3 came just 19 bones and fragments. Of this total, six were feline and another three were unidentifiable to class or species.

114 South Front Street, Room C, Feature 2

Two assemblages were recovered from 114C2, a brick-lined double shaft privy. The lowest or earliest stratum (AS I) in this feature was associated with the household of merchant Robert Smith circa 1823. Altogether 720 bones and fragments were recovered from AS I. Elimination of commensal species and unidentifiable fragments left 448 bones and fragments that were determined to be the remains of meals. Just 43 bone fragments were recovered from AS II, the late nineteenth-century stratum. Most were unidentifiable to the species level and exhibited a large degree of rodent gnawing and chewing damage on the bones, indicative of some degree of exposure.

Food Remains from 114 South Front Street, Room C, Feature 2, AS I (*TPQ* 1823)

The food remains associated with the early nineteenth-century occupation of 58 South Front Street included large cuts of beef, pork, mutton and veal, game and domestic birds, and a limited number of small fish (Table 11). In terms of meat animals, initially pig seemed to have been most important, but further examination showed limited types of pork present (mostly from the feet), and beef and mutton that were more sophisticated in their fabrication. Based on the assemblages from other areas of the Area F site and Philadelphia in general it was expected that bird would make up about a quarter of the assemblage NISP. However, avian remains make up almost 40 percent of the bones in this collection. Ten species were represented including the now extinct passenger pigeon, ordinary “rock dove,” two species of duck as well as goose, turkey, and several types of chicken.

Table 11. Food Remains from 114 South Front Street, Room C, Feature 2, AS I

	NISP	% NISP	MNI	% MNI	Bioms	% Biomas

Cow; *Bos taurus*	39	8.7	3	8.8	44.87	53.4
Cow - Immature	14	3.1	2	5.9	8.77	10.4
Sheep/Goat; *Ovis/Capra*	40	8.9	4	11.8	7.15	8.5
Pig; *Sus scrofa*	64	14.3	4	11.8	7.33	8.7
Large Mammal	63	14.1	---	---	9.32	11.1
Medium Mammal	35	7.8	---	---	3.76	4.5
Rabbit; *Sylvilagus* sp.	9	2.0	1	2.9	0.13	0.1
Chicken; *Gallus gallus*	25	5.6	4	11.8	0.17	0.2
***Gallus* - Immature**	7	1.6	1	2.9	0.07	0.0
Turkey; *M. gallopavo*	3	0.7	1	2.9	0.37	0.4
***Gallus* species**	11	2.5	2	5.9	0.33	0.4
***Galliforme* – Large**	1	0.2	1	2.9	0.09	0.1
Pheasant sp.; *Phasianus* sp.	5	1.1	1	2.9	0.12	0.1
Duck; *Anatinae*	16	3.6	2	5.9	0.33	0.4
Goose; *Anserinae*	1	0.2	1	2.9	0.27	0.3
Pigeon; *Columbidae* sp.	10	2.2	2	5.9	0.02	0.0
Medium Bird	89	19.9	---	---	0.58	0.7
Indet Bird – Immature	4	0.9	2	5.9	0.24	0.3
Bass Sp.; *Serranidae*	5	1.1	2	5.9	0.03	0.0
Shad; *Alosa sapidissima*	3	0.7	1	2.9	0.02	0.0
Indet Fish	4	0.9	---	---	0.00	0.0
TOTAL	448	100.1	34	99.9	83.97	99.6

Although all three of the domestic food mammals were present in somewhat equal proportions, beef was the preferred meat in terms of overall numbers, meat cuts, and biomass (Table 12). The greater numbers of pig is misleading because much of this assemblage was bones from the toes and hock and may represent waste rather than the remains of meals. Even if these were consumable cuts from the pig, they represent much less tissue than that present in the sheep and cattle cuts. More than half of the 39 mature cattle bones were butchered (chopped and sawed). There was seemingly more butchered beef than identified in 114C3, AS I, but less than in YohF1, AS I. However, in all three assemblages, the preference was for large sections or roasts from the long bones rather than additionally processed steaks or chops. There were at least three mature animals based on large sections/roasts from the innominate or pelvic bones. This distribution was mirrored in the meat cuts identified. Of the 16 identified, eight were from the loin, including seven large joint roasts and a single sirloin steak. Additionally, there were five large leg roasts (two from the femur, two from the upper shank, one from the chuck or shoulder) and a large pot roast sawn from the shoulder. The remaining 11 cuts from the legs of immature cattle, included several shank roasts, possibly six in all, as well as a large roast from the chuck or shoulder.

Table 12. Large Domestic Mammals 114 South Front Street, Room C, Feature 2, AS I

	NISP	% NISP	MNI	% MNI	MNMC	% MNMC	Biomass (kg)	% Bio-mass
Cow; *Bos taurus*	39	24.8	3	23.1	16	26.7	44.87	65.9
Cow - Immature;	14	8.9	2	15.4	11	18.3	8.77	12.9
Sheep/Goat; *Ovis/Capra*	40	25.5	4	30.8	17	28.3	7.15	10.5
Pig; *Sus scrofa*	64	40.8	4	30.8	16	26.7	7.33	10.8
TOTAL	157	100.0	13	100.1	60	100.0	68.12	100.1

Seventeen mutton cuts were identified. Almost all were from the body of the animal with a preference for roasts from the leg of which there were 12 in all. There were at least four pigs present, but most of the bones were from the shank and foot bones, perhaps in the form of lots of

inexpensive hams (Table 13). This was a similar distribution to that seen in the collection from YohF1, AS II. These animals were relatively young, some were under a year (unfused distal humerus and proximal phalanx B/2), and all were under two years of age. When compared with the beef and mutton, there was relatively little butchery, with just four of the 64 bones showing evidence of butchery, and the distribution of the animals was very different (Table 13). Overwhelmingly, the beef and mutton came from the bodies of the animals with head and feet discarded elsewhere or not brought home at all. This pattern is in keeping with urban nineteenth-century butchery practices. With immature cattle, the preference was for cuts from the shank including the marrow; however, this distribution may in part reflect butchery standards where the smaller animals were processed with shank bones.

Table 13. Body Part Distribution of the Large Domestic Mammals, 114C2, AS I

	Head (n)	% Head	Body (n)	% Body	Feet (n)	% Feet	NISP
COW NORMAL		**29.7**		**42.2**		**28.1**	
Cow – Mature	2	5.1	34	87.2	3	7.7	39
Cow – Immature	---		6	42.9	8	57.1	14
SHEEP NORMAL		**29.7**		**42.2**		**28.1**	
Sheep – Mature	---		28	70.0	12	30.0	40
PIG NORMAL		**28.2**		**34.5**		**37.3**	
Pig – Mature	4	6.3	14	21.9	46	71.9	64

Although four chickens were identified based on foot and skull bones, these were not whole birds. Few other parts of the birds were present and this may be the result of some type of differential disposal as intact shaft deposits frequently yield most parts of the small fauns, if they were indeed disposed of at the same time. A similar distribution was recognized in the bones from the immature birds in which only lower leg bones were present; however, at least three species were represented by the five elements; a chicken, a larger "*Galliforme*, "either a turkey or a big chicken, and a completely unknown smaller bird. There were also bones from at least two ducks, one a mallard and the second, smaller and unidentifiable to species.

Food Remains from 114 South Front Street, Room C, Feature 2, AS II (*TPQ* 1870)

Forty-one of the 43 bones recovered from 114C2, AS II were determined to be potential food remains. The only ones identifiable to species, however, were eight sheep bones. Five of these were from the femur or upper leg and four of the five were sawn into thin rounds or steaks. The wing bones of four individual chickens were also recovered.

Yoh Building, Room C, Feature 1, AS I (*TPQ* 1750)

Altogether 1,964 bones and fragments were recovered from AS I, the only analytical stratum identified in this mid-eighteenth century privy. A large number of bones were eliminated from calculations because they were unidentifiable, rather than non-food species and altogether, 1,196 were attributed to the remains of meals. This assemblage was definitely weighted toward the meat mammals with large quantities of mutton, beef, and pork bones.

Food Remains from Yoh Building, Room C, Feature 1, AS I

The distribution of this assemblage was somewhat different than others from other contemporary collections. Mammal remains dominate with 65 percent of NISP, but mutton rather than beef was

most prominent and sheep bones accounted for almost 50 percent of the biomass (Table 14). Additionally, the beef assemblage was a little unusual as the cattle bones were solely from the ribs and vertebrae. There were no leg or shank cuts, nor any bones from the feet or skull. Compared to other Area F features, the total number of chicken bones was relatively high and in terms of diet, this rendered the chicken at least as important as pork, if not more so.

Table 14. Food Remains from YohC1, AS I

	NISP	% NISP	MNI	% MNI	Bioms	% Biomas
Cow; *Bos taurus*	130	10.9	1	2.9	8.99	18.5
Cow - Immature	3	0.3	1	2.9	0.39	0.8
Sheep/Goat; *Ovis/Capra*	351	29.4	9	25.7	23.62	48.7
Pig; *Sus scrofa*	127	10.6	2	5.7	7.14	14.7
Large Mammal	2	0.2	---	---	0.25	0.5
Medium Mammal	167	14.0	---	---	2.96	6.1
Chicken; *Gallus gallus*	167	14.0	7	20.0	2.52	5.2
***Gallus*-Immature**	55	4.6	5	14.3	0.71	1.5
Turkey	10	0.8	2	5.7	0.52	1.1
Duck	11	0.9	2	5.7	0.14	0.3
Goose	13	1.1	2	5.7	0.30	0.6
Pigeon; *Columbidae* sp.	21	1.8	2	5.7	0.05	0.1
Indet Bird-Large	1	0.0	---	---	0.09	0.2
Indet Bird	128	10.7	---	---	0.79	1.6
Bass species;	2	0.2	1	2.9	0.01	0.0
Herring Sp.	1	0.0	1	2.9	0.00	0.0
Indet Fish	7	0.6	---	---	0.01	0.0
TOTAL	1196	100.1	35	100.1	48.49	99.9

The entirety of the cattle assemblage came from the ribs and vertebrae of the animal. There were simply no long bones, loin cuts or other preferred pieces and only a single rib showed evidence of butchery. Most of these ribs were present as extremely small fragments. A large section of a single radius (foreshank) from an immature cow was the only long bone. Based on this assemblage, mutton was the most important of the three meats and at least nine sheep were necessary to account for this assemblage. This MNI was based on the presence of large segments (18) from the midshaft of the tibia. A similar number of acetabulum fragments (19), part of the larger "leg o'mutton" cut is also present as were ten large segments from the upper leg or femur. Most of the mutton came from the body of the animal and there was relatively little from either the head or the feet (Table 15). Compared to the other two food mammals, the pig was present in a relatively normal distribution with bones from body, head and feet. Several parts of the skull were present, along with the atlas and axis so at least one of the pigs traveled with their head.

Table 15. Body Part Distribution of the Large Mammals, YohC1

	Head (n)	% Head	Body (n)	% Body	Feet (n)	% Feet	NISP
COW NORMAL		**29.7**		**42.2**		**28.1**	
Cow – Mature	---	---	130	100.0	---	---	130
Cow – Immature	---	---	2	100.0	---	---	2
SHEEP NORMAL		**29.7**		**42.2**		**28.1**	
Sheep - Mature	34	9.7	285	81.2	32	9.1	351
PIG NORMAL		**28.2**		**34.5**		**37.3**	
Pig – Mature	24	18.9	63	49.6	40	31.5	127

Since the cattle ribs were so fragmented, it was difficult to determine how many cuts might have been available. Based on the parts of the ribs, it seems as if at least four were necessary to account for the assemblage. In contrast, a large number of intact and distinct mutton cuts were identified.

At a minimum, at least 39 separate mutton cuts were available (Table 16). These were mostly from the limbs of the animal with a decided preference for cut from the hindlimb. These might have been broken down into smaller cuts including the saddle or whole loin, the leg and the shank. If the component cuts were considered, as many as 74 cuts may have been present. The number was reached by considering each part of the leg and each half of the loin as a separate roast, rather than a completely inclusive one. Three patellae (knee-caps) were recovered which suggests at least some of the roasts traveled as whole legs. A limited number of pork cuts were present. There were just ten including two large hams, but with many small, indistinguishable fragments that may have been additional hams or steak cuts. There were numerous sections from the ribs which may have been chops or ribs.

Table 16. Large Domestic Mammals from YohC1

	NISP	% NISP	MNI	% MNI	MNMC	% MNMC	Biomass (kg)	% Bio-mass
Cow; *Bos taurus*	130	21.3	1	7.7	4	7.3	8.99	22.4
Cow - Immature;	3	0.5	1	7.7	2	3.6	0.39	1.0
Sheep/Goat; *Ovis/Capra*	351	57.4	9	69.2	39	70.9	23.62	58.8
Pig; *Sus scrofa*	127	20.8	2	15.4	10	18.2	7.14	17.8
TOTAL	611	100.0	13	100.0	55	100.0	40.14	100.0

At least 12 individual chickens were identified, seven mature and five immature birds, from a collection of 222 bones and fragments. Another 128 bones identified as “indeterminate” bird probably contained relatively large numbers of chicken, but were too fragmented for identification to specific species. Generally there seemed to be a greater number of lower limb bones then other parts of the birds and this waste from the feet may account for the greater MNI with respect to the chicken (see Table 14).

Yoh Building, Room A, Feature 1

Two analytical strata were identified within the YohA privy, but both yielded limited amounts of faunal material. The earlier of the two (AS I) had a *TPQ* of 1825 and may have been associated with the occupation of Robert Swan, a silversmith at 75 South Second Street. However, just 25 bones and fragments were recovered and eight out of 15 were either cat or rat The second stratum (AS II) dated to 1860 and yielded 24 bones. These included three bird long bones and the remainder seemed to be the fragmented remains of food mammals.

Summary and Conclusions

Large urban faunal assemblages like the ones recovered from Area F present interesting questions with respect to their origins. Were these the results of large and dramatic dumping episodes or did they accumulate slowly over time, the result of many individual meals? Did they comprise the food remains of a single household or did multiple residences and commercial establishments share the same trash? The commensal species identified in each assemblage provide some evidence of the nature of the urban occupation. At least eight cats were present in the collection from YohF1 and another 11 were identified in AS I from 114C3. Along with the hawk from YohF1 and the jaybirds, turtle, rabbit, and rodents in 114C2, the implication is that not just food remains were thrown out. These animals, especially the cats, were prevalent and a goodly number of them were disposed of in the backyards. This was not unique to Area F as similar commensal assemblages were seen in nineteenth-century features in both New York City and Philadelphia

(Yamin 2000; 2002; 2004). The food assemblages themselves also provided potential clues as to the nature of deposition. Although the remains from YohF1 seemed mostly intact and complete, the elevated number of lower limb bones from the chicken in YohF1 and 114C3, the pigs' feet from YohF1, and the catfish heads from YohF1 (AS II) may indicate some primary food waste was disposed in one area of the site while secondary waste was disposed of elsewhere.

The Area F assemblages provided an opportunity to examine late eighteenth-century butchery practices and provisioning in the urban marketplace. Abundant remains from three deposits, both AS I and AS II of YohF1 and AS I of 114C3, offered intrasite comparison as well as the opportunity for comparison with similarly sized assemblages from other urban sites. The mid-to-late eighteenth-century food assemblages from these three analytical strata were similar in overall composition (Table 17). The remains of the large domestic mammals were most important, comprising more than half of each assemblage (64 percent of 114C3), with relatively equal amounts of bird and fish present.

Table 17. Distribution of Bones Recovered from the Area F Features

	TPQ	Total NISP	Food NISP	% Mam	% Brd	% Fish		% Indet	% Burn	% Btch	% Chw	% Wea
YOHF1 AS I	*1760*	1620	1153	50.6	28.5	20.8		1.1	3.0	11.9	0.4	10.9
YOHF1AS II	*1783*	2497	1259	54.9	19.0	26.2		0.0	1.7	7.5	1.9	9.3
YOHF1AS III	*1825*	527	319	58.5	26.4	14.9		28.3	0.3	11.6	12.8	12.5
114C3AS I	*1783*	1018	501	64.0	19.0	17.2		6.4	0.6	10.8	1.2	3.2
114C3AS II	*1870*	19	10	100.0	----	----		15.8	0.0	10.0	10.0	10.0
114C2AS 1	*1823*	720	448	58.9	38.5	2.7		17.5	2.7	10.7	0.4	9.8
114C2AS II	*1870*	43	41	90.2	9.8	---		11.6	---	17.1	43.9	7.3
YOHC1AS I	*1750*	1964	1196	65.4	33.9	0.8		45.9	0.3	4.1	0.3	18.4

The earliest of the three assemblages was YohF1, AS I which dated to 1769. It is interesting to note however, that it was this early assemblage that provided the most processed or fabricated meat assemblage. All three of the large food mammals were present in relatively equal quantities (including biomass). It is unusual that beef does not dominate the assemblage as biomass calculations frequently favor the larger and heavier cattle bones. This was by far the most commercially prepared or fabricated assemblage, and it is unusual for a mid-eighteenth century assemblage to have such seemingly specialized cuts of beef with no skull fragments and few elements from the feet. Ninety percent of the beef cuts were from the body of the animal and fully one-half of these were butchered. Mutton was equally important and a third of the sheep bones were butchered, although most were cut into relatively large joints and roasts. This early assemblage also offered the most variety in fish and birds. Like the beef, the codfish remains were indicative of a more fabricated assemblage. These fish were of a similar, standardized size and were processed (possibly salted and/or dried) without heads. Alternately, the shad in the assemblage was present almost entirely as skull bones, suggestive of processing and disposal on-site rather than purchased as split or smoked cuts.

The assemblage recovered from YohF1, AS II was most similar to the AS I assemblage in the large numbers of pigs' feet that were recovered. Although the AS II assemblage was more standardized in terms of meat cuts, in both AS I and AS II, pork was the least important meat. The presence of the foot bones with limited tissue and protein may be the result of a preference for a flavoring agent, but it seems more likely the large number of foot and hock bones were a factor of butchery and waste disposal. The two YohF1 strata differed in that beef (including veal) was the most important meat represented by the AS II assemblage, whereas in AS I, all three meats were relatively equally distributed. About half the cattle bones in AS II showed evidence of

butchery, but were not as fabricated or processed as the beef from YohF1, AS I. In AS II, most parts of the cow were present with a close to normal distribution of head, body and foot bones. The Atlantic cod and shad that had been prevalent in AS I were replaced by catfish in AS II. The catfish were represented only by bones of the skull, suggestive of processing and disposal of whole animals on site; there was no evidence of fish fillets as no vertebrae were identified.

Although contemporary with YohF1, the food assemblage from 114C3 was about half the size of YohF1 and differed in composition. Overall, there was a greater proportion of mammal remains in the 114C3; there was relatively little pork and an unusual distribution of cattle bones. Fully half of the beef bones came from the axial skeleton, that is the spine and ribs of the animals. Mutton was decidedly the preferred meat and was present largely as roast cut from the legs.

The relatively small assemblage from 114C2 (AS I) offered a similar pattern in which mammal remains were dominant and like YohF1 (AS II), the hocks and feet of the pig were noticeably prevalent. As this assemblage was associated with a wealthy merchant's house, a richer food assemblage was expected. However, there are multiple explanations for the presence of this particular cut. The feet/hocks may represent in-house butchery and disposal of larger animals or primary cuts, a preference for a particular cut, or menu item, or soup/stock bones.

The final significant assemblage from Area F was YohC1. With over a thousand bones recovered, this was similar in size to YohF1 (AS I and AS II), however, it did not yield the same variety in species or cuts seen in the YohF1 assemblages. All of the cattle from YohC1 were from the ribs and vertebrae. The pork was present in a relatively normal distribution as if whole animals had been present, while the mutton was almost entirely from the hip/legs of the animals. This feature was notable for its lack of fish, especially when compared with YohF1 and the Block 2 assemblages (Yamin 2002).

When the Area F assemblages were compared to those recovered from the other Independence Mall sites (Liberty Block 1 and Independence Visitor Center Block 2), the most notable difference seemed to be the far greater variety of birds and fish present in the Block 1 and Block 2 assemblages. From Block 1, this includes Feature G, AS II and from Block 1, Feature B, both AS II (c. 1820) and AS III (c. 1830). The lack of variety in the Area F features may be related in part to recovery and the fact that several of the features were only half excavated (114C3, YohC1, and YohA1). Although large portions of the Area F features were intact and seemed well-preserved, the lapse in time between recovery and analysis may have resulted in damage to a fragile avian assemblage and thus birds may be under-represented in the Area F features. However, the Block 2 assemblages yielded far less meat mammals than those of Area F. In terms of both distribution and species present, the Area F assemblages most closely resemble the assemblage recovered from Chiller Plant/Feature 2 circa 1750-1780 (Andrews 1999:62). The remains of meat mammals dominate, there was some variety in the avian assemblage, but domestic chicken was predominant, and a small number of local fish, including porgy and catfish, were present.

The dates of the Area F assemblages predate a completely standardized provisioning system in Philadelphia. However, these assemblages offer evidence that areas of the markets were standardized by the mid-eighteenth century with signs of increasing mechanization in the fishing and butchery industries. While diverse in species and meat cuts, the fauna recovered from the Area F features was far less varied than those at Block 2. These differences may be related to the economic status of the individual consumers and may be indicative of subtle gradations in

middle-class consumption and status as well as the public expressions of those social and economic positions.

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APPENDIX VI:

Analysis of Artifact INDE 89951

by

Lori Aument

JMA architects archeologists planners
John Milner Associates, Inc.

MEMORANDUM

Date: January 13, 2006

To: Juliette Gerhardt, JMA

From: Lori Aument, JMA

CC:

Re: AREAF4 Object INDE89951

Object INDE89951 (114 C, 3 3220-56) was found in an area of Area F at 114 S. Front Street that was associated with a carver and guilder c. 1769-1784. A tallow chandler may also have occupied the site during that time.

The object appears to be a transparent resin material that was heated and then dropped to the ground and cooled in a rounded, globular shape. The object is transparent and yellow in color. Under a stereomicroscope, the surface is mottled, being both smooth and glossy and granular and crystalline. The smooth and glossy surfaces show fine conchoidal fractures and cracks. Small air bubbles are present just beneath the surface. Crevices are encrusted with white and black granular material. The transparent interior appears to be free of impurities. The sample does not dissolve in denatured alcohol.

It is possible that the resin is an amber resin or a fossilized copal material known as "Demerara animi." Both materials were used extensively in oil-based varnishes. Amber is a fossilized resin originally formed by an extinct species of *Pinus*. Amber produced a highly colored varnish whose use dwindled in the beginning of the nineteenth century as lighter colored varnishes became available (Bristow, 75-77).

Based on the dates of activity at this site c. 1769-1784, it is also possible that the resin could be a copal resin known as "Demerara animi." This resin is a product of the tree family Leguminosae and was produced in mainland South America. It was commercially available and popular during 1700 through the beginning of the nineteenth century. The resin was pale brown-yellow in color and often contained insects in its unprocessed, fossil form. It was used extensively by varnish makers at this time (Bristow, 78-79). The only way to positively identify the resin material would be to subject it to gas chromatography testing in order to classify each organic component.

Oil-based varnishes were made by melting amber or copal to boiling point and then mixing them with warm oil, either linseed oil or oil of turpentine. In the early nineteenth century, special furnaces were designed for melting amber or copal resins for varnishes, as shown in the Bristow figure 11. They may have been in use earlier. Oil-based varnishes could be used as a glossy, transparent finish that could be polished. Highly colored, amber containing varnishes were reserved for finishes applied over dark colors or gold (Bristow, 121). Copal-based varnishes tended to be less highly colored. Oil-based varnishes could also be mixed with pigments, primarily red or black, for japanning, which were used primarily on furniture and coaches. Japanned furniture was declining in fashion during 1750-1800; however, it was still in use on coaches (Bristow, 125).

It is interesting to note that Ian Bristow remarks that fine cabinetry in England during c. 1769-1784 was finished with oil or wax. Matte finished furniture was more in fashion. Varnishes were not popular on high end furniture until the rise of the French polish finish in the early nineteenth century (Bristow, 119). If this statement is true of the American colonies as well, then the carver-guilder in residence was probably using oil-based varnishes on lower-end furniture items or, possibly, some high-end architectural woodwork.

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