

Wainscotting (A.K.A. Panelling) in Historic Buildings

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Introduction

Architectural woodwork from 18th and 19th century America, especially that which we call "panelling" (but historically called "wainscotting"), has long been of interest to architects and architectural historians. Such architectural and historical interest started in the early 20th century, and has resulted in many books, photographs, and other publications with measured drawings like the White Pine Series. This interest has frequently focused upon various aspects of architectural style, the use of classically derived details, and the influence of early architectural books upon carpenters and master-builders.

Obviously the design and embellishment of such woodwork (hereafter called wainscotting) continues to be of interest to us today. However, this writer feels that while the design aspects of early woodwork are important, we also need to look at other aspects of wainscotting, especially those relating to their construction. Because such a wall of woodwork must be prefabricated in every detail in advance of its erection, it involves a surprising degree of planning and accuracy in the craftsmanship to assure that all the sub-assemblies will fit the walls, the floor and the ceiling.

It is for the above reasons that this Training Aid has been written, to heighten the understanding and appreciation of the craft aspects, but without getting to the next level of understanding which would involve the tools and their use. Therefore, it should be stated at the outset that this is not a scholarly paper for architectural historians. The purpose of this brief essay is to simply call attention to the planning and prefabrication required to build and assemble a wall of wainscotting.

This essay is comprised of two parts, the first part

being a brief text which is illustrated with 17 drawings and photos. The second part consists of selected documents, actually extracts from an early architectural dictionary, several extracts from carpenter's rule books, and an extract from an 1899 text book for tradesmen. These are intended to give the essay some historical context for nomenclature and carpentry practices ranging over a wide span of time and place.

Historical Definition and Purpose of Wainscotting

The term "Wainscotting," as used in this country throughout the 18th and much of the 19th century, referred to a system of woodwork, consisting of stiles and rails, with raised or flat panels, that lined one or more walls of a room. Often such woodwork covered the full height of the room, but in many instances the wainscotting extended only up to chairrail height. The English use of the term was generally applied to wood panelling on the lower part of a wall; but in this country the term "wainscotting" usually meant floor to ceiling woodwork. When wainscotting was used to embellish an entire wall (or walls) with floor to ceiling woodwork, it usually included other related (but applied) features such as pilasters, cornices, and trim for doorways and windows (Illus. 1). At a minimum, wainscotting could be limited to the embellishment of a fireplace with over-mantel panelling, and the rest of the room simply finished with plain plaster. All such wainscotting served to dress up and embellish otherwise plain walls, and to ameliorate the effects of damp walls, especially in masonry buildings.¹

Toward the end of the 19th century, the term "wainscotting" was more loosely defined to include

vertical beaded boards, simply nailed to wall cleats, and finished off with baseboards and chairrail moldings.² And today, of course, the term "wainscotting" has been supplanted by the term "panelling," which includes almost any wooden (or fake wood) wall treatment, whether vertical boards or sheets of plywood.

Construction of Wainscotting

For the purposes of this Training Aid, wainscotting is described as a *prefabricated system* of woodwork, consisting of vertical boards called stiles which usually extended from floor to ceiling, and which were cross-connected with horizontal boards called rails. The stiles and rails were secured to each other with mortise and tenon joints with wooden pegs or pins. Usually the spaces between the stiles and rails were filled with raised or flat panels which "floated" in grooves along the edges of the adjacent stiles and rails, but the panels were not pinned or glued in place. Thus they could expand or contract in the grooves, depending upon the temperature and humidity of the environment.

If the wainscotting was large in size or complicated in its arrangement of panels, there might be additional secondary stiles and rails to accommodate the extra panels. The panels usually consisted of boards edge glued into flat panels, or raised panels (or combinations), or panels with applied moldings. Sometimes the panels served as a backdrop for mounting an elaborate feature such as a tabernacle frame or a pediment. These systems were usually built to utilize the least amount of material to cover the wall, and there were often narrow voids or gaps in the system. These voids were covered by applied features or trimwork, such as ornamental pilasters or doorcase architraves (Illus. 2).

A wainscotting system utilized a number of prefabricated sub-assemblies, each of which had to be finished in every detail, with mortise and tenon joints, grooves and moldings, before they could be assembled (Illus. 3). All stiles and rails were made of relatively small stock, usually of 5/4 inch material, and seldom exceeding 8 to 10 inches in width (Illus. 4-5). The panels were sometimes quite large (say 3 feet by 4 feet), and thus had to be glued up from multiple narrower boards. Sometimes the glue joints were reinforced on the

backside of the panels with fabric strips. But, as mentioned before, the panels were *not* glued to the stiles or rails, but "floated" in grooves to allow for the inevitable expansion and contraction. Without this provision for movement, they would have broken apart.

Because all the components of wainscotting systems had to be prefabricated, they were probably assembled on sawhorses in the very room, and then raised into place, followed by final adjustments such as leveling or trimming of the stiles to fit irregularities in the floor, and finally the wainscotting was secured to the wall(s) (Illus. 6-7).

Securing the woodwork to rough walls seems to have posed several problems, depending upon whether the wall was framed of wood or whether it was constructed of brick or stone masonry. In any event, the surface of most walls was somewhat uneven, that is, not necessarily plumb or on an even plane. Thus, it was usually necessary to provide some blocking to space the woodwork away from the surface of the wall to compensate for the irregularities of the wall. This was especially true of masonry walls, but it was also thought necessary to provide some air circulation between the damp masonry wall and the wainscotting.

Wainscotting could be secured to masonry walls in several ways: 1) the mason may have laid some occasional wooden blocks in the wall (in lieu of bricks), and such blocks could be used for nailing the wainscotting to the wall; 2) the mortar joints could be raked out and a narrow, wedge shaped nailing block driven into the joint. Either of these approaches lent themselves to the attachment of furring strips and/or blocking as needed to compensate for irregularities in the wall; or, 3) another approach was to drive hand-forged iron anchors into the mortar joints, as needed (Illus. 8). Such iron anchors had a tapered shank that was pointed on one end so that they could be driven several inches into the mortar joint and wedged against two adjacent bricks. The other end had a "head" for hammering it into the mortar joint, and adjacent to the head was a flattened flange with a nail hole. However, the iron anchors would not be placed until *after* the wainscotting was raised into its final position. Then the iron anchors would be driven into the mortar joints so that they would be immediately adjacent to the stiles or rails, with a nail driven through the hole into the edges of the stiles or rails (Illus. 9), as needed to provide good

anchorage for the wainscotting.

Although the shape and design of the iron anchors varied (Illus. 10), this describes the basic system used in Independence Hall for securing such wainscotting; but it is known to have been a commonly used system in other masonry buildings of the period. Thus an entire wainscotting system could be secured to a brick wall with a half dozen iron anchors. In the eighteenth century, wainscotting was generally installed and prime painted *before* any plastering of the adjacent walls or ceiling. Obviously, it would have been difficult to apply wet plaster against the edges of finish woodwork, especially against projecting moldings. Later, in the nineteenth century, wooden nailers called "grounds" were first secured to the wall, then the adjacent plaster abutted the grounds, and the finish wainscotting was nailed to the grounds after plastering.

Summary

The historic wainscotting system involving the use of stiles and rails with panels was a remarkably practical system that could either dress up part of a wall, or it could embellish an entire room or building. However, to build an entire wall of wainscotting required the most careful and intricate planning, to say nothing of the craftsmanship, to successfully prefabricate and install the completed woodwork, taking into account all the related openings, such as windows and doorways, as well as the changes in wall planes at the floors and ceilings. Such wainscotting was usually (but not always) painted, and thus a great deal of planning and craftsmanship was essentially concealed behind the overall design. Though wainscotting is usually viewed as an example of architectural design or style, it should also be seen and understood as a time-evolved system which required an extraordinary degree of planning and craftsmanship

mention of wainscotting in connection with damp walls. Also see mention of dealing with dampness in the 1726 publication by Richard Neve, *The City and Country Purchaser, and Builder's Dictionary...* London, 1726, p.273, as follows: "Some Joyners, (as I am inform'd) put Charcoal behind the Pannels of their Wainscot, to prevent the Sweating of Stone and Brickwalls from ungluing the Joynts of the Pannels, which otherwise, (especially in some places) 'tis very apt to do so; and others make use of Wool in the same manner, and for the same purpose; yet neither of these ways will prevent their ungluing in some Houses: But the most effectual way to prevent it, is by priming over the Back-sides of the Joynts with White-lead, Spanish-brown, and Linseed-oyl."

Since wainscotting as defined in this essay consists of stile and rail "systems," we can extend the definition to include *paneled* doors and window shutters, as they too consist of stiles, rails and panels (Illus. 13-17).

²In 1873, for example, an insurance survey of the Arch Street Meeting House, Philadelphia, mentioned among other interior features, a "Wainscot of grooved boards [actually, vertical beaded boards] on the Walls of an average height of 4 feet..." Source: Philadelphia Contributionship for the Insurance of Houses from Loss by Fire, Policy No. 11,856.

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For more information about the Skills Development Program, please contact Emogene A. Beutt, Skills Development Plan Coordinator, National Park Service (424), P.O. Box 37127, Washington, D.C. 20013-7127, or telephone her at 202-343-9561, FTS 343-9561.

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NOTES

¹See the definition of "WAINSCOT" in the 1734 Builder's Dictionary (Appendix A), which makes

BIBLIOGRAPHY

There is little literature on the subject of wainscotting, but the following selected items will provide the reader with some of the earliest writings as well as several more recent articles. Obviously, much remains to be done.

The Builder's Dictionary: or, Gentleman and Architect's Companion, London, 1734, in two volumes. Republished for the Association for Preservation Technology, 1981.

"Joinery," in *Masonry, Carpentry, Joinery*, International Library of Technology, Scranton, Pennsylvania, 1899, section 10, pp. 16-27. Reprinted by Chicago Review Press, Chicago, Illinois, 1980. This is an especially interesting text book for tradesmen; and while it was written near the end of the classic period of wainscot joinery, it probably embodies aspects of much earlier craft practices.

Stephen MacDonald and Sunnie Singer, "How to Make a Wainscot," *The Old-House Journal*, March, 1978, pp. 29-31.

Malcolm MacGregor, "Making Period Doors," *Fine Woodworking*, published by the Taunton Press, Newtown, Connecticut, July/August, 1988, no. 71, pp. 60-64. Note the photo and text on page 63 that show and describe the coping of the quarter-round moldings on a typical rail (or stile). A "cope" was the traditional way to fit moldings at a right angle corner without using miter joints (which would open up after shrinkage of the wood), but a cope looks like a miter joint.

Joseph Moxon, *Mechanick Exercises, or the Doctrine of Handy-Works*, the Third Edition, London, 1703. See the section on the "Art of Joinery," pp. 63-116, including Plate 7, and "Terms used among Joiners."

Richard Neve, *The City and County Purchaser, and Builder's Dictionary: or, the Compleat Builders Guide...*, Second edition, London, 1726, pp. 273-274, for the entry "Wainscotting." This publication is available in a 1969 facsimile edition, David & Charles (Publishers) Limited, Newtown Abbot Devon.

Nicholas B. Wainwright, *Colonial Grandeur in Philadelphia: The Houses and Furniture of General John Cadwalader*, Philadelphia, 1964. Especially see the comparative photos of wainscotting in the Powel House (1765), and the Stamper-Blackwell House (1764), and the bills of carpenter work (including wainscotting for several rooms) for the John Dickinson House (1772), all in Philadelphia.

The White Pine Series of Architectural Monographs, edited by Russell F. Whitehead, AIA. For samplings of photographs and measured drawings that show wainscotting, see: Vol. X, no. 6 (1924), p. 14; Vol. XI, no. 2 (1925), "Interior Woodwork in New England during the Seventeenth and Eighteenth Centuries," by Edwin J. Hipkiss; Vol. XII, no. 1 (1926), "New Castle, Delaware, an Eighteenth-Century Town," by Wm. D. Foster; Vol. XIII, no. 3 (1927), "An Eastern North Carolina Town House, the Smallwood-Jones Residence," by Kenneth Clark; Vol. XIII, no. 5 (1927), "The Colonel Robert Means House, Amherst, New Hampshire," by Lois Lilley Howe; Vol. XV, no. 5 (1929), "The Matthias Hammond House, Part Two;" Vol. XXI, No. 5, pp. 74-76; Vol. XXI, no. 6, pp. 80-87; Vol. XXIII, no. 4, pp. 57-58, Vol. XXIV, no. 2, pp. 121-126.

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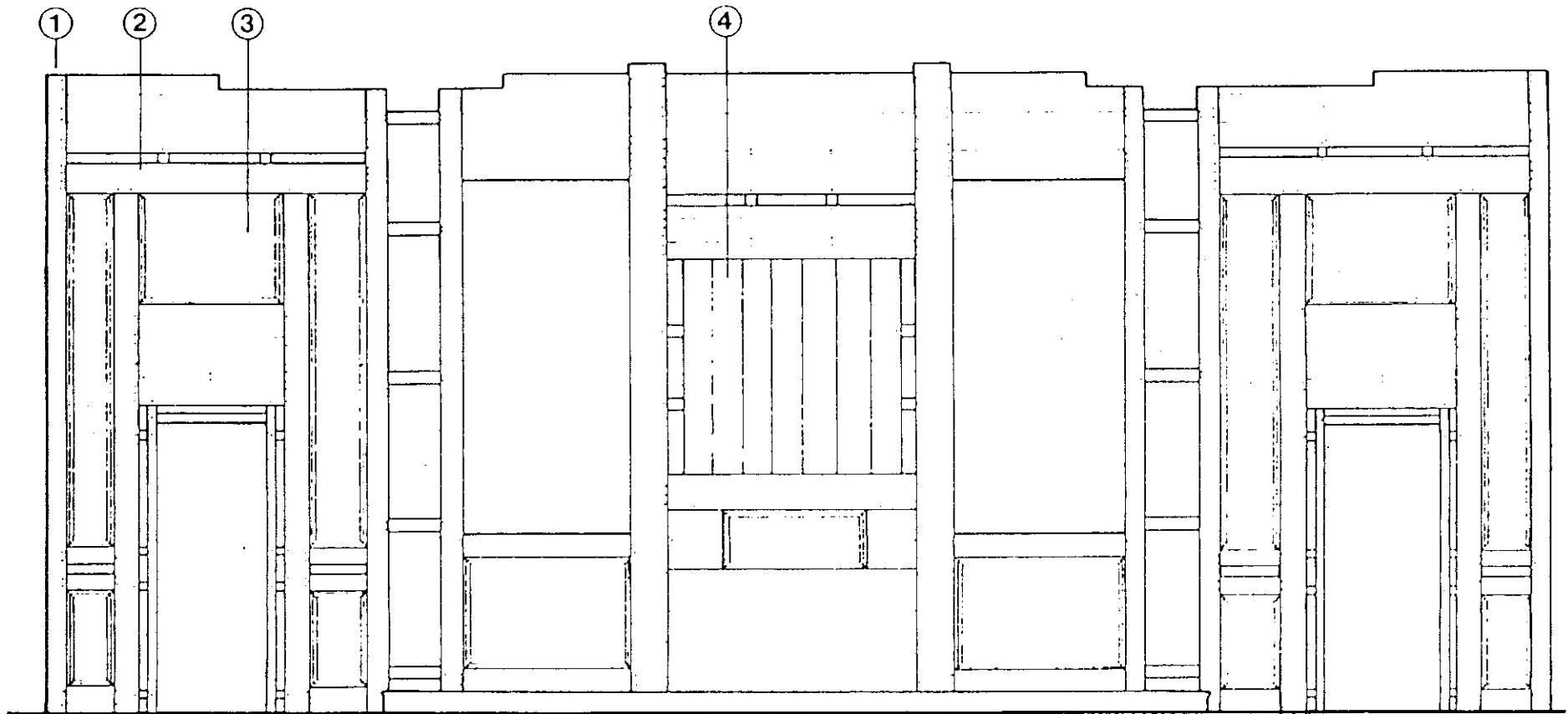


ILLUSTRATION NO. 2
FINAL ASSEMBLY AND ERECTION OF PRE-FABRICATED WAINSCOTTING, WITHOUT APPLIED
EMBELLISHMENTS

Drawing shows the final assembly of the prefabricated sub-assemblies of wainscoting for the west wall, Supreme Court Room, before the surface application of pilasters, pediments, etc. The shaded areas represent voids in the assembled woodwork. The larger voids are for windows and doors (see Illustration No. 1); and the other voids will be covered by pilasters, the center tabernacle frame, the frieze, door trim, and sections of chairrail.

Key: 1) Stile; 2) Rail; 3) Raised Panel; 4) Flat Panel

Drawing by Neal A. Vogel, 1988.

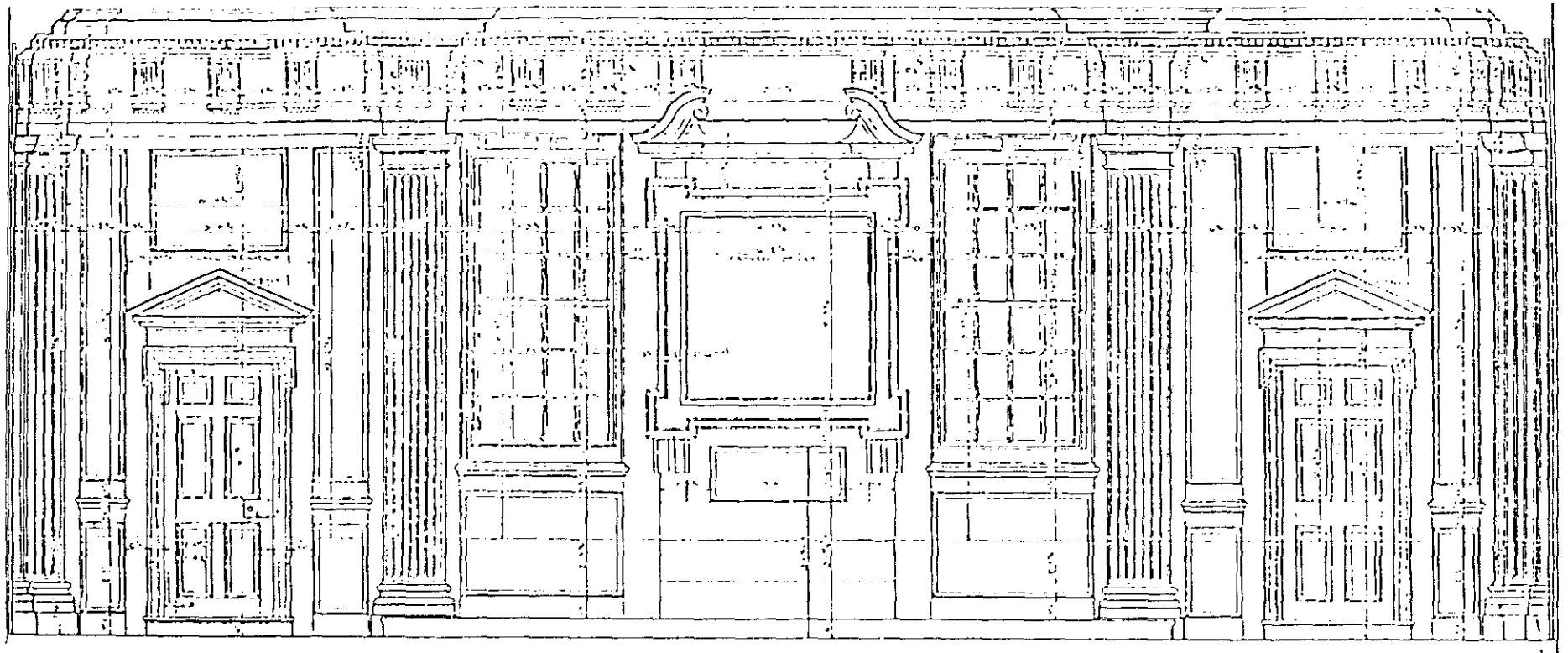


ILLUSTRATION NO. 1
COMPLETED WAINSCOTTING WITH APPLIED ARCHITECTURAL FEATURES

West Wall, Supreme Court Room, Independence Hall, Philadelphia. Drawing shows the reconstructed wainscoting complete with those architectural features that were applied to the surface of the wainscoting, including the pilasters, tabernacle frame, pediments, door and window trim, together with the frieze and cornice members. This wainscoting fills a wall that is 20 feet high and 40 feet wide.

Drawing No. NHP-IND 3425, Sheet 31, 1965. Drawn by John Milner.

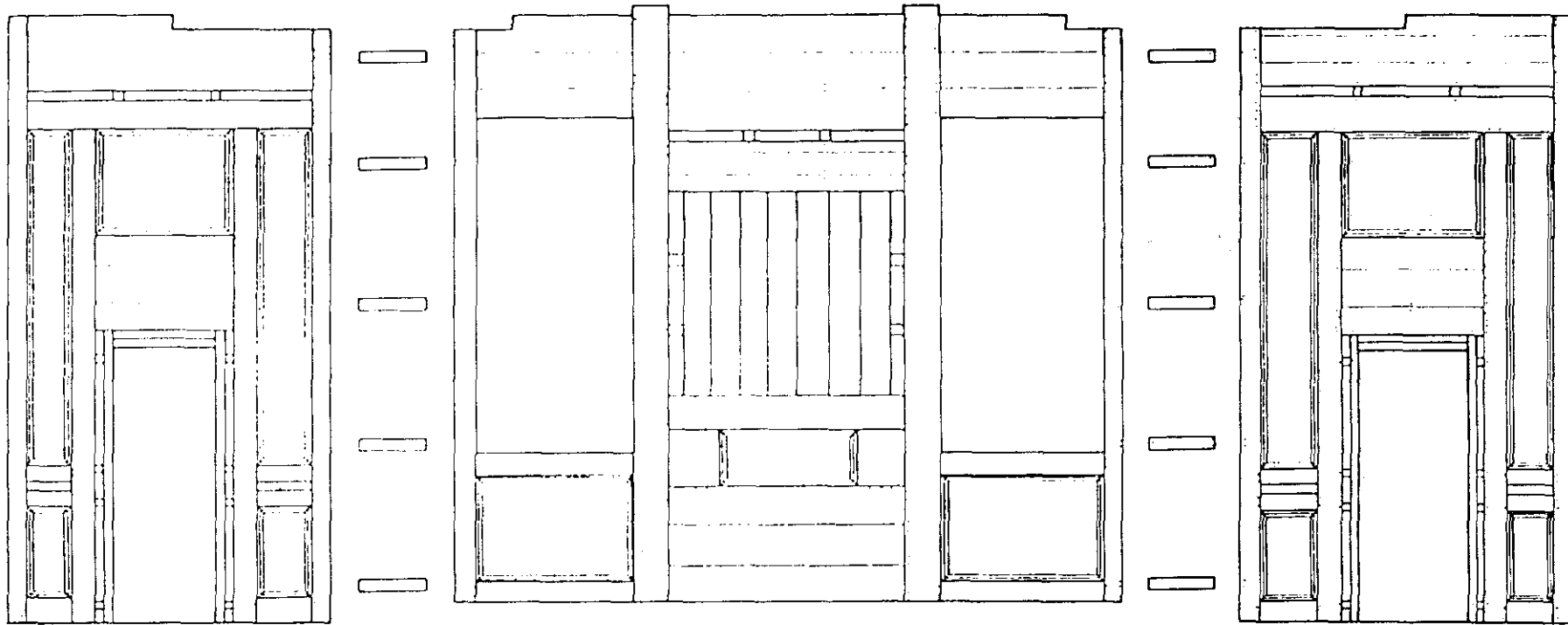


ILLUSTRATION NO. 3
INTERMEDIATE STAGE SHOWING THE THREE SUB-ASSEMBLIES OF WAINSCOTTING

This drawing shows the three sub-assemblies of wainscoting after being raised into a vertical position against the west wall, Supreme Court Room, but before final assembly (with the short connecting rails) into one unified wall of wainscoting.

Drawing by Neal A. Vogel, 1988.



ILLUSTRATION NO. 6

Photograph showing carpenters in the final stages of making wainscotting for the east wall of the Assembly Room, Independence Hall. This wainscotting involved five large sub-assemblies, the one in the foreground being for a chimney breast. Beyond the carpenters, and leaning against the wall, are the wainscotting units for the flanking doorways. Note that the wainscot units were prime painted in the sub-assembly state, and that the wooden pins were not cut off until later when they are driven "home," and the unit was then given its second coat of primer.

NPS Photo by James L. Dillon and Company, Inc., April 23, 1965, INHP Neg. No. 157.1805

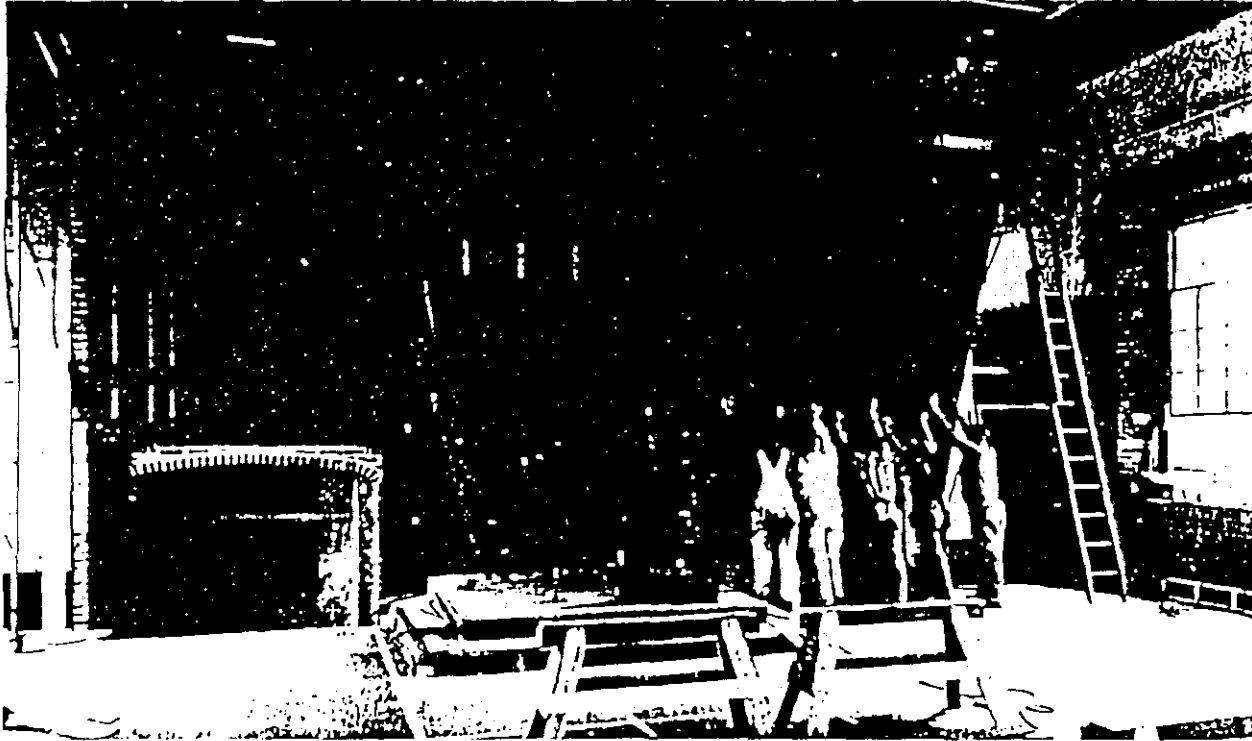


ILLUSTRATION NO. 7

Photograph showing carpenters raising a sub-assembly unit of wainscoting into place against the chimney breast of the east wall, Assembly Room, Independence Hall. Two adjacent units of wainscoting are seen here, having already been raised into position.

NPS Photo by James L. Dillon and Company, Inc., INHIP Neg. No. 157.1806.