



1991

A Primary Resource for the Restoration, Reconstruction and/or Replication of 18th and Early 19th Century Architectural Elements: The Architectural Study Collection of Independence National Historical Park

Carl Edward Nittinger
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Disciplines

Historic Preservation and Conservation

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A PRIMARY RESOURCE
FOR THE RESTORATION, RECONSTRUCTION AND/OR REPLICATION
OF 18TH & EARLY 19TH CENTURY ARCHITECTURAL ELEMENTS:
THE ARCHITECTURAL STUDY COLLECTION
OF INDEPENDENCE NATIONAL HISTORICAL PARK

Carl Edward Nittinger

A THESIS

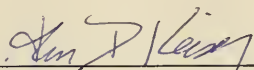
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The Graduate Program in Historic Preservation

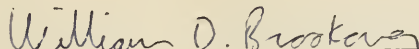
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Pennsylvania in
Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

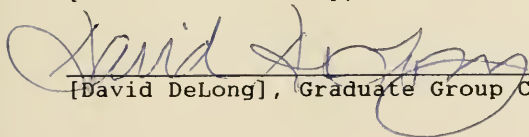
1991



[Alan Keiser], Advisor



[William Brookover], Reader



[David DeLong], Graduate Group Chairman

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PREFACE

This analysis is directed to the study of 18th and early 19th century architectural elements and detail of the Architectural Study Collection of Independence National Historical Park, Philadelphia. It is an in depth analysis of the 18th and early 19th century examples of door joinery design and construction of the Architectural Study Collection and published recommendations for door joinery design and construction from 1680 to 1860. This analysis is an evaluation of the Architectural Study Collection as a primary resource for the restoration, reconstruction, and/or replication of 18th and early 19th century architectural elements and detail for restoration projects of that period.

The author is deeply indebted to Alan Keiser for his continual guidance, assistance, and commentary on format and content, and to William Brookover who read the manuscript and made many valuable suggestions.

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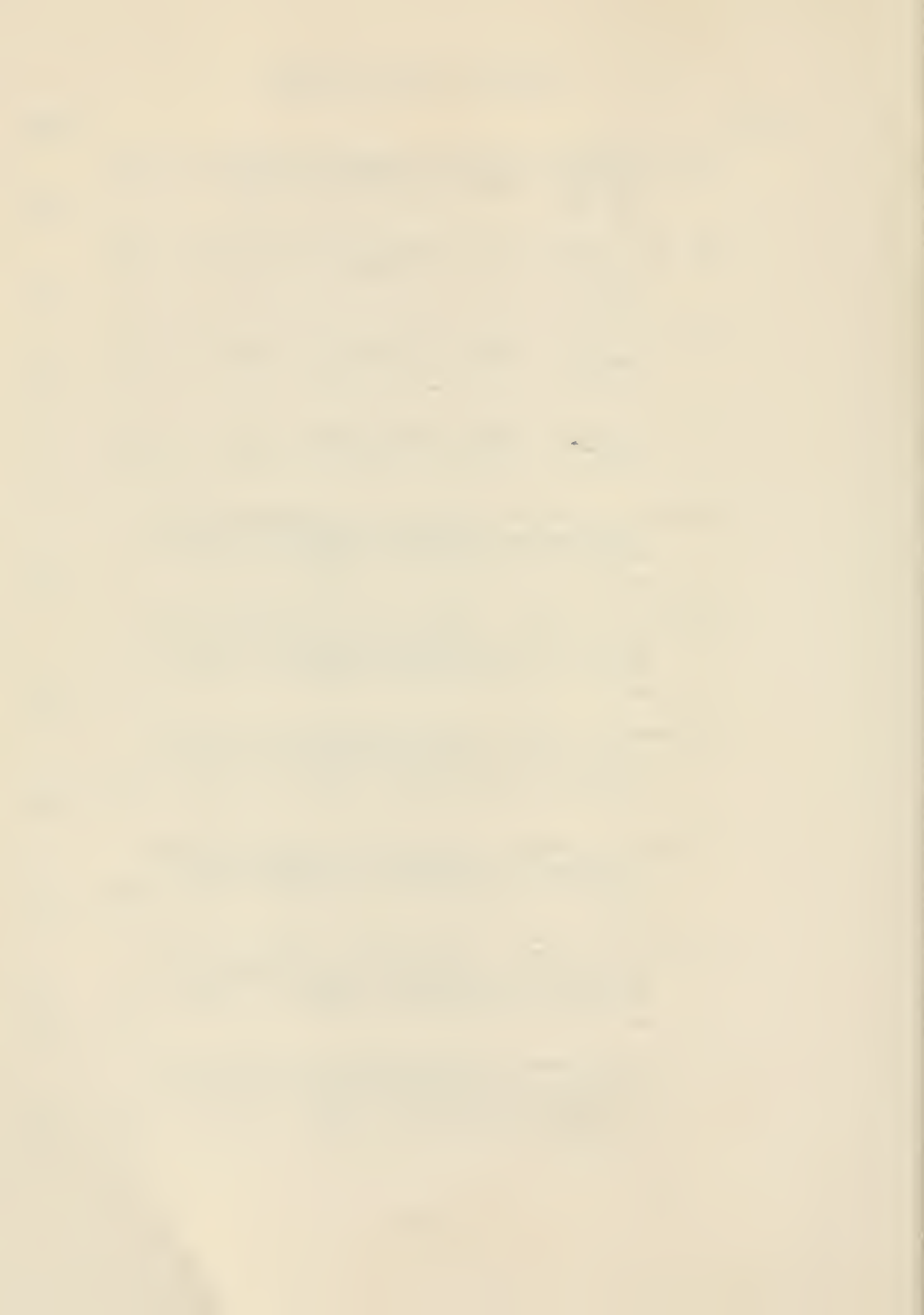
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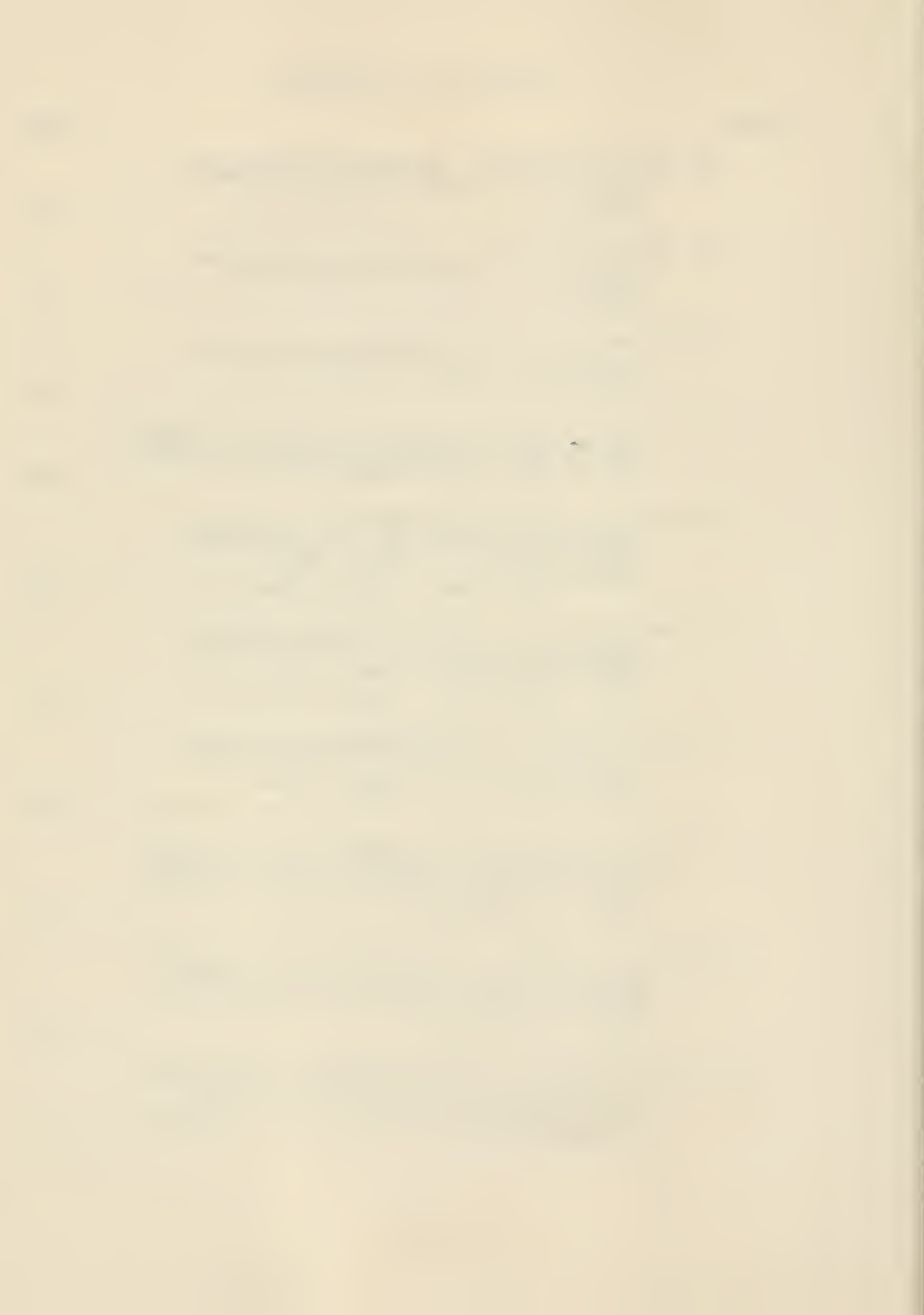


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A PRIMARY RESOURCE
FOR THE RESTORATION RECONSTRUCTION AND/OR REPLICATION
OF 18TH & EARLY 19TH CENTURY ARCHITECTURAL ELEMENTS:
THE ARCHITECTURAL STUDY COLLECTION
OF INDEPENDENCE NATIONAL HISTORICAL PARK

INTRODUCTION

The Architectural Study Collection of Independence National Historical Park contains examples of architectural elements and detail that are a valuable primary resource for restorationists working on 18th and early 19th century structures requiring the restoration, reconstruction and/or replication of lost or damaged architectural elements and detail. If the restorationist knows from which structures the examples were salvaged, the study of those examples in the context of the structure from which they were salvaged will help restorationists make accurate decisions when they restore, reconstruct and/or replicate missing or damaged architectural elements and detail in structures of a similar historic period. The placement and combination of architectural elements and detail in one structure serves as an example of how architectural elements and detail might have been placed or combined in another structure of a similar construction period.

CHAPTER I

Surveying the Collection

In order to explore the full scope of items contained in the Architectural Study Collection of Independence National Historical Park, I first made a survey of the entire collection searching for a method to prove its value as a primary resource for restorationists.¹ Because of the vastness of the collection, I focused on an inventory of the examples of joinery represented by doors, windows, shutters, and mantels. I next expanded this inventory by making a hands-on examination of forty three doors,² sixteen mantels,³ and fourteen shutters,⁴ recording the respective

¹ The entire collection includes examples of masonry, framing, roofing, flooring, stairs, windows, shutters, nails, hardware, joinery, turnings, plaster, and paint.

² Independence National Historical Park. Museum Accessions' Files. First Bank of the United States. Philadelphia. Acc. 62-2, 62-4, 350-a, 350-b, 1286, 2010-7, 2010-10, 2400-10, 2400-11, 2400-12, 2400-13, 2400-14, 2522-2, 2522-4, 2527-1, 2527-2, 2527-3, 2527-4, 2527-5, 2532, 2630, 2816, 3288-22, 3581-1, 3581-2, 3581-8, 3601.

³ Independence National Historical Park. Museum Accessions' Files. First Bank of the United States. Philadelphia. Acc. 101, 1001, 2533, 2816, 3493, 6899.

accessions' numbers of each and making descriptive notations of their design and construction. To examine all known available facts about these examples of joinery, I then consulted the accessions' files in the Office of Historical Architecture of Independence National Historical Park. These files contain entries of the Architectural Study Collection only. Finally, I cross referenced this information with the accessions' files of the complete holdings of Independence National Historical Park in the Office of Museum Operations. The complete holdings of the Architectural Study Collection have not been included in the catalogue of the holdings of Independence National Historical Park.⁵

After reviewing the information I had gathered, I determined that the scope of this thesis would focus on door joinery for the following reasons:

1. there are more examples of door joinery contained in this collection than examples of

⁴ Independence National Historical Park. Museum Accessions' Files. First Bank of the United States. Philadelphia. Acc. 67-8, 172, 410-1, 2007, 2854-5, 2855, 3482, 3493.

⁵ In an interview with John Miley, Director of Museum Operations of Independence National Historical Park, Mr. Miley told me it did not seem necessary to include the examples of architectural elements and detail of the Architectural Study Collection in the catalogue of holdings since they were not meant to be displayed in public spaces, but were to be used only by staff of the Office of Historical Architecture for study purposes. There is no catalogue of the Architectural Study Collection itself.

shutter joinery or mantel joinery;

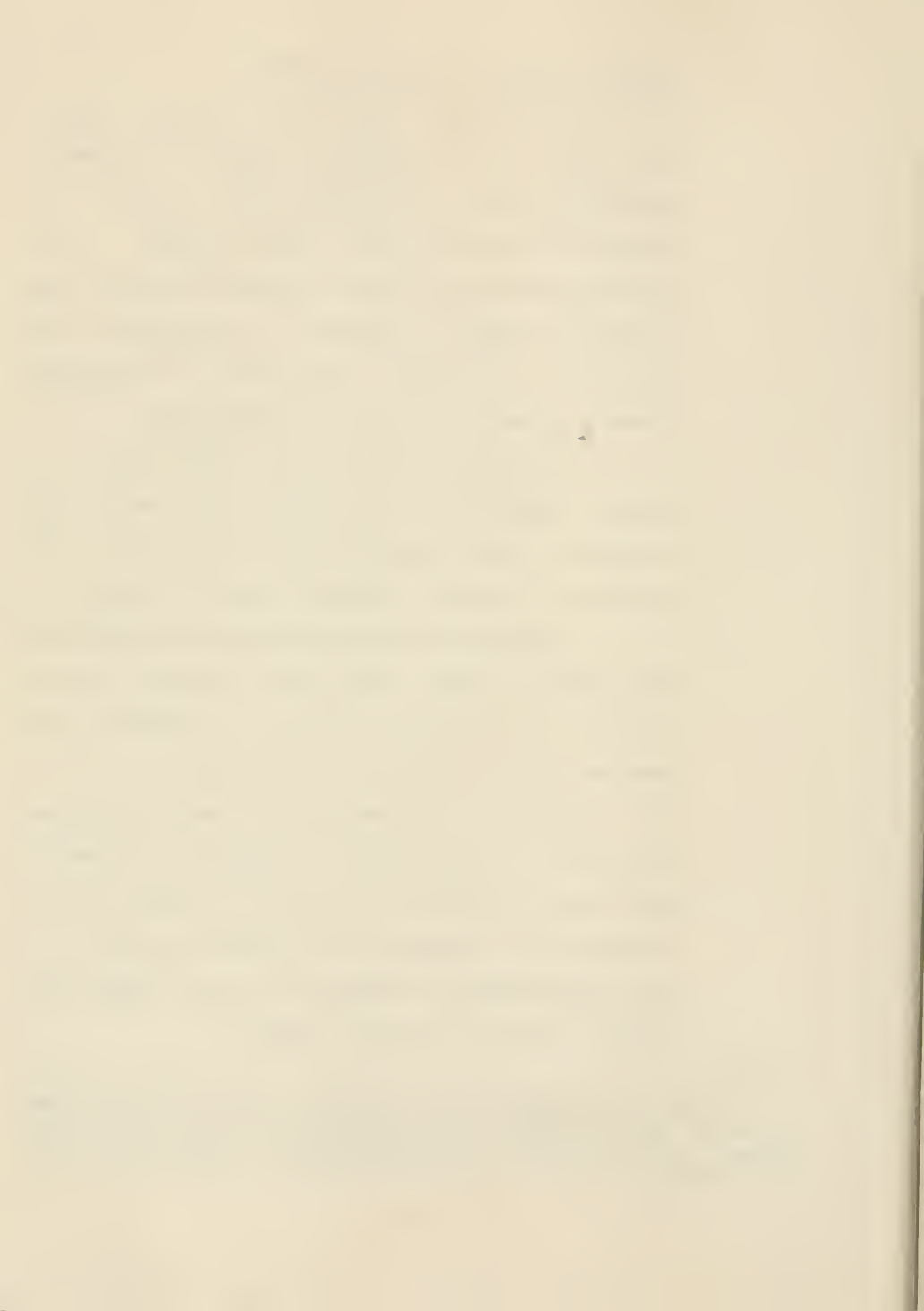
2. the accessions' files list a greater amount of primary and secondary source references documenting the structures from which the examples of door joinery were salvaged (the accessions' files contain limited primary and secondary source references to document the structures from which the examples of shutter joinery or mantel joinery were salvaged);

3. the examples of door joinery represent a broader spectrum of structures from which the examples of door joinery were salvaged than the examples of shutter joinery or mantel joinery;

4. the placement within the structures from which the examples of door joinery were salvaged is more often recorded than it is for the examples of shutter joinery or mantel joinery; and

5. the dates of construction of these structures and the use of the different variations of types of door joinery within the structures from which these examples were salvaged provide opportunities for a more comprehensive analysis than the examples of shutter joinery or mantel joinery.⁶

⁶ The files I reviewed identified six structures from which the sixteen mantels were salvaged. They are: 108 Sansom Street, 2nd floor North; 110 Sansom Street, 3rd floor North; 405 Marshall Court, 1st floor front, 1st floor rear, 2nd



For these reasons, I concluded that the accumulation of primary and secondary source references of the examples of door joinery provide more information for restorationists solving problems of restoration, reconstruction, and/or replication than the accumulation of primary and secondary source references for the examples of the other types of joinery.

My research, therefore, concentrates on the examples of

floor front; 407 Marshall Court, 3rd floor; Pangborne House; and Schoomac Park, Wissahickon Drive. Although I found no dates recorded in the accessions' files for 108 Sansom and 110 Sansom Street, examples of door joinery were salvaged from the same structures. I found a chain of title for those structures in the files of the Historical Commission of the City of Philadelphia which dates them 1794. I could find no information about the other four structures in the Office of Historical Architecture of Independence National Historical Park or the office of the Historical Commission of the City of Philadelphia. It is possible, however, that their dates might be determined by researching a chain of title of the given addresses. Six of the sixteen record the placement within the structure from which they were salvaged. Three of those six are from the same structure. Six structures were identified from which the fourteen examples of shutters were salvaged. They are: 108 Sansom Street St; 110 Sansom Street St; 267 South 3rd Street; 340 South American Street; 315-317 Walnut Street. Although I found no dates recorded in the accessions' files for 315-17 Walnut Street (and 108-110 Sansom Street as before) they are structures from which examples of door joinery were salvaged. The dates of those structures are recorded with the entry of the examples of door joinery as 1791-1793 for 315-17 Walnut Street (taken from the Historic Structures Report of those properties prepared by National Park Service staff), and 1794 for 108-110 Sansom Street (from a chain of title as before). I could find no information about the other four structures in the Office of Historical Architecture of Independence National Historical Park or the office of the Historical Commission of the City of Philadelphia. It is possible, however, that their dates might be determined by researching a chain of title for the given addresses.

door joinery accessioned in the Architectural Study Collection of Independence National Historical Park and housed in the basement of the First Bank of the United States at 3rd and Chestnut Streets as of July 1987 to prove the value of this collection as a primary resource for the restorationists working on 18th and early 19th century projects.

CHAPTER II

Documenting the Examples of Door Joinery

To make an in depth analysis of the examples of door joinery of the Architectural Study Collection, the following steps were necessary:

1. return to the Architectural Study Collection to measure all the examples of door joinery in the collection and to record the moulding profiles of each with a moulding profile comb (these field notes are the basis of a complete set of measured drawings of each example found in Appendix A, p. 67);
2. gather all available primary and secondary source documentation and notations found in the accessions' files for the examples of door joinery;
3. examine the Historic Structures Reports prepared by National Park Service staff for the structures from which the examples of door joinery were salvaged;
4. research the structures from which the examples of door joinery were salvaged in the files of the Historical Commission of the City of

Philadelphia;

5. research the structures from which the examples of door joinery were salvaged at the Historical Society of Pennsylvania;

6. contact the archivist of the Philadelphia Contributionship and the Mutual Assurance Company for historic surveys of the structures from which the examples of door joinery were salvaged; and

7. index this research to serve as a data-base for the evaluation.

The data-base takes the form of two tables listing the examples of door joinery according to the date of construction of each.⁷ Table A-1, "Chronology of Documented Doors", is a chronological listing by year of construction of the structures from which the examples of door joinery were salvaged. These dates are established by primary and in several cases secondary source references. This table is followed by photographic documentation of the structures from which the examples of door joinery were salvaged, and measured drawings of each example. Table A-2, "Chronology of Undocumented Doors", is a chronological listing by date of construction of each artifact as determined and recorded in the accessions' files by the staff of the Office of

⁷ These tables are found in Appendix A: Table A-1, "Chronology of Documented Doors", p. 68; Table A-2, "Chronology of Undocumented Doors", p. 157.

Historical Architecture of Independence National Historical Park. The accessions' files identified two structures from which four of these examples of door joinery were salvaged. The dates of those structures, however, are not documented by primary or secondary source references. The structures are not identified from which the other examples of door joinery listed in this table were salvaged.

The raw data of Table A-1 and Table A-2 entered into two data-base files are the tabulations used to generate the twelve tables that outline the discussion of Chapter III and Chapter IV. Table 1 through Table 6 (Chapter III, "Analysis of Documented Doors", pp. 11-30) are tabulations from Table A-1 of Appendix A. These are the examples of door joinery documented by primary and secondary source references. Table 7 through Table 12 (Chapter IV, "Analysis of Undocumented Doors", pp. 31-42) are tabulations of Table A-2 of Appendix A. These are the examples of door joinery not documented by primary or secondary source references. The sequence of data tabulated in Table 1 through Table 6 is exactly duplicated by the sequence of data tabulated in Table 7 through Table 12.

The examples of documented door joinery and their respective data (Table 1 through Table 6, Chapter III, "Analysis of Documented Doors", pp. 11-30) are to be studied by the restorationist in conjunction with the photographic documentation and measured drawings provided in Appendix A (pp. 77-156). These photographs provide a visual means to

identify and more completely relate to the total historic context of each structure. This helps place the structures within the social and economic strata of their individual period.⁸

⁸ The Historic Structures Reports of the Office of Historical Architecture of Independence National Historical Park and the nomination forms for the National Register of Historic Places and Historic Certification by the City of Philadelphia on file at the Historical Commission of the City of Philadelphia, contain information about dimensions, building materials, and in some cases floor plans of these structures, as well as information about the original owners and later inhabitants.

CHAPTER III

Analysis of Documented Doors

Table 1: Documented Doors by Construction Date

Date	Origin	Design
1700-50	10,000 Decatur Rd	ledged
1700-50	10,000 Decatur Rd	battened 4 panels
1763	20 Christian St	framed 2 panels
1763	20 Christian St	framed 2 panels
1763	20 Christian St	framed 2 panels
1780-99	10,000 Decatur Rd	ledged
1780-99	10,000 Decatur Rd	ledged
1780-99	10,000 Decatur Rd	framed 4 panels
1783	456-58 Belgrade St	framed 6 panels
1783	456-58 Belgrade St	framed 6 panels
1785	129 South 2nd St	framed 2 panels
1785	129 South 2nd St	framed 2 panels
1785	129 South 2nd St	framed 2 panels
1785	129 South 2nd St	framed 6 panels
1785	129 South 2nd St	framed 6 panels
1786	318 Market St	framed 2 panels 9 lights
1786	318 Market St	framed six panels
1786	320 Market St	ledged double thick
1791-93	315-17 Walnut St	framed 6 panels
1791-93	315-17 Walnut St	framed 6 panels lined
1794	108 Sansom St	framed 8 panels lined
1794	110 Sansom St	framed 8 panels lined
1796-97	DeSilva's Court	ledged
1796-97	DeSilva's Court	ledged double thick
1811-12	323 Walnut St	framed 2 panels
1811-12	325 Walnut St	framed 6 panels
1812	20 South 12th St	framed 6 panels
1842	456-58 Belgrade St	framed 2 panels 1 light
1880	309 Walnut St	framed 4 panels

Source: Appendix A, Table A-1, p. 68

Fourteen structures are cited in the accessions' files

as the structures from which the 29 examples of door joinery listed in Table 1 through Table 6 were salvaged. Three of these structures have been recorded as having subsequent alterations from the time of their original construction. The examples of door joinery listed in Table 1 through Table 6, however, represent thirteen dates of construction: 1700-1750; 1763; 1780-1799; 1783; 1785; 1786; 1791-93; 1794; 1796-1797; 1811-1812; 1812; 1842; and ca. 1880.⁹ This represents over one hundred fifty years of American craftsmanship and material culture. The structures vary from a very early small rural single family domestic dwelling to an early 19th century large city single family dwelling. Also included are two structures that served a commercial as well as a dwelling purpose, a carriage house, and a meeting house.¹⁰

⁹ Independence National Historical Park: 1700-50, Acc. 2400-13, 2400-12; 1763, Acc. 2532(1), 2532(2); 1780-99, Acc. 2400-10, 2400-11, 2400-14; 1783, Acc. 3581-1, 3581-2; 1785, Acc. 3288-21, 3288-22, 3288-35, 3288-36, 3288-37; 1786, Acc. 2522-2, 2522-4, 1286-2; 1791-93, Acc. 2527-2; 1794, Acc. 3493; 1796-97, 350-a, 350-b; 1811-12, Acc. 2010-2, 2010-7; 1812, Acc. 2630-23; 1842, Acc. 3581-8; and ca. 1880, Acc. 2527-1.

¹⁰ The historic chronology of the structures is as follows: 1700-50, 10,000 Decatur Road; 1763, 20 Christian Street; 1780-99 addition, 10,000 Decatur Road; 1783, 456-458 Belgrade Street; 1785, 129 South 2nd Street, Bond House; 1786, 318 Market Street (commercial & dwelling); 1786, 320 Market Street (commercial & dwelling); 1791-93, 315-317 Walnut Street, McIlvaine Houses; 1794, 108-110 Sansom Street, McCrea Houses; 1796-97, DeSilva's Court, Stable and Carriage House; 1811-12, 323-25 Walnut Street, Kidd Houses; 1812, 20 South 12th Street, 12th Street Friends Meeting; ca. 1842 alterations, 456-458 Belgrade Street; ca. 1880 alterations, 309 Walnut Street, Bishop White House.

Table 2: Documented Doors by Design

Design	Insitu	Origin
ledged	2nd floor old wing	10,000 Decatur Rd
ledged	attic main house	10,000 Decatur Rd
ledged	attic main house	10,000 Decatur Rd
ledged	cellar doors	DeSilva's Court
ledged double thick	2nd floor shaft	320 Market St
ledged double thick	unknown	DeSilva's Court
battened 4 panels	attic partition old wing	10,000 Decatur Rd
framed 2 panels	2nd floor closet	20 Christian St
framed 2 panels	2nd floor closet	20 Christian St
framed 2 panels	2nd floor closet	20 Christian St
framed 2 panels	4th floor closet	325 Walnut St
framed 2 panels	garret East chamber	129 South 2nd St
framed 2 panels	garret South East chamber	129 South 2nd St
framed 2 panels	garret South West chamber	129 South 2nd St
framed 2 panels 1 light	unknown	456-58 Belgrade
framed 2 panels 9 lights	basement closet	318 Market St
framed 4 panels	3rd floor closet	309 Walnut St
framed 4 panels	2nd floor stairs to attic	10,000 Decatur Rd
framed 6 panels	1st floor stairs to 2nd	456-58 Belgrade
framed 6 panels	1st floor stairs to cellar	456-58 Belgrade
framed 6 panels	3rd floor closet	325-17 Walnut St
framed 6 panels	4th floor chamber	323 Walnut St
framed 6 panels	found in basement	318 Market St
framed 6 panels	unknown	129 South 2nd St
framed 6 panels	unknown	129 South 2nd St
framed 6 panels	unknown	20 South 12th St
framed 6 panels lined	front door	315 Walnut St
framed 8 panels lined	front door	108 Sansom St
framed 8 panels lined	front door	110 Sansom St

Source: Appendix A, Table A-1, p. 68

These twenty nine examples of door joinery represent three principal types of door design and construction;

1. ledged doors [vertical boards united with tongue and groove or lap joints held together by two or more boards fastened horizontally on one side];¹¹

2. battened doors [vertical boards united with tongue and groove or lap joints held together by boards fastened vertically and horizontally on one side arranged to appear as stiles, rails, and muntins of a framed door];¹²

3. framed doors [boards united with tenon and mortise joints that form stiles, rails, and muntins, and are grooved on the internal edges to receive panels].¹³

In this collection there are the following variations of the three principal types of door design and construction:

1. double thickness ledged doors crossing each

¹¹ E.g. see Appendix A, figs. 6-8, pp. 80-82.

¹² E.g. see Appendix A, figs. 15-18, pp. 89-92.

¹³ The framing includes the stiles, rails, and muntins but not the panels. The stiles are the outer vertical members. The rails are the horizontal members tenoned into the stiles. The muntins are the intermediate vertical members tenoned into the rails. The frieze rail is next below the top rail. The lock rail is next above the bottom rail. The panels are likewise named frieze panels, middle panels, and bottom panels. Peter Nicholson, Nicholson's Dictionary of the Science and Practice of Architecture (London: The London Printing and Publishing Company, Ltd., 1850) I, DOO-DOO. James Newlands, The Carpenter and Joiners' Assistant (London: I Taylor, 1778) 186. E.g. see Appendix A, figs. 28 & 30, pp. 101 & 103.

other at right angles [vertical boards united with tongue and groove joints held together by another layer of boards fastened at right angles to the first];¹⁴

2. battened door of four panels [vertical boards held together by boards fastened vertically and horizontally arranged to appear as stiles, rails, and muntins of a framed door forming four panels];¹⁵ and

3. double doors (framed and lined) of six and eight panels [framed doors with vertical boards united with tongue and groove or lap joints fastened horizontally on their reverse side].¹⁶

There are two doors with glazing at the top over bottom panels. These examples are the result of alterations to pre-existing door joinery and therefore represent the ingenuity of later craftsmen rather than documented original historic design and construction.¹⁷

¹⁴ E.g. see Appendix A, figs. 42-44, pp. 115-117.

¹⁵ E.g. see Appendix A, figs. 15-18, pp. 89-92.

¹⁶ E.g. see Appendix A, figs. 58-60, pp. 131-133 and figs. 66-68, pp.138-140.

¹⁷ Independence National Historical Park. Museum Accessions' File. First Bank of the United States: Acc. 2522-2, 318 Market Street. 1786. Used in basement as door to closet. See Appendix A, figs. 46-49, pp. 119-122; Acc. 3581-8. 456-58 Belgrade Street. ca. 1842 alteration. See Appendix A, figs. 31 & 32, pp. 104 & 105.

Table 3: Documented Doors by Moulding Profiles

Frame moulding	Panel moulding	Date
bead 1 side	N/A (battened door)	1700-50
bead 1 side	butt 1 side	1786
bead 1 side	N/A (ledged door)	1796-97
bead both sides	N/A (ledged door)	1700-50
bead both sides	N/A (ledged door)	1780-99
bead both sides	N/A (ledged door)	1780-99
bead both sides	N/A (ledged door)	1786
bead both sides	N/A (ledged door)	1796-97
ovolo 1 side	raised 1 side	1763
ovolo 1 side	raised 1 side	1780-99
ovolo 1 side	raised 1 side	1785
ovolo 1 side	raised 1 side	1811-12
ovolo 1 side	ovolo 1 side	1780-99
ovolo fillet 1 side	ovolo fillet 1 side	1783
ovolo fillet 1 side	ovolo fillet 1 side	1791-93
ovolo fillet 1 side	ovolo fillet 1 side	1794
ovolo fillet 1 side	ovolo fillet 1 side	1811-12
ovolo fillet 1 side	cyma reversa 1 side	1786
fillet cyma recta 1 side	ovolo fillet 1 side	1812
fillet cyma recta fillet 1 side	ovolo fillet 1 side	1791-93
cyma reversa both sides laid in	ovolo both sides	1786
quirked Grecian cyma reversa both sides laid in	recessed both sides	1842
quirked cyma reversa with chamfer 1 side laid in	chamfer both sides	1880

Source: Appendix A, Table A-1, p. 68

The graduated sequence of moulding profiles of these examples of door joinery begins with a simple and modest bead moulding and advances to complex profiles.¹⁸

¹⁸ The illustrations that most clearly identify the names of the moulding contours used to discussed the graduated sequence of profiles are found in the following books. Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974),

A bead is found struck on the internal edges of the battens of a battened door that appear to be the stiles, rails, and muntins of a framed door of four panels dated 1700-1750, and on both sides of the vertical edges of boards of ledged doors also dated 1700-1750.¹⁹

The earliest example of an ovolo found struck on a framed door is dated 1763.²⁰ It is struck on one side of the internal edges of the framing members of a two paneled door with raised panels on the same side. The pattern of the ovolo struck on one side of the internal edges of the framing members of framed doors with raised panels on the same side is consistent in this collection with framed doors of two, four, and six panels until 1785. An ovolo struck on one side of the internal edges of the framing members of a framed door with an ovolo struck on the raised panels of the same side is

Plate XVI, XVIII. See Appendix B, figs. 131-133, pp. 213-215. Plate XVI: figure A & B, framed square; figure C, D, & E, ovolo; figure G & H, cyma reversa (or ogee); figure I, ovolo fillet. Plate XVIII; middle fig., cyma recta. Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I. See Appendix B, fig. 134, p. 216. Plate I: fig. C, bead; fig. I, cyma reversa (or ogee); fig. F, cyma recta; fig. D, quirked cyma reversa (or quirked ogee); fig. G, quirked Grecian ovolo; fig. H, cavetto.

¹⁹ Independence National Historical Park: Acc. 2400-13. 10,000 Decatur Road. Attic partition old wing. See Appendix A, figs. 15-18, pp. 89-92; Acc. 2400-12. 10,000 Decatur Road. 2nd floor of old wing. See Appendix A, Figs. 13 & 14, pp. 87 & 88.

²⁰ Independence National Historical Park. Acc. 2532(1), 2523(2). 20 Christian Street. Doors to closet in 2nd floor chamber. See Appendix A, figs. 23-25, pp. 97-99.

dated 1780-1800.²¹ As early as 1783 an ovolo fillet is found struck on one side of the internal framing members of a framed door with an ovolo fillet struck on the raised panels of the same side.²²

In 1786 the ovolo fillet moulding is struck on the internal edges of the framing members of a framed door with a cyma reversa moulding struck on the raised panels of the same side.²³ This corresponds with the publication of The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786, the first American architectural book. In this book are 12 cross sections illustrating variations of moulding contours possible for door embellishment. The ovolo fillet moulding and the cyma recta moulding are illustrated struck on framing members.²⁴

²¹ Independence National Historical Park. Acc. 2400-14. 10,000 Decatur Road, Early 18th century, addition ca. 1780-1800. Stairs to attic main house. See Appendix A, figs. 19 & 20, pp. 93 & 94. This was salvaged from the new wing or main house and therefore considered late 18th century, or for convenience noted 1780-1800.

²² Independence National Historical Park. Acc. 3581-1 and 3581-2. 456-58 Belgrade Street. 1783. See Appendix A, figs. 28-30, pp. 101-103.

²³ Independence National Historical Park. Acc. 2522-4. 318 Market Street. Found in basement. See Appendix A, figs. 50 & 51, pp. 123 & 124.

²⁴ Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XVI, fig. I, XVIII, middle fig. See Appendix B, figs. 131-133, pp. 213-215.

On a door found in a structure dated 1786 is a laid in cyma reversa (or ogee) moulding ["laid in" or "applied" mouldings are struck or run on a separate piece of wood and nailed in place]. This laid in moulding resembles the figure of a cyma recta moulding profile illustrated in a book dated 1797, eleven years after the date of construction of the structure from which the door was salvaged. Since this door is a contrivance of design [one door built on the back of another door], it seems reasonable to treat it as a door of a latter unknown date.²⁵

An example of interior door joinery dated 1791-93 is evidence of further embellishment with a fillet cyma recta fillet moulding struck on one side of the internal edges of the framing members of a framed door and ovolo struck on the raised panels of the same side.²⁶ The front door of the same structure, a framed and lined door of six panels, is embellished with the less elaborate ovolo fillet struck on the internal edges of the framing members and ovolo fillet

²⁵ Independence National Historical Park. Acc. 2522-2. 318 Market Street. See Appendix A, fig. 46-49, pp. 119-122. Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I, p. K. See Appendix B, fig. 134, p. 216.

²⁶ Independence National Historical Park. Acc. 2527-2. 315-17 Walnut Street. 3rd floor closet. See Appendix A, figs. 56 & 57, pp. 129 & 130.

struck on the raised panels.²⁷ The more bold and simplistic ovolo fillet struck on the framing members and heavier construction affirms the greater strength of the exterior door.

A laid in quirked Grecian cyma reversa [or Grecian ogee] moulding is found on an example of door joinery dated 1842 and represents the Greek Revival design in America.²⁸

There is finally an entry of the 1880's that examples a laid in quirked cyma reversa (quirked ogee) and chamfer machine made moulding on one side and raised chamfered panels on both sides.²⁹ It is the result of a late 19th century alteration to a structure of the late 18th century.

The appearance of more elaborate moulding embellishment as represented by the examples of door joinery of this collection beginning simultaneously with the publication of the Carpenters' Company of Philadelphia in 1786 suggests a strong influence of that publication on architectural design in Philadelphia.

²⁷ Independence National Historical Park. Acc. Unknown. 315-317 Walnut Street, McIlvaine House. 1791-93. Front door. See Appendix A, figs. 58-60, pp. 131 & 133.

²⁸ Independence National Historical Park. Acc. 3581-8. Alteration to 456-458 Belgrade Street. See Appendix A, figs. 31 & 32, pp. 104 & 105. The placement within this structure is not known.

²⁹ Independence National Historical Park. Acc. 2527-1. Alteration to 309 Walnut Street, Bishop White House. 3rd floor closet. See Appendix A, figs. 53 & 54, pp. 126 & 127.



Table 4: Documented Doors by Graduated Sequence of Design

Design	Insitu	Date
ledged double thick	unknown	DeSilva's Court
ledged double thick	2nd floor shaft	320 Market St
framed 8 panels lined	front door	108 Sansom St
framed 8 panels lined	front door	110 Sansom St
framed 6 panels lined	front door	315 Walnut St
framed 6 panels	1st floor stairs to 2nd	456-58 Belgrade St
framed 6 panels	1st floor stairs to cellar	456-58 Belgrade St
framed 6 panels	3rd floor closet door	317 Walnut St
framed 6 panels	4th floor chamber	325 Walnut St
framed 6 panels	found in basement	318 Market St
framed 6 panels	unknown	129 South 2nd St
framed 6 panels	unknown	20 South 12th St
framed 4 panels	3rd floor closet	309 Walnut St
framed 4 panels	2nd floor stairs to attic	10,000 Decatur Rd
framed 2 panels	2nd floor closet	20 Christian St
framed 2 panels	4th floor closet	325 Walnut St
framed 2 panels	garret (4th flr) chambers	129 South 2nd St
battened 4 panels	attic partition old wing	10,000 Decatur Rd
ledged	2nd floor old wing	10,000 Decatur Rd
ledged	attic main house	10,000 Decatur Rd

Source: Appendix A, Table A-1, p. 68

A graduated sequence of door construction and design from the most solid and durable to lighter construction is outlined by the use of variations of the types of door construction and design within the context of the structures from which they were salvaged.

Double thick doors of boards crossing at right angles indicate that durability and strength were the reason for this type of construction. They were salvaged from a



building of a commercial nature and from a utilitarian out building.³⁰

Double doors (framed and lined) of this collection are front or outer doors. There is one six paneled door and two eight paneled doors.³¹

Inner doors are, in diminishing order, framed doors of six panels, four panels, and two panels. The six paneled doors served on the principal floor and secondary living spaces of the structures from which they were salvaged.³²

³⁰ Independence National Historical Park. Acc. 1286-2. 320 Market Street. 1786. Found behind 2nd floor shaft. See Appendix A, figs. 42-44, pp. 115-117; Acc. 350-b. DeSilva's Court. Stable and Carriage House. 1796-97. Situation not known. See Appendix A, figs. 74-76, pp. 146-148.

³¹ Independence National Historical Park. Acc. unknown. Six paneled framed and lined door identified by Penelope Batchelor as front door of 317 Walnut Street, McIlvaine House, 1791-93, the lining is tongue and groove boards placed vertically on the back or inside of the door. See Appendix A, figs. 58-60, pp. 131-133; Acc. 3493(1), 3493(2). Eight paneled framed and lined front doors of 108-110 Sansom Street. 1794. See Appendix A, figs. 66-68, pp. 138-140. The lining seems to be laid vertically within a frame around the edges of the back or inside of the doors as suggested for the construction of window shutters in The Carpenters' Company of the City and County of Philadelphia 1786 Rule Book. See Appendix B, fig. 130, p. 212.

³² Independence National Historical Park. Acc. 3581-1. 456-58 Belgrade Street. 1783. 1st floor door to cellar. See Appendix A, figs. 28 & 30, pp. 101 & 103. Acc. 3581-2. 456-58 Belgrade Street. 1783. 1st floor stairs to 2nd floor. See Appendix A, figs. 29 & 30, pp. 102 & 103. Acc. 2527-2. McIlvaine House, 317 Walnut Street. 1791-93. 3rd floor closet door. See Appendix A, figs. 56 & 57, pp. 129 & 130. Acc. 2010-7. 4th floor chamber. Kidd Houses, 325 Walnut Street. 1811-12. See Appendix A, figs. 80 & 81, pp. 152 & 153.

A framed door of four panels served as the 2nd floor door to the attic staircase.³³ Framed doors of two panels served utilitarian needs as closet doors in a 2nd floor chamber and a 4th floor closet door.³⁴ Two paneled doors also served as chamber doors in the garrett or attic (4th floor) of a structure where six paneled doors served on lower or principal floors.³⁵

The battened door of the collection served in an attic partition of an early 18th century structure. One ledged door served in the 2nd floor of that same structure and two ledged doors are identified as attic doors in the late 18th century addition of that structure.³⁶

³³ Independence National Historical Park. Acc. 2400-13. 10,000 Decatur Road. 1780-99 addition. See Appendix A, figs. 15-17, pp. 89-91.

³⁴ Independence National Historical Park. Acc. 2532. 20 Christian Street. 2nd floor chamber. 1763. See Appendix A, figs. 23-25, pp. 97-99. A photo of this 2nd floor chamber shows that a four paneled door is used at the entrance to this chamber. It is folded against the wall exposing the passage side as framed square. Presumably the side facing into the chamber when the door is shut is embellished to correspond with the mouldings of the chimney breast closet. Unfortunately this chamber door is not in the collection. Acc. 2010-2. Kidd House, 323 Walnut Street. 1811-12. 4th floor closet door. See Appendix A, figures 78 & 79, pp. 150 & 151.

³⁵ Independence National Historical Park. Acc. 3288-21, 3288-22, 3288-35, 3288-36, 3288-37. 129 South 2nd Street, Bond House. 1785. See Appendix A, figs. 35-40, pp. 108-113.

³⁶ Independence National Historical Park. Acc. 2400-13. Battened door, attic old wing. 10,000 Decatur Road, early 18th century, ca. 1780-1800 addition. See Appendix A, figs. 15-17, pp. 89-91; 2400-12. Ledged door, 2nd floor old wing.

The use of a battened door in the attic of an early 18th century structure where a ledged door was used on the 2nd floor of the same structure does not fit into a graduated sequence of design and construction.³⁷ It is my opinion the battened door was moved from the first floor of the original structure to the attic of the original structure at the time of the late 18th century addition. It is also my opinion new doors were then introduced on the first floor of the original wing to correspond to the framed doors on the first floor of the new wing. This type of activity is not unusual when new additions or alterations are made to older pre-existing structures.

Excluding the battened door, the graduated sequence of these examples of door joinery design and construction from the most solid and durable to lighter construction and the placement within the structures from which the doors were salvaged is:

1. ledged door double thick (exterior door of a

10,000 Decatur Road, early 18th century, ca. 1780-1800 addition. See Appendix A, figs. 13 & 14, pp. 87 & 88; 2400-10. Ledged door, attic of main house. 10,000 Decatur Road, early 18th century, ca. 1780-1800 addition. See Appendix A, figs. 6-8, pp. 80-82; 2400-11 Ledged door, attic of main house. 10,000 Decatur Road, early 18th century, ca. 1780-1800 addition. See Appendix A, figs. 9-11, pp. 83-85.

³⁷ Published material on door design and construction of the late 17th and early 18th century state battened doors are for use as front or outer doors. A graduated sequence of design and construction according to published references is discussed in Chapter V, p. 43.



utilitarian structure;

2. double doors (framed and lined) of 8 panels (front doors);

3. double door (framed and lined) of 6 panels (front door);

4. framed doors of 6 panels (interior doors of principal rooms);

5. framed doors of 4 panels (interior doors: one leading to the attic; one a closet door);

6. framed doors of 2 panels (closet doors in chambers of structures with 4 or 6 paneled doors as entrance doors to chambers, and principal doors to 4th floor garrett or attic chambers in a structure that had 6 paneled doors on the principal floors); and

7. ledged doors (attic doors).

If the battened door was originally an outer door on the first floor and moved to the attic partition, it could be placed in sequence between double doors (framed and lined) and framed doors thus complementing the graduated sequence of design and construction as outlined by the examples of door joinery of this collection.



Table 5: Documented Doors by Height & Width

Height/width	Thickness	Design
3' 6 1/4" x 2' 3 1/4"	1"	ledged
4' 10 3/4" x 2' 5 1/2"	1 3/4"	ledged double thick
5' 5 3/4" x 2' 5 3/4"	3/4"	ledged
5' 7 3/4" x 2' 4"	1 5/8"	battened 4 panels
5' 11" x 2' 7 1/2"	3/4"	ledged
5' 11" x 2' 7 1/2"	7/8"	ledged
6' 1' x 2' 11 1/4"	1"	framed 6 panels
6' 1 1/2" x 2' 11 1/2"	2"	ledged double thick
6' 2 3/4" x 2' 10 5/8"	1"	framed 2 panels
6' 3" x 2' 10 3/8"	1"	framed 2 panels
6' 3 1/2" x 2' 2 3/4"	1"	framed 2 panels
6' 4" x 2' 7 3/4"	1"	framed 6 panels
6' 4" x 2' 9"	1"	framed 2 panels
6' 5 1/4" x 2' 7 3/4"	1"	framed 6 panels
6' 5 1/2" x 1' 10 1/8"	1"	framed 2 panels
6' 5 1/2" x 1' 10 1/4"	1"	framed 2 panels
6' 5 1/2" x 2' 2"	1"	framed 2 panels
6' 5 1/2" x 2' 11 1/4"	1 1/2"	framed 6 panels lined
6' 9" x 2' 7 1/2"	1"	framed 6 panels
6' 9" x 2' 10"	1"	framed 6 panels
6' 9" x 3' 1 1/2"	1 1/4"	framed 6 panels
6' 9 1/4" x 2' 1"	1 3/16"	framed 4 panels
6' 9 1/2" x 2' 7 1/2"	1"	framed 6 panels
6' 9 1/2" x 2' 11 1/4"	1"	framed 6 panels
7' 1/2" x 3' 1 3/4"	1 3/4"	framed 8 panels lined
7' 1" x 2' 10 3/4"	1"	framed 6 panels

Source: Appendix A, Table A-1, p. 68

Studying the height and width dimensions of these doors offers little insight to the rationale involved in making those decisions. The smallest doors are cellar doors dated 1796-97.³⁸ Due to their size they are presumably bulkhead doors to an enclosed exterior cellar staircase. The door

³⁸ Independence National Historical Park. Acc. 350-a. DeSilva's Court, Stable and Carriage House. See Appendix A, figs. 71-73, pp. 143-145.

next in the increasing sequence of dimensions is from the same structure. This door is double thickness of boards crossing each other at right angles.³⁹ The chronology of increasing height follows an irregular sequence of variations of door joinery from the double thick ledged door to the largest door, a 3rd floor framed closet door of six panels.⁴⁰ No regular pattern can be determined by this sequence of door variations.

A rationale for height and width dimensions might be established if the restorationist could study the measurements of the examples of door joinery in relation to a complete set of measurements of the entire structure from which they were salvaged. A ratio could be calculated between:

1. the height and width of a door in relation to the height of its respective room; and
2. the relation of height and width to other doors on both the same floor and doors on other floors of the same structure.

³⁹ Independence National Historical Park. Acc. 350-b. DeSilva's Court, Stable and Carriage House. 1796-97. See Appendix A, figs. 74-76, pp. 146-148.

⁴⁰ Independence National Historical Park. Acc. 2527-2. McIlvaine House, 315-17 Walnut St. See Appendix A, figs. 56 & 57, pp. 129 & 130.

Table 6: Documented Doors by Thickness

Thickness	Height/width	Design
7/8"	5' 11" x 2' 7 1/2"	ledged
3/4"	5' 5 3/4" x 2' 5 3/4"	ledged
3/4"	5' 11" x 2' 7 1/2"	ledged
1"	3' 6 1/4" x 2' 3 1/4"	ledged
1"	5' 10" x 2' 6"	framed 4 panels
1"	6' 1" x 2' 11 1/4"	framed 6 panels
1"	6' 2 3/4" x 2' 10 5/8"	framed 2 panels
1"	6' 3" x 2' 10 3/8"	framed 2 panels
1"	6' 3 1/2" x 2' 2 3/4"	framed 2 panels
1"	6' 4" x 2' 7 3/4"	framed 6 panels
1"	6' 4" x 2' 9"	framed 2 panels
1"	6' 5 1/4" x 2' 7 3/4"	framed 6 panels
1"	6' 5 1/2" x 1' 10 1/8"	framed 2 panels
1"	6' 5 1/2" x 1' 10 1/4"	framed 2 panels
1"	6' 5 1/2" x 2' 2"	framed 2 panels
1"	6' 9" x 2' 10"	framed 6 panels
1"	6' 9 1/2" x 2' 7 1/2"	framed 6 panels
1"	6' 9 1/2" x 2' 11 1/4"	framed 6 panels
1 1/4"	6' 9" x 3' 1 1/2"	framed 5 panels
1 3/16"	6' 9 1/4" x 2' 1"	framed 4 panels
1 1/2"	6' 5 1/2" x 2' 11 1/4"	framed 6 panels lined
1 5/8"	5' 7 3/4" x 2' 4"	battened 4 panels
1 5/8"	6' 9" x 2' 7 3/4"	framed 2 panels 1 light
1 3/4"	4' 10 3/4" x 2' 5 1/2"	ledged double thick
1 3/4"	7' 1/2" x 3" 1 3/4"	framed 8 panels lined
2"	6' 1 1/2" x 2' 11 1/2"	ledged double thick
2 1/2"	6' 10" x 2' 8 1/2"	framed 2 panels 9 lights

Source: Appendix A, Table A-1, p. 68

With only slight deviation, the sequence of dimension from thinnest to thickest of these examples of door joinery is:

1. ledged doors;
2. framed doors;

3. battened doors;
4. framed and lined doors; and
5. double thickness ledged doors crossing each other at right angles.

The ledged doors are made of 3/4" vertical boards joined by 3/4" horizontal ledges. The earliest is dated 1700-50.⁴¹ The interior framed doors 1" thick of varying panels date as early as 1763 and extend to 1811-12.⁴² Front doors that are double or lined doors are 1 1/2" and 1 3/4" in thickness. They are dated 1791-93 and 1794.⁴³ A ledged door of double thickness consisting of boards crossing at right angles

⁴¹ Independence National Historical Park. Acc. 2400-12. 10,000 Decatur Road. 1700-50. 2nd floor old wing. See Appendix A, figs. 12-14, pp. 86-88.

⁴² Independence National Historical Park. Acc. 2532(1), 2532(2 & 3). 20 Christian Street. 1763. Closet doors in 2nd floor chamber. See Appendix A, figs. 23-25, pp. 97-99; Acc. 2400-14. 10,000 Decatur Road. 1780-99 addition. 2nd floor stairs to attic. See Appendix A, figs. 19 & 20, pp. 93 & 94; Acc. 3581-1, 3581-2. 456-458 Belgrade Street. 1783. 1st floor stairs to cellar, 1st floor stairs to 2nd floor. See Appendix A, figs. 28-30, pp. 101-103; Acc. 3288-21, 3288-22, 3288-35, 3288-36, 3288-37. 129 South 2nd Street, Bond House. 1786. Situation of six paneled doors unknown, 2 paneled doors from chambers in 4th floor garrett or attic. See Appendix A, figs. 35-40, pp. 108-113; Acc. 2522-4. 318 Market Street. 1786. Found in basement. See Appendix A, figs. 50 & 51, pp. 123 & 124; Acc. 2527-2. 315-317 Walnut Street, McIlvaine Houses. 1791-93. 3rd floor closet. See Appendix A, figs. 56 & 57, pp. 129 & 130; Acc. 2010-2, 2010-7. 323-25 Walnut Street, Kidd Houses. 1811-12. 4th floor chamber and 4th floor closet. See Appendix A, figs. 78-81, pp. 150-153.

⁴³ Independence National Historical Park. Acc. unknown. 315-317 Walnut Street, McIlvaine House. 1791-93. Front door. See Appendix A, figs. 58-60, pp. 131-133; Acc. 3493(1), 3493(2). 108-110 Sansom Street, McCrea Houses. 1794. Front doors. See Appendix A, figs. 66-68, pp. 138-140.



measures 2" in thickness. It dates from 1786.⁴⁴ The door measuring 2 1/2" in thickness is from a structure that is dated 1786. It is evident, however, that this is two doors, one built onto the back of another.⁴⁵

The reverse sequence from the thickest to thinnest measurement of these examples of door joinery coincides with the graduated sequence of the variations of the types of door design and construction from the most solid and durable to lighter construction with the addition of the battened door placed in sequence between double doors (framed and lined) and framed doors as suggested on page 24:

1. double thickness ledged doors crossing each other at right angles;
2. double doors (framed and lined);
3. battened door;
4. framed doors; and
5. ledged doors.

This placement of the battened door adds credence to the probability that the battened door was originally an outer door on the first floor of the older or original early 18th century structure.

⁴⁴ Independence National Historical Park. Acc. 1286-2. 320 Market Street. 1786. Found behind 2nd floor shaft. See Appendix A, figs. 42-44, pp. 115-117.

⁴⁵ Independence National Historical Park. Acc. 2522-2. 318 Market Street. 1786. Utilized in basement as closet door. See Appendix A, figs. 47-49, pp. 120-122.

CHAPTER IV

Analysis of Undocumented Doors

Table 7: Undocumented Doors by Construction Date

Date	Origin	Design
1700-50	Falls Township Houses	framed 4 panels
1700-50	Falls Township Houses	framed 4 panels
1700-50	Falls Township Houses	framed 4 panels
1700-50	Falls Township Houses	framed 4 panels
1700-50	Falls Township Houses	framed 6 panels lined
1700-50	unknown	framed 6 panels
1700-99	unknown	framed 4 panels
1760	unknown	framed 6 panels
1760-99	unknown	framed 6 panels
1800-29	239 Spruce St	framed 8 panels
1830	unknown	framed 6 panels
1840	unknown	framed 4 panels
1897-99	unknown	framed 6 panels
unknown	unknown	ledged

Source: Appendix A, Table A-2, p. 157

Fourteen examples of door joinery have been cited in the accessions' files as dated by the staff of the Office of Historical Architecture of Independence National Historical Park. These fourteen examples represent eight construction dates: 1700-50; 1750-00; 1760; 1760-99; 1800-29; 1830; 1840;

and 1897-99.⁴⁶

Of these fourteen examples of door joinery, the structures from which they were salvaged are identified for six doors.

The accessions' files indicate that five of these doors were salvaged from two sites demolished in Falls Township of Bucks County in 1959.⁴⁷ The accessions' files further date these structures as early 18th century. These structures, however, have not been documented by primary or secondary source references. The person who informed the staff of Independence National Historical Park that these structures were to be demolished and that they could have whatever they wanted and could salvage, pointed out the location of these sites to me on a map of 1876.⁴⁸

⁴⁶ Independence National Historical Park: 1700-50. Acc. 62-2, 62-4, 62-17, 2816-3; 1750-99. Acc. 3501-5; 1760. 2527-4; 1760-99. Acc. 2816-4; 1800-29. Acc. 3601-4; 1830. Acc. 2527-5; 1840. Acc. 2527-3; 1897-99. Acc. 2816-2.

⁴⁷ Independence National Historical Park. Acc. 62-2(a), 62-2(b), 62-4(a), 62-4(b), 62-17. See Appendix A, figs. 88-95, pp. 163-170.

⁴⁸ In an interview with Charles Peterson, F.A.I.A., formerly of the National Park Service, Mr. Peterson gave me the name and address of Joseph Barnsley, the person responsible for the National Park Service salvaging architectural elements and detail from these structures. In an interview with Joseph Barnsley, a former employee of US Steel and also an admired and knowledgeable local historian of Bucks County, Mr. Barnsley told me he contacted Charles Peterson when he learned that several buildings on property owned by US Steel were to be burned to avoid vagrancy and told Mr. Peterson the National Park Service could salvage whatever it wanted from these structures. See Appendix C,

One door salvaged from the curb of 239 Spruce Street is identified in the accessions' file as the original front door of that structure.⁴⁹ The accessions' file dates 239 Spruce Street as early 19th century (noted for the purpose of the data-base as 1800-29). These six examples of door joinery are, therefore, from two structures.

Although the Falls Township doors are dated 1700-50, or early 18th century, they follow the pattern of the examples of door joinery of Table 1 through Table 6 for the period 1780-99. It seems probable, therefore, they were taken from a latter addition of an earlier 18th century house.

figs. 152 & 153, pp. 235 & 236. Mr. Peterson intended for these architectural elements to be a core around which the Architectural Study Collection could be expanded. The structures are reputed to be the homesteads of two of the earliest settlers of Bucks County, W. Biles and H Burgess. William W. H. Davis, History of Bucks County Pennsylvania (New York: Lewis Publishing Company, 1905, 2nd ed., ed., Pipersville: A.E. Lear, Inc., 1975), I, 15, III, 55. US Steel has no record of National Parks Service staff salvaging the architectural elements for Independence National Historical Park. This is evidenced by correspondence with a Public Relations Officer of that Corporation. See Appendix C, figs. 146-151, pp. 229-234. I tried to research a chain of title at the Doylestown Historical Society of the farmsteads identified by Mr. Barnsley on the map of 1876 but was unsuccessful.

⁴⁹ Independence National Historical Park. Acc. 3601-4. See Appendix A, figs. 102 & 103, pp. 177 & 178.



Table 8: Undocumented Doors by Design

Design	Insitu	Origin
ledged	unknown	unknown
framed 4 panels	unknown	Falls Township Houses
framed 6 panels	closet door	unknown
framed 6 panels lined	unknown	Falls Township Houses
framed 8 panels	front door	239 Spruce St

Source: Appendix A, Table A-2, p. 157

The undocumented doors represent only two of the principal types of door design construction:

1. ledged doors; and
2. framed doors.

The framed doors are further subdivided by variation to represent:

1. framed doors of 4 panels, 6 panels, and 8 panels; and
2. one double door (famed and lined) of 6 panels.

Table 9: Undocumented Doors by Moulding Profiles

Frame moulding	Panel moulding	Date
square both sides	raised 1 side	1700-50
ovolo 1 side	ovolo 1 side	1700-50
ovolo 1 side	ovolo 1 side	1760
ovolo fillet	N/A(ledged door)	unknown
ovolo fillet 1 side	ovolo fillet 1 side	1700-99
ovolo both sides	fillet cavetto	
	fillet 1 side	1760-99
fillet cyma reversa 1 side	raised 1 side	unknown
quirked ovolo and astragal both sides laid in	raised both sides	1800-29
quirked ovolo and astragal both sides laid in	raised both sides	1830
quirked ovolo and astragal both sides laid in	raised both sides	ca. 1897- 1900
quirked Grecian cyma reversa 1 side laid in	chamfered both sides	1840

Source: Appendix A, Table A-2, p. 157

The graduated sequence of moulding profiles starts with a door framed square [no moulding contour struck on the internal edges of the framing members] and raised [square] panels on the same side dated early 18th century.⁵⁰ This is followed by a door with an ovolo struck on one side of the internal edges of the framing members of a framed door and ovolo struck on the raised panels of the same side, also dated early 18th century.⁵¹ The ovolo fillet appears struck

⁵⁰ Independence National Historical Park. Acc. 2816-3. See Appendix A, figs. 86 & 87, pp. 161 & 162.

⁵¹ Independence National Historical Park. Acc. 62-2(a), 62-2(b), 64-4(a), 64-4(b), 62-17. See Appendix A, figs. 88-95, p. 163-170.

on the vertical edges of the three ledges of an undated ledged door.⁵² An ovolo fillet is struck on one side of the internal framing members and raised panels of the same side of a door dated 18th century.⁵³ An undated framed door has a fillet cyma reversa struck on one side of the internal edges of the framing members with raised panels on the same side.⁵⁴

A door with an ovolo struck on both sides of the internal edges of the framing members of a framed door dated late 18th century boasts an elaborate fillet cavetto fillet struck on the raised panels on one side, and a framed door dated early 19th century has a laid in quirked ovolo and astragal on both sides with raised panels on both sides. The use of both the cavetto and quirked ovolo and astragal are dated just after the publication of the American architectural book that first illustrates the use of those moulding combinations (a cavetto in conjunction with the astragal and a quirked Grecian ovolo in conjunction with the astragal).⁵⁵

⁵² Independence National Historical Park. Acc. 2816-5. See Appendix A, figs. 110-113, p. 185-188.

⁵³ Independence National Historical Park. Acc. 3605-1. See Appendix A, figs. 96 & 97, pp. 171 & 172.

⁵⁴ Independence National Historical Park. Acc. unknown. See Appendix A, figs. 114 & 115, pp. 189 & 190.

⁵⁵ Independence National Historical Park. Acc. 2816-4. See Appendix A, figs. 100 & 101, pp. 175 & 176. Acc. 3601-4. See Appendix A, figs. 102 & 103, pp. 177 & 178. Asher

A laid in quirked ovolo and astragal is also found on a framed door of the Greek Revival period, and a door dated late 19th century.⁵⁶ A framed door with a laid in Grecian quirked cyma reversa is dated 1840, well past a firmly established Greek Revival.⁵⁷

Table 10: Undocumented Doors
Graduated Sequence of Construction

Design	Insitu	Date
ledged	unknown	unknown
framed 4 panels	unknown	1700-50
framed 4 panels	unknown	1700-99
framed 4 panels	unknown	1840
framed 6 panels	unknown	1700-50
framed 6 panels	closet door	1760
framed 6 panels	unknown	1760-99
framed 6 panels	unknown	1830
framed 6 panels	unknown	1897-99
framed 8 panels	front door	1800-29
framed 6 panels lined	unknown	1700-50

Source: Appendix A, Table A-2, p. 157

In only two instances is the situation of the example of door joinery within the structure from which it was salvaged

Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I, fig. G & H. See Appendix B, fig. 134, p. 216.

⁵⁶ Independence National Historical Park. Acc. 2527-5. See Appendix A, figs. 104 & 105, pp. 179 & 180. Acc. 2816-2. See Appendix A, figs. 108 & 109, pp. 183 & 184.

⁵⁷ Independence National Historical Park. Acc. 2527-3. See Appendix A, figs. 106 & 107, pp. 181 & 182.

recorded in the accessions' file.⁵⁸ With no knowledge of the historic context of the structures from which these undocumented examples of door joinery were salvaged, it is impossible to establish a graduated sequence for the use of the different types of construction design within those structures as with the documented doors.

Table 11: Undocumented Doors by Height & Width

Height & Width	Thickness	Design
5' 7 1/2" x 2' 5 1/2"	1"	framed 4 panels
6' x 3' 2 1/2"	1 3/4"	framed 6 panels lined
6' 2 3/4" x 2' 7"	1"	framed 6 panels
6' 4" x 2' 10"	1 1/8"	framed 4 panels
6' 4 1/4" x 2' 7"	1 1/4"	framed 6 panels
6' 5 1/2" x 2' 4"	1 1/8"	framed 4 panels
6' 5 1/2" x 2' 10"	1 1/8"	framed 4 panels
6' 6 3/4" x 2' 6"	1 1/8"	framed 4 panels
6' 7 1/4" x 2' 6 3/4"	1 1/4"	framed 6 panels
6' 9 3/8" x 2' 11 1/4"	1 3/8"	framed 6 panels
7' x 2' 9 1/4"	1 1/2"	framed 6 panels
7' 3/4" x 3' 3/4"	1 3/4"	framed 8 panels

Source: Appendix A, Table A-2, p. 157

As with the documented doors, studying the height and width dimensions of the undocumented doors offers little insight to the rationale involved in making those decisions. A rationale cannot be determined for the decision of height and width dimensions without knowing the entire context of

⁵⁸ Independence National Historical Park. Acc. 2527-4, closet door. See Appendix A, figs. 98 & 99, pp. 173 & 174. Acc. 3601-4, front door. See Appendix A, figs. 102 & 103, pp. 177 & 178.



the structures from which the doors originated and the situation of the doors within those structures.

Table 12: Undocumented Doors by Thickness

Thickness	Height & Width	Design
3/4"	6' x 3'	ledged
1"	5' 7 1/2" x 2' 5 1/2"	framed 4 panels
1"	6' 2 3/4" x 2' 7"	framed 6 panels
1 1/8"	6' 4" x 2' 10"	framed 4 panels
1 1/8"	6' 4 1/4" x 2' 7"	framed 4 panels
1 1/8"	6' 5 1/2" x 2' 4"	framed 4 panels
1 1/8'	6' 5 1/2" x 2' 10"	framed 4 panels
1 1/8'	6' 6 3/4" x 2' 6"	framed 4 panels
1 1/4"	6' 6" x 2' 6"	framed 6 panels
1 1/4"	6' 7 1/4" x 2' 6 3/4"	framed 6 panels
1 3/8"	6' 9 3/8" x 2' 11 1/4"	framed 6 panels
1 1/2"	7' x 2' 9 1/4"	framed 6 panels
1 3/4"	6' x 3' 2 1/2"	framed 6 panels
		lined
1 3/4"	7' 3/4" x 3' 3/4"	framed 8 panels

Source: Appendix A, Table A-2, p. 157

Again, as with the documented doors, the graduated sequence of undocumented doors from thinnest to thickest, with only one exception, is a graduated sequence from the lightest of construction to the heaviest of construction, concluding with a door of more panels than any of the other examples of undocumented doors identified.

The use of these examples of undocumented doors as a resource for restoration/replication is limited to interpretation of design:

1. the ratio of height to width;
2. the dimensions of the framing members;



3. the ratio of the dimensions of the panels; and
4. the combination of moulding contours.

Seven of these examples of door joinery are variations of design represented by documented examples of door joinery in Table 1 through Table 6:

1. framed door with an ovolo struck on one side of the internal edges of the framing members and ovolo struck on the raised panels of the same side;
2. framed and lined door with an ovolo struck on the internal edges of the framing members and ovolo struck on the raised panels;
3. framed door with an ovolo fillet struck on one side of the internal framing members and ovolo fillet struck on the raised panels of the same side; and
4. framed door with a laid in quirked cyma reversa on one side and chamfered panels on both sides.⁵⁹

The documented examples of Table 1 through Table 6 affirms credence of approximated dates of construction as entered in the accessions' files by the staff of the Office

⁵⁹ Independence National Historical Park. Acc. 62-2(a). See Appendix A, figs. 88 & 92, pp. 163 & 167. Acc. 62-2(b). See Appendix A, figs. 89 & 92, pp. 164 & 167. Acc. 64-4(a). See Appendix A, figs. 90 & 92, pp. 165 & 167. Acc. 64-4(b). See Appendix A, figs. 91 & 92, pp. 166 & 167. Acc. 62-17. See Appendix A, figs. 93-95, pp. 168-170. Acc. 3601-5. See Appendix A, figs. 96 & 97, pp. 171 & 172. Acc. 2527-3. See Appendix A, figs 106 & 107, pp. 181 & 182.

of Historical Architecture for the undocumented examples of Table 7 through Table 12. The approximated construction dates of the undocumented examples coincide exactly with the dates of documented examples of the same description.

Seven of these examples of door joinery are variations of design not represented by documented examples of door joinery in Table 1 through Table 6:

1. ledged door with an ovolo fillet struck on the vertical edges of its ledges;
2. framed door framed square [no moulding contour struck on the internal edges of the framing members] and raised panels on one side;
3. framed door with an ovolo struck on one side of the internal edges of the framing members and a cavetto fillet struck on the raised panels of the same side;
4. framed door with a fillet cyma recta struck on one side of the internal edges of the framing members and raised panels on the same side; and
5. framed doors with a laid in quirked ovolo and astragal moulding on both sides and raised panels on both sides;⁶⁰

⁶⁰ Independence National Historical Park. Acc. 2816-5. See Appendix A, figs. 110-113, pp. 185-188. Acc. 2816-3. Appendix A, figs. 86 & 87, pp. 161 & 162. Acc. 2816-4. See Appendix A, figs. 100 & 101, pp. 175 & 176. Acc. Unknown. See Appendix A, figs. 114 & 115, pp. 189 & 190. Acc. 3601-4. See Appendix A, figs. 102 & 103, pp. 177 & 178. Acc. 2527-5.

Although undocumented, these examples of door joinery represent actual historic examples of embellishment with varying combinations of moulding contours.

See Appendix A, figs. 104 & 105, pp. 179 & 180. Acc. 2816-2.
See Appendix A, figs. 108 & 109, pp. 183 & 184.

CHAPTER V

Published Recommendations 1680-1860

Following the same methodology for documenting the examples of door joinery, it was necessary to index material on the subject of door design and construction published between 1680 and 1860 to serve as a data-base to make an in depth analysis of published material. The data-base takes the form of Table B, "Chronology of Published References", a chronological listing of the information from these publications according to the date of publication of each source.⁶¹ The data of Table B entered into a data-base file

⁶¹ Table B, "Chronology of Published References". Appendix B, p. 192. These publications are listed chronically by date as follows: 1680, Stephen Primate, The City and Country Builder and Purchaser; 1703, Richard Neve, The City and Country Purchaser and Builders' Dictionary; 1734, A. Bettsworth, The Builder's Dictionary or Gentleman and Architect's Companion; 1769, A.J. Roubo, L'art du Mesuisier; 1769, Denis Diderot, Recueil de planches sur le sciences et les arts liberaux; 1778, William Pain, The Carpenter's and Joiner's Repository; 1786, Carpenters' Company of the County and City of Philadelphia, The Rules of Work of the Carpenters' Company of the County and City of Philadelphia 1786; 1797, Asher Benjamin, The Country Builder's Assistant; 1800, Carpenters' Company of Boston, The Rules of Work of the Carpenters in the Town of Boston; 1812, Peter Nicholson, Mechanical Exercises; 1818, John Haviland, The Builder's Assistant; 1827, Asher Benjamin, The American Builders' Companion; 1830, Asher Benjamin, The American or Practical House Carpenter; 1850, Peter Nicholson, Nicholson's Dictionary of the Science and Practice of

are the tabulations used to generate Table 13 through Table 16 that outline the discussion of published recommendations in this chapter.

Because of the vagueness and lack of definitive guidelines for door joinery design and construction found in the published material, it is impossible to generate the identical series of tables as found in the Chapter III, "Analysis of Documented Doors" (pp. 11-30) and Chapter IV, "Analysis of Undocumented Doors" (pp. 31-42). Table 13 lists information by year of publication of its source. Table 14 lists information according to recommendations for design and construction. Table 15 is a chronological list of references to specific moulding profiles and plates of door sections illustrating recommendations of specific moulding profiles. Table 16 lists recommendations for dimensions by date of publication.

Architecture; 1857, R.G. Hatfield, The American House Carpenter; 1860, James Newlands, The Carpenter and Joiner's Assistant.

Table 13: References by Date of Publication

Date	Design	Insitu
1680	ledged	shop front
1680	battened	front or outer
1680	battened	shop front
1680	battened & lined	front or outer
1680	battened & lined	shop front
1680	framed	inner
1703	ledged	
1703	battened single	shop front
1703	battened double	
1703	battened & lined	shop front
1703	framed	inner
1734	battened & lined	shop front
1743	framed & lined	outer
1734	framed	inner
1769	battened	outer
1769	framed	outer & chamber
1778	framed	outer
1786	ledged	
1786	ledged double thick	
1786	battened	
1786	battened 2, 4, & 6 panels	
1786	framed 2, 4, & 6 panels	inner
1786	framed & lined 4, 6, & 8 panels	outer
1797	framed	
1800	ledged	
1800	battened 2, 4, 6, & 8 panels	
1800	framed 2, 4, 6, & 8 panels	outer & inner
1800	framed & lined 2, 4, 6, & 8 panels	front or outer
1812	framed	
1818	framed	front & inner
1827	framed	outer & inner
1830	framed	outer & inner
1850	ledged	out buildings
1850	battened	gothic buildings
1850	framed	
1857	framed	
1860	ledged	
1860	framed	

Source: Appendix B, Table B, p. 192

The earliest publications delineate the following

fundamental types of door design and construction and their respective variations which are the terms used in subsequent references:

1. ledged doors (referred to as ordinary doors);
2. single battened doors (battened one side);
3. double battened doors (battened both sides or battened and lined);
4. framed doors (made wainscot fashion); and
5. double doors (framed and lined).

Table 14: References by Design

Design	Insitu	Date
ledged	shop front	1680
ledged	out buildings	1850
battened	shop front	1680
battened	front or outer	1680
battened	outer	1769
battened	cellar	1786
battened single	shop fronts	1703
battened & lined	shop front	1680
battened & lined	front or outer	1680
battened & lined	front or outer	1703
battened & lined	shop front	1734
framed	front	1818
framed	inner	1680
framed	inner	1703
framed	inner	1734
framed	inner	1818
framed	inner	1827
framed	inner	1830
framed	outer	1778
framed	outer	1827
framed	outer	1830
framed	outer & chamber	1769
framed 2, 4, & 6 panels	inner	1786
framed 2, 4, 6, & 8 panels	outer & inner	1800
framed & lined	outer	1734
framed & lined 4, 6, & 8 panels	outer	1786
framed & lined 2, 4, 6, & 8 panels	front or outer	1800

Source: Appendix B, Table B, p. 192

The published material contains limited definitive instructions for the utilization of the different types of door design and construction for specific purposes.

The earliest general recommended uses are:

1. front or outer doors are to be double doors (double battened, battened and lined, and framed

and lined); and

2. framed doors, made wainscot fashion, are for interior use.

These recommendations are taken from The City and Country Builder and Purchaser by Stephen Primate, London, 1680, and The City and Country Purchaser and Builders' Dictionary by Richard Neve, London, 1703.⁶²

The Builder's Dictionary or Gentleman and Architect's Companion by A. Bettesworth, London, 1734, recommends:

1. battened and lined doors are for shop fronts only;
2. framed and lined doors are for use as front or outer doors; and
3. framed doors are for use as inner doors.⁶³

Nicholson's Dictionary of the Science and Practice of Architecture, Peter Nicholson, London, 1850, concludes this chronology by offering insight to the use of ledged doors of that period:

⁶² Stephen Primate, The City and Country Builder and Purchaser (2nd Edition. London: J. Wright & Assignes of S. Speed, 1680), II, 67, 87. III, 154. Richard Neve, The City and Country Purchaser and Builders' Dictionary (London: F. Sprint, G. Conyers, T. Bollard, 1703), 28, 127, 276, 286. In Stephen Primate's book the battens of a double batten door are on the face or exterior side. Boards are mitered around the edges of the back or interior side. Within this frame is laid boards diagonally across the door (bereling).

⁶³ A. Bettesworth, The Builder's Dictionary or Gentleman and Architect's Companion (London: A. Bettesworth, C. Hitch, & S. Austen, 1734. Reprint. Washington: Association for Preservation Technology, 1981), I, BA-BA, DO-DO.

1. the ledges of ledged doors are placed on the back or interior side of ledged doors [ledged doors cannot be pried apart from the outside if the ledges are on the inside and therefore provide more security from outside intrusion]; and

2. ledged doors are for use in dwellings of the poor, subsistencies of large dwellings, and for buildings of the gothic (or pointed) style of architecture.⁶⁴

⁶⁴ Peter Nicholson, Nicholson's Dictionary of the Science and Practice of Architecture (London: The London Printing & Publishing Company, Ltd., 1850), I 298. II, 65.

Table 15: References to Mouldings by Date

Mouldings	Date	Insitu	Design
bead, o.g., or the like	1703	shop front	battened single
bead, o.g., or the like	1703	front or outer	battened & lined
infinite variety of combinations	1743	inner	framed
infinite variety of combinations	1743	outer	framed & lined
24 sections	1769	outer & chamber	framed
72 sections	1769	outer & chamber	framed
bead	1786		ledged
8 sections	1786	inner	framed
3 sections	1786	outer	framed
3 mouldings	1800	front, outer, & inner	framed
14 sections	1812		framed
19 sections	1827	outer & inner	framed
1 section	1830	outer	framed
2 sections	1830	inner	framed
14 sections	1850		framed
8 sections	1857		framed
3 sections	1860		ledged
8 sections	1860		framed

Source: Appendix B, Table B, p. 192

Studying the published references offers little insight to a rationale for a definitive use of specific moulding profiles in a specific context.

The City and Country Builder and Purchaser by Stephen Primate, London, 1680, and The City and Country Purchaser and Builders' Dictionary by Richard Neve, London, 1703, recommends that a bead, ogee, or the like may be struck on

the battens of a batten door.⁶⁵

The Builder's Dictionary or Gentleman and Architect's Companion by A. Bettesworth, London, 1734, recommends no specified moulding profiles for doors. The entry under mouldings, however, states that their various dispositions and combinations may form an infinite variety of different profiles.⁶⁶

Illustrations of a great variety of profile possibilities for the design and construction of doors appear in two Parisian publications of 1769. L'art du Mesuisier, by R. D. Roubo, Paris 1769, illustrates 24 common door sections for interior and exterior framed doors and door elevations. These examples are elaborately embellished with varying combinations of moulding contours.⁶⁷ Recueil de planches sur le sciences et les arts liberaux by Denis Diderot, Paris, 1769, illustrates 72 door sections as possible combinations of moulding profiles for framing members of door joinery of both interior and exterior doors

⁶⁵ Stephen Primate, The City and Country Builder and Purchaser (2nd Edition. London: J. Wright & Assignes of S. Speed, 1689), II, 67, 87. III, 154. Richard Neve, The City and Country Purchaser and Builders' Dictionary (London: F. Sprint, G. Conyers, T. Bollard, 1703), 28, 127, 276, 286.

⁶⁶ A. Bettesworth, The Builder's Dictionary or Gentleman and Architect's Companion (London: A. Bettesworth, C. Hitch, & S. Austen, 1734. Reprint. Washington: Association for Preservation Technology, 1981), II, MO-MO.

⁶⁷ A.J. Roubo, L'art du Mesuisier (Paris: 1769. Reprint. Geneva: Slatkine, 1984), I, VII, Pl 7, 35, 42, 43, 46, 50. See Appendix B, figs. 116-121, pp. 198-203.

and elevations of elaborately embellished framed doors.⁶⁸

The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 illustrates door sections of twelve different possible moulding profiles of framing members of doors with their adjacent panels. The basic contours found in various combinations of this, America's first pattern book, are:

1. ovolo;
2. ovolo fillet;
3. cyma recta; and
4. cyma reversa.⁶⁹

The Country Builder's Assistant by Asher Benjamin, Boston, 1797, contains an illustration of a door with a cross section that suggests the use of Grecian moulding contours based on segments of the ellipse, parabola, and hyperbola rather than the heretofore profiles based on the Roman combination of the half circle and straight line.⁷⁰ This is

⁶⁸ Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & Breton, 1769), Pl. II, no. 3, no. 4. Pl III, no. 2, no. 3. Pl. IV, no. 2, no. 3, no. 4, no. 5. See Appendix B, figs. 122-128, pp. 204-210.

⁶⁹ Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XVI, figs. B & D, ovolo, figs. G & H, cyma reversa (or ogee), XVIII, middle figure, cyma recta. See Appendix B, figs. 131-133, pp. 213-215.

⁷⁰ Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I, fig. G, Plate I, fig. H.

the earliest manifestation of the trend toward the Greek revival style. This is also the first American architectural book to illustrate a cavetto (a cavetto in conjunction with the astragal) and quirked cyma reversa [or ogee] moulding contour for use on doors.⁷¹

Mechanical Exercise by Peter Nicholson, London, 1812, intimates the further trend toward the use of Greek revival moulding contours by seven of the fourteen door sections illustrated in that volume.⁷² It also makes the following recommendations for the embellishment of door joinery:

1. doors are embellished on both sides when they will be equally exposed on both sides, i.e. between rooms or between passages and rooms;
2. doors are embellished on one side only where the embellished side only is exposed, the

See Appendix B, fig. 134, p. 216.

⁷¹ Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I, figs. D, E, G. Plate XII, fig. F. See Appendix B, figs. 134 & 135, pp. 216 & 217. The Book of Rules of the Carpenters' Company of the City and County of Philadelphia 1786 illustrates the cavetto in a design for a pew end and a bolection wainscot. Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XVI, fig. E, Plate XVII.

⁷² Peter Nicholson, Mechanical Exercises (London: J. Taylor, 1812), Plate V, figs. 2, 3, 4, Plate VI, figs. 2, 3, 5, Plate VII, fig. 3. See Appendix B, figs. 139-141, pp. 221-223.

unembellished side facing toward a closet or dark passage;

3. bead and flush, and bead and butt are for outer doors, the embellishment of the inside face of such doors must correspond to the other doors of the interior hall or passage; and

4. bolection mouldings [those that project above the surface of the framing members] are used only in the most sophisticated and elaborately ornamented structures.⁷³

The Builders' Assistant by John Haviland, Philadelphia, 1818, recommends that the embellishment of doors, mantels, and other architectural details within rooms or suites of rooms be in agreement to produce a uniform appearance.⁷⁴

The New Practical Builder, and Workman's Companion by Peter Nicholson, London, 1823, illustrates three cross section examples of Grecian moulding profiles.⁷⁵

The American Builders Companion by Asher Benjamin, Boston, 1827, firmly establishes the Greek revival as

⁷³ Peter Nicholson, Mechanical Exercise (London: J. Taylor, 1812), 154 & 155.

⁷⁴ John Haviland, The Builders' Assistant (Philadelphia: John Bioren, John Haviland, and Hugh Bridgeport, 1818) I, 177.

⁷⁵ Peter Nicholson, The New Practical Builder, and Workman's Companion (London: Thomas Kelly, 1823), Plate XXIII. See Appendix B, fig. 138, p. 220.

evidenced by the illustrations of that publication.⁷⁶ The difference between the Greek moulding profiles and the Roman profiles and the reason for this preference is explained by the author in that 1827 publication.⁷⁷

⁷⁶ Asher Benjamin, The American Builders Companion (Boston: P. & C. Williams, 1827. Reprint. New York: Dover Publications, Inc., 1968), Plate IX, X. See Appendix B, figs. 139 & 140, pp. 221 & 222.

⁷⁷ Asher Benjamin, The American Builders Companion (Boston: R.P. & C. Williams, 1827. Reprint. New York: Dover Publications, Inc., 1969), 20.

Table 16: References to Dimensions by Date

Date	Dimensions	design	Insitu
1680	3 1/2' wide	ledged	shop front
1680	3 1/2' wide	battened	shop front
1680	3 1/2' wide	battened & lined	shop front
1600	5 1/2' x 2 1/2'	framed	inner
1680	width 3' to 4', twice that in height	framed	inner
1703	1" thick battens, height twice width	battened	shop front
1703	1" thick battens, height twice width	battened & lined	front or outer
1734	3' to 6' wide, twice that in height	battened & lined	shop front
1734	formulas for dimensions according to stories and situation within	framed	inner
1734	formulas for dimensions according to stories and situation within	framed & lined	outer
1778	2'10" to 4' wide, 6'6" to 8' high, dimen- sions of framing members	framed	outer
1797	height twice width, dimensions of fram- ing members	framed	
1812	dimensions according structure and situa- tion within	framed	
1818	formulas for dimensions	framed	front & inner
1827	1 1/2" to 1 3/4" thick, dimensions of fram- ing members, propor- tions of frieze panels	framed	inner
1827	1 3/4" to 2" thick, dimensions of fram- ing members, propor- tions of frieze panels	framed	outer
1830	2'6" x 6'6", 3'6" x 8', 3 to 7 or 1 to 2	framed	inner
1857	variety of formulas for height to width		

Source: Appendix B, Table B, p. 192

The earliest publications delineate the following fundamental references to dimensions:

1. inner doors are no smaller than 2 1/2' x 5 1/2';
2. the width of shop front, front or outer doors is 3 1/2';
3. inner doors 3' to 4' wide are twice that in height;
4. framed doors for interior use are 1 1/4" thick; and
5. battens of battened doors may be from 2" to 7" in width and 1" thick.

These recommendations are taken from The City and Country Builder and Purchaser by Stephen Pimate, London, 1680, and The City and Country Purchaser and Builders' Dictionary by Richard Neve, London, 1703.⁷⁸

The Builder's Dictionary or Gentleman and Architect's Companion by A. Bettsworth, London, 1734, recommends:

1. dimensions of outer doors are determined by formulas for height and width according to the size of the structure; and
2. dimensions of inner doors are determined by

⁷⁸ Stephen Pimate, The City and Country Builder and Purchaser (2nd Edition. London: J. Wright & Assignes of S. Speed, 1689), II, 67, 87. III, 154. Richard Neve, The City and Country Purchaser and Builders' Dictionary (London: F. Sprint, G. Conyers, T. Bollard, 1703), 28, 127, 276, 286.

the number of floors of the structure, and the floor of the structure on which the doors are to be used.⁷⁹

The Carpenter's and Joiner's Repository by William Pain, London, 1778, is the first publication to illustrate the dimensions of framing members of doors:

1. stiles, muntin, frieze rail, and top rail 4 1/2" wide;
2. bottom rail 9" wide; and
3. lock rail 10" wide.

These figures are for a six paneled door 3' 2" or 3' 6" wide, and a double margined door 3' 9" or 4' wide. The ratio of the height to the width of the frieze panels also appears on the illustrations.⁸⁰

The Country Builder's Assistant by Asher Benjamin, Boston, 1797, contains an illustration of two door elevations that include the measurements for framing members that vary slightly from William Pain's recommendations of 1778. The 1797 recommendations of Asher Benjamin are:

1. stiles, muntin, frieze rail, and top rail 4" wide;

⁷⁹ A. Bettesworth, The Builder's Dictionary or Gentleman and Architect's Companion (London: A. Bettesworth, C. Hitch, & S. Austen, 1734. Reprint. Washington: Association for Preservation Technology, 1981) I, BA-BA, DO-DO.

⁸⁰ William Pain, The Carpenter's and Joiner's Repository (London: I. Taylor, 1778), Plate P to face plate L. See Appendix B, fig. 129, p. 211.



2. bottom rail 9" wide (as in 1778); and
3. lock rail 10" wide (as in 1778).⁸¹

The American Builders Companion by Asher Benjamin, Boston, 1827, reproduces exactly the illustration of William Pain's 1778 publication indicating the measurements of framing members of doors. These measurements are once again:

1. stiles, muntin, frieze rail, and top rail 4 1/2" wide;
2. bottom rail 9" wide; and
3. lock rail 10" wide.⁸²

This fifty year span is evidence that the dimensions of framing members of door joinery become standard at this time.

The American or Practical House Carpenter by Asher Benjamin, Boston, 1830, recommends:

1. dimensions of small interior doors are to be in a ratio of 3 to 7 for width to height; and
2. dimensions of large interior doors are to be in a ratio of 1 to 2 for width to height.⁸³

These published references leave much to the ingenuity,

⁸¹ Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989) Plate XII. See Appendix B, fig. 134, p. 216.

⁸² Asher Benjamin, The American Builder's Companion (Boston: P. & C. Williams, 1827) Plate XXXVIII. See Appendix B, fig. 141, p. 223.

⁸³ Asher Benjamin, The American or Practical House Carpenter (Boston: 1830. Reprint. New York: Dover Publications, Inc., 1988), 72.

imagination, and personal interpretation of the restorationist based on a broad spectrum of possibilities. Training, skill, and experience were the tools which the craftsmen used to solve the specific contextual design, construction, proportion and embellishment problems that they faced and solved each day.

CHAPTER VI

A Primary Resource

The examples of door joinery contained in the Architectural Study Collection of Independence National Historical Park represent principals of design, construction, and fashion as interpreted and built by the craftsmen of their times.⁸⁴ Although the work of the craftsmen follows the published recommendations, the data found in books is vague and ambiguous as an aid to restoring a structure of a particular date and physical context. The restorationist must consider and choose from possibilities that cannot be proved appropriate for a specific context and date in published books:

1. a graduated sequence for specific uses of the variations of the types of door joinery design and construction are limited to front or outer doors and inner or chamber doors;

⁸⁴ A.J. Bettsworth's The Builder's Dictionary or Gentleman and Architect's Companion of 1734 is listed in the inventory of The Library Company of Philadelphia printed by Benjamin Franklin in 1741. Benjamin Franklin, A Catalogue of Books Belonging to the Library Company of Philadelphia (Philadelphia: Benjamin Franklin, 1741. Facsimile. Philadelphia: The Library Company of Philadelphia, 1956) 30.

2. mouldings are never designated for a specific context;
3. numerous moulding profiles and their possible combinations offer unlimited embellishment of architectural detail; and
4. dimensions are given in relation to the size of the structure, the number of floors of the structure, and the floor on which the door is to be used.

More specific information is gained by study of documented historic structures. The variations of types of design and construction and moulding profiles documented as having been used for a specific purpose on a given floor of a historically identified structure provide more useful and specific information to the restorationist. If an intact or documented structure is similar in construction to a restoration project of the same date, it is appropriate to use the architectural detail of that structure to restore, reconstruct, and /or replicate similarly placed damaged or missing architectural detail of the restoration project.

The Architectural Study Collection is not the only resource for the study of actual architectural elements and detail. This collection represents only a limited cross section of architectural elements and detail (i.e. forty three examples of door joinery) and is not to be a singular source of reference. The Architectural Study Collection

gathers under one roof, however, real examples of architectural elements and detail from a broad spectrum of structures and historic contexts. The most useful to the restorationists are:

1. the examples of architectural elements and detail for which the structures from which they were salvaged are known and can be documented by primary and secondary source references; and
2. when it is known where within these structures the examples of architectural elements and detail were used.

The value of the Architectural Study Collection is:

1. the extent of the collection in one facility representing material culture spanning a period of more than 150 years; and
2. the accessibility of the collection for hands-on-examination.

Restorationists should also study measured drawings of historically documented structures that have long been demolished, as well as structures that have survived into the present.⁸⁵ By examining the details of the most complete

⁸⁵ On deposit at the Philadelphia Free Library is The Philadelphia Survey, a collection of measured drawing of historic buildings in Philadelphia executed by the Philadelphia Chapter of the A.I.A. in the 1930's. These are copies of the original drawings on deposit at the Historical Society of Pennsylvania. This collection is the forerunner

historic contexts available, the restorationist is able to make the most accurate decisions for the restoration, reconstruction and/or replication of architectural elements and detail for a structure of a particular period.

of the Historical American Buildings Survey on deposit at the Library of Congress. "HABS" drawings are also available to the general public.

CHAPTER VII

The Need for A Complete Data-base

Knowledge of where to find essential information that documents the items of the Architectural Study Collection and the structures from which they were salvaged is limited to the staff of Historic Architecture. This documentation is not codified or cross referenced. It is, therefore, not readily accessible to the outside researcher. The lack of a complete catalogue of the contents of this collection and the system of storing the collection make it difficult for the researcher to readily retrieve historic data.⁸⁶ It would be

⁸⁶ The Architectural Study Collection is stored in the basement of the First Bank of the United States, 2nd and Chestnut Streets, Philadelphia. The store rooms are accessed through two rooms where there is displayed the "Built by Hand' exhibit. See Appendix C, fig. 154, p. 237. The "Built by Hand' exhibit is displayed in room A and room B. This exhibit is a cross section of the type of items in the collection. The structures from which the examples were salvaged are identified wherever known. The undisplayed items of the collection are stored in room C and room D which flank room B. Fragments of baseboards, chair rails, cornice mouldings, and an example of a window surround are mounted together in one of the storage rooms. These fragments are identified as being salvaged from four structures: 30 Christian Street, 1770; Lynfield, Holmesburg, 1785; 128 North Front Street, 1787; 110 North Front Street, 1792 (none of these structures have been identified as the structure from which any of the examples of joinery were salvaged). Information of all other item in the collection can only be found in the accessions' files.

helpful if all items of the same structure could be found in one place rather than scattered throughout several rooms and storage bins. It would also be more helpful if documentation of the structures from which the items of this collection were salvaged could be retrieved from a single cross referenced source.

The data-base file I created for the examples of door joinery contains readily retrievable historic data that is useful to restorationists of 18th and early 19th century projects. A complete data-base file of all the items contained in the Architectural Study Collection would be of further benefit to both the staff responsible for the care and management of the collection and more especially to the restorationists wishing to use this collection for reference and research as a primary resource for the restoration, reconstruction, and/or replication of 18th and early 19th century architectural elements and detail.

APPENDIX A

Documentation of Examples of Door Joinery

Table A-1
Chronology of Documented Doors

DATE	STRUCTURE	DOOR
Early 18th century. ca. 1780-1800 addition. ^a	Decatur House 10,000 Decatur Road. ^b	<u>Acc. 2400-10:</u> Ledged door. Bead moulding on both sides. From attic of main house. ^c 5' 11" x 2' 7 1/2" x 7/8". Two ledges 3/4" thick each. ^d
		<u>Acc. 2400-11:</u> Ledged door. Bead moulding on both sides. From attic of main house. ^e 5' 5 3/4" x 2' 5 3/4" x 7/8". Two ledges 3/4" thick each. ^f
		<u>Acc. 2400-12:</u> Ledged door. Bead moulding on both sides. From 2nd floor of old wing. ^g 5' 11" x 2' 7 1/2" x 7/8". Two ledges 7/8" thick each. ^h
		<u>Acc. 2400-13:</u> Batten door. Battened one side to form four panels. Ovolo moulding on battens. From attic partition of old wing. ⁱ 5' 7 3/4" x 2' 4" x 1 5/8". ^j
		<u>Acc. 2400-14:</u> Four paneled door. Framed with ovolo moulding one side. Raised panels with ovolo one side. Door to stairs leading to attic in main house. ^k 5' 10" x 2' 6" x 1". ^l
1763. ^m	20 Christian St. ⁿ	<u>Acc. 2532 (1):</u> Two paneled door. Framed with ovolo moulding one side. Raised panels one side. From 2nd floor chimney breast closet. ^o 6' 5 1/2" x 2' 2" x 1". ^p

Continued on next page

Table A-1 continued

<u>Date</u>	<u>Structure</u>	<u>Door</u>
(1763)	(20 Christian St.)	<u>Acc. 2532(2):</u> Double margined two paneled doors. Framed with ovolo moulding one side. Raised panels one side. From 2nd floor chimney breast closet. ^q (a) 6' 5 1/2' x 1' 10 1/8" x 1'. (b) 6' 5 1/2' x 1' 10 1/4" x 1". ^r
1783. ca. 1842 altera- tions. ^s	456-458 Belgrade St. ^t	<u>Acc. 3581-1:</u> Six paneled door. Framed with ovolo fillet moulding one side. Raised panels with ovolo fillet one side. 1st floor door to cellar. ^u 6' 9 1/2" x 2' 11 1/4" x 1". ^v <u>Acc. 3581-2:</u> Six paneled door. Framed with ovolo fillet moulding one side. Raised panels with ovolo fillet one side. 1st floor door leading to stairs to 2nd floor. ^w 6' 1" x 2' 11 1/4" x 1". ^x <u>Acc. 3581-8:</u> Door with two panels at bottom. Single glazed light at top. Quirked Grecian ovolo moulding laid in both sides. Panels recessed both sides. From 1830-1840 alteration. 6' 9" x 2' 7 3/4" x 1 5/8". ^y
1785. ^z	Bond House. 129 S. 2nd St. ^{aa}	<u>Acc. 3288-21:</u> Six paneled door. Framed with ovolo moulding one side. Raised panels one side. 6' 9" x 2' 10" x 1". ^{bb} <u>Acc. 3288-22:</u> Six paneled door. Framed with ovolo moulding one side. Raised panels one side. 6' 5 1/4" x 2' 7 3/4" x 1". ^{cc}

Continued on next page

Table A-1 continued

<u>Date</u>	<u>Structure</u>	<u>Door</u>
(1785)	(Bond House. 129 S. 2nd St.)	<u>Acc. 3288-35:</u> Two paneled door. Framed with ovolo moulding one side. Raised panels one side. From garrett East chamber. ^{dd} 6' 3" x 2' 10 3/8" x 1". ^{ee}
		<u>Acc. 3288-36:</u> Two paneled door. Framed with ovolo moulding one side. Raised panels one side. From garrett South West chamber. ^{ff} 6' 2 3/4" x 2' 10 5/8" x 1". ^{gg}
		<u>Acc. 3288-37</u> Two paneled door. Framed with ovolo moulding one side. Raised panels one side. From garrett South East chamber. ^{hh} 6' 4" x 2' 9" x 1". ⁱⁱ
1786. ^{jj}	320 Market St. ^{kk}	<u>Acc. 1286-2:</u> Ledged door. Double thickness. Bead moulding on both sides. Found behind elevator shaft on 2nd floor level. ^{ll} 6' 1 1/2" x 2' 11 1/2" x 2". ^{mm}
1786. ⁿⁿ	318 Market St. ^{oo}	<u>Acc. 2522-2:</u> Shop front door (9 lights at top) with night panel. Two panels at bottom framed with cyma reversa (or quirked ogee) moulding one side. Raised panels with ovolo one side. Bead and butt one side. From front end of basement used as closet door. ^{pp} 6' 10" x 2' 8 1/2" x 2 1/2". ^{qq}

Continued on next page

Table A-1 continued

<u>Date</u>	<u>Structure</u>	<u>Door</u>
(1786)	(318 Market St.)	<u>Acc. 2522-4</u> : Six paneled door. Framed with ovolo fillet moulding one side. Raised panels with cyma reversa moulding one side. Found in basement. ^{rr} 6' 9 1/2" x 2' 7 1/2" x 1". ^{ss}
1791-93. ^{tt}	McIlvaine House. 315-317 Walnut St. ^{uu}	<u>Acc. 2527-2</u> : Six paneled door. Framed with fillet cyma recta fillet moulding one side. Raised panels with ovolo fillet moulding one side. 3rd floor closet door. ^{vv} 7' 1" x 2' 10 3/4" x 1". ^{ww} <u>Acc. unknown</u> : Six paneled door. Framed with ovolo fillet moulding one side. Raised panels with ovolo fillet one side. Lined one side. Front door. ^{xx} 6' 5 1/2" x 2' 11 1/4" x 1 1/2". ^{yy}
1794. ^{zz}	McCrea Houses. 108-110 Sansom St. ^{aaa}	<u>Acc. 3493</u> : Two eight paneled doors. Framed with ovolo fillet moulding one side. Raised panels with ovolo fillet moulding one side. Lined one side. Front doors. ^{bbb} 7' 1/2" x 3' 3/4" x 1 3/4". ^{ccc}
1796-97. ^{ddd}	De Silva's Court. Stable and carriage house. ^{eee}	<u>Acc. 350-a</u> : Ledged cellar doors. Bead moulding on face side. Each door 3' 6 1/4" x 2' 3 1/4" x 1". Ledges 2' 1 3/4" x 3 3/4" x 3/4". ^{fff} <u>Acc. 350-b</u> : Ledged double thickness doors. Boards crossing at right angles. Bead moulding on both sides. 4' 10 1/4" x 2' 5 1/2" x 1 3/4". ^{ggg}

Continued on next page

Table A-1 continued

<u>Date</u>	<u>Structure</u>	<u>Door</u>
1811-12. ^{hhh}	Kidd House, 323 Walnut St. ⁱⁱⁱ	<u>Acc. 2010-2:</u> Two paneled door. Framed with ovolo moulding one side. Raised panels one side. 4th floor closet door. ^{jjj} 6' 3 1/2" x 2' 2 3/4" x 1". ^{kkk}
1811-12. ^{lll}	Kidd House, 325 Walnut St. ^{lll}	<u>Acc. 2010-7:</u> Six paneled door. Framed with ovolo fillet moulding one side. Raised panels with ovolo fillet moulding one side. From 4th floor door between chamber passage. ⁿⁿⁿ 6' 4" x 2' 7 3/4" x 1". ^{ooo}
1812. ^{ppp}	Twelfth Street Meeting House. 20 S. 12th St. ^{qqq}	<u>Acc. 2630-23:</u> Six paneled door. Framed with fillet cyma recta moulding one side. Raised panels with ovolo fillet mouldings one side. 6' 9" x 3' 1 1/2" x 1 1/4". ^{rrr}
1880. ^{sss}	Bishop White House, 309 Walnut St. ^{ttt}	<u>Acc. 2527-1:</u> Four paneled door. Quirked cyma reversa with chamfer moulding laid in one side. Raised chamfered panels both sides. From ca. 1880 alteration to 3rd floor. ^{uuu} 6' 9 1/4" x 2' 1" x 1 3/16". ^{vvv}

^a City of Philadelphia. Philadelphia Historical Commission. File on 10,000 Decatur Road.

^b Ibid.

^c Independence National Historical Park. Museum Accessions' Files. First Bank of the United States. Philadelphia. Acc. 2400-10.

^d See Appendix A, figs. 6-8. pp. 80-82.

^e Independence National Historical Park. Acc. 2400-11.

^f See Appendix A, figs. 9-11, pp. 83-85.

- g Independence National Historical Park. Acc. 2400-12.
- h See Appendix A, figs. 12-14, pp. 86-88.
- i Independence National Historical Park. Acc. 2400-13.
- j See Appendix a, figs. 15-18, pp. 89-92.
- k Independence National Historical Park. Acc. 2400-14.
- l See Appendix A, figs. 19 & 20, pp. 93 & 94.
- m City of Philadelphia. Philadelphia Historical Commission.
File on 20 Christian Street.
- n Independence National Historical Park. Acc. 2532.
- o Ibid.
- p See Appendix A, figs. 23 & 25, pp. 97 & 99.
- q Ibid.
- r See Appendix A, figs. 24 & 25, pp. 98 & 99.
- s City of Philadelphia. Philadelphia Historical Commission.
File on 456-458 Belgrade Street.
- t Independence National Historical Park. Ac. 3581.
- u Independence National Historical Park. Acc. 3581-1.
- v See Appendix A, figs. 28 & 30, pp. 101 & 103.
- w Independence National Historical Park. Acc. 3581-2.
- x See Appendix A, figs. 29 & 30, pp. 102 & 103.
- y See Appendix A, figs. 31 & 32, pp. 104 & 105.
- z City of Philadelphia. Philadelphia Historical Commission.
File on 129 South 2nd Street.
- aa Independence National Historical Park. Acc. 3288.
- bb See Appendix A, figs. 35 & 40, pp. 108 & 113.
- cc See Appendix A, figs. 36 & 40, pp. 109 & 113.
- dd Independence National Historical Park. Acc. 3288-35.

- ee See Appendix A, figs 37 & 40, pp. 110 & 113.
- ff Independence National Historical Park. Acc. 3288-36.
- gg See Appendix A, figs 38 & 40, pp. 111 & 113.
- hh Independence National Historical Park. Acc. 3288-37.
- ii See Appendix A, figs. 39 & 40, pp. 112 & 113.
- jj Independence National Historical Park. Historic Structures Report, Part I on 320 Market Street. January 1961. II, 1 & 2.
- kk Independence National Historical Park. Acc. 1286-2.
- ll Ibid.
- mm See Appendix A, figs. 42-44, pp. 115-117.
- nn Independence National Historical Park. Historic Structures Report, Part I on 318 Market Street. January 1961. II, 1 & 2.
- oo Independence National Historical Park. Acc. 2522.
- pp Independence National Historical Park. Acc. 2522-2.
- qq See Appendix A, figs. 46-49, pp. 119-122.
- rr Independence National Historical Park. Acc. 2522-4.
- ss See Appendix A, figs. 50 & 51, pp. 123 & 124.
- tt Independence National Historical Park. Historic Building Survey on McIlvaine House. April 1958. II, 1.
- uu Independence National Historical Park. Acc. 2527-2.
- vv Ibid.
- ww See Appendix A, figs. 56 & 57, pp. 129 & 130.
- xx Identified by Penelope Batchelor. Historic Architect, Independence National Historic Park.
- yy See Appendix A, figs. 58-60, pp. 131-133.
- zz City of Philadelphia. Philadelphia Historical Commission. File on 108-110 Sansom Street.

- aaa Independence National Historical Park. Acc. 3493.
- bbb Ibid.
- ccc See Appendix A, figs. 66-68, pp. 138- 140.
- ddd Independence National Historical Park. Historic Structures Report on the Stable or Carriage House, DeSilva's Court. November 1958. II, 1.
- eee Independence National Historical Park. Acc. 350.
- fff See Appendix A, figs. 71-73, pp. 143-145.
- ggg See Appendix A, figs. 74-76, pp. 146-148.
- hhh Independence National Historical Park. Historic Building Report on Kidd House, 323 Walnut Street. April 1958. II, 1.
- iii Independence National Historical Park. Acc. 2010-2.
- jjj Ibid.
- kkk See Appendix A, figs. 78 & 79, pp. 150 & 151.
- lll Independence National Historical Park. Historic Building Report on Kidd House, 325 Walnut Street. May 1958. II, 1.
- mmm Independence National Historical Park. Acc. 2010-7.
- nnn Ibid.
- ooo See Appendix A, figs. 80 & 81, pp. 152 & 153.
- ppp City of Philadelphia. Philadelphia Historical Commission. File on 20 South 12th Street. It is noted in the Pennsylvania Historical & Museum Commission form for Register of Historic Sites and Landmarks dated 3/1969 that this Meeting House reused some fabric from the 1755 Meeting House at 2nd and Market Street, in particular wainscotting. Other fabric (doors for instance) is not identified.
- qqq Independence National Historical Park. Acc. 2630-23.
- rrr See Appendix A, figs. 84 & 85, pp. 155 & 156.

^{sss} Independence National Historical Park. Historic Structures Report, Part II on Bishop White House. March 1959. II, 7-9.

^{ttt} Independence National Historical Park. Acc. 2527-1.

^{uuu} Ibid.

^{vvv} See Appendix A, figs. 53 & 54, pp. 126 & 127.



10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800.

Figure 1.



10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800.

Figure 2.



10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800.

Figure 3.



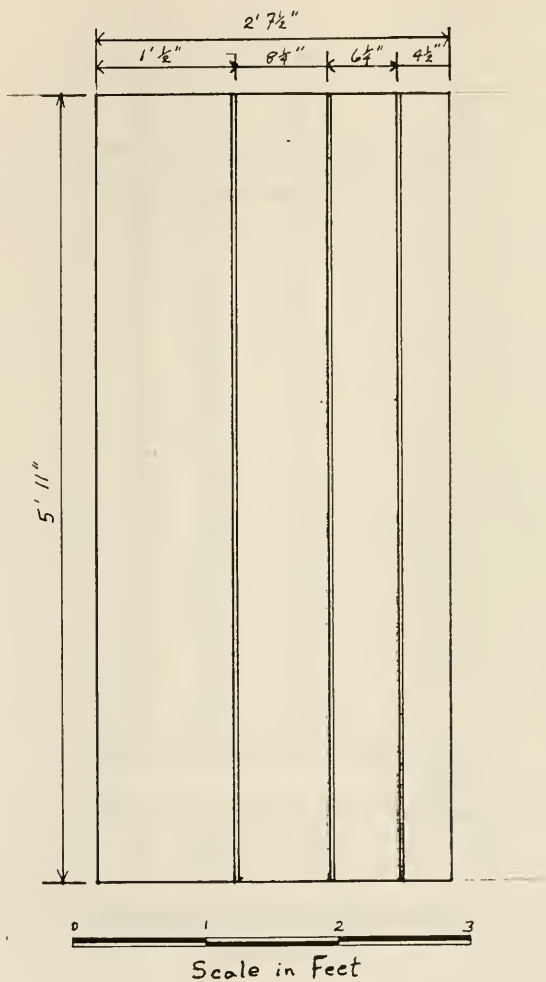
10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800.

Figure 4.



10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800.

Figure 5.



INHP Acc. 2400-10
Elevation, side 1

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic of main house

Figure 6.

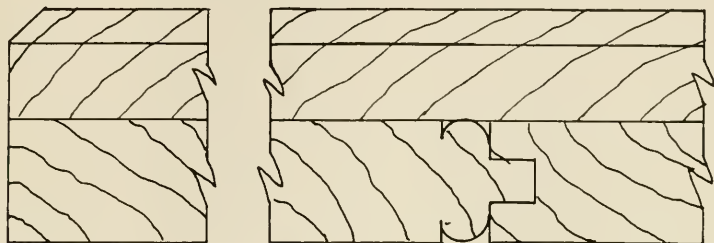


INHP Acc. 2400-10
Elevation, side 2

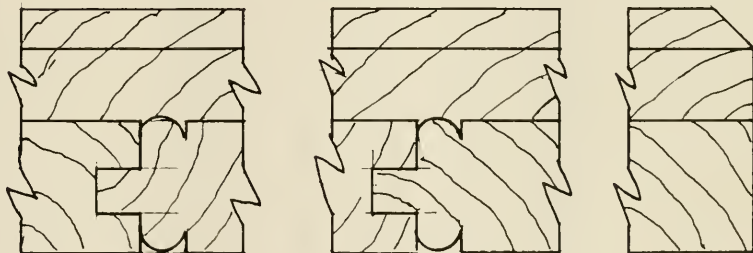
10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic of main house

Figure 7.

Detail A



Detail B



Scale in Inches

INHP Acc. 2400-10
Detail A & B

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic of main house

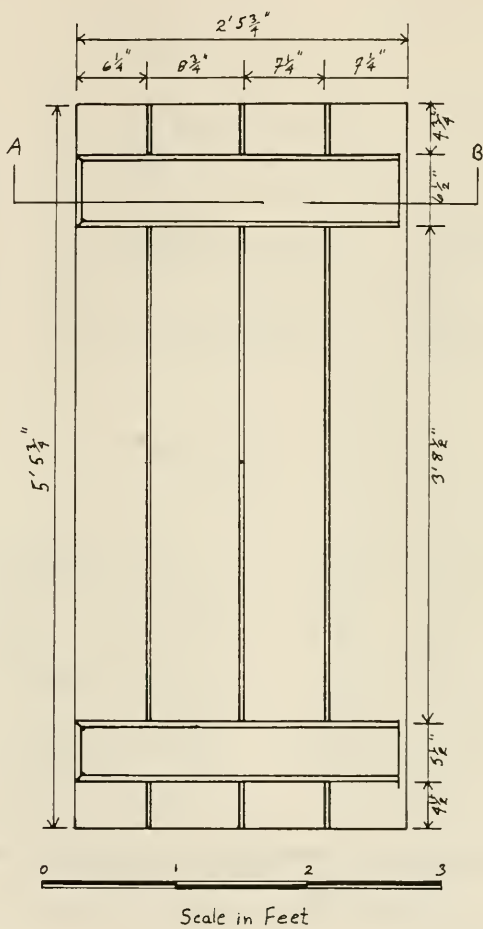
Figure 8.



INHP Acc. 2400-11
Elevation, side 1

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic of main house

Figure 9.

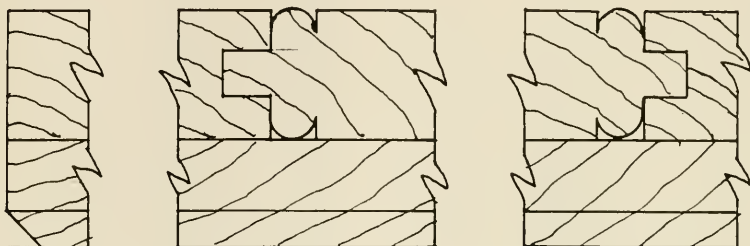


INHP Acc. 2400-11
Elevation, side 2

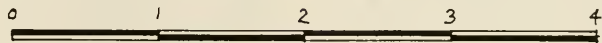
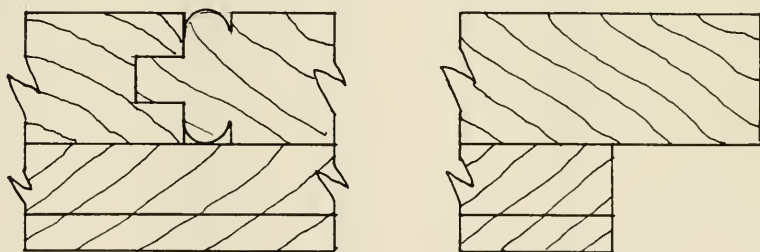
10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic of main house

Figure 10.

Detail A



Detail B

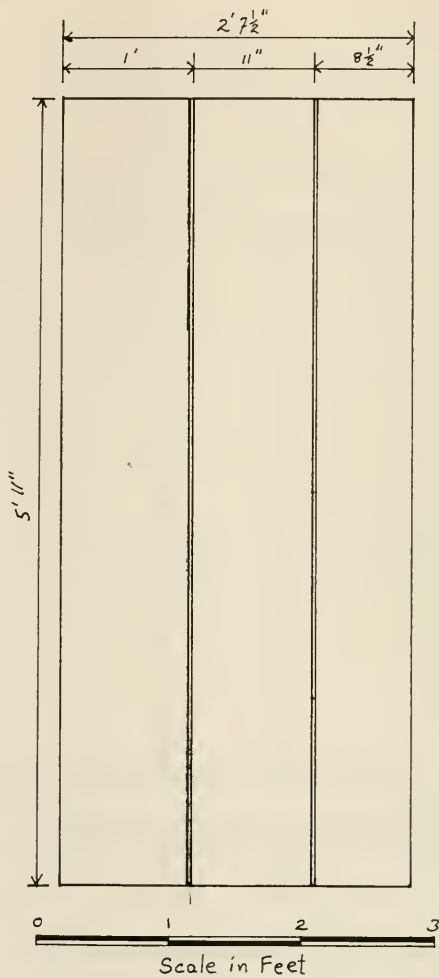


Scale in Inches

INHP Acc. 2400-11
Detail A & B

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic of main house

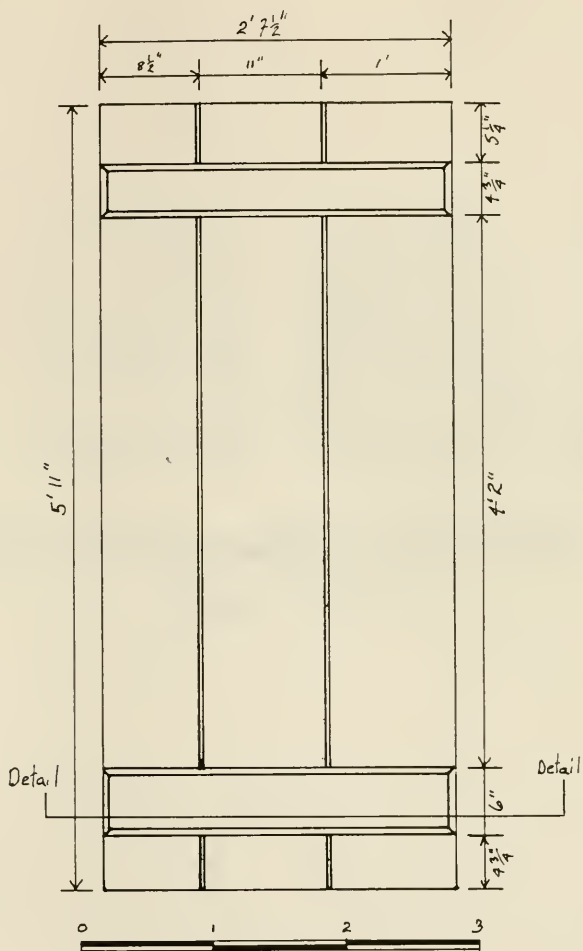
Figure 11.



INHP Acc. 2400-12
Elevation, side 1

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
2nd floor old wing

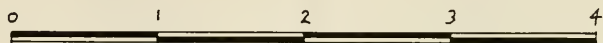
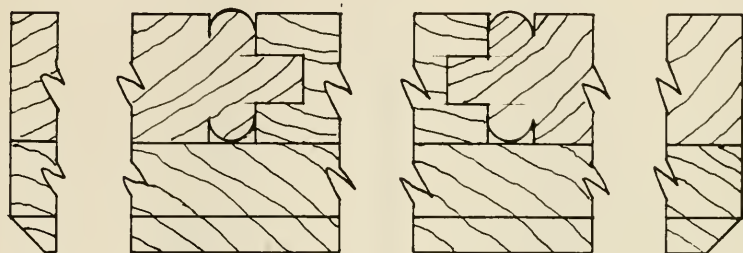
Figure 12.



INHP Acc. 2400-12
Elevation, side 2

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
2nd floor old wing

Figure 13.

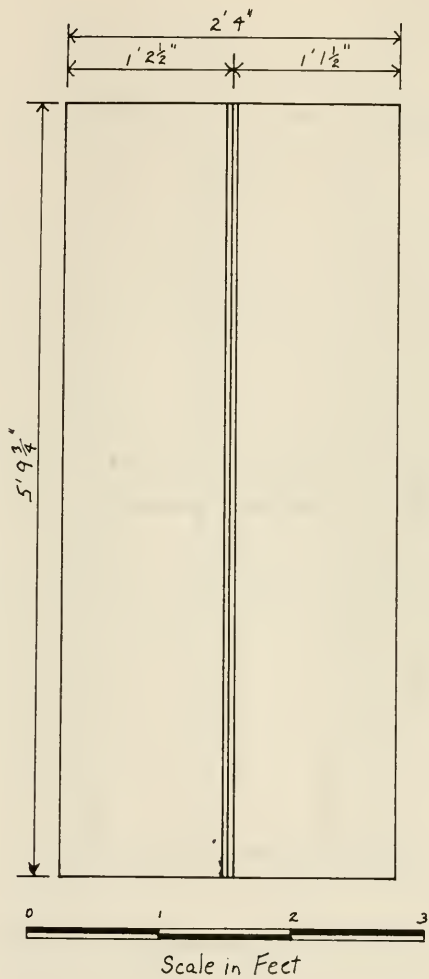


Scale in Inches

INHP Acc. 2400-12
Detail

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
2nd floor old wing

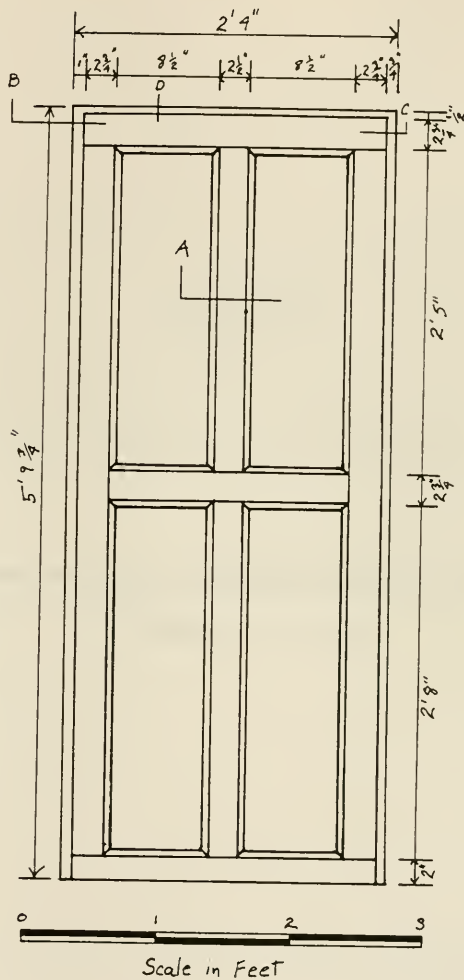
Figure 14.



INHP Acc. 2400-13
 Elevation, side 1

10,000 Decatur Road, Early 18th c.
 Addition ca. 1780-1800
 Attic partition old wing

Figure 15.

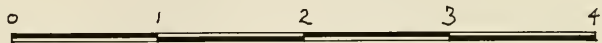
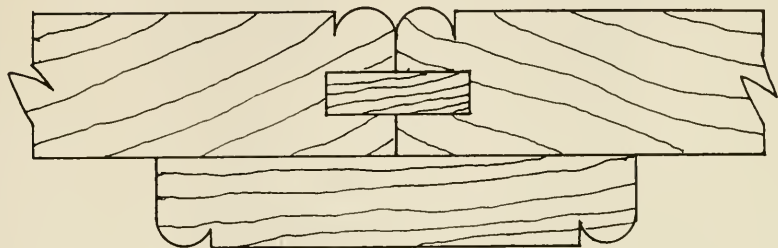


INHP Acc. 2400-13
Elevation, side 2

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic partition old wing

Figure 16.

Detail A



Scale in Inches

INHP Acc. 2400-13
Detail A

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Attic partition old wing

Figure 17.

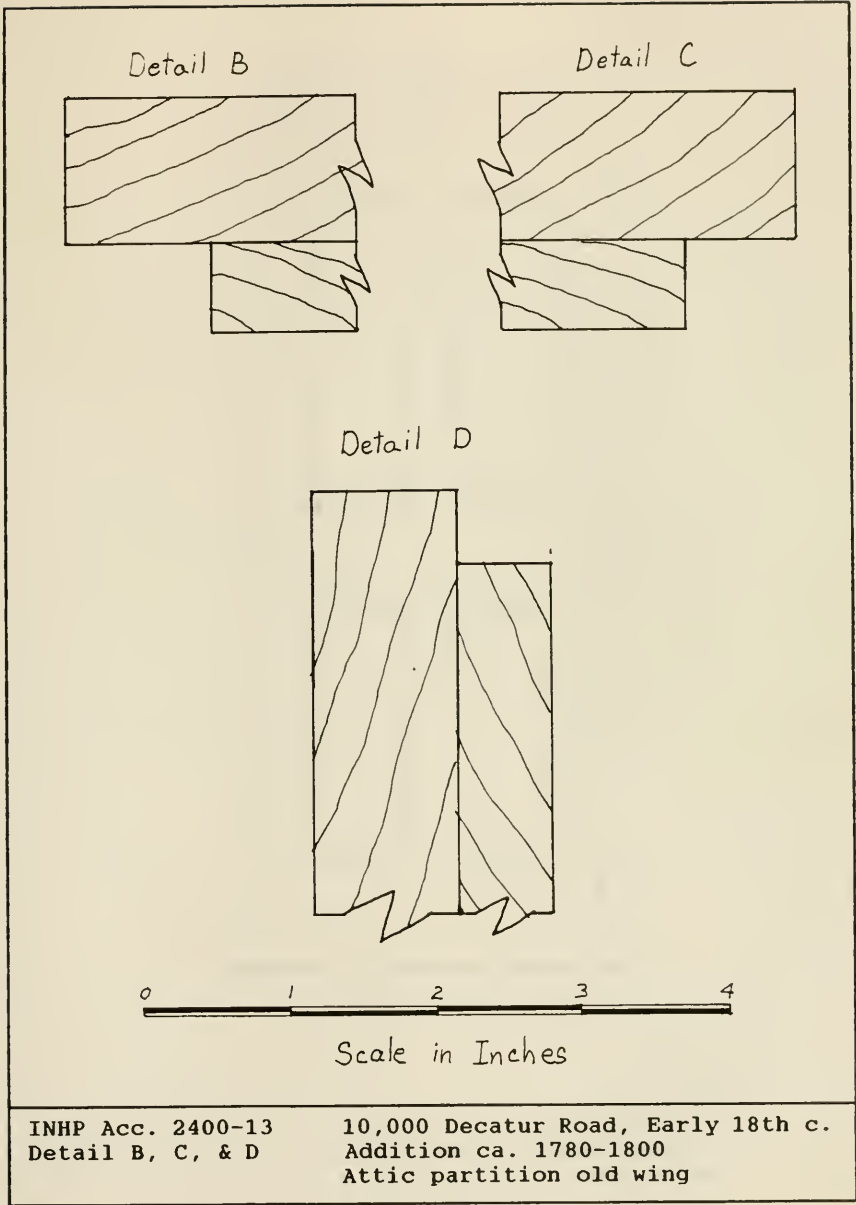
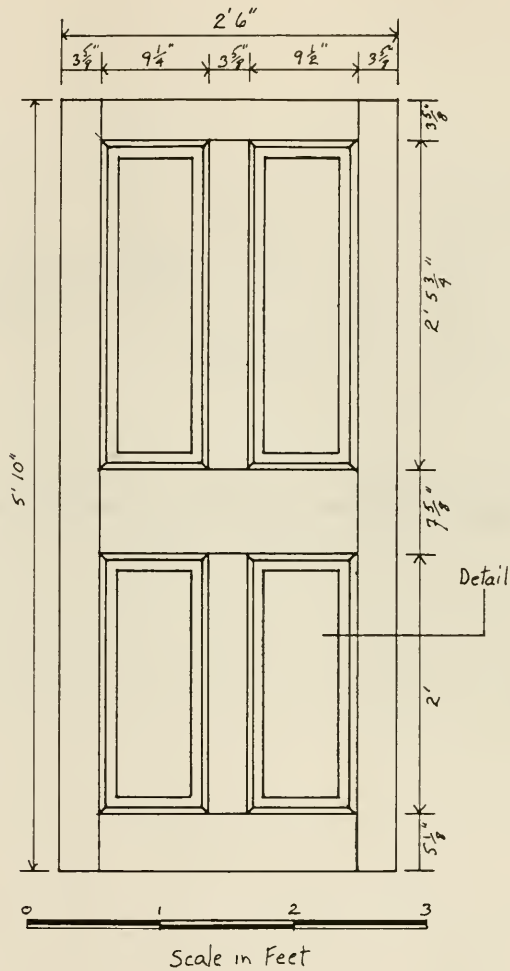


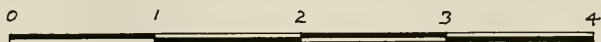
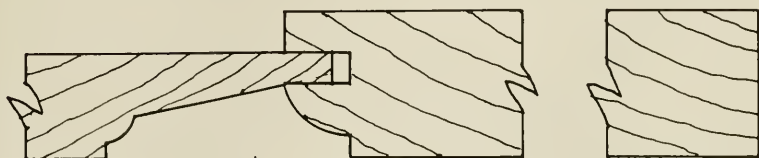
Figure 18.



INHP Acc. 2400-14
Elevation

10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Stairs to attic main house

Figure 19.



Scale in Inches

INHP Acc. 2400-14
Detail

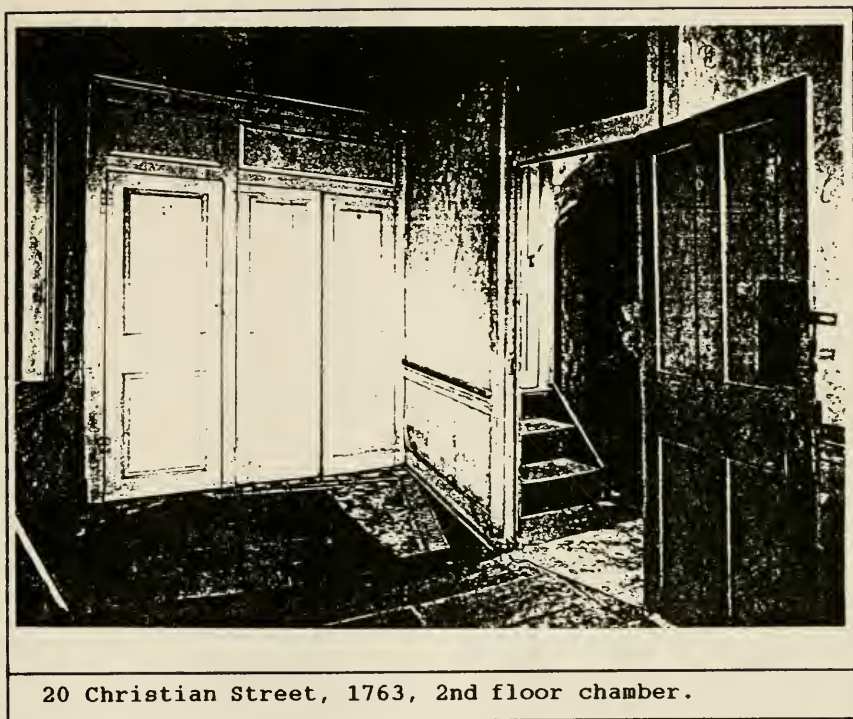
10,000 Decatur Road, Early 18th c.
Addition ca. 1780-1800
Stairs to attic main house

Figure 20.



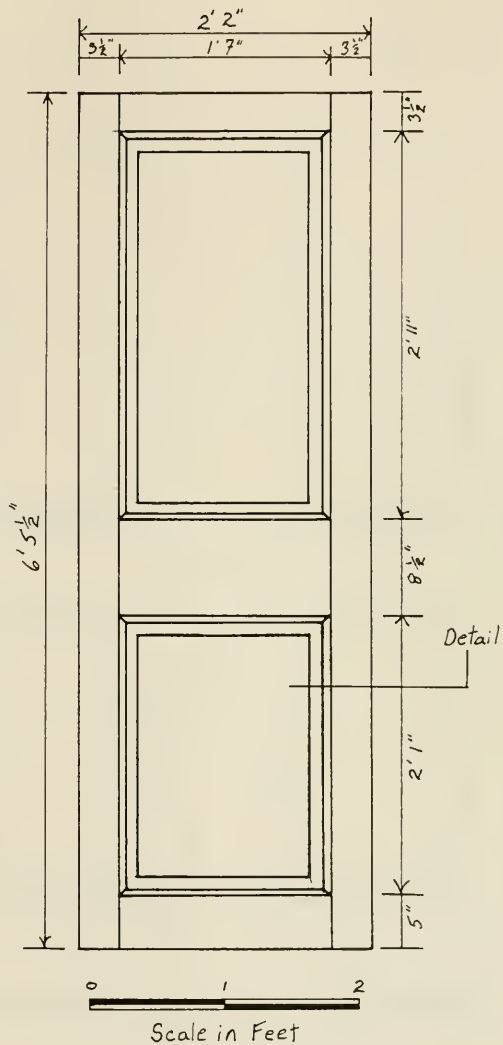
20 Christian Street, 1973.

Figure 21.



20 Christian Street, 1763, 2nd floor chamber.

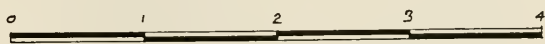
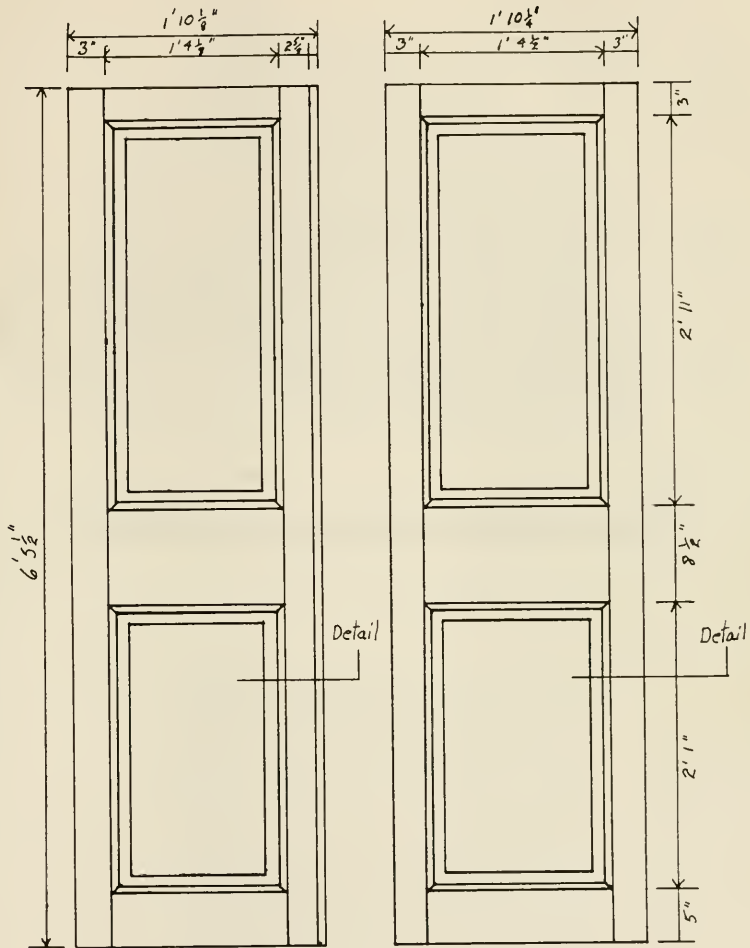
Figure 22.



INHP Acc. 2532(1)
Elevation

20 Christian Street, 1763
2nd fl. chimney breast closet

Figure 23.

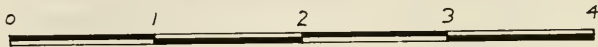
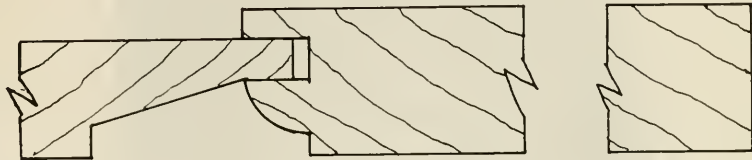


Scale in Feet

INHP Acc. 2532(2&3)
Elevation

20 Christian Street, 1763
2nd flr. chimney breast closet

Figure 24.



Scale in Inches

INHP Acc. 2532(1,2,&3) 20 Christian Street, 1763
Detail 2nd flr. chimney breast closet

Figure 25.



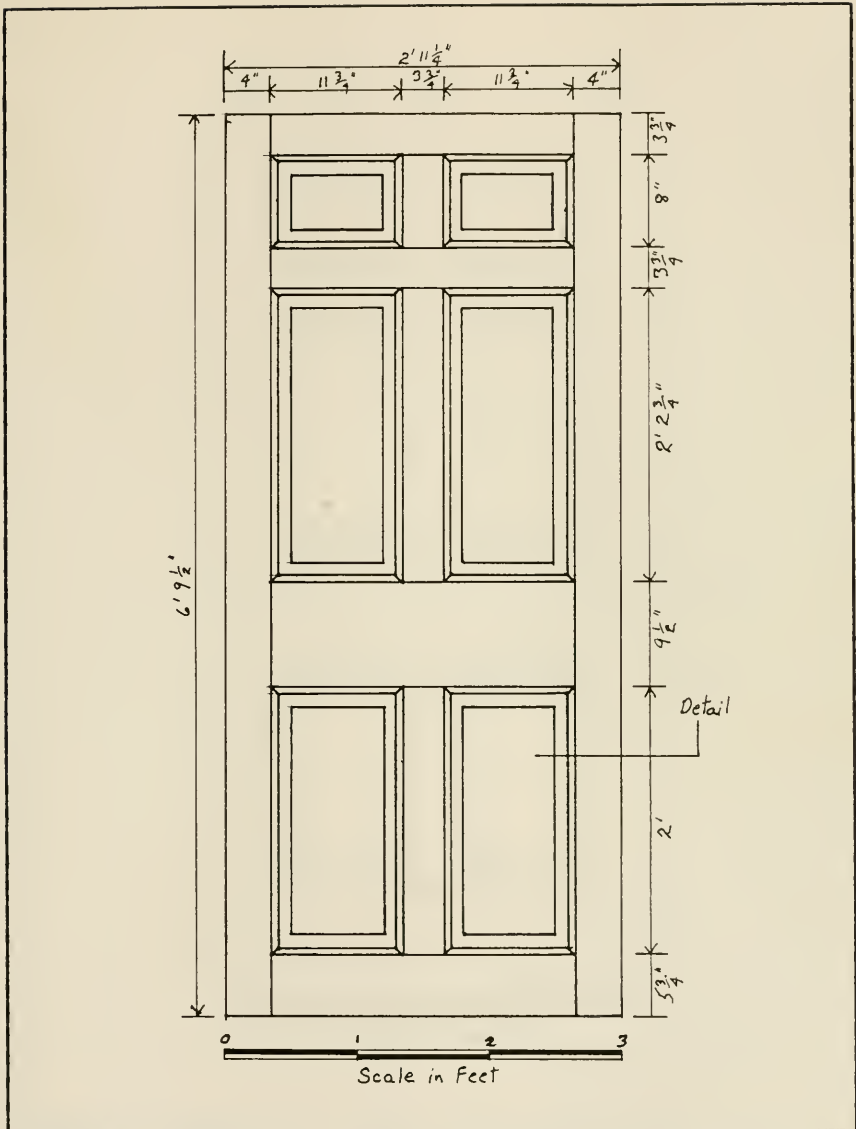
456-458 Belgrade Street, ca. 1783,
Facade.

Figure 26.



456-458 Belgrade Street, ca. 1783,
Interior.

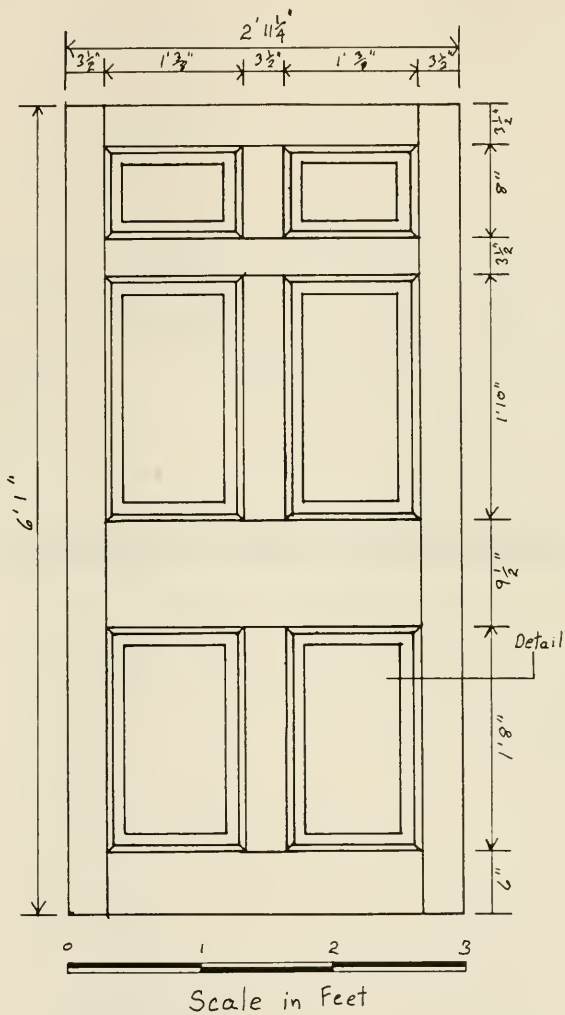
Figure 27.



INHP Acc. 3581-1
Elevation

456-58 Belgrade Street, 1783
1st flr. door to cellar

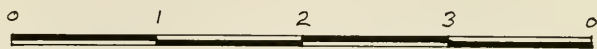
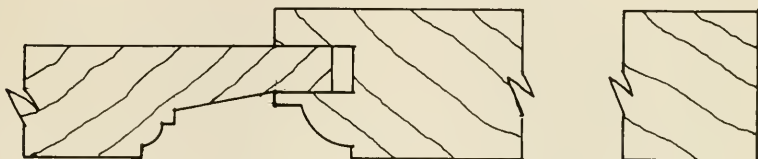
Figure 28.



INHP Acc. 3581-2
Elevation

456-58 Belgrade Street, 1783
1st fl. to stairs to 2nd flr.

Figure 29.

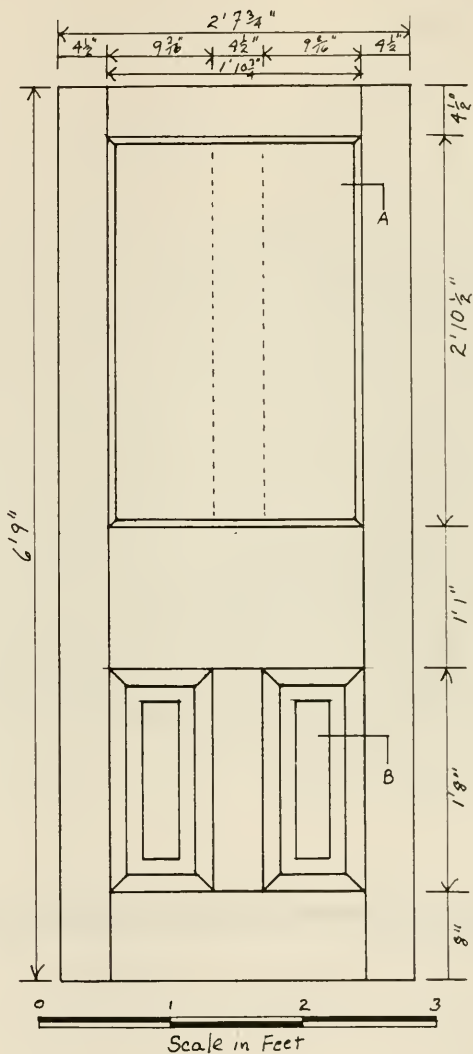


Scale in Inches

INHP Acc. 3581-(1&2)
Detail

456-58 Belgrade Street
1783

Figure 30.

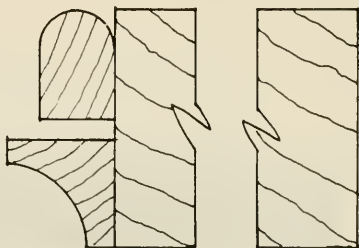


INHP Acc. 3581-8
Elevation

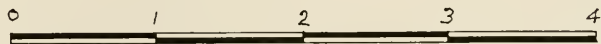
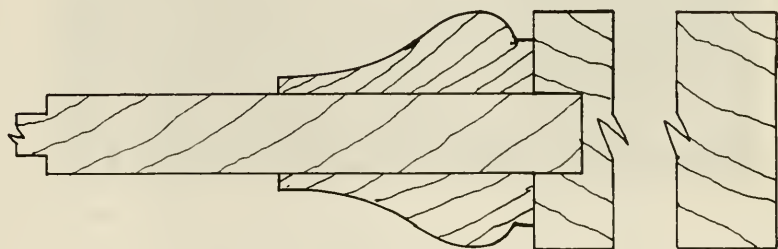
456-58 Belgrade Street, 1783
ca. 1842 alteration

Figure 31.

Detail A



Detail B

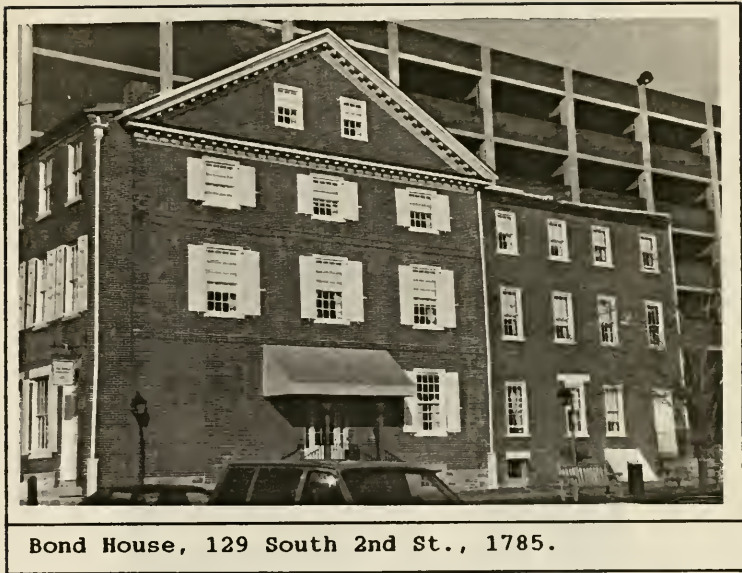


Scale in Inches

INHP Acc. 3581-8
Detail A & B

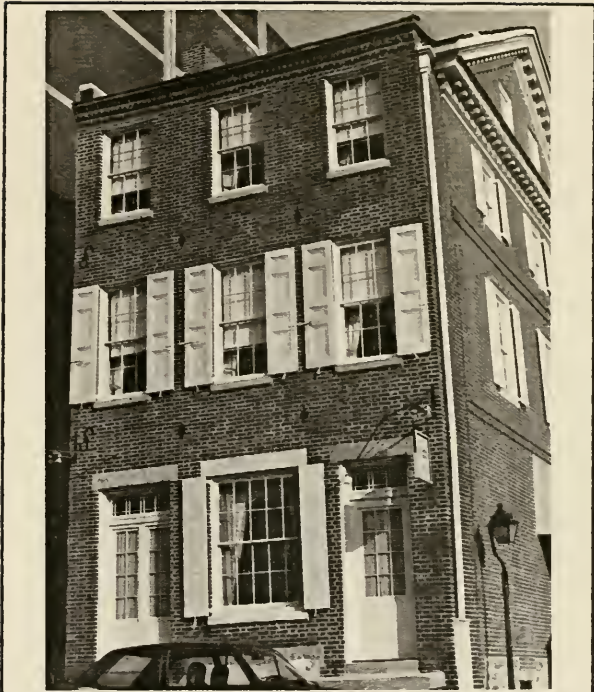
456-58 Belgrade Street, 1783
ca. 1842 alteration

Figure 32.



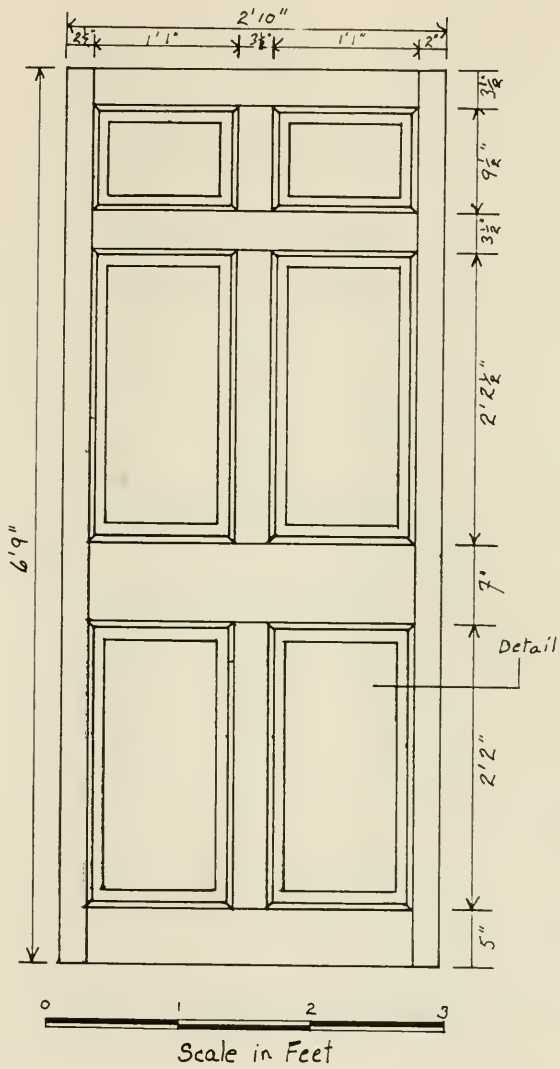
Bond House, 129 South 2nd St., 1785.

Figure 33.



Bond House, 129 South 2nd St., 1785.

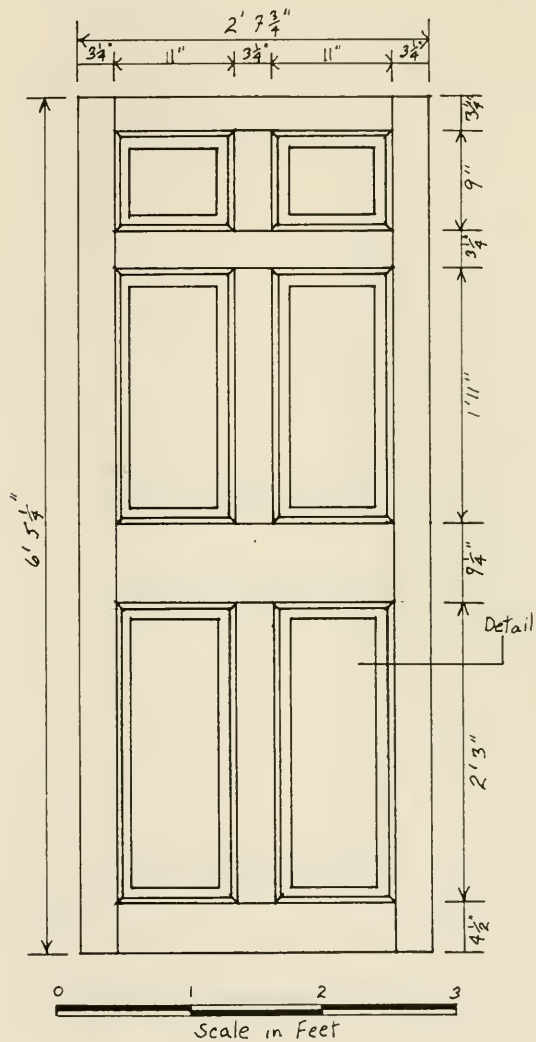
Figure 34.



INHP Acc. 3288-21
Elevation

Bond House, 1785
Situation unknown

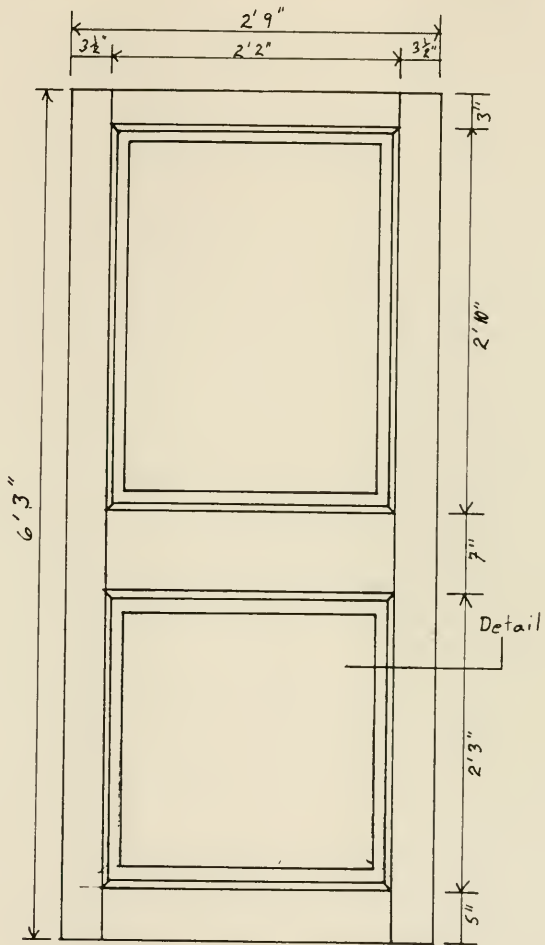
Figure 35.



INHP Acc. 3288-22
Elevation

Bond House, 1785
Situation unknown

Figure 36.

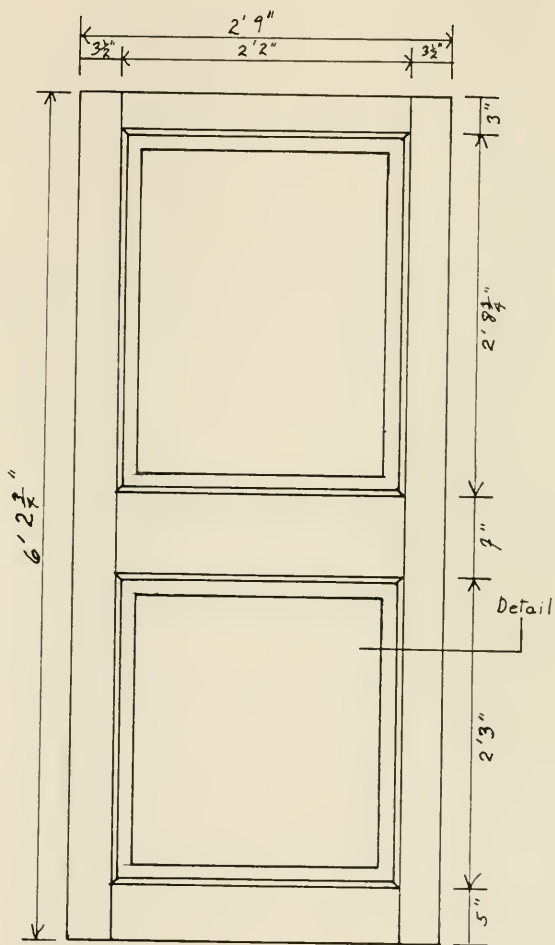


Scale in Feet

INHP Acc. 3288-35
Elevation

Bond House, 1785
Garrett E. chamber

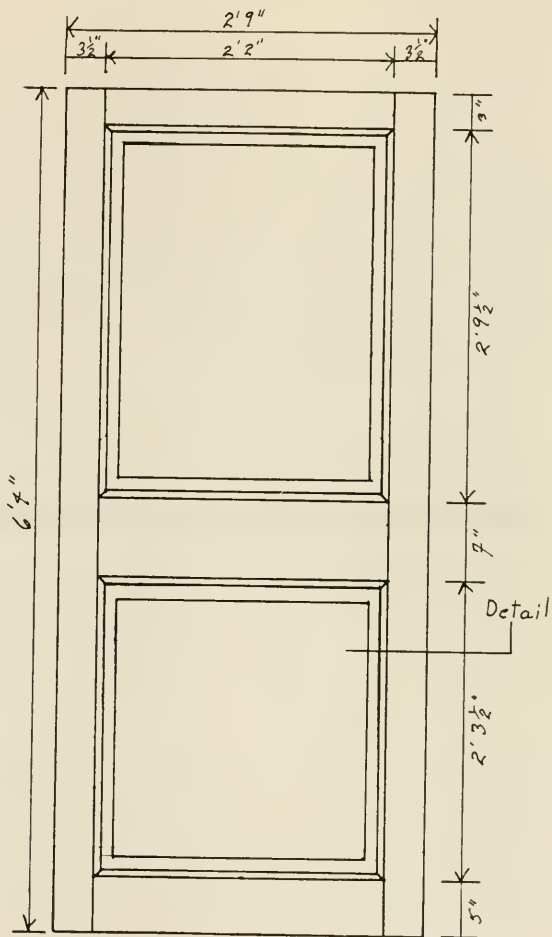
Figure 37.



INHP Acc. 3288-36
Elevation

Bond House, 1785
Garrett S.W. chamber

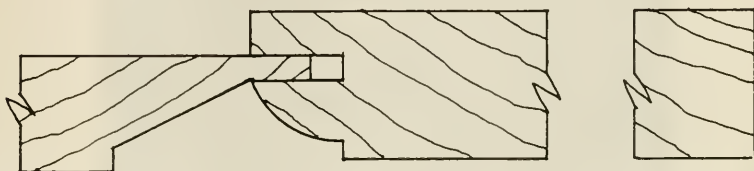
Figure 38.



INHP Acc. 3288-37
Elevation

Bond House, 1785
Garrett S.E. chamber

Figure 39.



Scale in Inches

INHP Acc. 3288-21,22,35,36,37
Detail

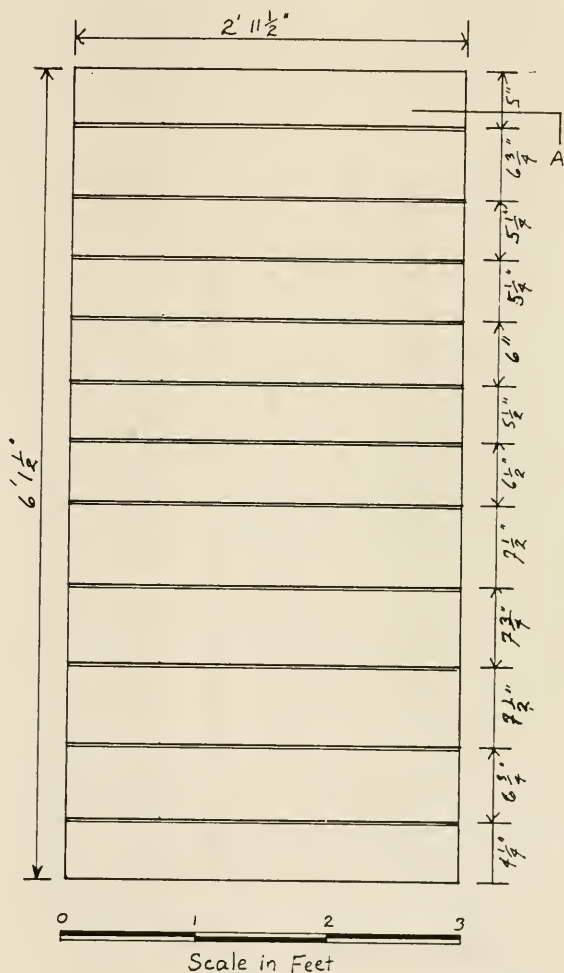
Bond House
1785

Figure 40.



320 Market Street, 1786

Figure 41.



INHP Acc. 1286-2
 Elevation, side 1

320 Market Street, 1786
 Behind elv. shaft 2nd floor

Figure 42.

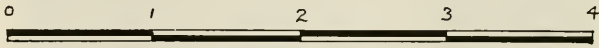
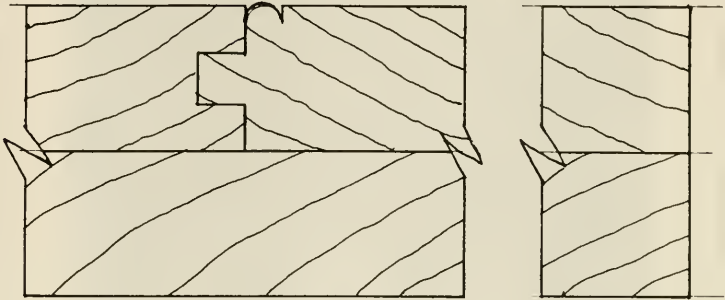


INHP Acc. 1286-2
Elevation, side 2

320 Market Street, 1786
Behind elev. shaft 2nd floor

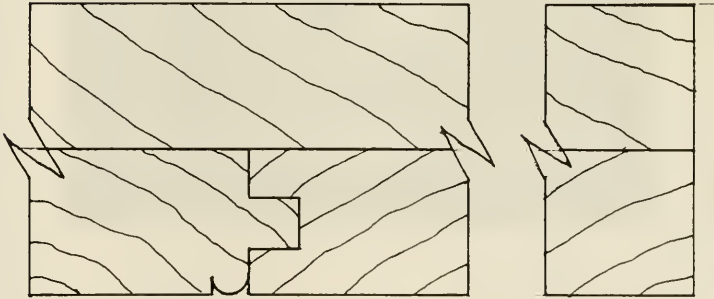
Figure 43.

Detail A



Scale in Inches

Detail B



INHP Acc. 1286-2
Detail A & B

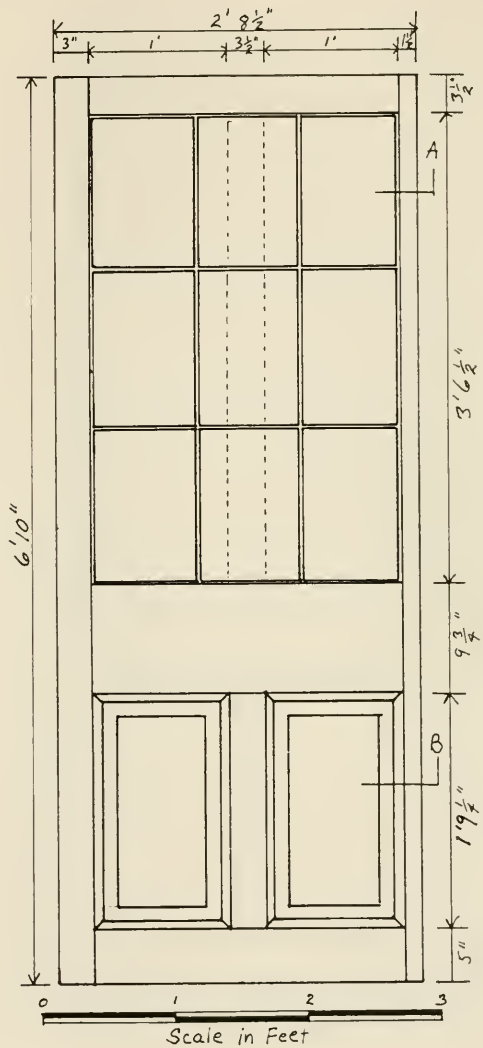
320 Market Street, 1786
Behind elv. shaft 2nd floor

Figure 44.



318 Market Street, 1786.

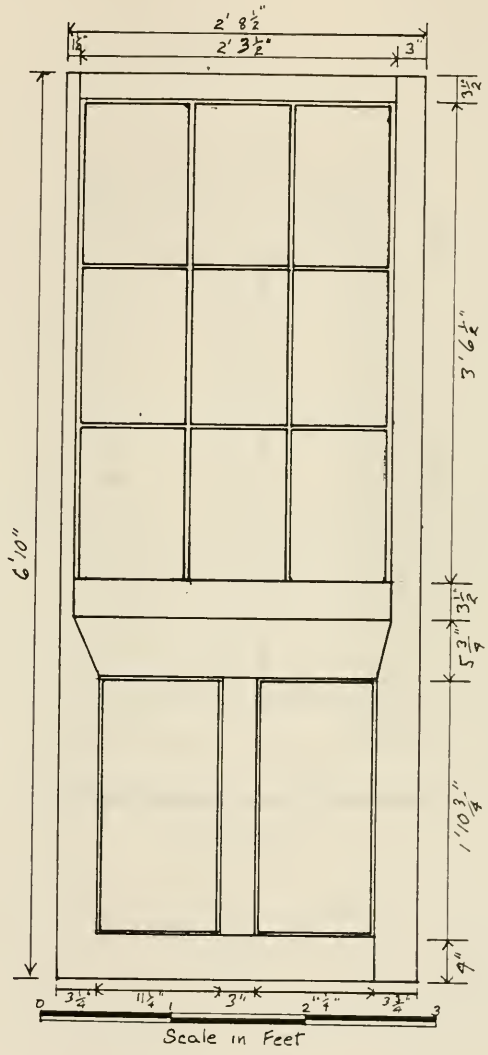
Figure 45.



INHP Acc. 2522-2
Elevation, side 1

318 Market Street, 1786
Closet door in basement

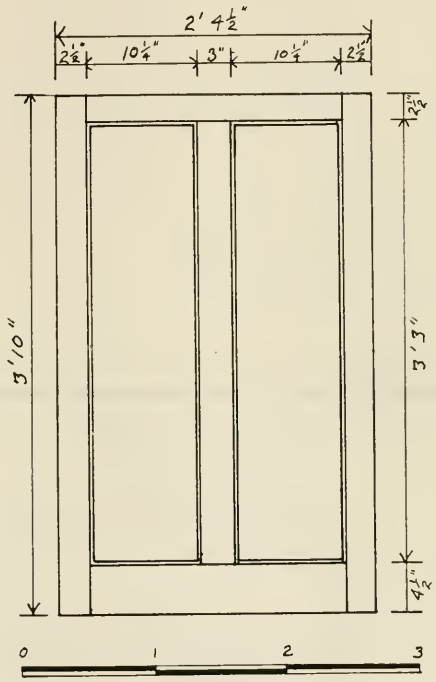
Figure 46.



INHP Acc. 2522-2
 Elevation, side 2

318 Market Street, 1786
 Closet door in basement

Figure 47.



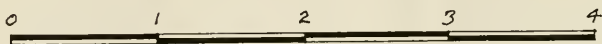
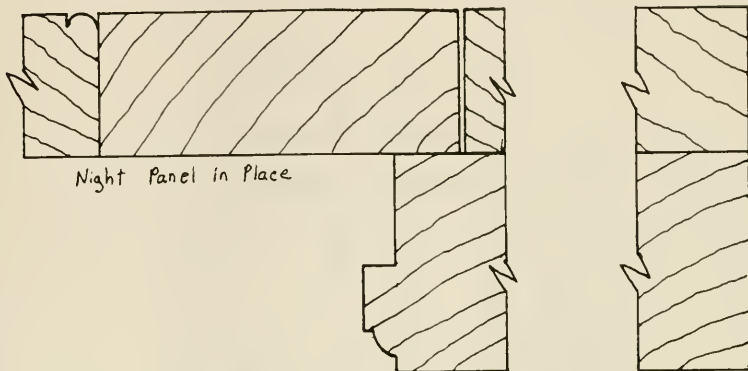
Scale in Feet

INHP Acc. 3522-2
Elevation, night panel

318 Market Street, 1786
Closet door in basement

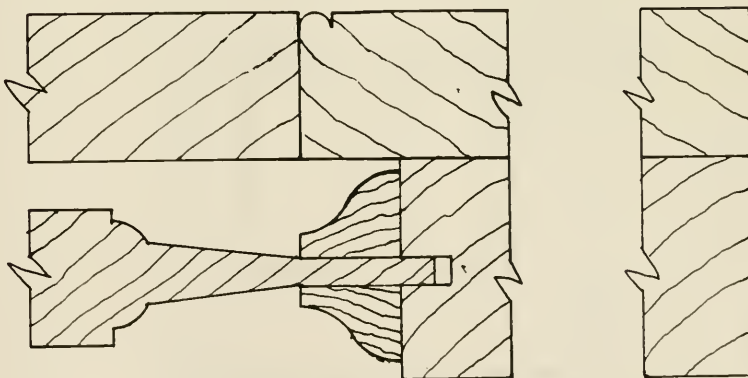
Figure 48.

Detail A



Scale in Inches

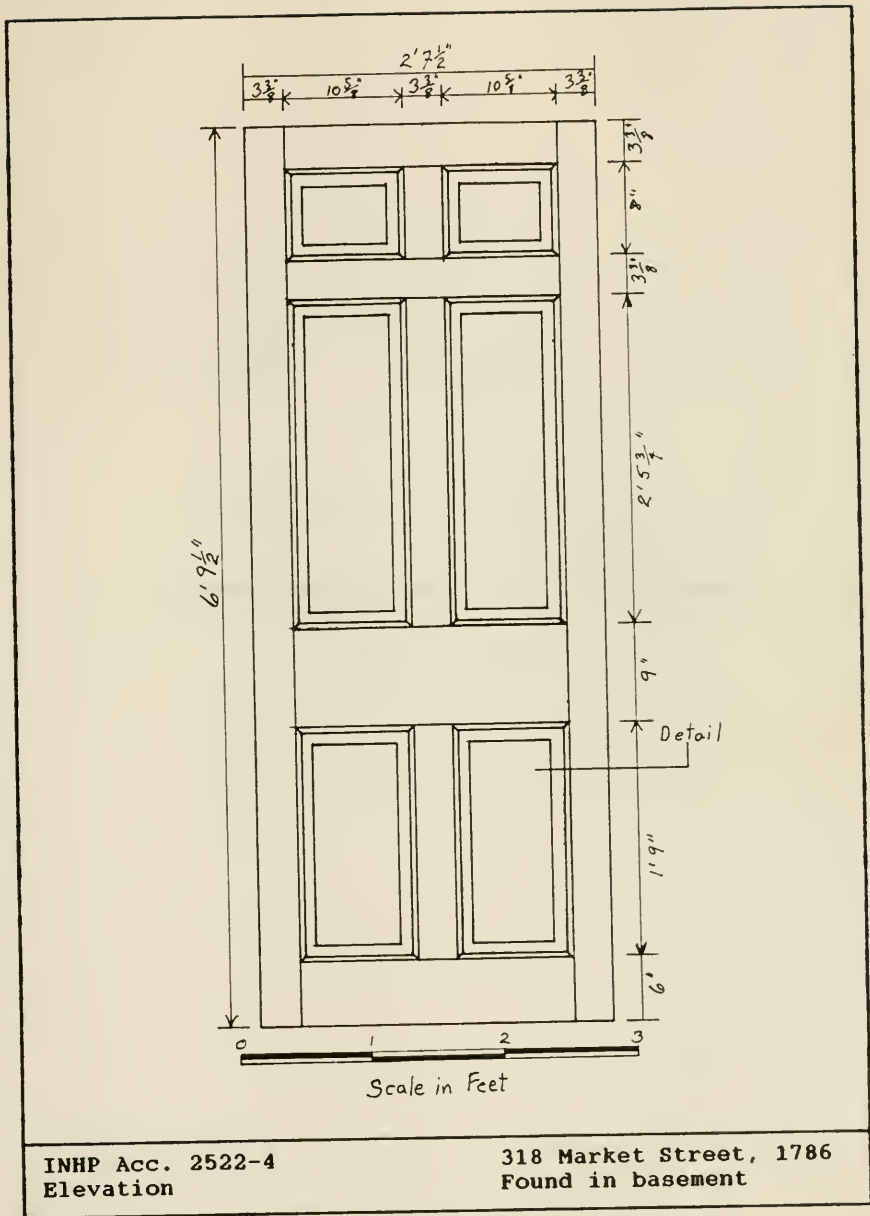
Detail B



INHP Acc. 2522-2
Detail A & B

318 Market Street, 1786
Closet door in basement

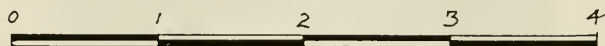
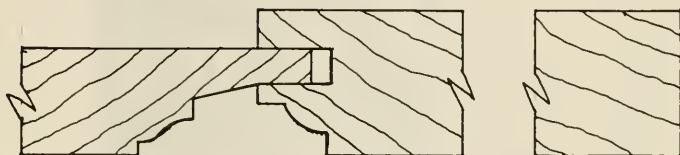
Figure 49.



INHP Acc. 2522-4
Elevation

318 Market Street, 1786
Found in basement

Figure 50.



Scale in Inches

INHP Acc. 2522-4
Detail

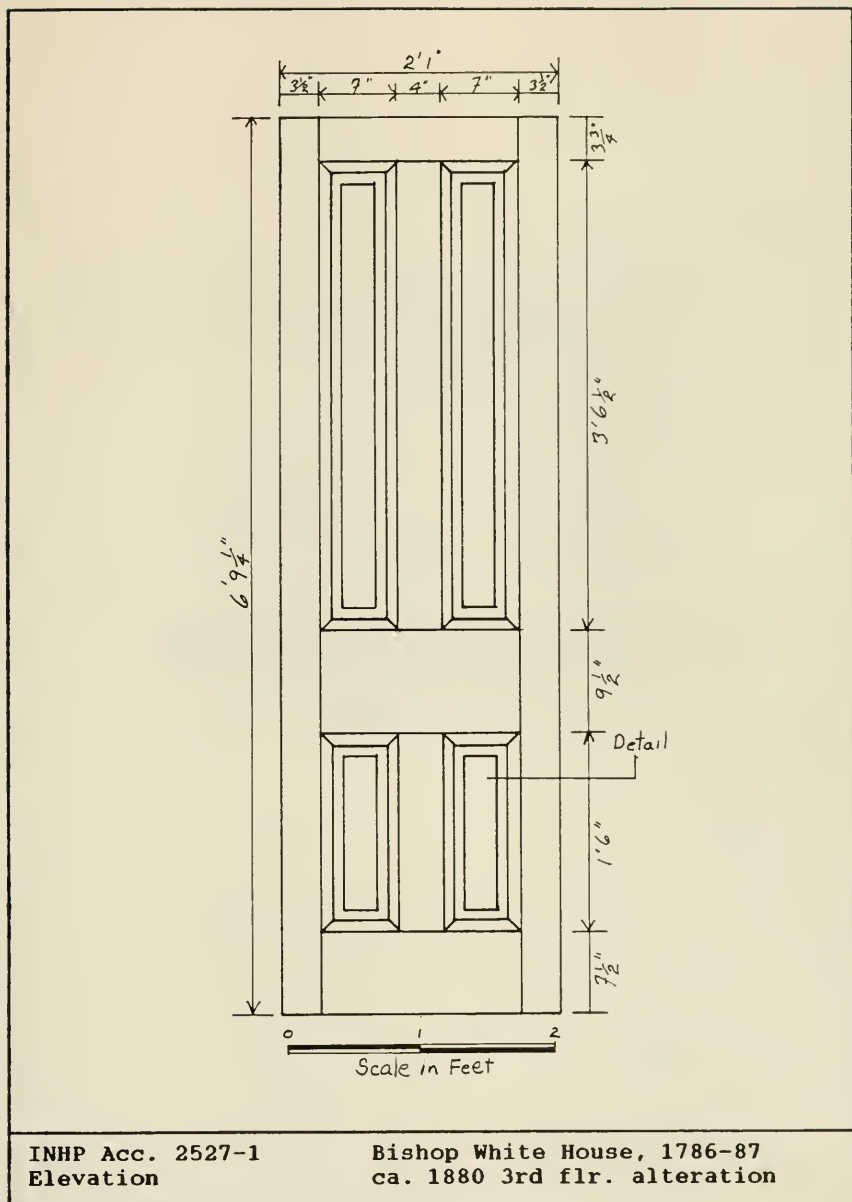
318 Market Street, 1786
Found in basement

Figure 51.



Bishop White House, 309 Walnut Street,
1786-87.

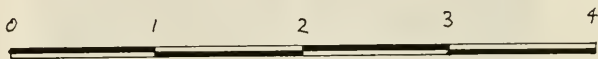
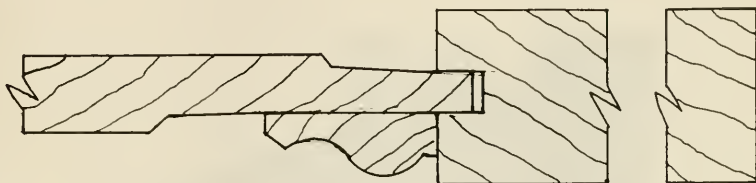
Figure 52.



INHP Acc. 2527-1
Elevation

Bishop White House, 1786-87
ca. 1880 3rd flr. alteration

Figure 53.



Scale in Inches

INHP Acc. 2527-1
Detail

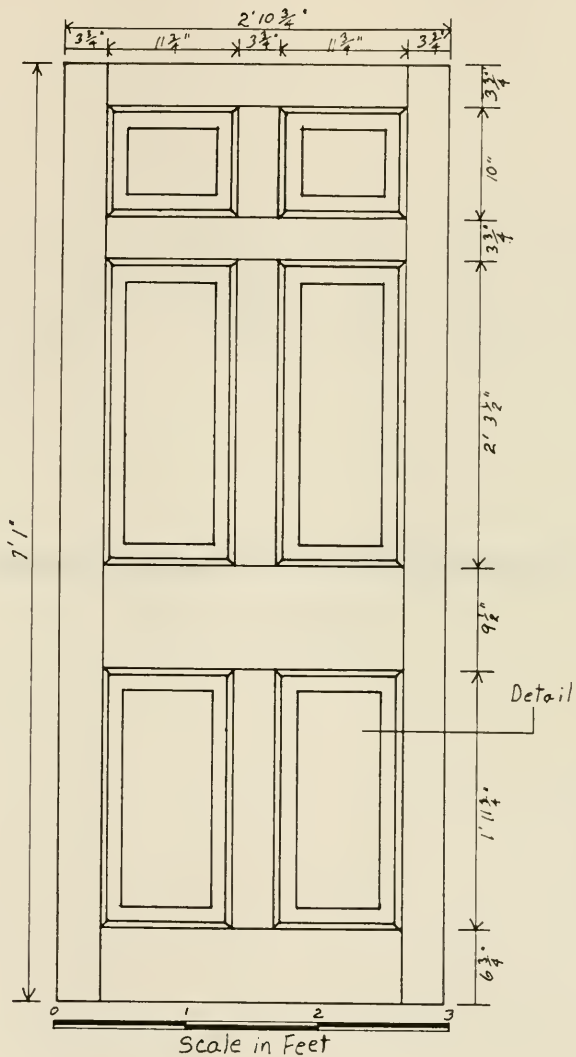
Bishop White House, 1786-87
ca. 1880 3rd flr. alteration

Figure 54.



McIlvaine Houses, 315-317 Walnut
Street, 1791-93.

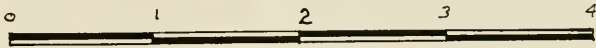
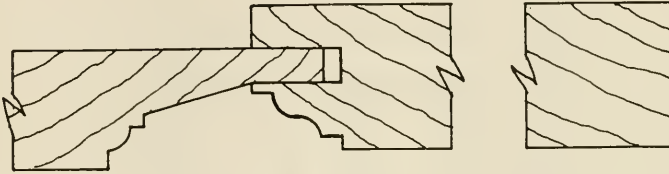
Figure 55.



INHP Acc. 2527-2
Elevation

McIlvaine Houses, 1791-93
3rd floor closet door

Figure 56.

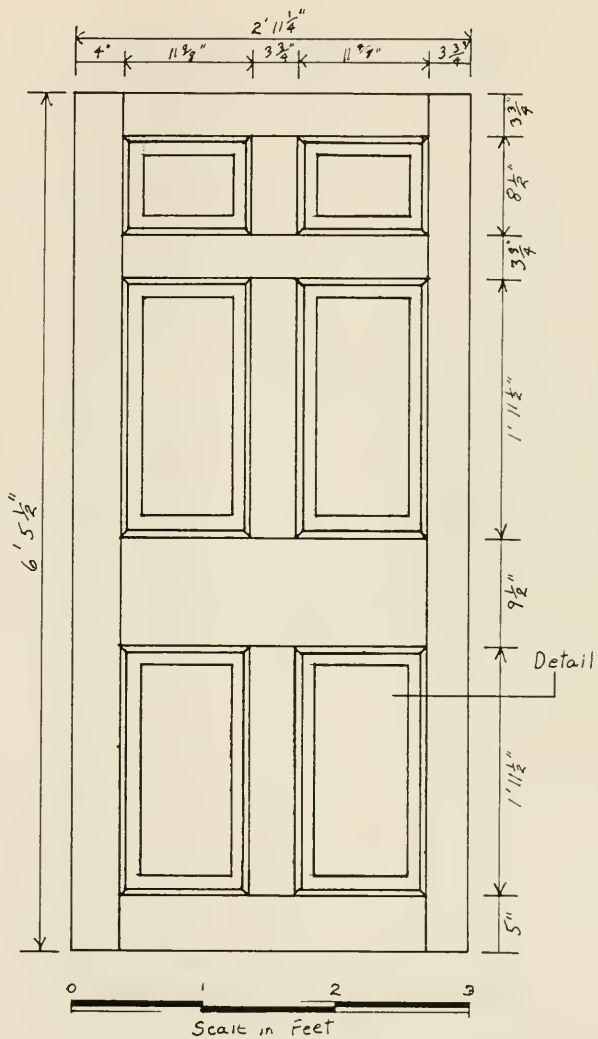


Scale in Inches

INHP Acc. 2527-2
Detail

McIlvaine Houses, 1791-93
3rd floor closet door

Figure 57.



INHP Acc. unknown
Elevation, side 1

McIlvaine Houses, 1791-93
Front door

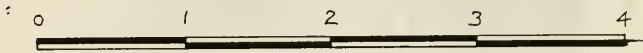
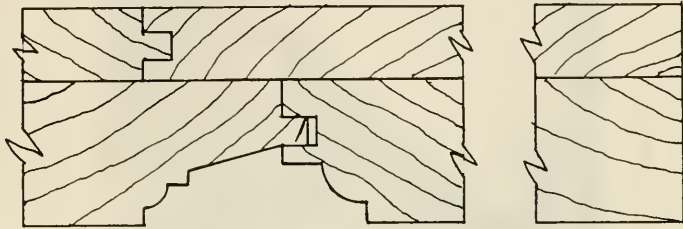
Figure 58.



INHP Acc. unknown
Elevation, side 2

McIlvaine Houses, 1791-93
Front door

Figure 59.

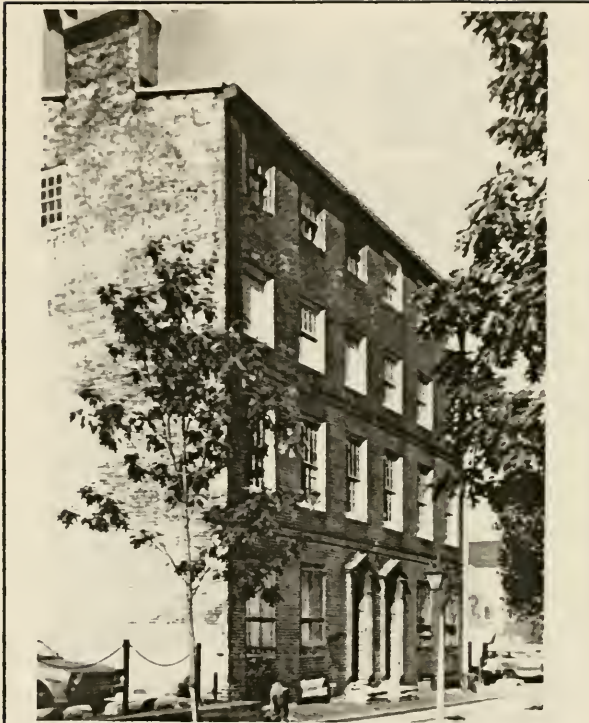


Scale in Inches

INHP Acc. unknown
Detail

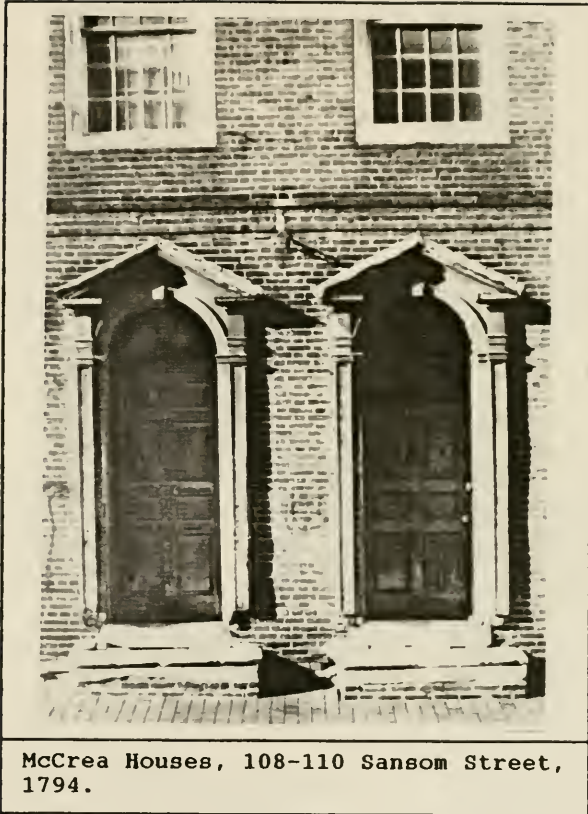
McIlvaine Houses, 1791-93
Front door

Figure 60.



McCrea Houses, 108-110 Sansom Street,
1794.

Figure 61.



McCrea Houses, 108-110 Sansom Street,
1794.

Figure 62.



Figure 63.



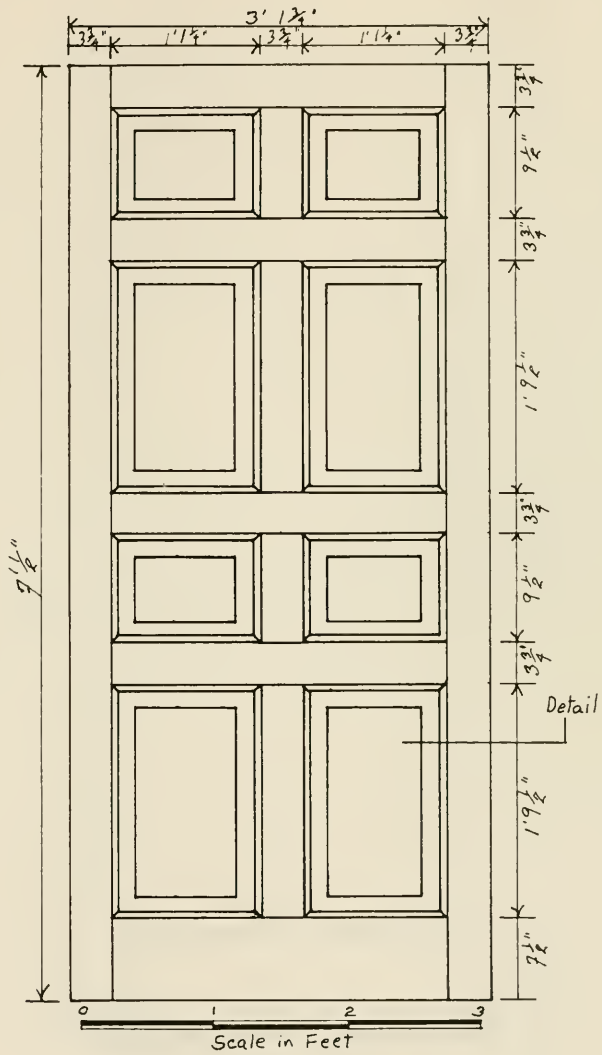
McCrea Houses, 108-110 Sansom Street, 1794,
3rd floor chamber.

Figure 64.



McCrea Houses, 108-110 Sansom Street, 1794,
Cellar.

Figure 65.



INHP Acc. 3493(1&2)
Elevation, side 1

McCrea Houses, 1794
Front doors

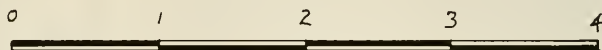
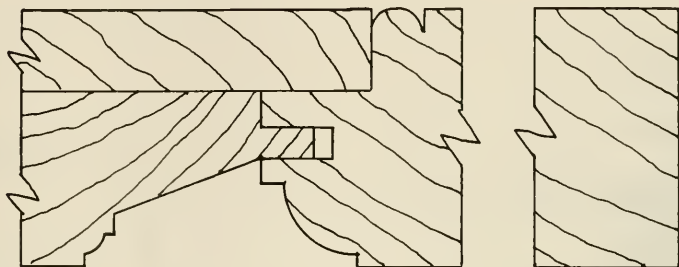
Figure 66.



INHP Acc. 3493(1&2)
Elevation, side 2

McCrea Houses, 1794
Front doors

Figure 67.

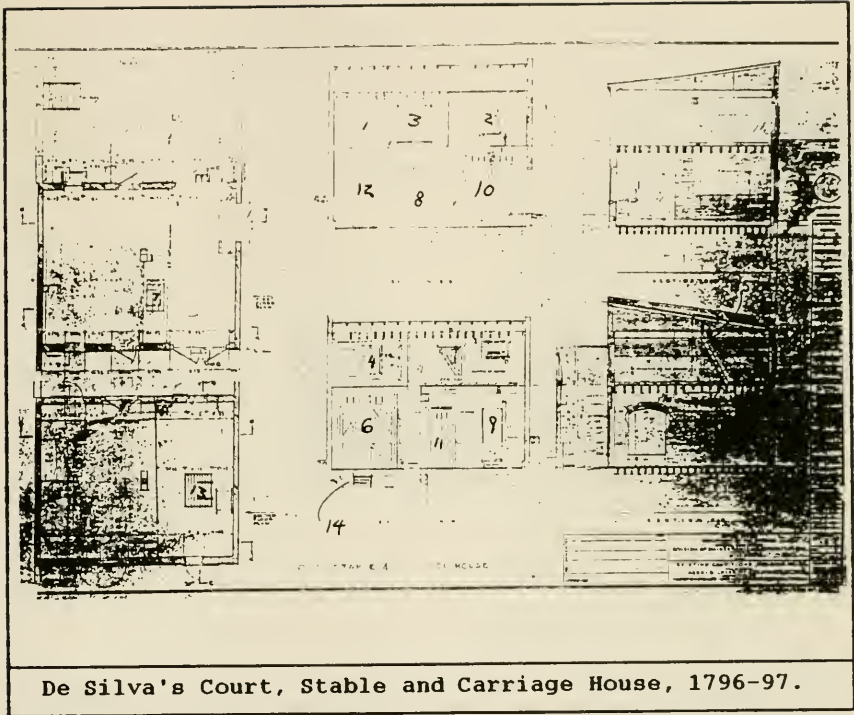


Scale in Inches

INHP Acc. 3493(1&2)
Detail

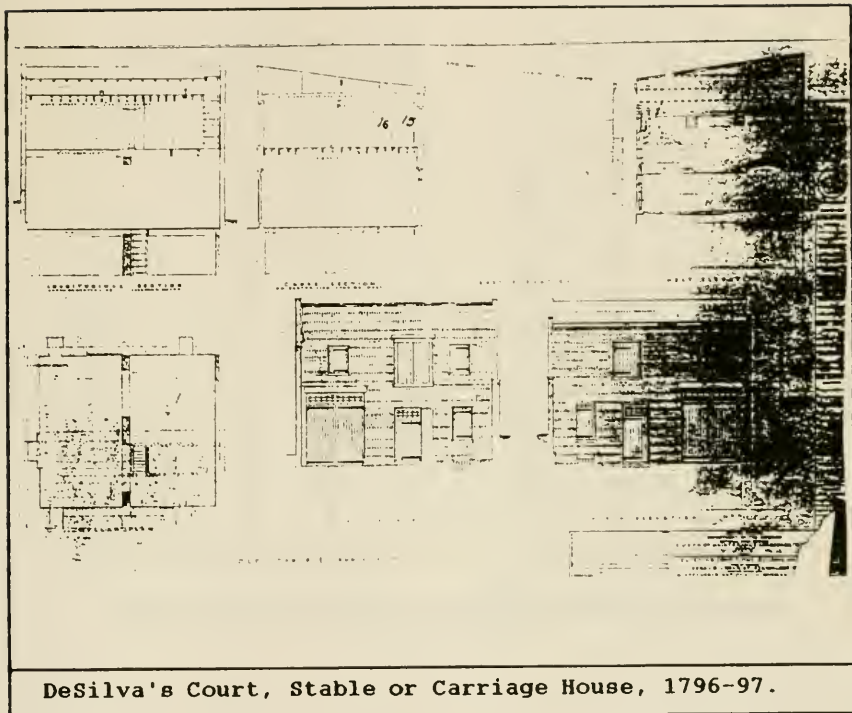
McCrea Houses, 1794
Front doors

Figure 68.



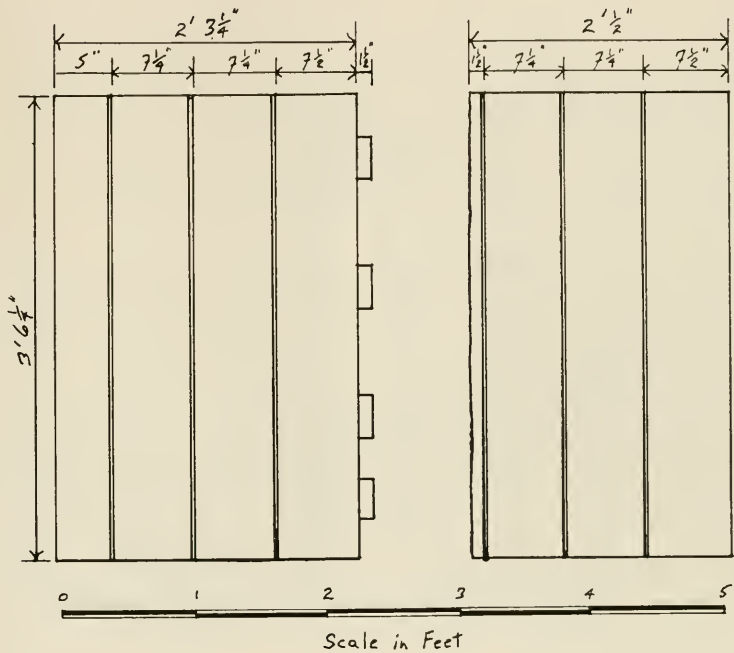
De Silva's Court, Stable and Carriage House, 1796-97.

Figure 69.



DeSilva's Court, Stable or Carriage House, 1796-97.

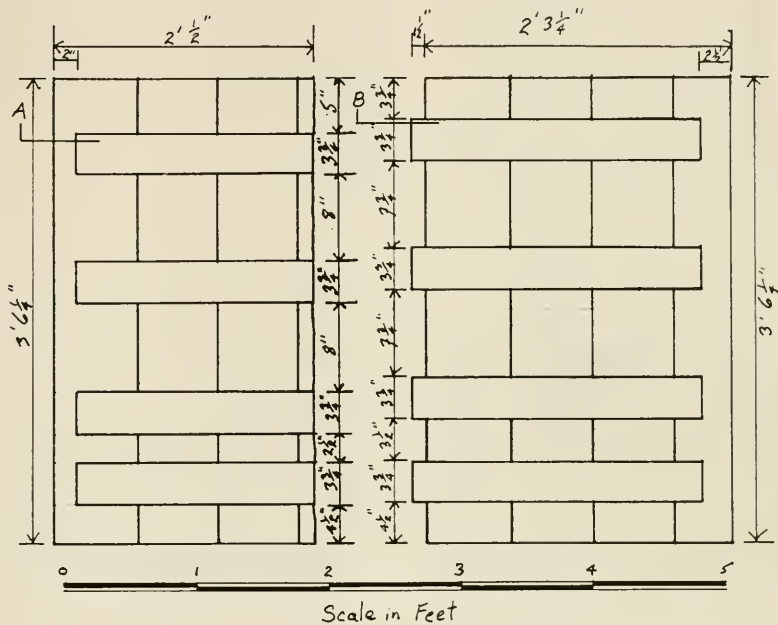
Figure 70.



INHP Acc. 350-a
Elevation, side 1

DeSilva's Court, Stable or
Carriage House, 1796-97

Figure 71.

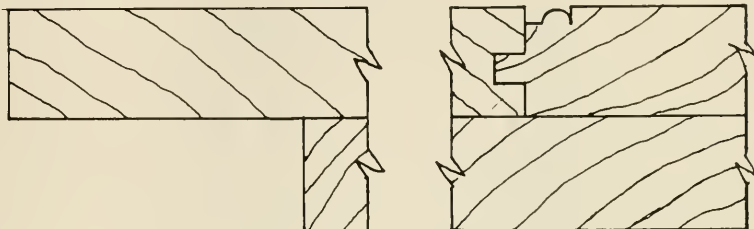


INHP Acc. 350-a
Elevation, side 2

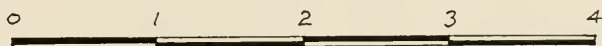
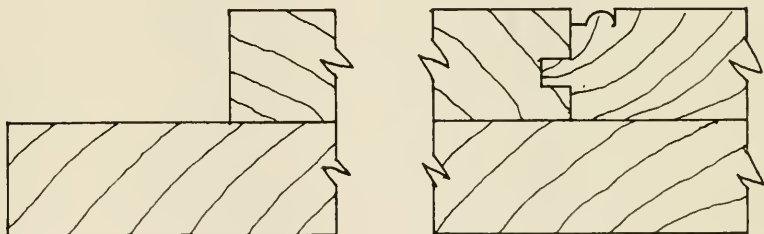
DeSilva's Court, Stable or
Carriage house, 1796-97

Figure 72.

Detail A



Detail B



Scale in Inches

INHP Acc. 350-a
Detail A & B

DeSilva's Court, Stable or
Carriage House, 1796-97

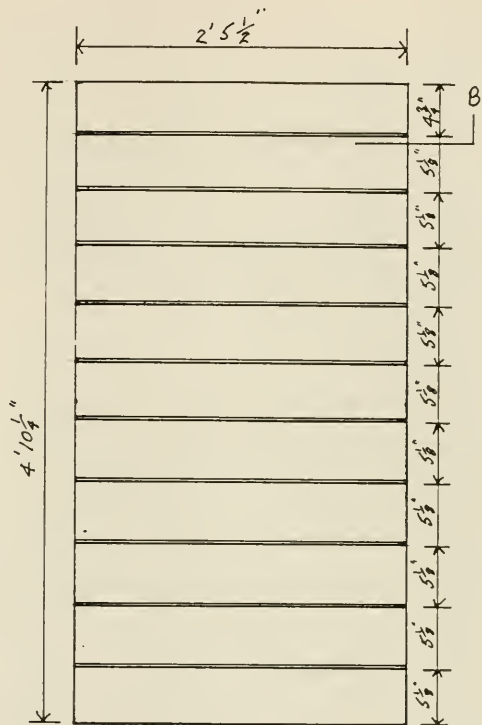
Figure 73.



INHP Acc. 350-b
Elevation, side 1

DeSilva's Court, Stable or
Carriage House, 1796-97

Figure 74.



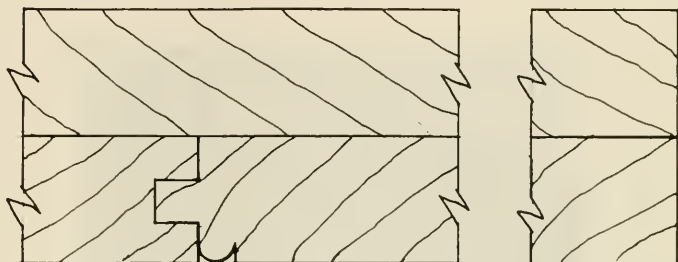
Scale in Feet

INHP Acc. 350-b
Elevation, side 2

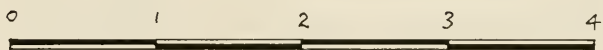
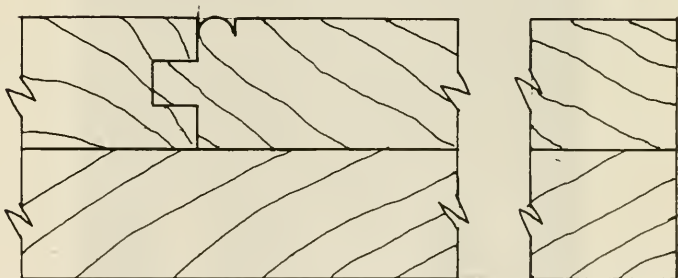
DeSilva's Court, Stable or
Carriage House, 1796-97

Figure 75.

Detail A



Detail B

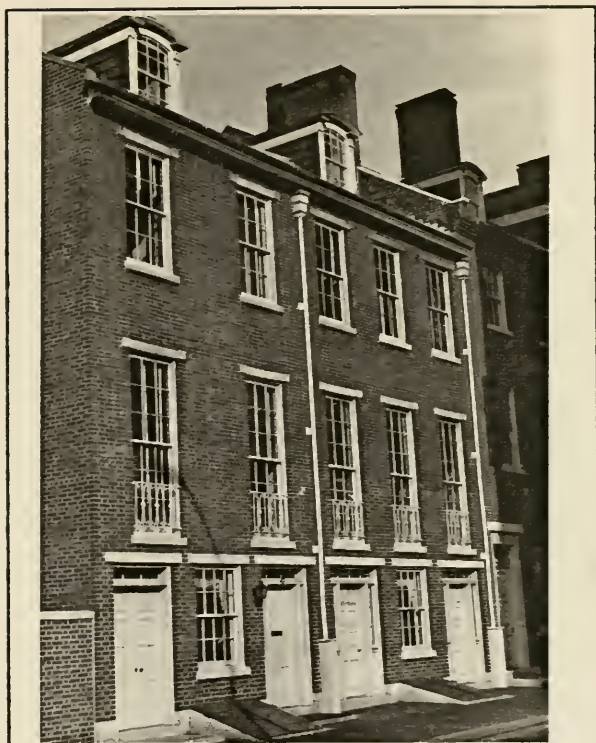


Scale in Inches

INHP Acc. 350-b
Detail A & B

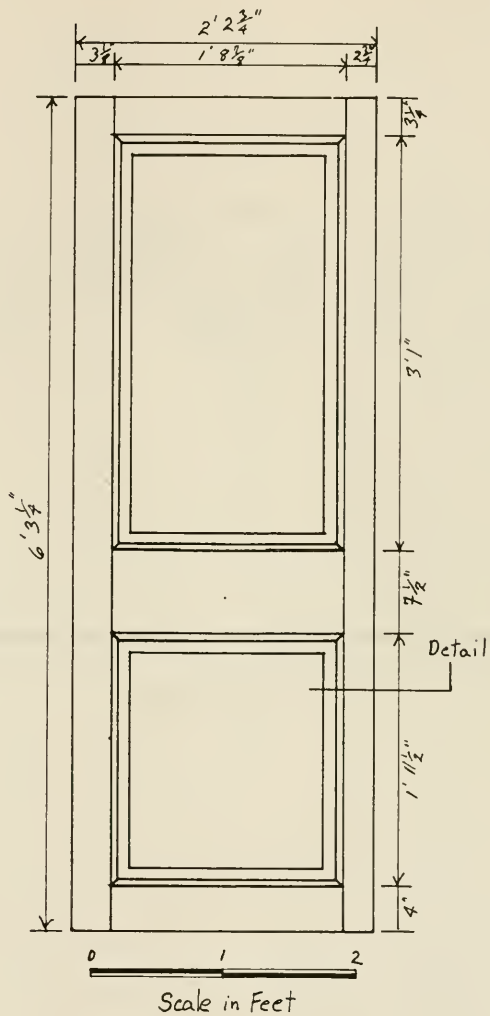
DeSilva's Court, Stable or
Carriage House, 1796-97

Figure 76.



Kidd Houses, 323-325 Walnut Street,
1811-1812.

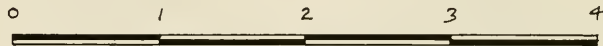
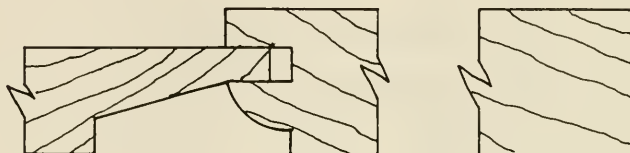
Figure 77.



INHP Acc. 2010-2
Elevation

Kidd Houses, 1811-12
4th floor closet

Figure 78.

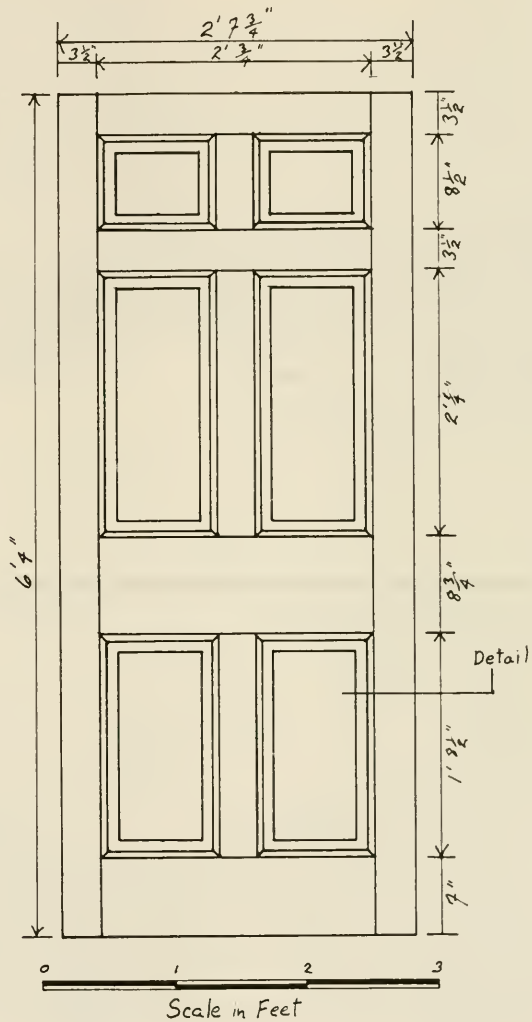


Scale in Inches

INHP Acc. 2010-2
Detail

Kidd Houses, 1811-12
4th floor closet

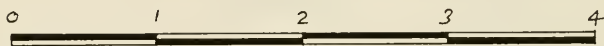
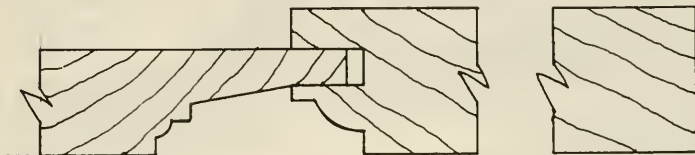
Figure 79.



INHP Acc. 2010-7
Elevation

Kidd Houses, 1811-12
4th floor chamber

Figure 80.



Scale in Inches

INHP Acc. 2010-7
Detail

Kidd Houses, 1811-12
4th floor chamber

Figure 81.



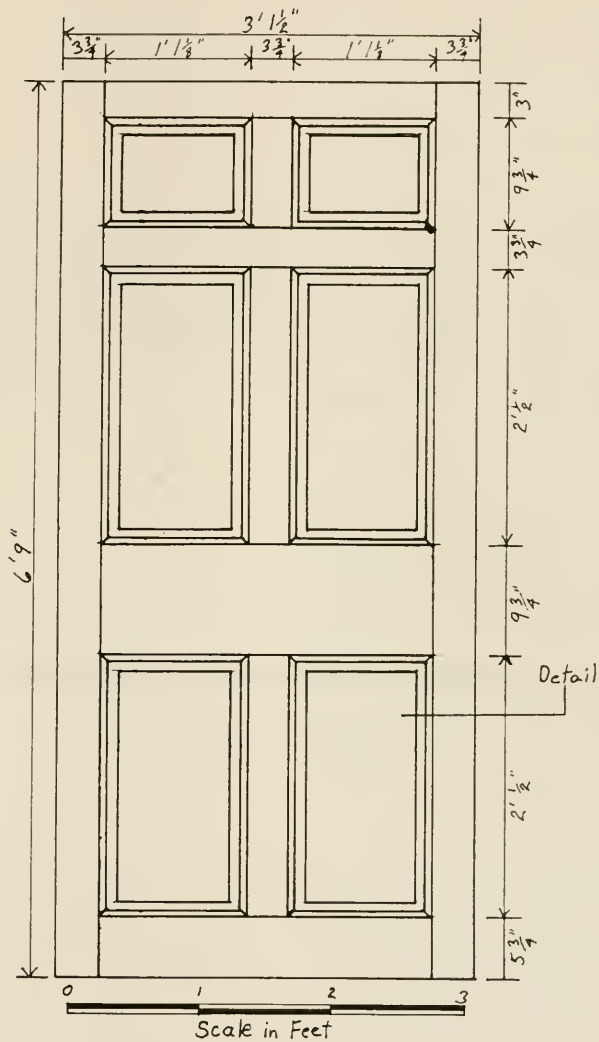
Twelfth Street Meeting House, 20 South 12th Street, 1812.

Figure 82.



Twelfth Street Meeting House, 20 South 12th Street, 1812.

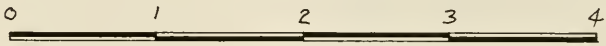
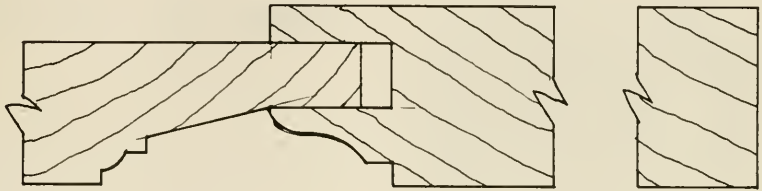
Figure 83.



INHP Acc. 2630-23
Elevation

12th Street Meeting House
1812

Figure 84.



Scale in Inches

INHP Acc. 2630-23
Detail

12th Street Meeting House
1812

Figure 85.

Table A-2
Chronology of Undocumented Doors

DATE	STRUCTURE	DOOR
ca. early 18th c. ^a	Unknown.	<u>Acc. 2816-3:</u> Six paneled door. Framed square both sides. Raised panels one side. 6' 7 1/4" x 2' 6 3/4" x 1 1/4". ^b
Early 18th c. ^c	Falls Township Houses. ^d	<u>Acc. 62-2:</u> Two four paneled doors. Framed with ovolo moulding one side. Raised panels with ovolo moulding one side. (a) 6' 4 1/4" x 2' 7" x 1 1/8". (b) 6' 4" x 2' 10" x 1 1/8". ^e <u>Acc. 62-4:</u> Two four paneled doors. Framed with ovolo moulding one side. Raised panels with ovolo moulding one side. Designated closet doors. ^f (a) 6' 5 1/2" x 2' 10" x 1 1/8". (b) 6' 6 3/4" x 2' 6" x 1 1/8". ^g <u>Acc. 62-17:</u> Six paneled door. Framed with ovolo moulding one side. Raised panels with ovolo moulding one side. Lined one side. 6' x 3' 2 1/2" x 1 3/4". ^h
18th c. ⁱ	Unknown.	<u>Acc. 3601-5:</u> Four paneled door. Framed with ovolo fillet moulding one side. Raised panels with ovolo fillet moulding one side. 5' 7 1/2" x 2' 5 1/2" x 1". ^j

Continued on next page

Table A-2 continued

<u>Date</u>	<u>Structure</u>	<u>Door</u>
ca. 1760. ^k	Unknown.	<u>Acc. 2527-4:</u> Six paneled door. Framed with ovolo moulding one side. Raised panels with ovolo moulding one side. Closet door. 6' 6" 2' 6" x 1 1/4". ⁱ
Late 18th c. ^l	Unknown.	<u>Acc. 2816-4:</u> Six paneled door. Framed with ovolo moulding both sides. Raised panels with fillet cavetto fillet moulding one side. 6' 2 3/4" x 2' 7" x 1". ⁿ
Early 19th c. ^o	239 Spruce St. ^p	<u>Acc. 3601-4:</u> Eight paneled door. Quirked ovolo and astragal moulding laid in both sides. Panels raised both sides. Front door. ^q 7' 3/4" x 3' 3/4" x 1 3/4". ^r
ca. 1830. ^s	Unknown.	<u>Acc. 2527-5:</u> Six paneled door. Quirked ovolo and astragal mouldings laid in both sides. Raised panels both sides. 7' x 2' 9 1/4" x 1 1/2". ^t
ca. 1840. ^u	Unknown.	<u>Acc. 2527-3:</u> Four paneled door. Grecian quirked cyma reversa moulding laid in one side. Raised chamfered panels both sides. 6' 5 1/2" x 2' 4" x 1 1/8". ^v
ca. 1897-1900. ^w	Unknown.	<u>Acc. 2816-2:</u> Six paneled door. Quirked ovolo and astragal mouldings laid in both sides. Raised panels both sides. 6' 9 3/8" x 2' 11 1/4" x 1 3/8". ^x

Continued on next page

Table A-2 continued

<u>Date</u>	<u>Structure</u>	<u>Door</u>
Unknown.	Unknown.	<u>Acc. 2816-5:</u> Ledged door. Two vertical boards, spline joint with ovolo moulding on inside edges. Three ledges with ovolo moulding on all four edges. 6' x 3' x 1". Two ledges 6 1/2" x 1 1/4". One ledge 5 1/2" x 1 1/4." ^y
Unknown.	Unknown.	<u>Acc. unknown:</u> Six paneled door. Framed with filet cyma recta moulding one side. Raised panels one side. 6' 6 3/4" x 2' 7 3/4" x 1". ^z

^a Independence National Historical Park. Museum Accessions' Files. First Bank of the United States. Philadelphia. Acc. 2816-3.

^b See Appendix A, figs. 86 & 87, pp. 161 & 162.

^c Independence National Historical Park. Acc. 62.

^d Ibid.

^e See Appendix A, figs. 88, 89, & 92, pp. 162, 164, & 167.

^f Independence National Historical Park. Acc. 62-4.

^g See Appendix A, figs. 90-92, pp. 165-167.

^h See Appendix A, figs. 93-95, pp. 168-170.

ⁱ Independence National Historical Park. Acc. 3601-5.

^j See Appendix A, figs. 96 & 97, pp. 171 & 172.

^k Independence National Historical Park. Acc. 2527-4.

^l See Appendix A, figs. 98 & 99, pp. 173 & 174.

^m Independence National Historical Park. Acc. 2816-4.

ⁿ See Appendix A, figs. 100 & 101, pp. 175 & 176.

^o Independence National Historical Park. Acc. 3601-4.

^p Ibid.

^q Ibid.

^r See Appendix A, figs. 102 & 103, pp. 177 & 178.

^s Independence National Historical Park. Acc. 2527-5.

^t See Appendix A, figs. 104 & 105, pp. 179 & 180.

^u Independence National Historical Park. Acc. 2527-3.

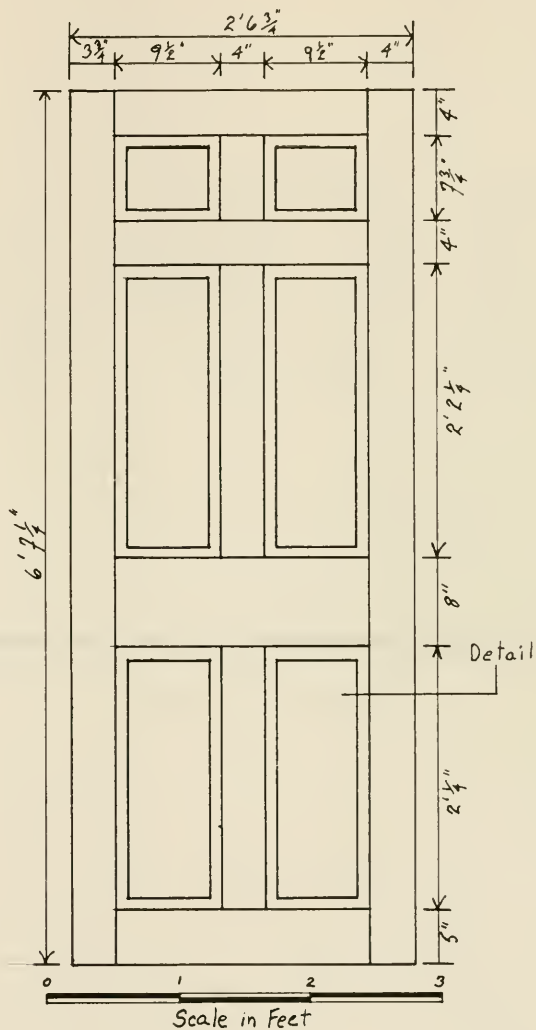
^v See Appendix A, figs. 106 & 107, pp. 181 & 182.

^w Independence National Historical Park. Acc. 2816-2.

^x See Appendix A, figs. 108 & 109, pp. 183 & 184.

^y See Appendix A, figs. 110-113, pp. 185-188.

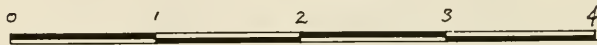
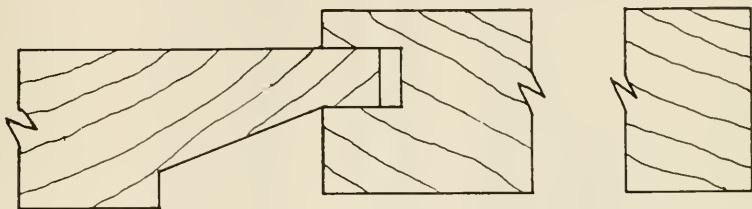
^z See Appendix A, figs. 114 & 115, pp. 189 & 190.



INHP Acc. 2816-3
Elevation

ca. early 18th c.

Figure 86.

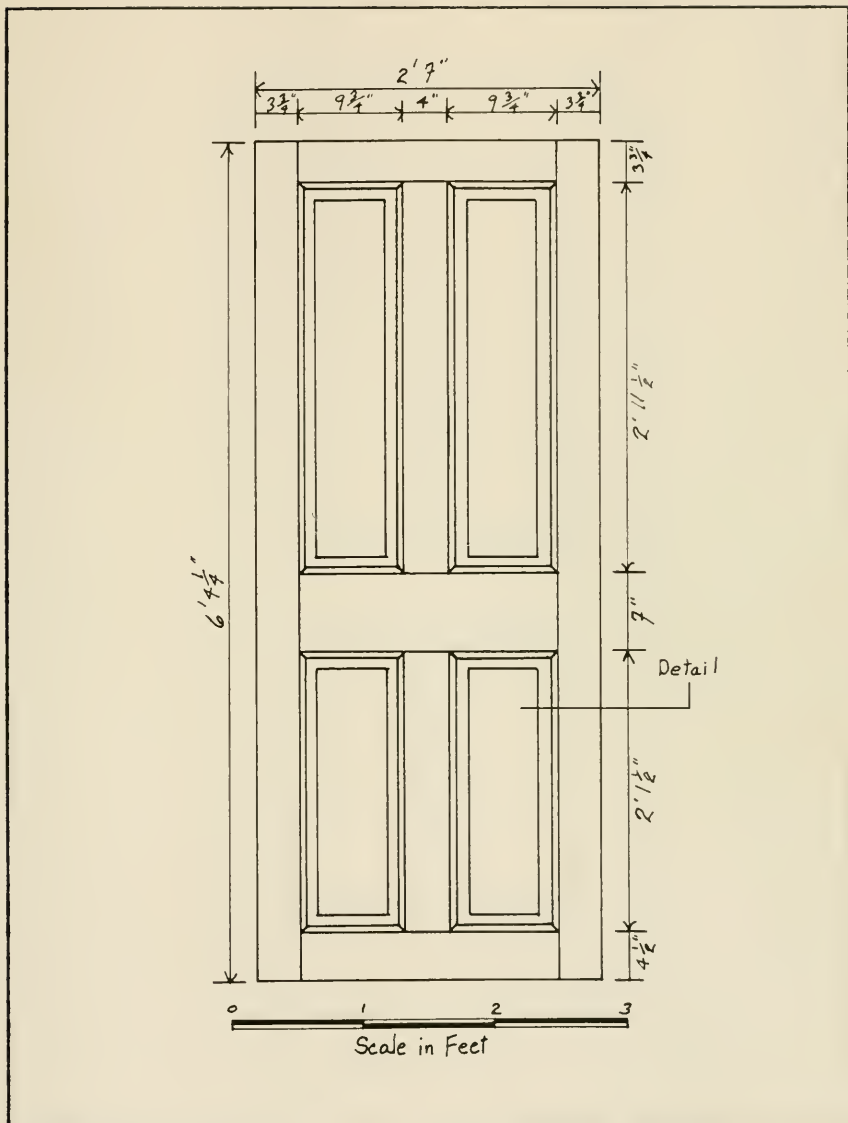


Scale in Inches

INHP Acc. 2816-3
Detail

ca. early 18th c.

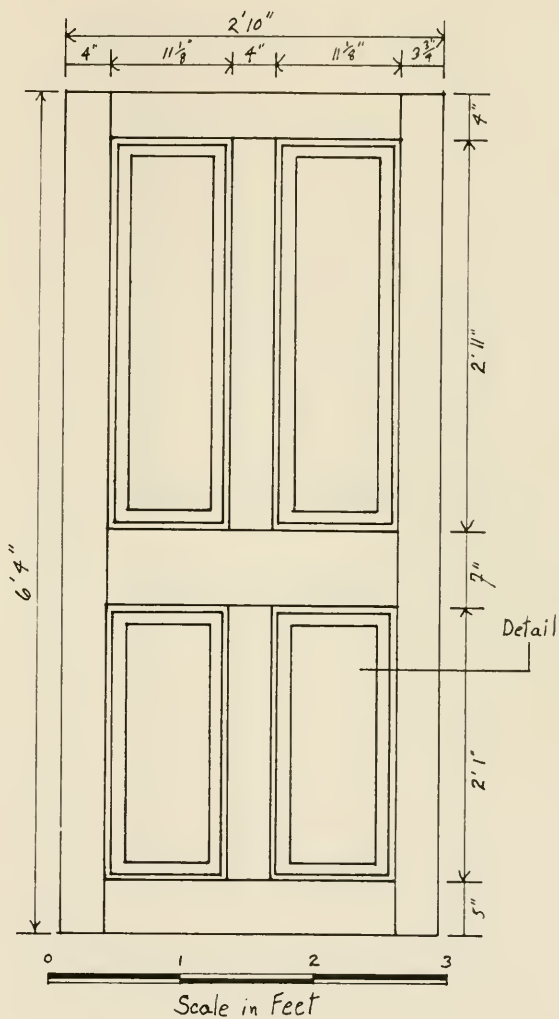
Figure 87.



INHP Acc. 62-2(a)
Elevation

Falls Township Houses
Early 18th c.

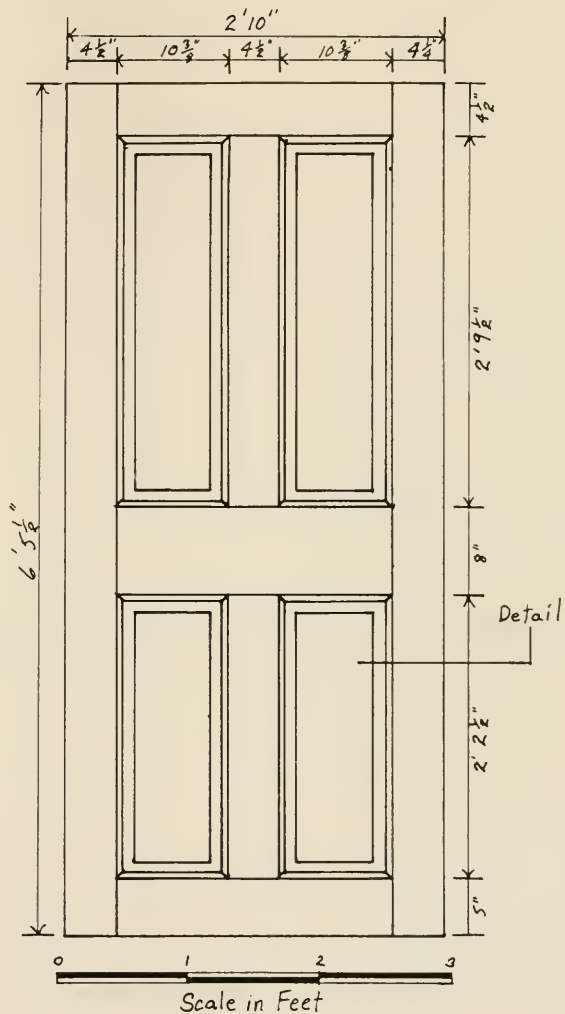
Figure 88.



INHP Acc. 62-2(b)
Elevation

Falls Township Houses
Early 18th c.

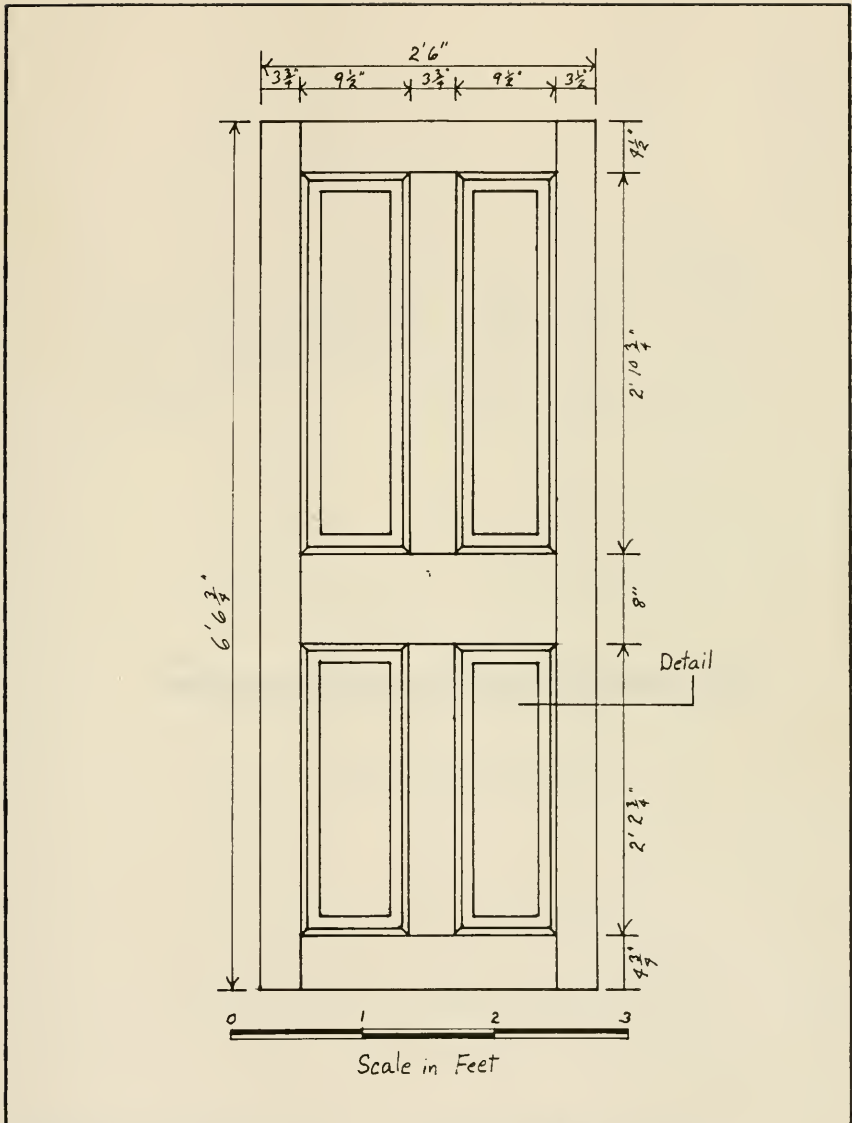
Figure 89.



INHP Acc. 64-4(a)
Elevation

Falls Township Houses
Early 18th c.

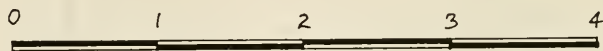
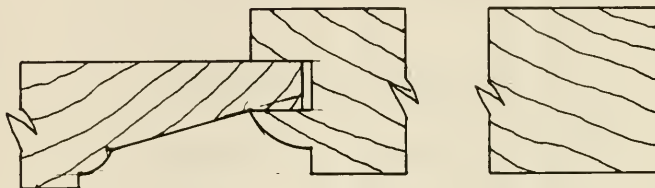
Figure 90.



INHP Acc. 64-4(b)
Elevation

Falls Township Houses
Early 18th c.

Figure 91.

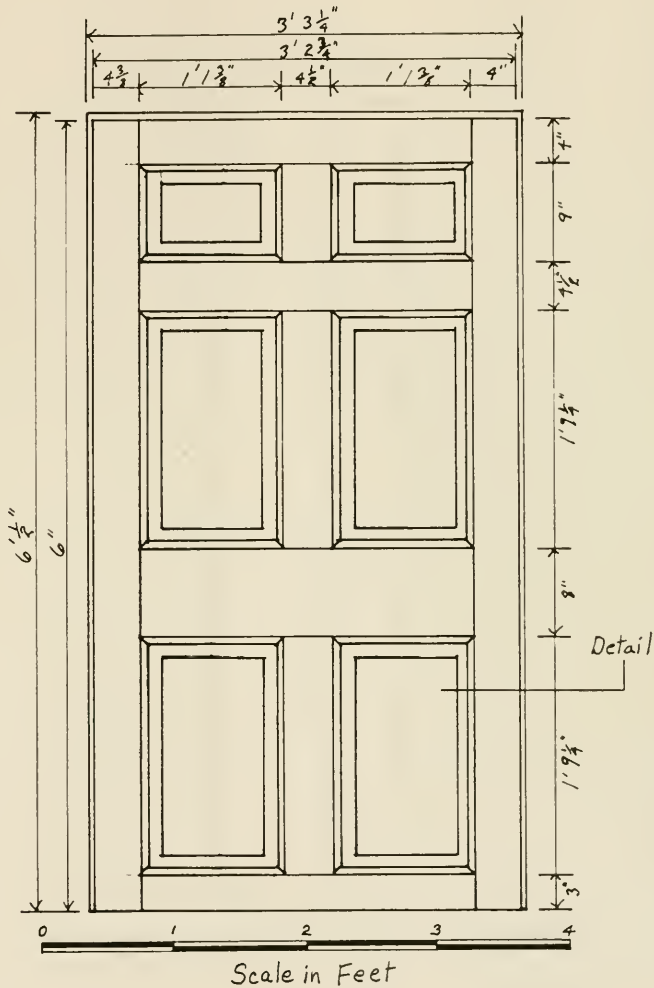


Scale in Inches

INHP Acc. 62-2 (a & b)
62-4 (a & b) Detail

Falls Township Houses
Early 18th c.

Figure 92.



INHP Acc. 62-17
Elevation, side 1

Falls Township Houses
Early 18th c.

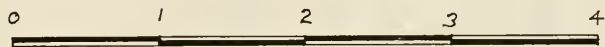
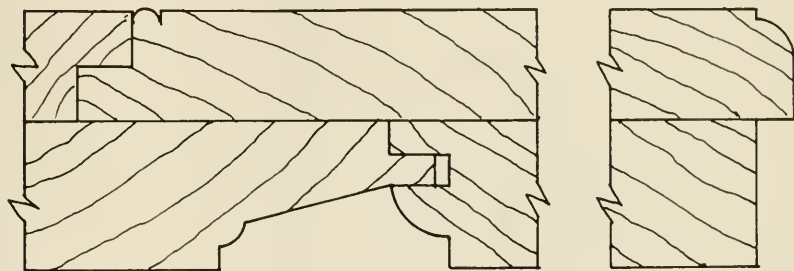
Figure 93.



INHP Acc. 62-17
 Elevation, side 2

Falls Township Houses
 Early 18th c.

Figure 94.

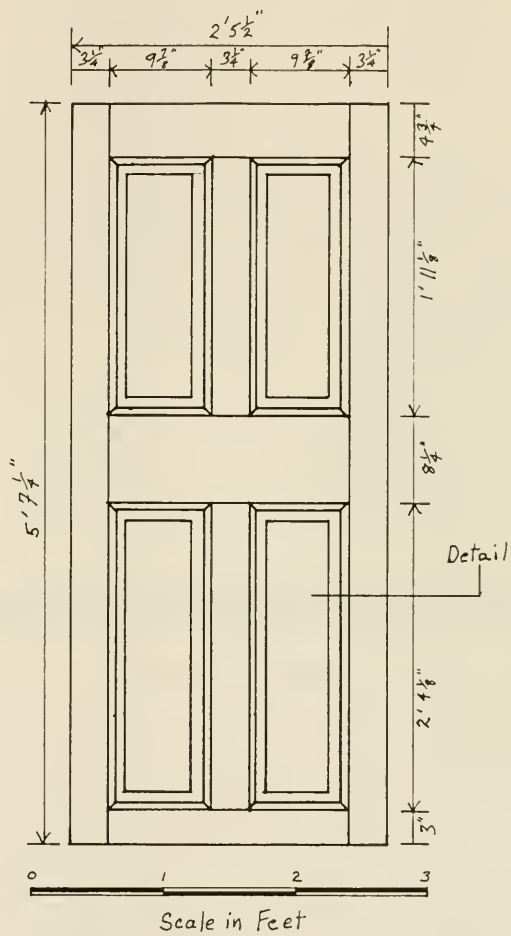


Scale in Inches

INHP Acc. 62-17
Detail

Falls Township Houses
Early 18th c.

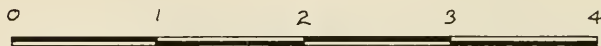
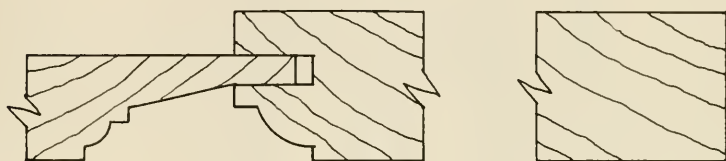
Figure 95.



INHP Acc. 3601-5
Elevation

18th c.

Figure 96.

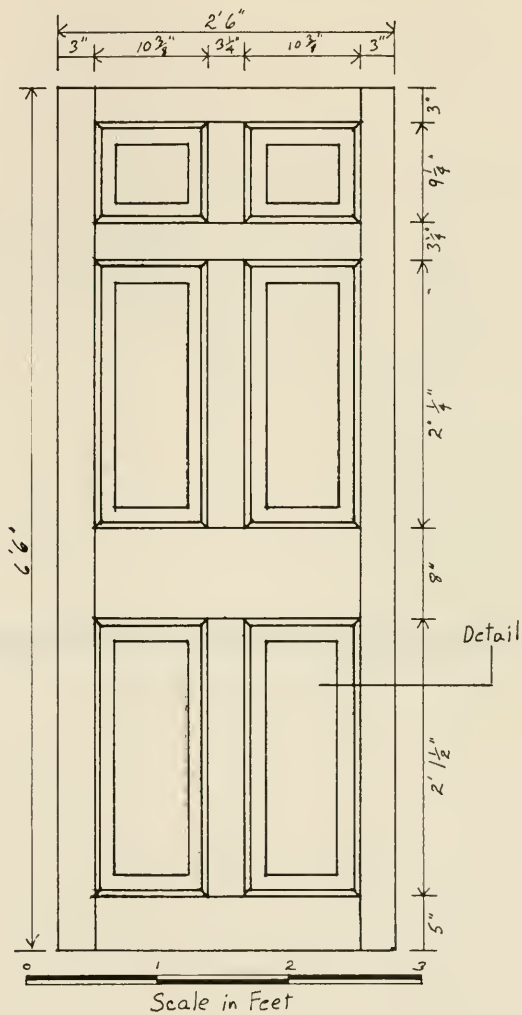


Scale in Inches

INHP Acc. 3601-5
Detail

18th c.

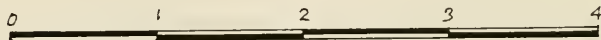
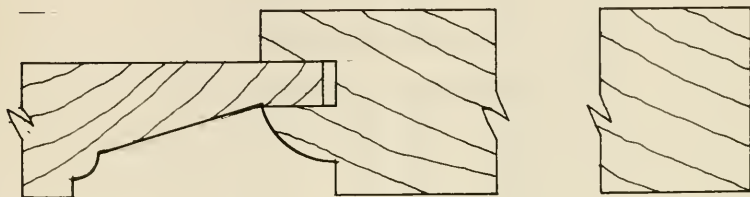
Figure 97.



INHP Acc. 2527-4
Elevation, side 1 & 2

ca. 1760
closet door

Figure 98.

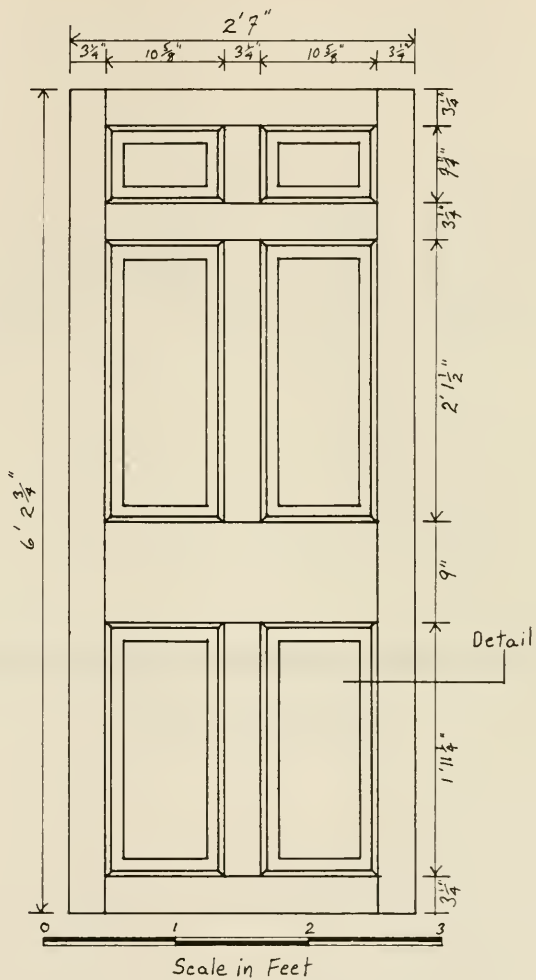


Scale in Inches

INHP Acc. 2527-4
Detail

ca. 1760

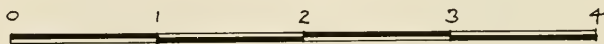
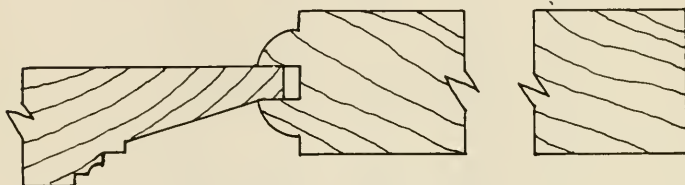
Figure 99.



INHP Acc. 2816-4
Elevation

Late 18th c.

Figure 100.

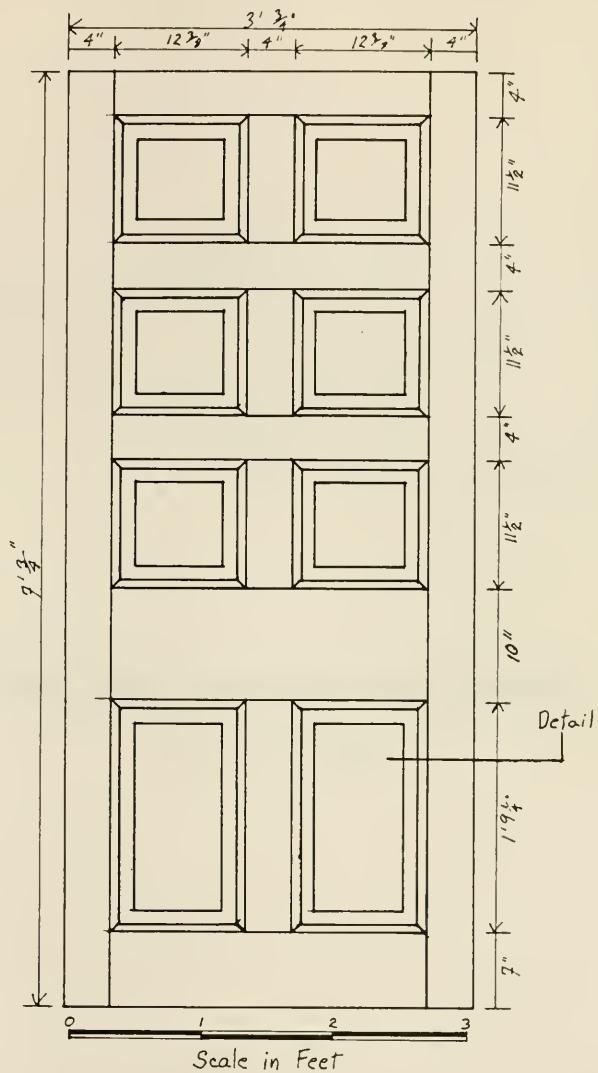


Scale in Inches

INHP Acc. 2816-4
Detail

Late 18th c.

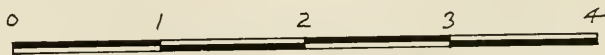
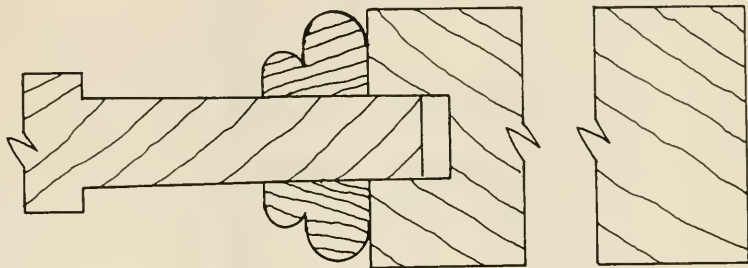
Figure 101.



INHP Acc. 3601-4
Elevation

239 Spruce Street
Early 19th c.

Figure 102.

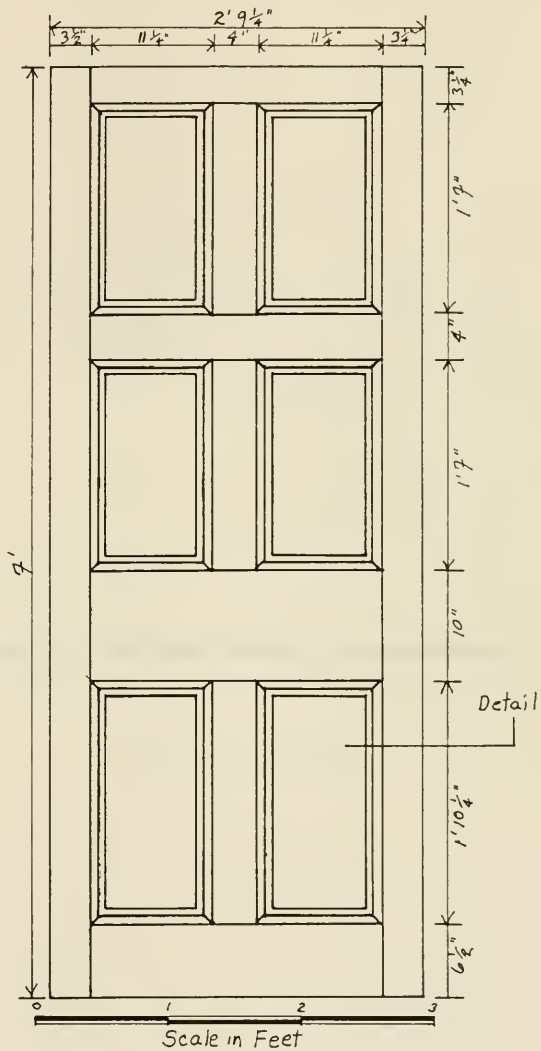


Scale in Inches

INHP Acc. 3601-4
Detail

239 Spruce Street
Early 19th c.

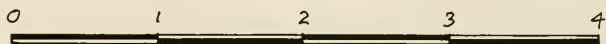
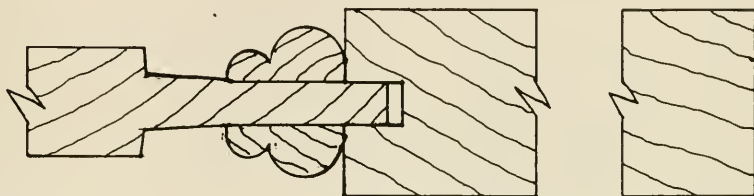
Figure 103.



INHP Acc. 2527-5
Elevation

ca. 1830

Figure 104.

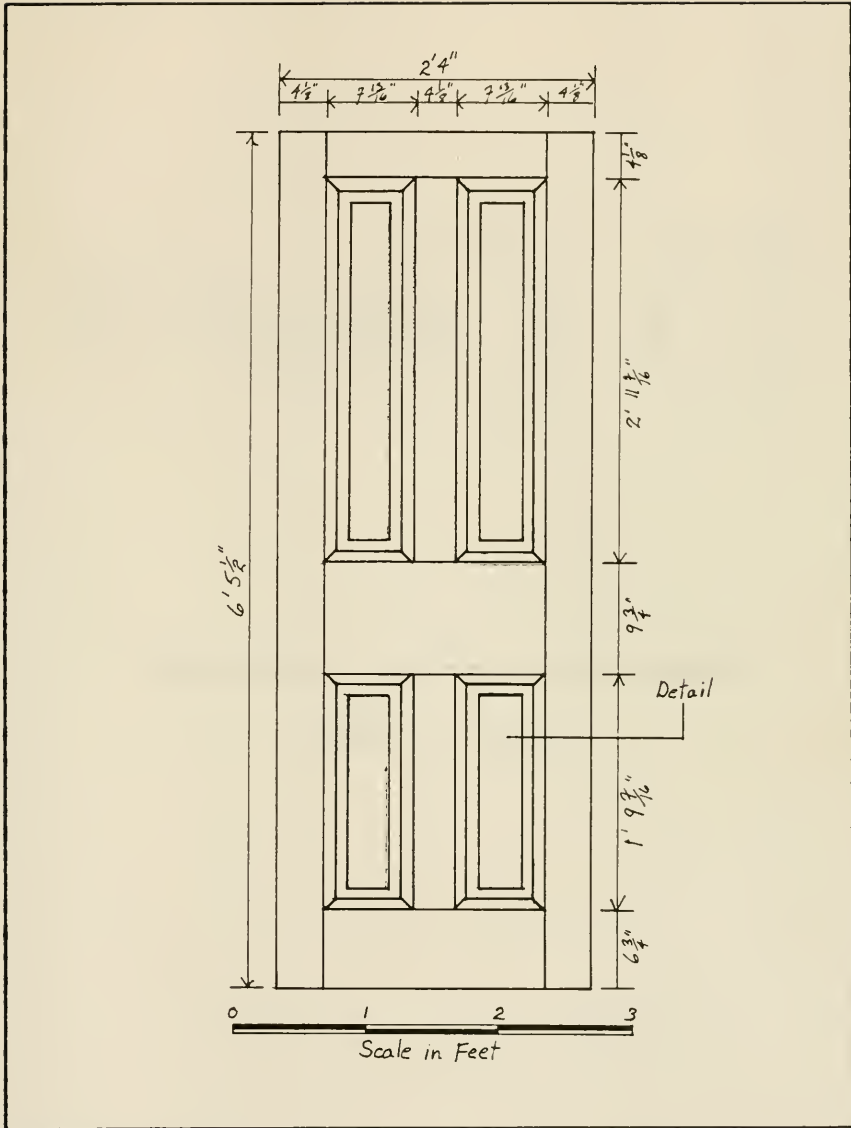


Scale in Inches

INHP Acc. 2527-5
Detail

ca. 1830

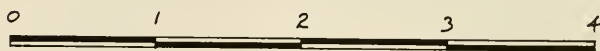
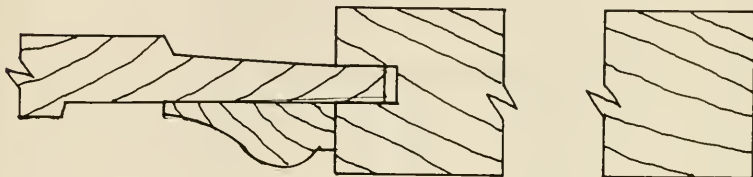
Figure 105.



INHP Acc. 2527-3
Elevation

ca. 1840

Figure 106.

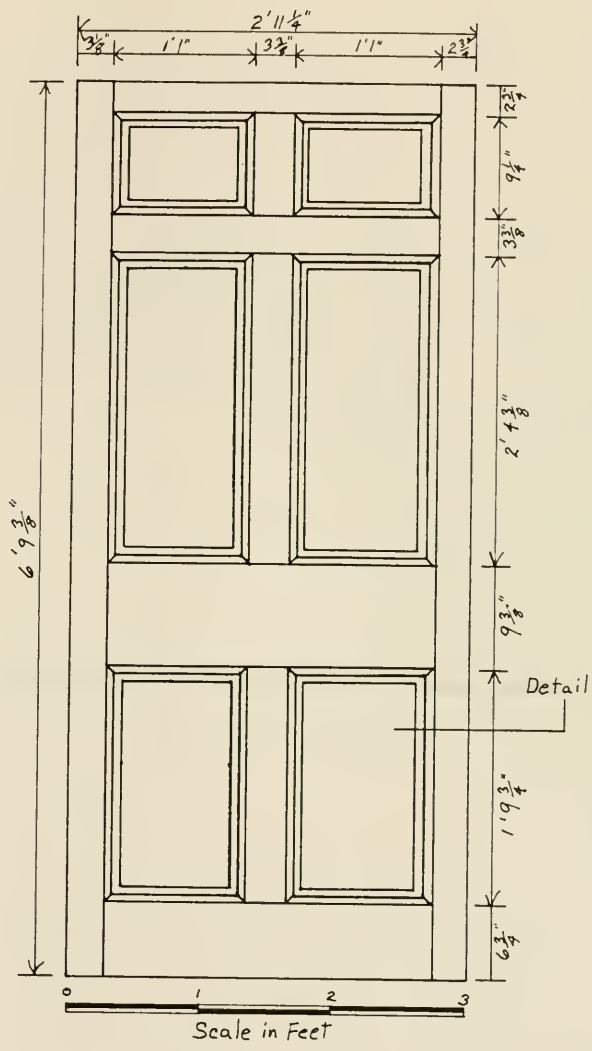


Scale in Inches

INHP Acc. 2527-3
Detail

ca. 1840

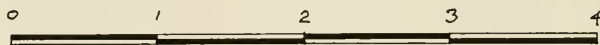
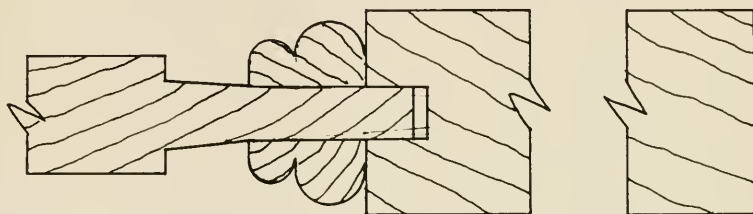
Figure 107.



INHP Acc. 2816-2
Elevation

ca. 1897-1900

Figure 108.

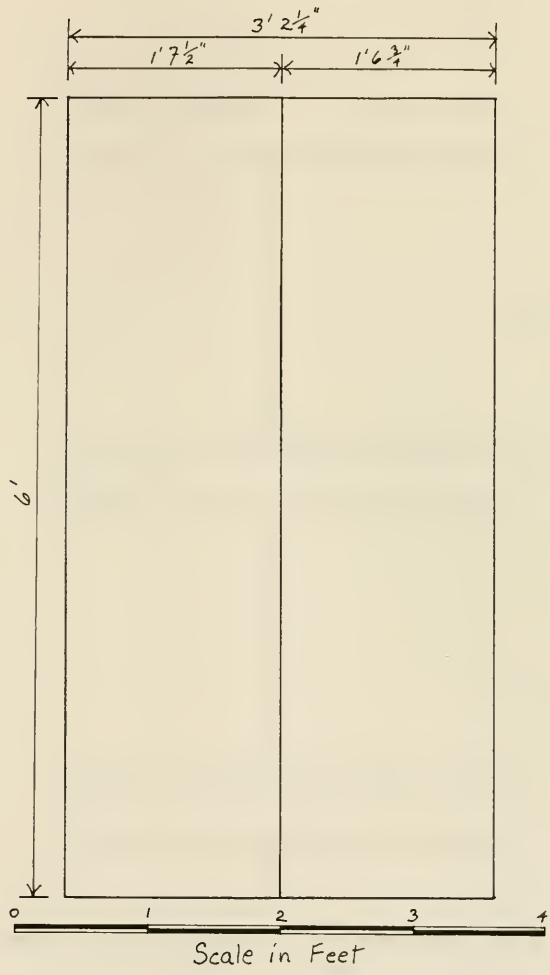


Scale in Inches

INHP Acc. 2816-2
Detail

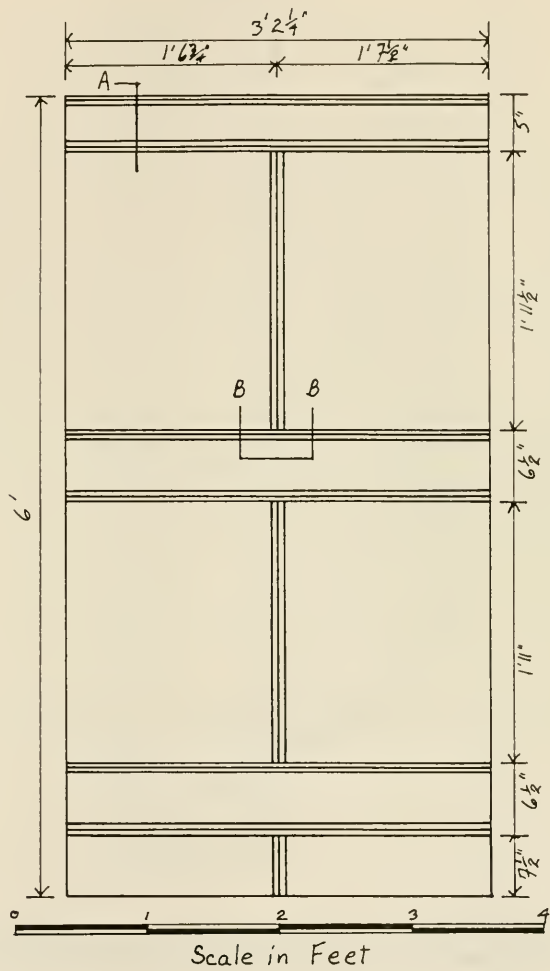
ca. 1897-1900

Figure 109.



INHP Acc. 2816-5
Elevation, side 1

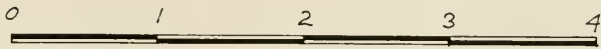
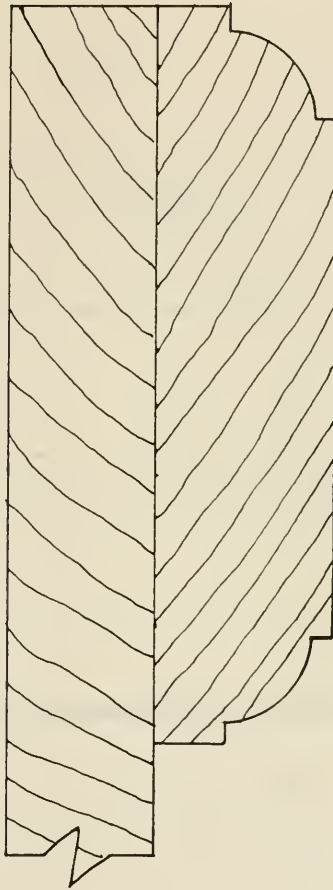
Figure 110.



INHP Acc. 2816-5
 Elevation, side 2

Figure 111.

Detail A

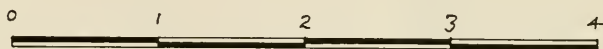
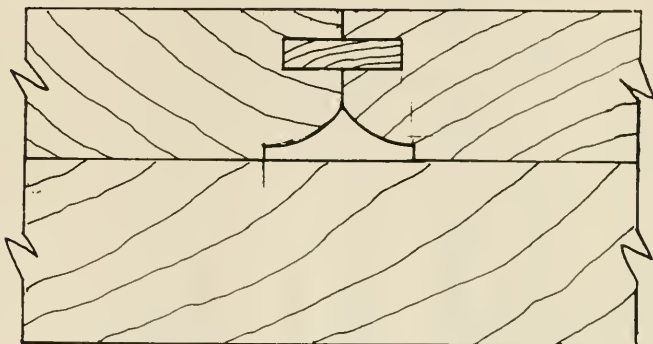


Scale in Inches

INHP Acc. 2816-5
Detail A

Figure 112.

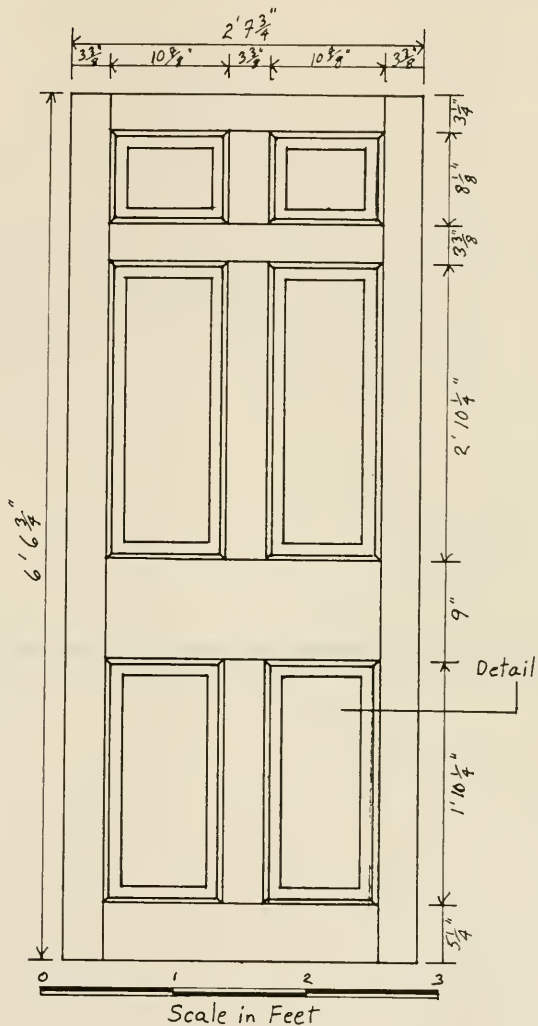
Detail B



Scale in Inches

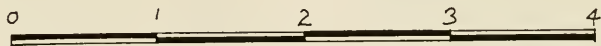
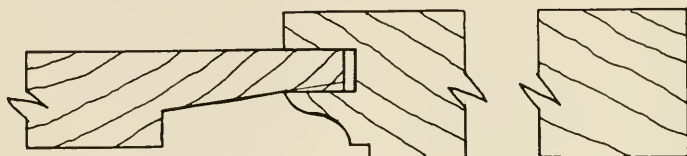
INHP Acc. 2816-5
Detail B

Figure 113.



INHP Acc. unknown
 Elevation

Figure 114.



Scale in Inches

INHP Acc. unknown
Detail

Figure 115.

APPENDIX B

Published References

Table B
Chronology of Published References

DATE	DESIGN	INSITU	DIMENSIONS	MOULDINGS
1680 ^a	ledged	shop front	width 3 1/2'	
	battened	shop front	width 3 1/2'	
	battened & lined	shop front	width 3 1/2'	
	battened	front or outer		
	battened & lined	front or outer		
	framed	inner	2 1/2' x 5 1/2'	
	framed	inner	3' to 4' x twice width	
1703 ^b	battened (single)	shop front	1" thick battens, height twice width	bead or o.g., or the like
	battened (double)			
	battened & lined	front or outer	1" thick battens, height twice width	bead or o.g., or the like
	framed	inner	1 1/4" thick	
1734 ^c	battened			
	battened & line	shop front	3' x 6', height twice width	

Continued on next page

Table B continued

<u>Date</u>	<u>Design</u>	<u>Insitu</u>	<u>Dimensions</u>	<u>Mouldings</u>
(1734)	framed	inner	formulas for dimensions according to stories and situation within	infinite variety of combinations
	framed & lined	outer	formulas for dimensions according to size of structure	infinite variety of combinations
1769 ^d	framed	outer		24 cross sections
	framed	chamber		24 cross sections
1769 ^e	battened	outer		
	framed	outer		72 cross sections
	framed	chamber		72 cross sections
1778 ^f	framed	outer	2'10" to 4' wide, 6'6" to 8' in height; formulas to proportion frieze panels, dimensions of framing members given	
1786 ^g	cellar			
	battened 2, 4, & 6 panels			
	ledged			bead
	ledged, double thickness			

Continued on next page

Table B continued

<u>Date</u>	<u>Design</u>	<u>Insitu</u>	<u>Dimensions</u>	<u>Mouldings</u>
(1786)	framed 2, 4, & 6 panels	inner		8 cross sections
	framed & lined 4, 6, & 8 panels	outer		3 cross sections
1797 ^h			height twice width, proportionate relation of elements, dimensions of framing members given	
1800 ⁱ	ledged battened			
	framed 2, 4, 6, & 8 panels	inner		3 cross sections
	framed 2, 4, 6, & 8 panels	outer		3 cross sections
	framed & lined 2, 4, 6, & 8 panels	front or outer		3 cross sections
1812 ^j	framed	recommenda- tions for embellish- ments for specific situations	proportionate dimensions according to structure and situation within	14 cross sections
1818 ^k	framed	front	formulas for dimensions	
	framed	inner	formulas for dimensions	

Continued on next page

Table B continued

<u>Date</u>	<u>Design</u>	<u>Insitu</u>	<u>Dimensions</u>	<u>Mouldings</u>
1827 ¹	framed	inner	1 1/2" to 1 3/4" thick, proportions for frieze panels, dimensions of framing members given	19 cross sections
	framed	outer	1 3/4" to 2" thick, proportions for frieze panels, dimensions of framing members given	19 cross sections
1830 ¹	framed	inner	2' 6" x 6' 6", 3' 6" x 8', ratio of small doors height to width 3 to 7, large doors height to width 1 to 2	2 cross sections
	framed	outer	scale in ft. & in.	1 cross section
1850 ⁰	ledged	cottages of the poor or out buildings		
	battened	buildings of the pointed or gothic style		
	framed			14 cross sections
1857 ⁰			variety of formulas heights to widths	8 cross sections

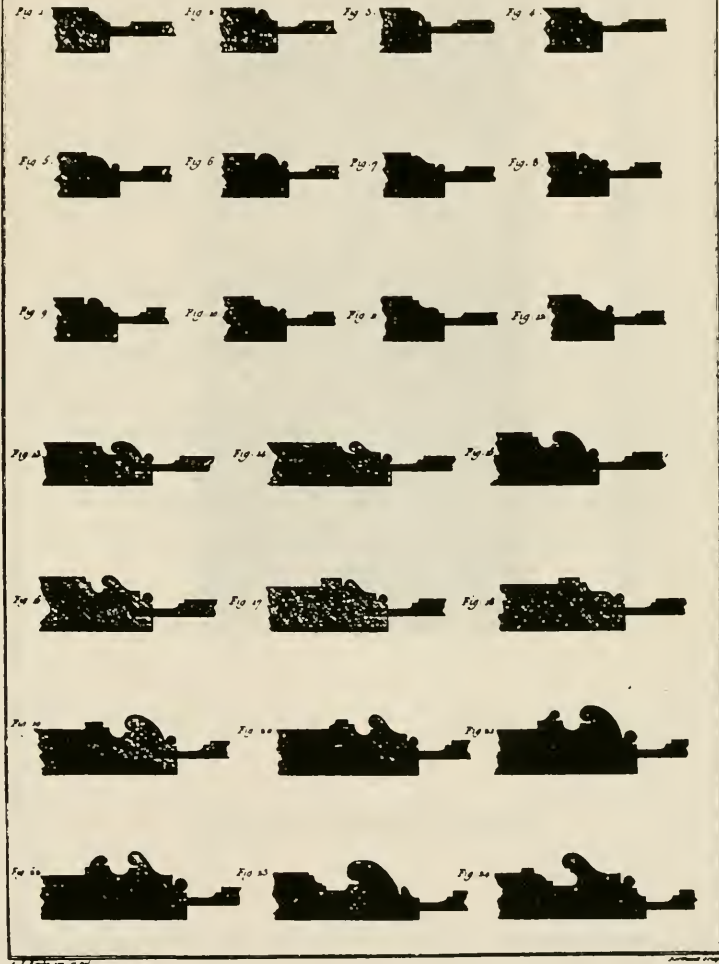
Continued on next page

Table B continued

Date	Design	Insitu	Dimensions	Mouldings
1860 ^p	ledged			3 cross sections
	framed			8 cross sections

- ^a Stephen Primate, The City and Country Builder and Purchaser (2nd Edition. London: J. Wright & Assignes of S. Speed, 1680), II, 67, 87. III, 154.
- ^b Richard Neve, The City and Country Purchaser and Builders' Dictionary (London: F. Sprint, G. Conyers, T. Bollard, 1703), 28, 127, 276, 286.
- ^c A. Bettesworth, The Builder's Dictionary or Gentleman and Architect's Companion (London: A. Bettesworth, C. Hitch, & S. Austen, 1734. Reprint. Washington: Association for Preservation Technology, 1981), I, BA-BA, DO-DO. II, MO-MO.
- ^d A.J. Roubo, L'art du Mesuisier (Paris: 1769. Reprint. Geneve: Slatkine, 1984), I, VII, Pl. 7, 35, 42, 43, 46, 50. See figs. 116-121, pp. 198-203.
- ^e Denis Diderot, Recueil de planches sur les sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, Pl. II, no. 3, no. 4. Pl III, no. 2, no. 3. Pl. IV, no. 2, no. 3, no. 4, no. 5. See figs. 122-128, pp. 204-210.
- ^f William Pain, The Carpenter's and Joiner's Repository (London: I. Taylor, 1778), Plate I, Plate III, Plate P to face plate L. See fig. 129, p. 211.
- ^g Carpenters' Company of the County and City of Philadelphia, The Rules of Work of the Carpenters' Company of the County and City of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), 11, 12, 19-21, 34. See figs 131-133, pp. 213-215.
- ^h Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I, X, XI, XII. See fig. 134, p. 216.
- ⁱ Carpenters' Company of Boston, The Rules of Work of the Carpenters in the Town of Boston (Boston: Published for the Proprietors, 1800), 25-27.
- ^j Peter Nicholson, Mechanical Exercises (London: J. Taylor, 1812), 152-156, Pl. 5, 6, 7. See figs. 135-137, pp. 217-219.

- ^k John Haviland, The Builder's Assistant (Philadelphia: J. Bioren, J. Haviland, H. Bridgeport, 1818), I, 32.
- ^l Asher Benjamin, The American Builders' Companion (Boston: P. & C. Williams, 1827), 19, pl. X. 20, pl. XI. 78, pl. XXXVIII. See figs. 139-141, pp. 221-223.
- ^m Asher Benjamin, The American or Practical House Carpenter (Boston: 1830. Reprint. New York: Dover Publications, Inc., 1988), Pl. XXVII, XXVIII, XXXIX. See figs. 142 & 143, pp. 224 & 225.
- ⁿ Peter Nicholson, Nicholson's Dictionary of the Science and Practice of Architecture (London: The London Printing & Publishing Company, Ltd., 1850), I, 298. II, 65, 66. III, Plate II, III.
- ^o R. G. Hatfield, The American House Carpenter (New York: Wiley & Halsted, 1857), 41, 322, 323.
- ^p James Newlands, The Carpenter and Joiner's Assistant (London: Blackie and Son, 1860), 183-186. See fig. 145, p. 227.



A.J. Roubo, *L'art du Mesuisier* (Paris:1769. Reprint. Geneve: Slatkine, 1984), I, VII, Pl. 7.

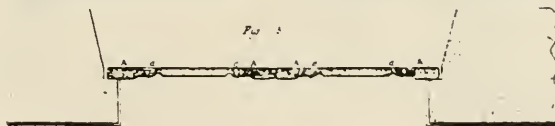
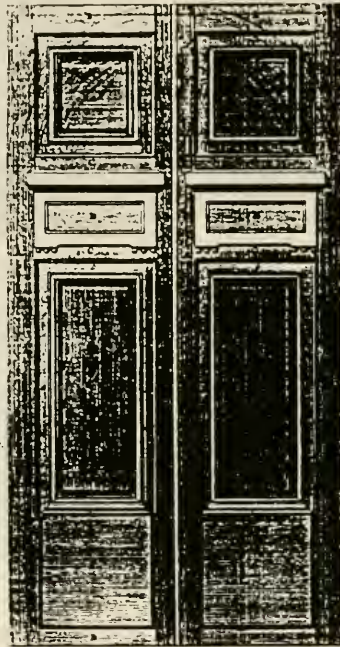
Figure 116.

Noms des Pièces qui
composent une Porte
Cochère.

- AA Rammes ou bânes
- BB Traverses du haut.
- CC Traverses du milieu.
- DD Traverses du bas.
- EE Table d'ornat.
- FF Panneaux ou frises du
haut.
- GG Guichets.

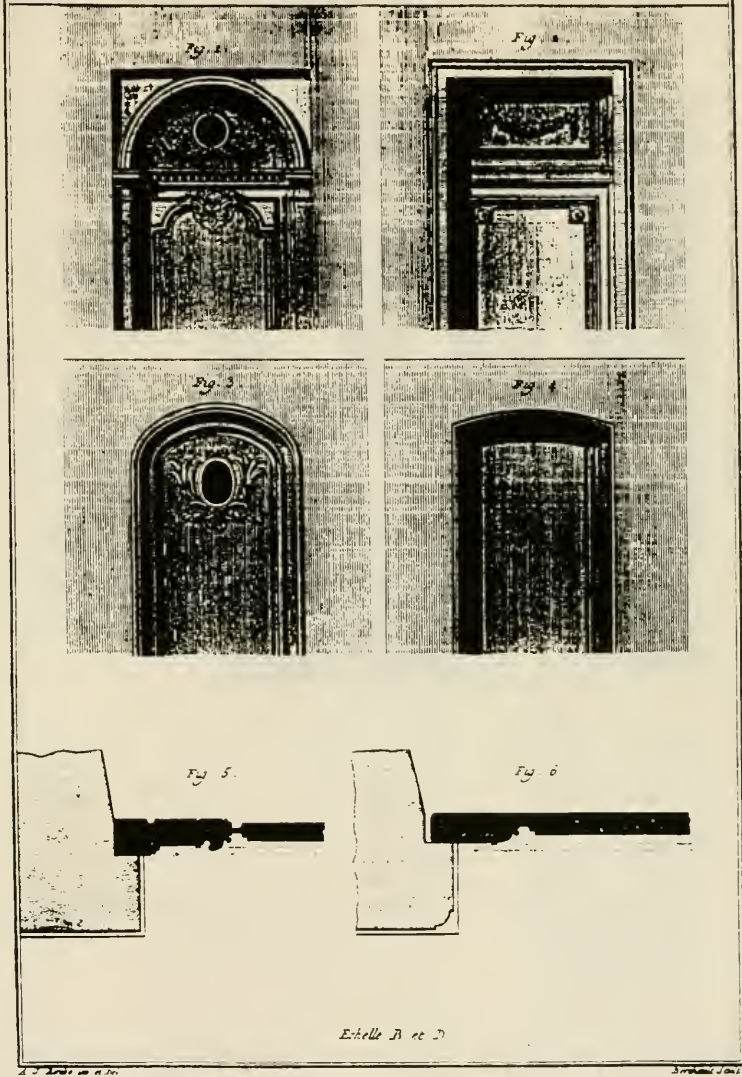
Noms de Celles qui
composent le Guichet

- aa Bânants de Guichet
- bb Traverses du haut.
- cc Bânes et Traverses du
milieu
- dd Pargues.
- ee Panneaux de remplissage.
- f Traverses du bas.



A.J. Roubo, *L'art du Mesuisire* (Paris: 1769. Reprint. Geneve: Slatkine, 1984), I, VII, Pl. 35.

Figure 117.



A.J. Roubo, *L'art du Mesuisier* (Paris: 1769. Reprint. Geneve: Slatkine, 1984), I, VII, Pl. 42.

Figure 118.

Noms des Pièces qui
composent un Placard

aa Arrière de Chambreule

bb Traverse de Chambranle

cc Entour

dd Travers de Chambranle

ee Pièces du Linteau du
Placard

ff Corps ou revestissement
des Entourmens

g Piédroit des Entourmens

Noms de celles qui
composent les Portes

aa Arrière de Portes

bb Traverses du haut

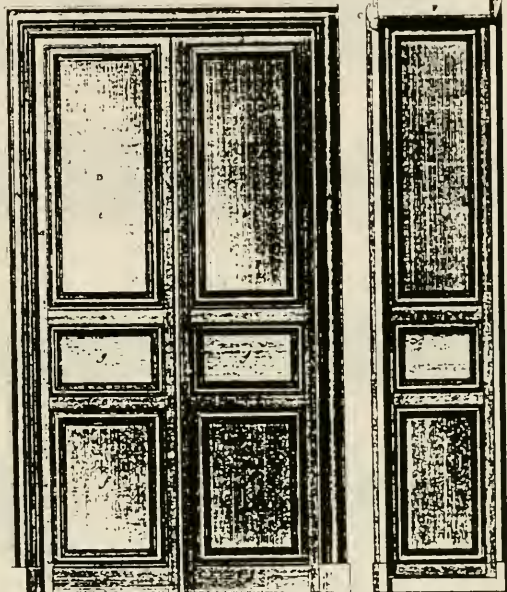
cc Traverses du milieu

dd Traverses du bas

ee Poutres du haut

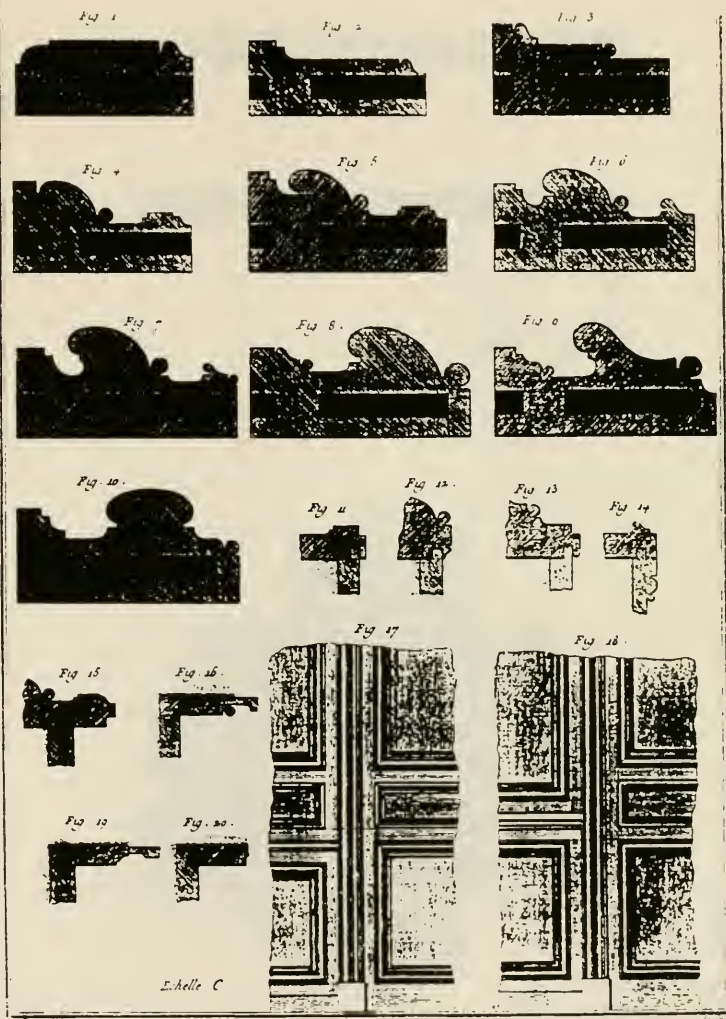
ff Poutres de l'appui

gg Poutres de frise



A.J. Roubo, *L'art du Mesuisier* (Paris: 1769. Reprint. Geneve: Slatkine, 1984), I, VII, Pl. 43.

Figure 119.



A.J. Roubo, *L'art du Menuisier* (Paris: 1769. Reprint. Geneva: Slatkine, 1984), I, VII, Pl. 46.

Figure 120.

Fig. 1.

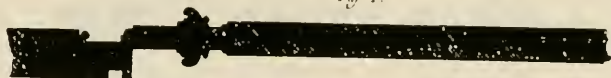


Fig. 2.

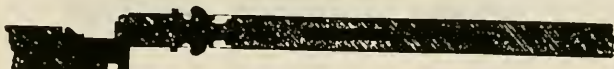


Fig. 3.

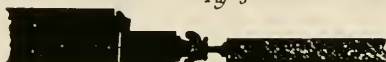
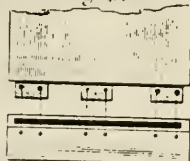
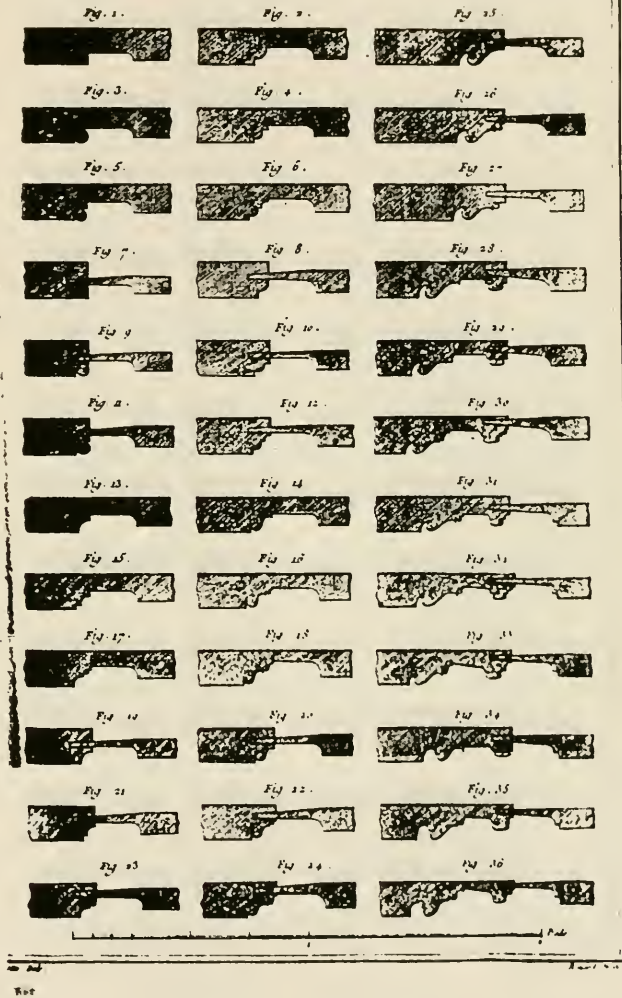


Fig. 4.



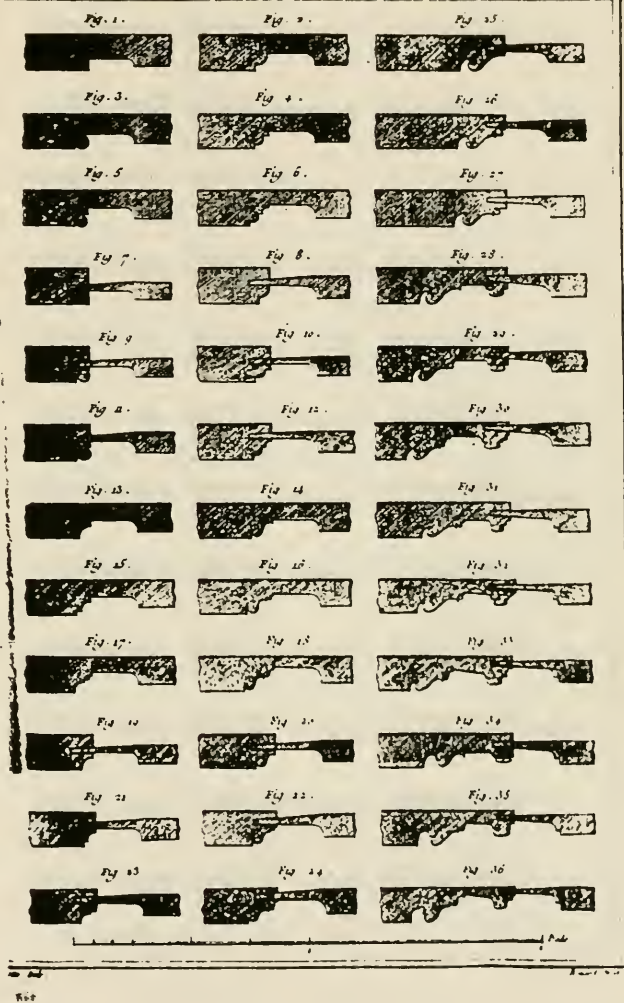
A.J. Roubo, *L'art du Mesuisier* (Paris: 1769. Reprint. Geneve: Slatkine, 1984), I, VII, Pl. 50

Figure 121.



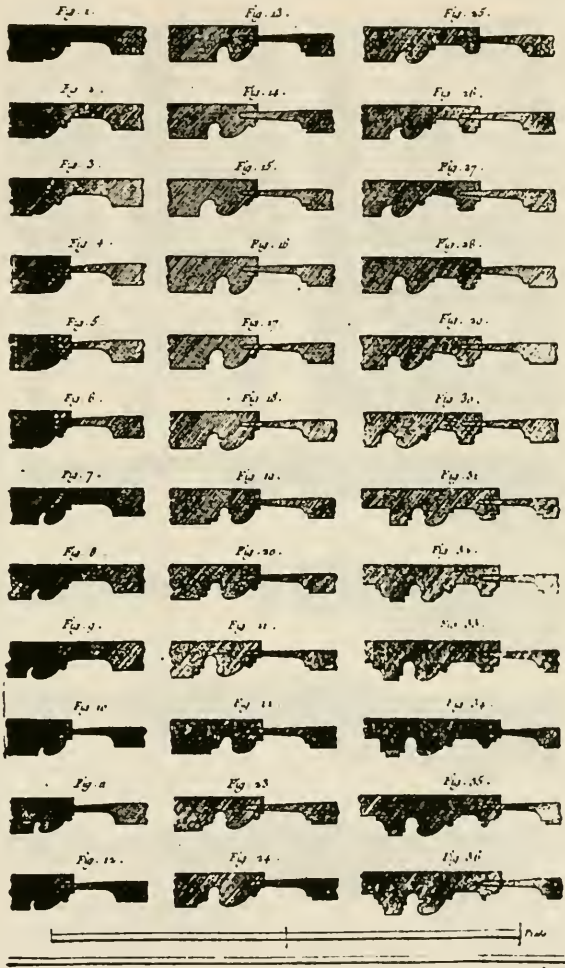
Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. II, no. 3.

Figure 122.



Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. II, no. 3.

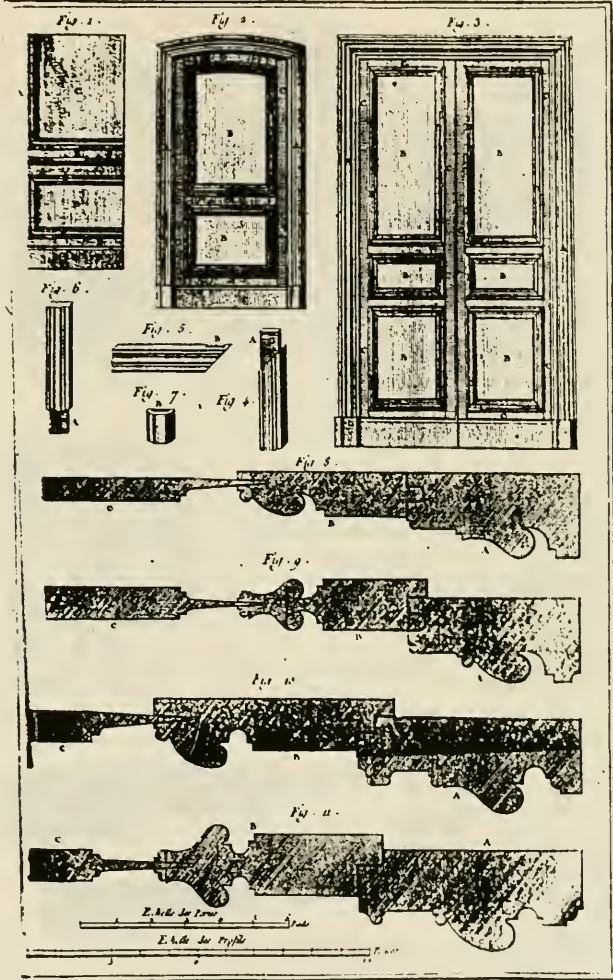
Figure 122.



Menuisier en Naturel, Profils

Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. II, no. 4.

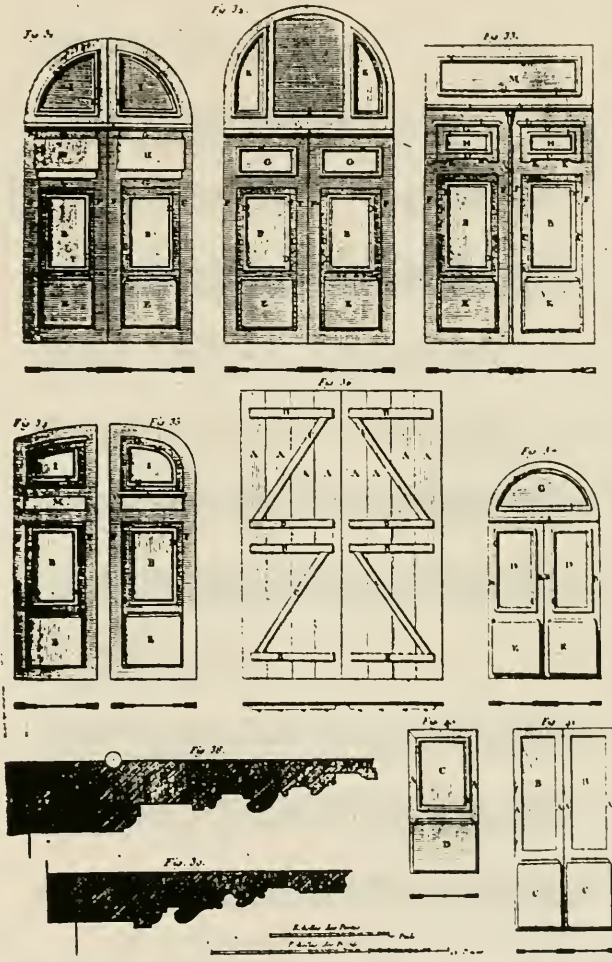
Figure 123.



Menuisier en Batiment. Part 2

Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. III, no. 2

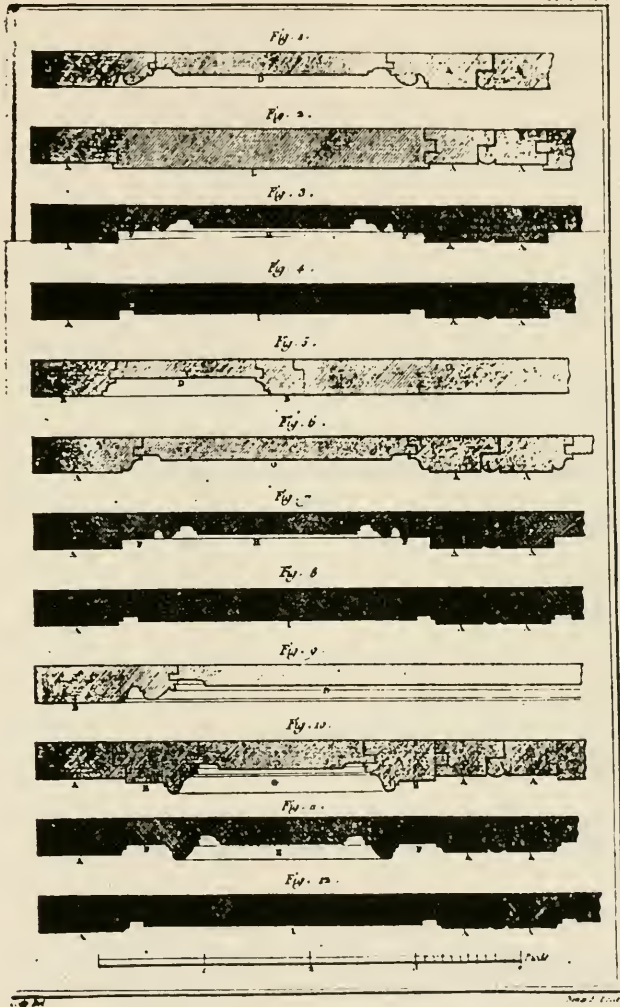
Figure 124.



Menuiserie.

Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. III, no. 3.

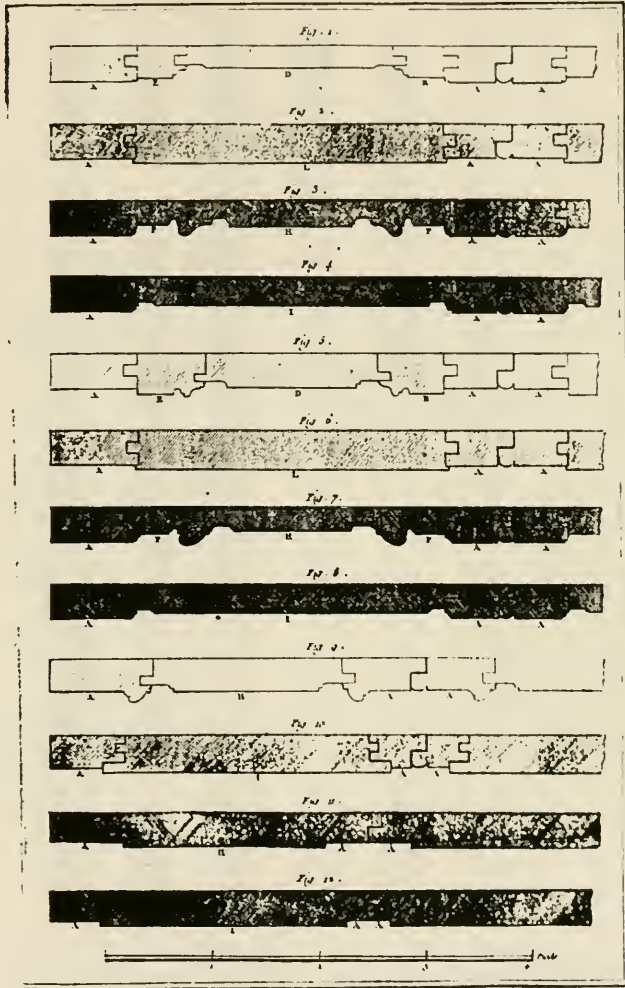
Figure 125.



Menuisier en bâtiment, Plans des Entablatures

Denis Diderot, Recueil de planches sur les sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, PL. IV, no. 2.

Figure 126.



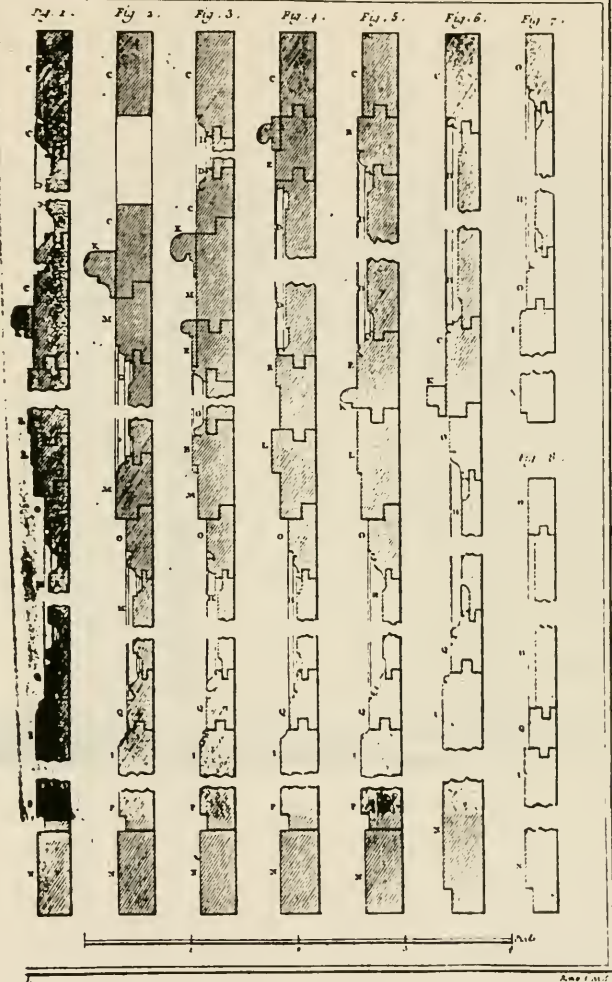
20 21

20 21

Mémoires sur l'Art de la Menuiserie, ou l'Art de la Charpente, dans le Royaume de France

Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. IV, no. 3.

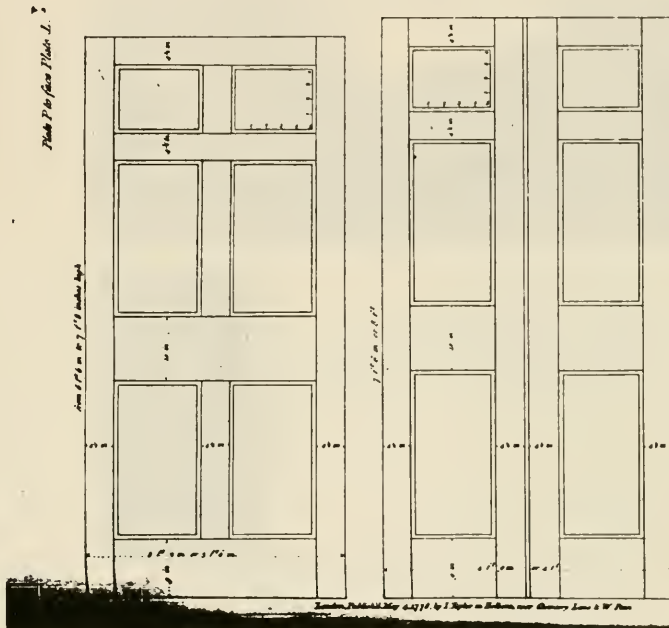
Figure 127.



Menuisier en Dairement, Profile de Benne d'œuvre

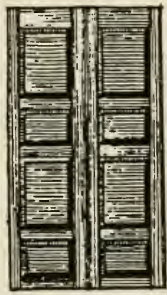
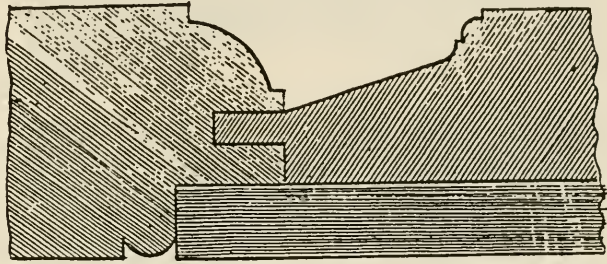
Denis Diderot, Recueil de planches sur le sciences et les arts liberaux (Paris: Briasson & le Breton, 1769), VII, XI, Pl. IV, no. 4.

Figure 128.



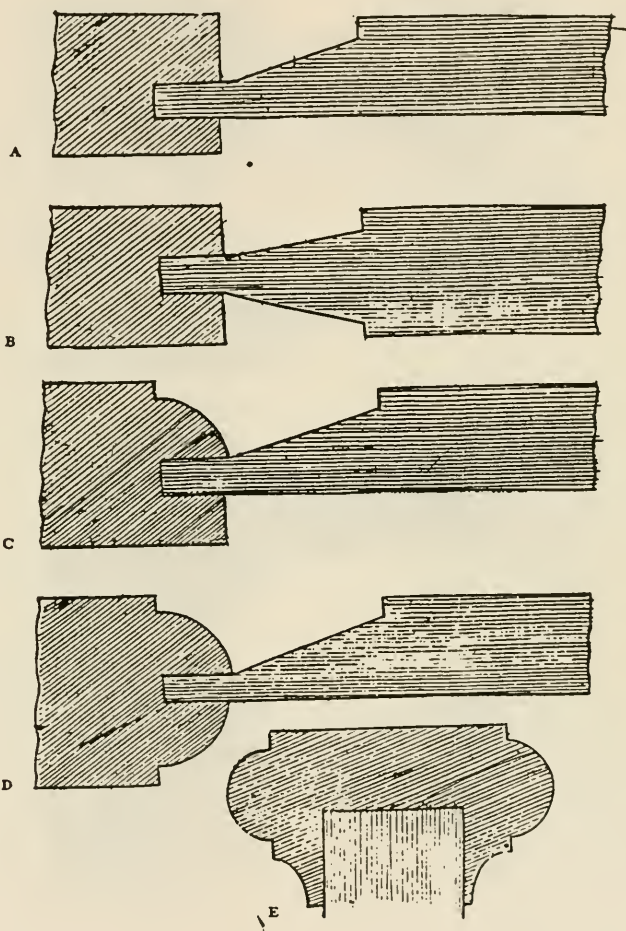
William Pain, The Carpenter's and Joiner's Repository (London: I. Taylor, 1778), Plate P to face plate L.

Figure 129.



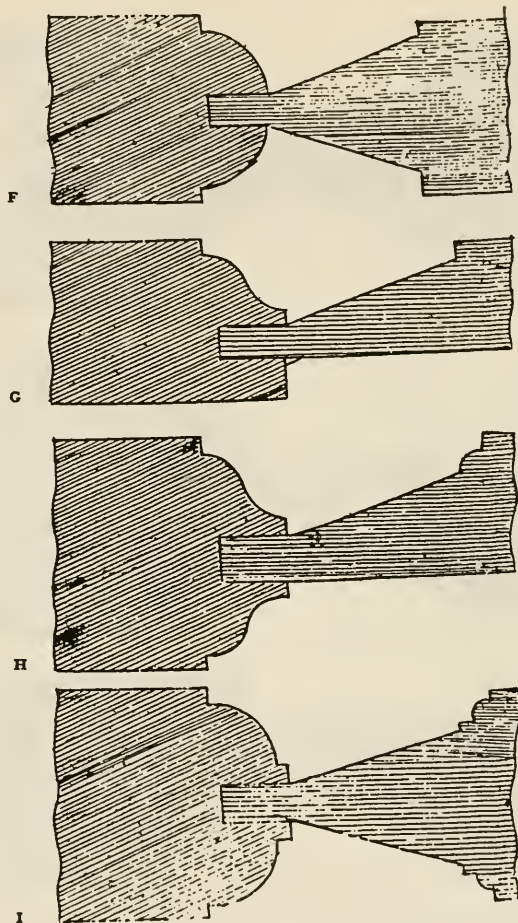
Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XI.

Figure 130.



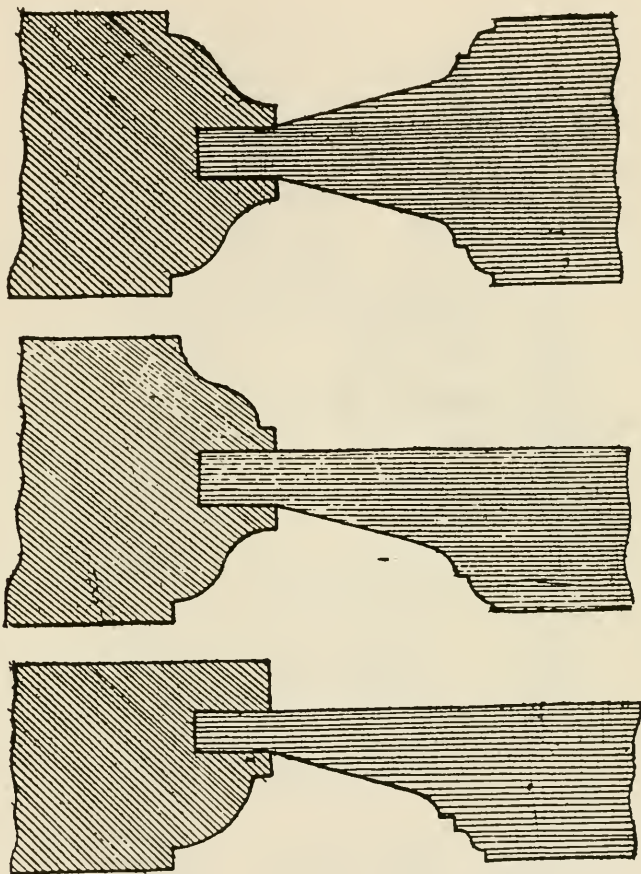
Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XVI.

Figure 131.



Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XVI.

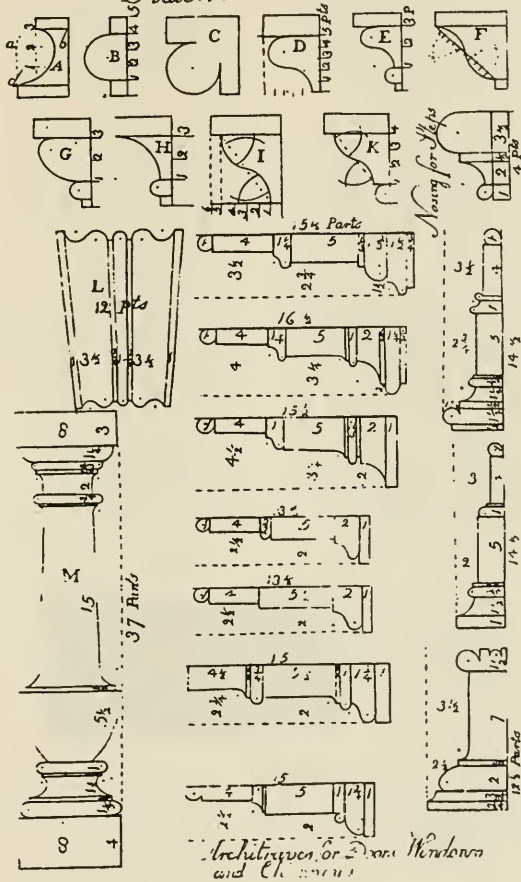
Figure 132.



Carpenters' Company of the City and County of Philadelphia, The Rules of Work of the Carpenters' Company of the City and County of Philadelphia 1786 (Philadelphia: 1786. Reprint. New York: Bell Publishing Company, Inc., 1974), Plate XVIII.

Figure 133.

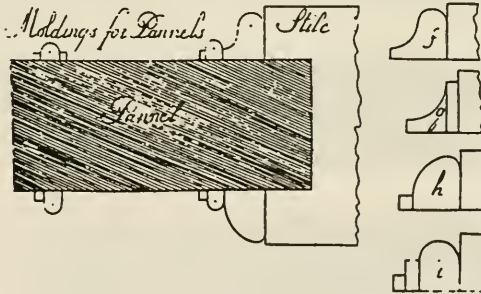
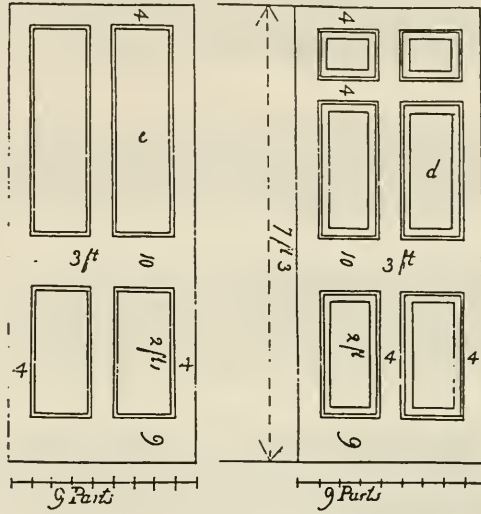
Plate I.



Asher Benjamin, The Country Builder's Assistant (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate I.

Figure 134.

Pl. 12.



Asher Benjamin, *The Country Builder's Assistant* (Boston: Thomas Dickman, 1797. Reprint. Cambridge: Applewood Books, 1989), Plate XII.

Figure 135.

Joinery.

Fig 1



Fig 2.



Fig. 3.

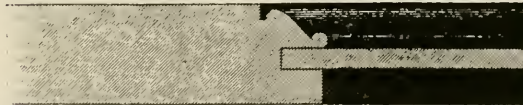


Fig 4.



Fig 5.

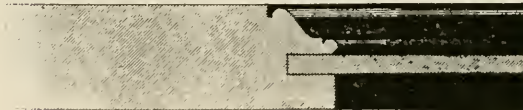
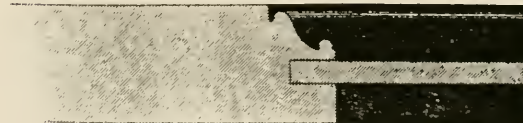


Fig 6



Peter Nicholson, Mechanical Exercises (London: J. Taylor, 1812), 152, Plate V.

Figure 136.

Joinery.

Plate 6.

Fig. 1.



Fig. 2.

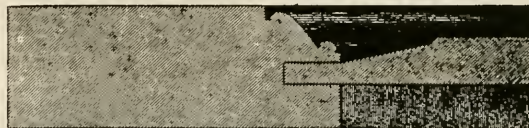


Fig. 3.

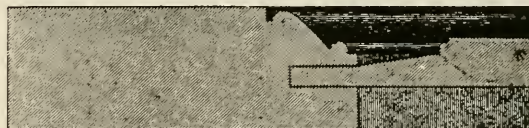


Fig. 4.

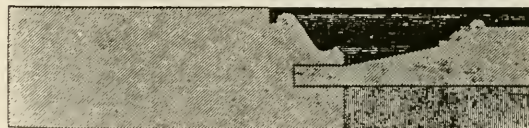
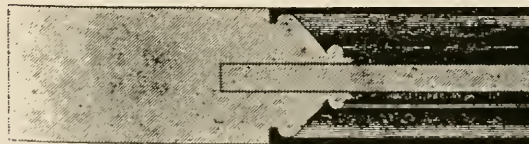


Fig. 5.



London: Published by Messrs. SPENCER, No. 1, Pall Mall.

17

Peter Nicholson, Mechanical Exercises (London: J. Taylor, 1812), 154, Plate VI.

Figure 137.

Fig. 1.



Fig. 2.

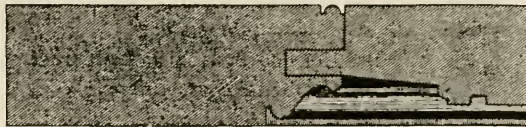
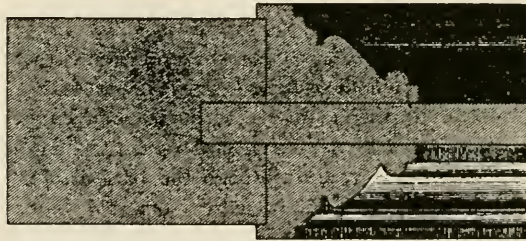
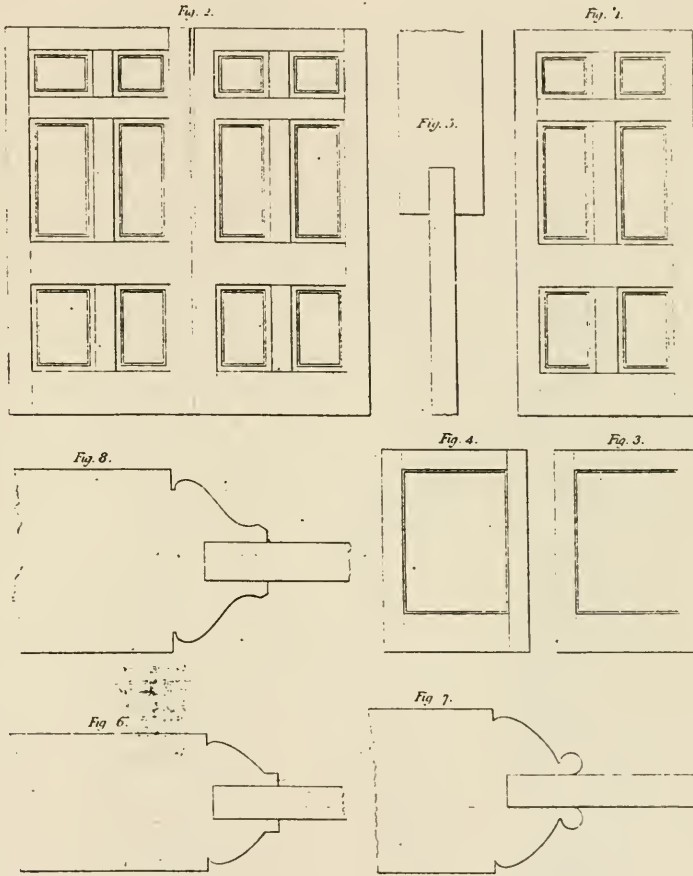


Fig. 3.



Peter Nicholson, Mechanical Exercises (London: J. Taylor, 1812), 155, Plate VII.

Figure 138.

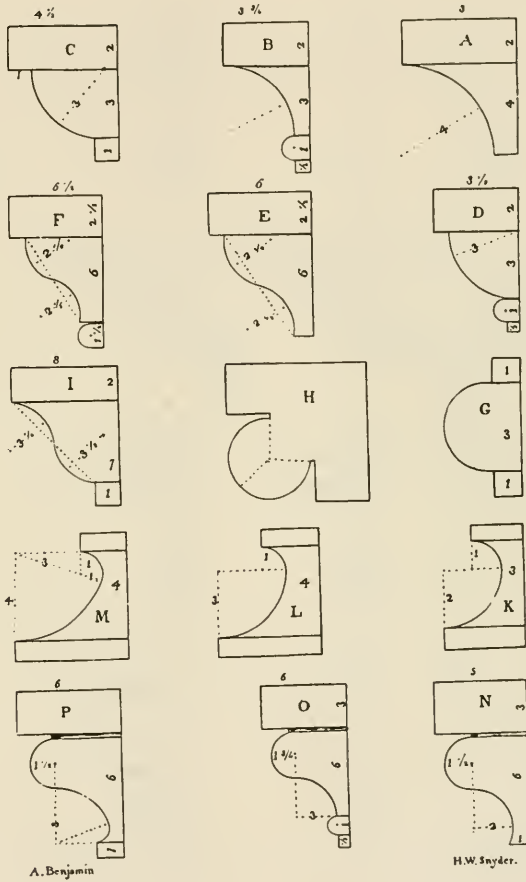


London, Published by Tho' Kelly, Stationer Row, Jan. 1823.

Engraved by W. Goussier.

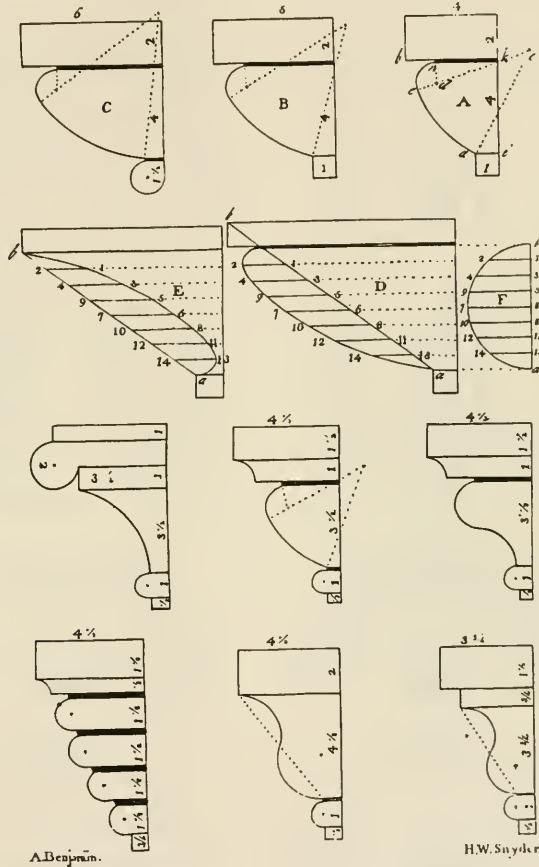
Peter Nicholson, *The New Practical Builder, and Workman's Companion* (London: Thomas Kelly, 1823), Plate XXXIII.

Figure 139.



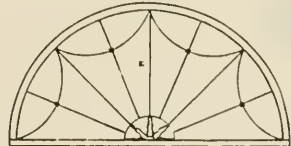
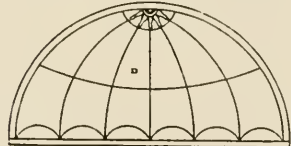
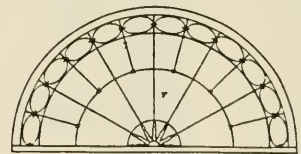
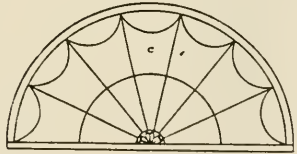
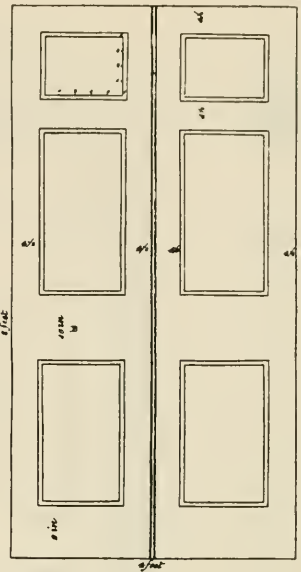
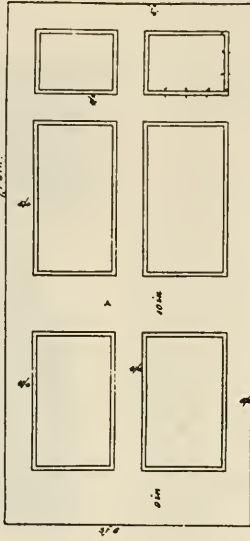
Asher Benjamin, The American Builders' Companion
 (Boston: P. & C. Williams, 1827. Reprint. New York:
 Dover Publications, Inc., 1968), Plate IX.

Figure 140.



Asher Benjamin, The American Builders' Companion
 (Boston: P. & C. Williams, 1827. Reprint. New York:
 Dover Publications, Inc., 1969), Plate X.

Figure 141.



Benjamin's Pat

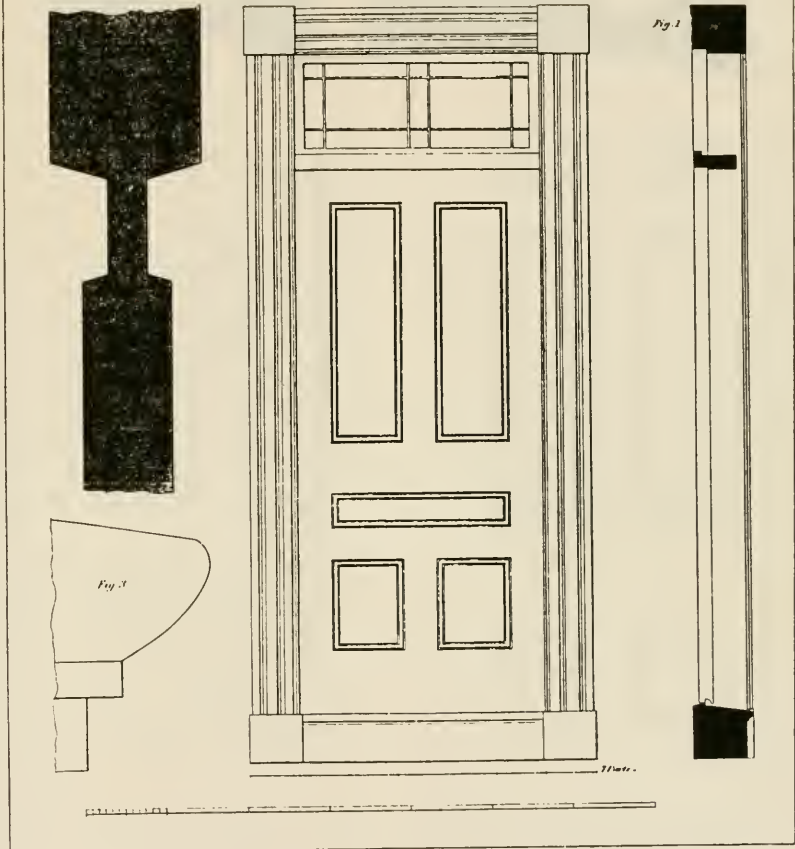
Wrightman's Pat

Asher Benjamin, The American Builders' Companion (Boston: P. & C. Williams, 1827. Reprint. New York: Dover Publications, Inc., 1969), Plate XXXVIII.

Figure 142.

DESIGN FOR A FRONT DOOR

PL. XXVII



Asher Benjamin, The American or Practical House Carpenter (Boston: 1830. Reprint. New York: Dover Publications, Inc., 1988) Plate XXVII.

Figure 143.

DESIGNS FOR DOORS

P. L. ALLEN



Fig. 1



Fig. 2

Fig. 4

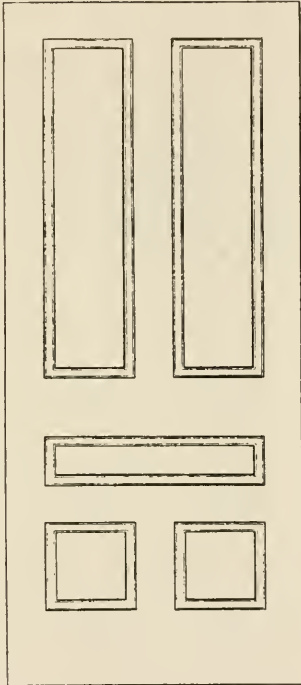
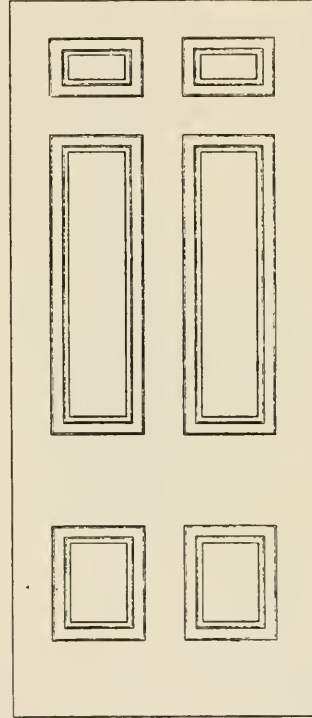


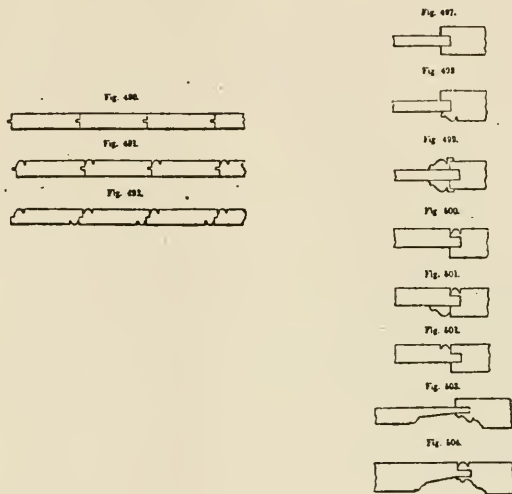
Fig. 3



Scale: 1 Inch to a Foot.

Asher Benjamin, The American or Practical House Carpenter (Boston: 1830. Reprint. New York: Dover Publications, Inc., 1988), Plate XXXIX.

Figure 144.



James Newlands, The Carpenter and Joiner's Assistant
 (London: Blackie and Son, 1860), figs. 490-492, p. 183,
 figs. 497-504, p. 185.

Figure 145.

APPENDIX C

Unpublished References

APPENDIX C

Unpublished References



June 22, 1987

Mr. Carl E. Nittinger
130 Walnut Street
Haddonfield, New Jersey 08033

Dear Mr. Nittinger:

Thank you for your recent letter requesting historical information on structures that were located on the site of USS Fairless Works, near Morrisville, Pa.

Prior to the plant's construction, the location was largely a settled residential area of small communities, country homes and farms (spinach and broccoli, I think). Four of the houses on the site were fine old structures dating back to the Eighteenth Century. While they had to be removed, it was discovered that some of the historic buildings on George Washington's Mount Vernon estate were currently being restored. Consequently, the houses were dismantled carefully and the materials were shipped there as a donation to that undertaking. See photo in STEEL magazine reprint, enclosed.

I regret I cannot contribute any further information regarding the architectural elements donated to the collection of the Independence National Park in Philadelphia, to which you referred.

If you feel I may be of any other assistance, please do not hesitate to call me at (412) 433-6871.

Sincerely,

A handwritten signature in cursive script that reads "N. F. Wesley".

Norman F. Wesley
Manager-Public Affairs

Enclosure

Norman F. Wesley. Letter to author. June 22, 1987.

Figure 146

Morrisville had a rolling mill or Steel crazy after all these years

Back in 1952 an official in the State Land Office discovered some interesting facts relating to U.S. Steel's Fairless Works site.

The facts detailed a thriving 18th century iron-working industry in Morrisville through uncovered records in the State Office.

Financier Robert Morris apparently beat U.S. Steel to the punch—by some 153 years. A deed conveying 2,500 acres of land and its industries from Morris to James Biddle and William Bell as trustees for the Pennsylvania Property Company turned up in this discovery.

Morris described the aspects of that 1797 iron-working industry as including:

A sitting mill, which if properly worked ought to slit 400 tons of iron into nail rods every year.

A rolling mill for rolling bar into sheet iron and hoops.

A mill for rolling whip bolts.

A wheel and trip hammer capable of being worked to great advantage.

A wheel and shop for drawing wire.

A forge for making pig iron into bar iron with tumbles.

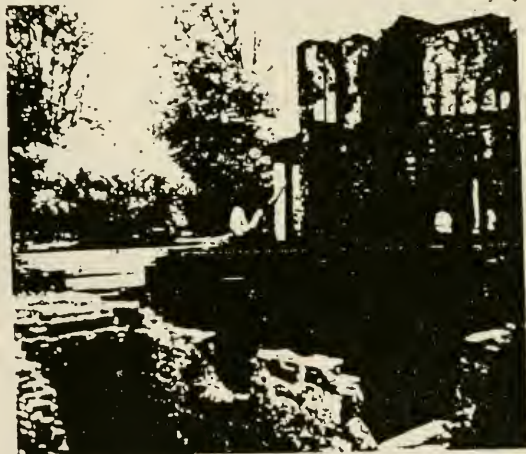
A wheel and house for grinding tools and saw plates.

Rounding out this massive industrial complex were a grist mill, a snuff mill, a plaster of paris mill, a saw mill, a brew house and malt house, described as "situated very conveniently for the river water, a carpenter's shop, two coopers' shops, a candle works, a hat plant, and a shop making saws."

Morrisville at that time was a bustling town of 39 homes. Morris put a \$250,000 price tag on the Morrisville enterprise and the land, terming it a pittance of its true worth.



Mr. Clifford F. Hood, President of United States Steel Corporation is shown unveiling a statue of William Penn at its presentation to the Pennsbury High School on June 9, 1952. The statue is of solid cast bronze, stands eight feet four inches high and weighs approximately two thousand pounds.



Fireplace brick and foundation stones shown here are among the points of historic interest on the 3900-acre site of the future Fairless Works. Both brick and stone were brought over from England. Fire in 1944 destroyed the structure, which was an addition to a colonial dwelling supposedly built in 1650 and still standing. Back of the ruined wall is a modern four-car garage with guest rooms above. Viewing the wall are Edward G. Kay (left), a safety engineer of Fairless Works, and Albert A. DePolo, a construction engineer of U.S. Steel.

Excerpts from Steel, the Fairless Steel Works plant magazine. Enclosed with letter of June 22, 1987 from Norman F. Wesley.

Figure 147.

Early iron furnaces

The iron industry was established in Eastern Pennsylvania in Berks County, west of Bucks County, in 1716 when Thomas Rutter built a bloomery at Manakewey Creek. A second furnace was built at Durham about 35 miles northwest of the Fairless Works site in 1727. Durham boats which carried iron from the furnace to Philadelphia were used by George Washington in his crossing of the Delaware.

While New Jersey was the first Middle Atlantic State to manufacture iron, a furnace having been built in Monmouth County about 1674, the first successful manufacture of iron in Southern New Jersey did not begin until 1730 when an earlier Mount Holly furnace was rebuilt. Trenton, New Jersey, had one small furnace which made steel during the American Revolution, and the present Trenton plant of U.S. Steel's Fairless Works is on the site of the first open hearth furnace in the United States, established in 1868.

Some historical features

The site of the Fairless Works of United States Steel Company in Bucks County, Pa., in the bend of the Delaware River just south of Trenton, N.J., lies in an area of rich historical importance. It is close to the early small iron furnaces and forges which played so large a role in supplying Washington's small army during the American Revolution. Many of the key maneuvers in the Revolution skirted this river bend and Washington crossed the Delaware only a few miles from the place where this Company's new plant will rise. An even earlier page of American history concerns this region, for the site of Pennsbury Manor, where William Penn built his American residence about 1685, immediately adjoins the plant site and had been fully restored and furnished as it was in the days of the great Colonist.



Operation Fairless Works! The largest single expansion project in the history of the steel industry received its mall in this box on the 3900-acre site for the new U.S. Steel plant near Morrisville, Pennsylvania. Shown collecting the morning's mail is Clifford C. Deck, the first representative of the construction engineering bureau of U.S. Steel to arrive on the location. This mail box served the first field office on the project which was housed in the residence shown in the background.

Although the name Carnegie-Illinois Steel Corporation appeared on the post box, it was absorbed by the United States Steel Company which was created as of January 1, 1951.



Ready for a ride! This dwelling has been moved from its foundation onto blocks preparatory to being transferred to a new location from the 3900-acre site of the Fairless Works of U.S. Steel near Morrisville, Pennsylvania. The house is one of a number which have been purchased by home seekers and will be relocated off the site. At the left, taking notes on the progress of the move, is Clifton A. Martin, a construction engineer of U.S. Steel. Small homes of this type are sometimes moved on rubber-tired tractors towed by tractors. Houses on the site in poor condition are being razed along with those that are obsolete.

Steel tells its story

When news first got around about the building of a massive steel complex, area residents were horrified.

"They imagined," says a Steel spokesman, "there would be big clouds of black smoke all the time. They pictured us going over to Europe and bringing boatloads of rowdy, hard-drinking foreigners over here to work the plant. They thought these men would bring fat, sloopy wives and have a kid every ten months. They weren't happy."

Six months before ground was broken, Steel sent a public relations man, Jack Appleyard, to Morrisville. He began by going to meetings, eventually spoke to any group that would listen, often making three talks a day.

He told Steel's story. Making steel, he said, is pretty much of a mechanical job, it doesn't require big bruisers. The employees, he said, will be quiet, well-behaved, with many college graduates among them. And, anyhow, 5000 of the total payroll of 6000 will be taken from the area. He dispelled their worries one by one, group by group.

Other key figures in U.S. Steel also contributed their time in this informational program.

Gradually, they forgot their preconceived fears and began to notice changes in their lives. The men Steel brought down turned out to be nice folks. Vacant homes were snapped up, improved. The opposition, which was never organized, vanished.

(Continued on page 101)

Excerpts from Steel, the Fairless Steel Works plant magazine. Enclosed with letter of June 22, 1987 from Norman F. Wesley.

Figure 148.



July 2, 1987

Mr. Carl E. Nittinger
130 Walnut Street
Haddonfield, New Jersey 08033

Dear Mr. Nittinger:

Since writing you on June 22, I came across another piece of information concerning structures that were removed from the site of Fairless Works.

The attached copy is from the plant's newspaper marking Fairless's 25 years in Bucks County.

I thought this additional historical information might be of interest.

Sincerely,

A handwritten signature in cursive script that reads "N. F. Wesley".

Norman F. Wesley
Manager-Public Affairs

Attachment

Norman F. Wesley. Letter to author. July 2, 1987.

Figure 149.

NO F. WESLEY
"only copy"

STEEL

September 22, 1952

By IRWIN H. SUCH
Editor
and WALTER J. CAMPBELL
Managing Editor



BENJAMIN F. FAIRLESS

THE FAIRLESS WORKS

Fairless Works: Steel Man's Dream
Turn the page!

Raw Materials	128
Blast Furnace	130
Coke	131
Open Hearth	132
Rolling Mills	134
Sheet and Tin Plate	136
Metallurgy and Inspection	140
National Tube	140
Maintenance	142
History in the Making	144

Excerpts from Steel, the Fairless Steel Works plant magazine. Enclosed with letter of July 2, 1987 from Normn F. Wesley.

Figure 150.

THE FAIRLESS WORKS

HISTORY IN THE MAKING

SOMETHING OLD, SOMETHING NEW This 150 to 200 year-old house near Morrisville, Pa., was dismantled to make way for the Fairless Works, downriver from Trenton, N. J., where General George Washington carried on a bitter campaign during the Revolutionary War. Material from the house was shipped to Mt. Vernon for the restoration of Washington's former home.



DOINGS ON THE DELAWARE On a bitterly cold March 1 (1951), mindful of the days when Washington crossed the Delaware, groundbreaking ceremonies were held in a heated tent on the Fairless Works, 3939-acre site. Wielding the shovel: Benjamin F. Fairless, president of U. S. Steel Co. Looking on: Gov. Alfred E. Driscoll of New Jersey (right), Irving S. Olds, then chairman of U. S. Steel (center), Gov. John S. Fine of Pennsylvania.

THE QUELITZ OF THE FUTURE Number one blast furnace, nearly completion of the Fairless Works. When the second furnace, complete, the two will produce nearly 10 million tons of pig iron per year. The 100-ton, 110-ft. furnace, integrated steel-making plant, is one of the largest in the world.



Excerpts form Steel, the Fairless Steel Works plant magazine. Enclosed with letter of July 2, 1987 from Norman F. Wesley.

Figure 151.

EDWARD R. BARNESLEY

6209 OCEAN BOULEVARD
BLAIRE HAVEN, N. J. 08008

TELEPHONE (609) 494-8350

August 28, 1987

Carl F. Nittinger
130 Walnut Street
Haddonfield, N.J.
08033

Dear Mr. Nittinger:

I was pleased to hear by your recent letter that something was being done to those architectural moldings rescued from Fairless Works and which I thought were still locked up in the Bishop White House. There is quite a story about these things and I can't write it all down.

So it would be nice if you would stop in to see me at our Brant Beach home on Long Beach Island. Just give me a call on the morning you leave to be sure I am home on that particular day. Will be away September 13 to 20, but am otherwise usually home. Bring along a photocopy of the Falls Township map from Scott's 1876 Atlas of Bucks County so I can show you the location.

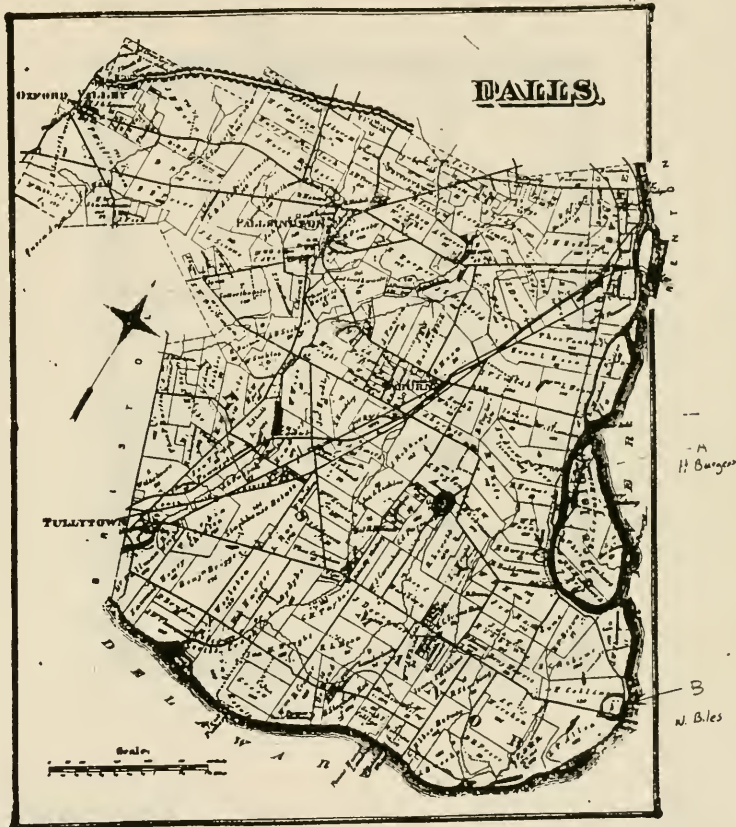
Please give my regards to Charley Peterson when next you see him, for we had several interesting meetings some years ago, especially in connection with the 1796 China Hall property built in Bristol Township by my Dutch ancestor.

Most cordially yours,

Edward R. Barnesley
Edward R. Barnesley

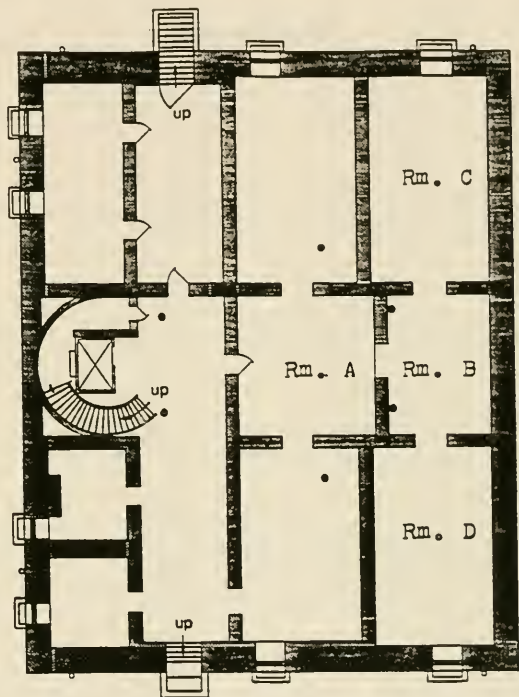
Joseph Barnesley. Letter to author. August 28, 1987

Figure 152.



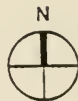
J.D. Scott, Combination Atlas Map of Bucks County
 (Philadelphia: 1876. Reprint. Evansville: Unigraphic,
 Inc., 1977), 43.

Figure 153.



CELLAR PLAN
 FIRST BANK - 0301
 Independence National Historical Park

Scale: 0 5 10 15 20 25 30 feet



1985

Independence National Historical Park. Basement Floor Plan. First Bank of the United States. Philadelphia.

Figure 154.

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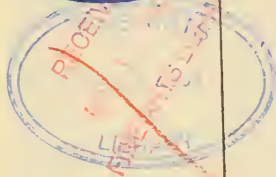
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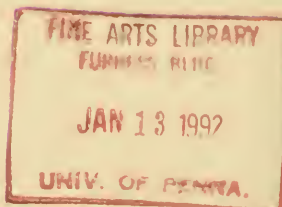
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