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REPORT
of the
1951 REHABILITATION WORK ON THE BUILDINGS AT
INDEPENDENCE SQUARE

by John B. Lukens,
Architect

INDEPENDENCE NATIONAL HISTORICAL PARK PROJECT

Philadelphia

July 13, 1951

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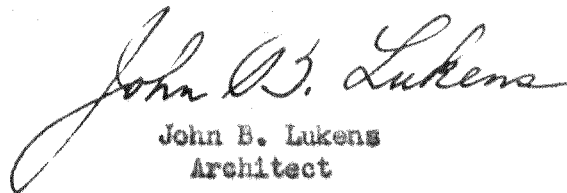
N. B. All photographs are by the writer except #3 and #4 which
were donated by the roofing contractor, Mr. Harry Kulzer, and were
taken for him by Saul Zalkind, photographer.

FOREWORD

This report was prepared at the request of Mr. Charles E. Peterson, Resident Architect of this Project. It is intended for circulation to interested persons within the National Park Service and not for general use or publication.

The primary object of the report is to preserve a record of experiences in connection with the work here so that others may have the benefit of whatever lessons we have, or should have, learned.

Philadelphia, Pa.
July 13, 1951


John B. Lukens
Architect

I - PROGRAMMING THE WORK

When this office received custody of the Independence Square group on January 2, 1951, a number of items of repair work on the buildings were urgently needed. In addition to this work, many items of maintenance equipment had to be acquired. Independence Square and the buildings had hitherto been maintained by the appropriate departments of the city government whose skilled personnel and stocks of equipment and supplies were administered on a city-wide basis. It was now necessary to begin setting up a self-contained maintenance department for this Project. For all the above purposes, a balance of \$40,318 was available as of March 1, 1951 in Account No. 1411034, designated as "Maintenance and Rehabilitation of Physical Facilities, 1951." With a few minor additions from other sources, this fund was used to cover all the repair work on the buildings described herein plus the purchase of all maintenance equipment, tools, and materials acquired during the same period.

In order to distribute the obligation of this and other funds between the various crying needs, lists of recommended expenditures were prepared and weekly staff meetings were held beginning early in March at which current and proposed expenditures were discussed. These meetings were called by Superintendent Anderson and included, when possible, all of the following:

Fiscal Officer:	B. F. Gibson
Historian	: E. M. Riley
Curator	: W. A. McCullough
Architect	: C. E. Peterson

The writer attended most staff meetings at the request of Mr. Peterson, and Messrs. Bachensky of the fiscal department and Kurjack of the historical section also attended from time to time.

The planning of any work on the buildings was thus closely bound up with planning of all other activities involving obligation of funds. This report is limited to a consideration of rehabilitation work on the buildings which was the primary concern of the writer during the period. The programming of this work was influenced by the following considerations:

(a) There were certain conditions, such as roof leaks, bare spots on outside woodwork, and washed-out mortar joints, neglect of which would lead to progressive decay of the buildings. The architects urged immediate attention to these conditions and repairs were undertaken with reasonable dispatch.

(b) This office, having been given responsibility for these historic structures by the Federal Government, was anxious to create an appearance of efficient housekeeping and of due concern for an important public trust. Consequently, such items as repairs to plaster work, inside painting, and improvement of the lawns, were pushed ahead with almost the same emphasis as repairs which were vital for the preservation of the buildings.

(c) A considerable effort was made to have certain parts of the work finished in advance of "deadlines", the deadline in each case being an event which would involve focussing on the buildings the attention of small numbers of important personages or large numbers of the general public or both. Some of these deadlines were not met as planned, including, for the exterior paint job, the final deadline of July 1 which was the beginning date of the "Independence Homecoming Celebration", commemorating the 175th anniversary of the signing of the Declaration of Independence. The reasons for the work having lagged behind these deadlines will be outlined herein.

II - ADMINISTRATION OF THE WORK

The internal organization of this Project was a brand new enterprise when the work described herein was undertaken. A certain amount of lost motion and organizational adjustments and development naturally obtained, but on the whole the accomplishments merit commendation.

The burden of the fiscal department of this Project during this first half-year of its existence was magnified by the undertaking of so much work with force-account labor and with separate small contracts. Due to the energetic and cheerful cooperation of Mr. Gibson and his assistants this department never became a bottleneck but served instead as a great help and frequent inspiration to other sections of the organization.

Mr. Warren A. McCullough, Curator of Independence Hall for five years under the City Government and associated with work at the Square for fifteen years, entered the National Park Service this year as a member of the staff of this Project. On account of his familiarity with the maze of problems encountered here, and on account of his personal devotion to the job and his remarkable zeal and energy, the good fortune of Mr. McCullough's being associated with this Project cannot be overstated.

Superintendent Anderson gave Mr. McCullough general responsibility for execution of all the rehabilitation work, the architects being considered to serve best in a purely technical position, working through Mr. McCullough on execution of the work. The exceptions to this arrangement were the roofing and brickpointing contracts, work under which was supervised by the architects directly.

A large measure of commendation is also due to Mr. McCullough's able assistant, Benjamin Poysoff, who managed all the labor directly employed by this office. By sheer drive and persistence and in a spirit of unselfish devotion to duty, Mr. Poysoff got the work done in spite of the most crushing difficulties and discouragements.

Valuable assistance was also furnished by Joseph Schmidt, operating engineer in the Independence Square group of buildings whose long association with the plant made him an indispensable source of information. It should also be noted that painter Meretti and carpenter DeJohn, of the Project staff, contributed their best efforts and worked along cheerfully with much higher-paid temporary personnel.

III - WORK ACCOMPLISHED

The rehabilitation work done between March 1 and the date of this report is outlined below:

A - Roofs

Before beginning the repair work it was very evident that the roofs leaked in several places. The writer recommended that a good roofer be consulted before any of the other repair work should be started. This office contacted the firm of M. G. Kulser & Sons who were currently engaged in re-roofing Carpenters' Hall, and Mr. Harry Kulser of that firm inspected the roofs on Wednesday, March 14, in company with Messrs. McCullough and Lukens of this office. It was found that the tin roof which girdles the tower of Independence Hall at the top of the brick portion of the tower had deteriorated beyond repair and needed to be completely replaced at a cost which would necessitate competitive bidding. (Illustrations #2 and #5). It was Mr. Kulser's opinion, however, that the necessary repairs and maintenance work on all the other roofs could be accomplished for less than \$500. Consequently, Mr. Kulser submitted a proposal under which his firm undertook to furnish 90 man hours of work on all the roofs except the badly deteriorated tin one for \$465. A purchase order was issued on the basis of this proposal. This maintenance work was executed by a highly-skilled veteran roofer between April 12 and April 30, 1951. (See Illustration #1). All former leaks were stopped as a result and no leaks have appeared to date.

For the replacement of the tin roof around the tower, specifications were written by the writer of this report. No effort was spared to determine the construction and appearance of this roof as of the year 1828 when the present wooden steeple was added to the tower. The old

tin was found to be laid over older wood shingles which had bevelled butts (see Illustration #3) and an unusual arrangement at the hips. Some consideration was given to the possibility that this roof might have had a shingled surface after 1828 and that it should be restored as a shingled roof. However, further study convinced all concerned that the shingles were vestigial remains of the old pyramidal roof which covered the brick tower from 1781 to 1828, during which period there was no steeple on the tower. It is believed that the architect of the present steeple in 1828, William Strickland, simply had the central portion of this old pyramidal roof cut out and had his timber steeple built up through the hole, the remaining portion of the shingled roof being then covered over with tin. The policy adopted for the recent repairs was, therefore, to replace the existing tinwork with an exact reproduction in new material.

The existing tin roof was a standing seam roof with a flat-seamed portion around the lower (outer) edge. (See Illustration #2). It is more fully described in the specifications for the new roof. The old wood shingles were measured by this office during the time when they were uncovered and observations are recorded on an Historic American Buildings Survey sheet under date of April 10, 1951.

Specifications for the new tin roof were sent out to three roofing contractors on March 28, 1951. On April 4, 1951 the contract was awarded to M. G. Kulser & Sons, the same firm which was then engaged in performing general maintenance work on the other roofs. The contract price was \$1790 and no other bids were received. The work on this roof was completed satisfactorily on May 22, 1951. (See Illustrations #4 and #6).

One feature of this roof which required special study was the method of fitting the new tinwork around the pedestals of twelve ornamental hollow copper urns which are built into the roof. Until the work was started it was not possible to determine how these pedestals were fastened to the roof. The specifications were written to cover whatever condition might be found. In the final event, the following method was used by the contractor with the approval of the writer: The old tin was cut away right up to the pedestals; the new tin was laid to fit around the pedestals without moving them; a collar of new tin two inches high was run around each pedestal, soldered to the roof; and the upper edge of the collar was turned out slightly and filled with caulking compound to form a "muck pocket" between itself and the pedestal. The sides of these collars were then fastened tight against the pedestals with metal-screws.

The old lead flashing between the top edge of the tin and the sides of the wood steeple (see Illustration #2) was entirely replaced with new sheet lead by the contractor.

B - Pointing of Masonry

Some parts of the masonry work were badly in need of repointing, while other parts, having received more recent attention, were in good condition. There were a few places, chiefly in or near some of the chimneys, where bricks had actually moved out of plumb due to failure of mortar and action of frost. (Illustration #7). A considerable number of bricks had lost their original hard face due to penetration of moisture and freezing and some were badly eroded by this process and needed to be replaced.

Two brickpointing contractors were asked to submit preliminary estimates without any written specifications for the work of repairing all the defective pointing. The estimates given were \$2950 and \$3400. After this, specifications were written by the writer. These specifications were based on:

(a) Observation of old pointing on buildings in the area including Carpenters' Hall and the yard wall of old St. Paul's Church, 2nd Street at Willing's Alley.

(b) Telephone conversation between Mr. Peterson and three local architects who have done restoration work. Mr. G. Edwin Brumbaugh was particularly helpful in this regard, passing on to us the benefit of his discoveries at Old Swede's Church.

(c) Specification dated July 25, 1934, for "Reconditioning, Alterations, and Repairs to Buildings and Grounds at Fort McHenry, Baltimore, Maryland", prepared by National Park Service.

Mr. Peterson felt that no artificial coloring should be used because the progressive use of coloring through succeeding repointing jobs, always matching the color of adjoining dirty mortar-joints, would lead to an overall effect of dark pointing which would be far from the

original appearance of the masonry. The specifications were sent to six pointing contractors on April 6.

On April 18, 1951, the bids were opened. Three bids were received ranging from \$8,000 to \$12,020 for the estimated quantity of work. The contract was signed with the low bidder, Jules H. Rosenberg, on April 23, and work was started April 25, 1951.

This contract was for an indefinite quantity of work, "approximately 16,000 square feet of masonry", the bid being expressed in unit prices as 50 cents per square foot of repointing brick and stone masonry and 50 cents per linear foot for caulking copings. The specifications stated that the quantity of work accomplished should be "measured in place by the contracting officer at the close of each working day." The question of how this measuring was to be accomplished by this office had not been answered when the work began. Mr. Peterson felt that an inspector should be hired specifically for the purpose of supervising and measuring the work as it progressed. The following method was finally adopted: The entire masonry surface of all the five buildings was divided into 33 recognizable "elevations" which were indicated on a plan and numbered; the masonry areas of all these elevations were measured on the drawings by this office and tabulated on a summary-sheet which was signed by both Mr. Rosenberg and the writer; each time Mr. Rosenberg visited the job, the writer and he together looked over all the elevations on which pointing had been completed since his last visit and estimated for each elevation what percentage of the total masonry area had been repointed; for each elevation thus inspected, the writer computed the area of masonry repointed and prepared a memorandum to the Fiscal Officer, certifying the quantity of work accomplished on this elevation, which was then signed by both Mr. Rosenberg and the writer. At the completion of the entire

job, the quantities on all the separate memoranda were totalled and multiplied by the unit prices to give the contract price. No difficulty was experienced in reaching agreements with this contractor on quantities of work accomplished.

The mortar-mix finally selected was mixed to match the color of old lime-mortar uncovered behind some of the defective pointing which was cut out by the contractor. This color was obtained by mixing two kinds of sand half and half, a sharp brown river sand and a finer yellow sand from New Jersey, and using one part white non-staining cement, two parts sand, and $1/4$ part hydrated lime by volume.

The style of mortar-joint selected consisted of a flat surface of mortar sunk $1/16$ " behind the face of the brick, with a square groove, $1/8$ " wide and $1/8$ " deep scored through the center of the mortar surface. Two of the contractor's men were taken by the writer to Carpenters' Hall where joints of this description were shown to them. The proper joint was produced by them on the job, after several attempts, by using a tool called a "slicker". The tongue in the center of the blade of the slicker, which makes the groove in the joint, was ground down somewhat, following the instructions of the writer, in order to make the grooves less deep. (Illustrations #8 and #9).

In order to allocate the new pointing where it would do the most good, the writer and Mr. Rosenberg looked at each of the 33 elevations on the second or third day of the job and estimated what percentage of each needed repointing. On the basis of this inspection we estimated that approximately 20,000 square feet of masonry should be repointed instead of 16,000 as originally contemplated. This increase in quantity was approved by the Superintendent and the quantity actually done at the

end of the job amounted to 19,245 feet.

When the work got under way, it was demonstrated that many bricks were so badly deteriorated that they constituted a danger to the survival of the adjoining masonry. The contractor was asked to submit a proposal for replacement of defective bricks using old bricks which he should select from a supply in the basement of the building. Mr. Rosenberg proposed to replace approximately 200 defective bricks for \$500 and was authorized by the Contracting Office to proceed with this work as an "extra" under the contract. As the work progressed it was found that a total of 238 bricks needed replacement, so that a second proposal to replace 38 bricks for \$95 was accepted.

During the course of the job all bricks which had moved out of plumb due to frost but were not defective were relaid to the correct face as part of the pointing work and without being considered as "extra" work.

It will be noted that there remain in the masonry of the buildings, especially Independence Hall, a considerable number of bricks which show a slightly eroded salmon pink face. These were not replaced because in the opinion of the writer and of the contractor they are still solid and strong and will last for at least three or four more years without serious deterioration, and it was felt that replacement of all such bricks at this time would have been tantamount to practising "meddlesome surgery" on the fabric of these old buildings, not to mention the large expense which would have been incurred.

There are 24 copper rainwater conductors on the five buildings of the Independence Hall group, all of them rectangular in section and mounted flat against the face of the brickwork so that the pointing behind them is concealed. Early in the job Mr. Rosenberg suggested that

this office arrange for the roofer who was then on the job to take down each rainwater conductor, permit Mr. Rosenberg's men to repair the pointing behind it, and rehang it. This suggestion was gratefully adopted, since the wisdom and convenience of following it was obvious. M. G. Kulser & Sons were asked to submit a proposal for the work on the rainwater conductors and proposed to do the work mentioned above plus incidental repairs to the rain leaders for \$600, any significant quantities of new materials needed to be paid for by the Contracting Officer. Work on the rainwater conductors was started May 14 and completed on May 24. Approximately four sections of new copper conductor were installed and several fastenings, ornamental mouldings, etc., replaced with new material, all without any extra charge to the Contracting Officer. Six of the cast iron drain pipes into which the copper rain leaders discharge were found to be stopped up and were washed out by the operating engineer's department of the Independence Hall staff during the time when the rain leaders were down.

The time of Mr. Rosenberg's contract for pointing, etc., was extended several times for various reasons including loss of working time due to rain, authorized increase in the extent of the work, and incidental work done at the request of the Contracting Officer in addition to the work covered by the specifications. The final extension ended Friday, June 15, 1951. The work was not completed until the following Friday, June 22, 1951, the contractor having paid liquidated damages for the last seven days.

It is obvious that the liquidated damages, at ten dollars per day, were too low for a contract of the size and importance of this one. It is nevertheless felt by the writer that the contractor made a sincere effort to complete the job on time. From June 1 until the end of the

job, Mr. Rosenberg's entire force were employed on this job and he stated that he would like to hire more men to supplement them but that no men of the proper trades were available for hire due to the fact that jobs were offered in other cities at wages far exceeding the union scale.

On July 9 the attention of the writer was drawn by Mr. Peterson to certain deficiencies in the cleaning up done by Mr. Rosenberg's force at the end of their job. The brick pavements at both the east end and the west end of the main building had been left discolored by cement-dust and the east wall of the main building appeared smudgy due to the fact that fresh mortar had been washed out of some of the joints and down over the face of the wall by a sudden rainstorm, the joints having been repaired subsequently by Mr. Rosenberg's men. These deficiencies were brought to Mr. Rosenberg's attention by telephone the same day and he promised to have them remedied.

C - Outside Painting

When the program was started, early in March, it was recognized that outside painting should be scheduled to follow at the end of other work, insofar as possible, so that other trades would not mar the new paint before the Independence Homecoming Celebration. Meanwhile, there were some portions of the outside woodwork, such as windowsills, which were so badly in need of paint as to warrant immediate "first-aid treatment." (Illustration #12). The architects urged that, on the first days of good weather as Spring approached, force-account painters should be assigned to scrape, fill, and prime-coat these portions. This action was delayed for several weeks due to the pressure of work on interior painting and due to a delay in procuring a supply of the particular kind of outside white paint which was selected for the buildings.

Mr. Peterson had applied some earlier effort to the problem of selecting the most suitable type of outside white paint for these buildings in the atmosphere of smoke and industrial vapors which now surrounds them. To this end he had contacted the National Association of Paint and Varnish Manufacturers and had been referred by their National headquarters to Mr. Robert Matlack, the Chairman of the Technical Committee of the Philadelphia Paint and Varnish Production Club, who is also president of the paint manufacturing firm of George D. Wetheril & Sons, Philadelphia. Mr. Matlack visited this office and conferred with Messrs. Peterson & McCullough and the writer. All four of us visited Independence Square in a body and inspected the condition of the existing paint finishes. Mr. Matlack offered to send us within a few days formulas for the types of undercoat and finish coat outside white paint which he recommended for the job. Mr. Matlack assured us that paint

mixed according to these formulas could be supplied by any competent paint manufacturer and that use of them in the specifications would not restrict competitive bidding. The formulas were later included in our specifications and paint so mixed was used in painting the buildings.

The gist of Mr. Matlack's advice about outside white paint is as follows: In order to keep a reasonably clean white appearance, the finish-coat must be a zinc-oxide type paint which "chalks off" slightly as it weathers. Such a paint is not dependable unless it has the correct type of undercoat underneath it. Therefore, two coats would be needed this time. However, future painting, which will be needed every three years, could be a single coat applied to the "chalked off" surface of the previous painting.

Specifications for the outside painting were written by the writer of this report and sent out to contractors on April 9. When the bids were opened on April 19, there were five bids ranging from \$2985 to \$6460. After analyzing the qualifications of the low bidder and consultation with the Washington office, it was decided to reject all bids and perform the work by force account.

While it is not possible to make a direct comparison between the force account and contract method of performing this work, it would appear that more adequate results could have been obtained by contract, both as to quality and time of completion. The difficulties encountered under the force account method related chiefly to supervision, quality of workmanship, and difficulties in obtaining sufficient and qualified painters. It is felt that the restrictions and provisions of a contract would have minimized these problems. While at least one coat of paint with two on most surfaces was accomplished by July 1 the job was not completed by June 22 as planned and it became necessary to continue the work into July.

D - Interior Renovation

It was considered necessary and desirable to renovate all the interior finishes of all five buildings in order to have them present an appearance of careful and efficient housekeeping by July 1. In the case of Independence Hall, every effort was applied to have its interiors freshened up in time for the great increase in numbers of visitors which occurs annually about the middle of April.

The interior finishes of the buildings were generally as follows: Plaster walls painted "colonial ivory", wood trim painted white, ceilings painted off-white, and floors enamelled a very dark brown. It appears extremely unlikely that the buildings were finished this way in the period of their greatest historic interest. However, since there was not sufficient time for any conclusive research to determine the earlier finishes, the compromise was adopted for the present repainting to use the same finishes as those existing from the last repainting.

In general, the interiors of these buildings have been repainted so many times that the accumulation of paint has obliterated the contours of some mouldings and carved ornament. For this reason the architects urged that repainting at this time should be done only where absolutely necessary and with as few coats as possible.

In order to keep interior painting to a minimum, a considerable amount of washing of rooms was done by contract. In some rooms thus washed, the existing paint was in good condition and no repainting was needed. However, in the main entrance-hall of Independence Hall it was found that repainting was necessary even after the washing. The Supreme Court Building, having gone without repainting longer than any of the other buildings, required both washing and repainting throughout.

Repairing of existing plaster work was needed in all five buildings. This work was handled as an incidental to the painting work * and a large portion of it was actually done by the painters, due primarily to the difficulty of hiring plasterers. There were a few places, such as the first floor of the West Wing, where the painters, under pressure to finish their work at an early date, painted over new plaster patches before they had dried sufficiently. Some discoloration of the paint can be seen as a result. Generally, however, the plaster repairing work of both the plasterers and the painters was accomplished in a commendable manner. (Illustrations #10 and #11).

The interior painting was done by force-account labor and it is believed that the result is not equivalent to a first class commercial paint job. There is some evidence of poor workmanship in not keeping sharp edges between colors of paint, in permitting sags and runs in the painted surfaces, and in unskillful or inadequate use of drop-cloths.

B - Carpenter Work

The principal items of carpenter work considered under this repair program were:

- (a) Replacement of all treads in the main stair of Independence Hall
- (b) Replacement of badly rotted portions of the ballustrade on the tower of Independence Hall (Illustration #13)
- (c) Replacement of wood grilles or "duck-boards" on a deck around the tower and on a portion of the main roof of Independence Hall (Illustration #13)
- (d) Patching of any portion of the outside wood trim on any of the buildings in which a deteriorated condition might be discovered by painters and others.

The stair-treads are longleaf yellow pine, approximately 1-1/4 inches thick and varying in width from 14 to 15 inches. The present treads, although badly worn, are not believed to be the original ones. It was decided to replace them with new LLYP, preferably edge-grained, although the present treads are flat grained.

A canvassing of local lumber dealers and builders soon revealed that no boards of the proper material and dimensions could be obtained in the Philadelphia area. Consequently, an appeal for the proper kind of lumber was given nation-wide publicity by radio and other means. A number of offers of donations of lumber for this purpose resulted, and the offer of the Southern Pine Association was accepted. On behalf of the Southern Pine Association, the lumber was prepared and shipped to the project by the Alger-Sullivan Lumber Company of Century, Florida. This shipment reached Independence Hall on June 13, 1951. (Illustration #14).

When this lumber reached the Project, it was noted that a good number of the pieces are edge-grained for a part of their width but that most of the material is flat grained. A representative of the

Southern Pine Association explained to the writer that it would be impossible for them to get sound boards of these dimensions out of existing forests and have them entirely edge-grained. In order to get such large pieces in edge-grained material, they would have to use logs of such immense diameter that the centers of the logs would almost certainly be unsound.

Meanwhile, on May 9, 1951, a conference was held at the staircase between the writer and Mr. Frank Puljar, Jr., Vice-President of the Greene Stairbuilding Co., Inc. on the method of installing the new material. This is fully reported in a Memorandum to Files from the writer, Subject: "Repair of Main Stair, Independence Hall", dated May 11, 1951. On account of the shortness of time remaining before the peak summer visitation, it was decided to postpone reconstruction of the stair until after September 1.

Repair of the ballustrade on the tower, item (b), above and Illustration #13, also entailed use of lumber not locally available. The top rail was apparently in good condition whereas the bottom rail was badly rotted in spots and many of the balusters were partially decayed. The piers at the corners and mid-points of each span appeared to be in good condition. It was decided that the bottom rail should be entirely replaced with new material but that the balusters could be patched or pieced out with material cut from the old bottom rails after they are replaced.

For the bottom rail, eight pieces of genuine *pinus strobus* (eastern white pine) were obtained as a donation from the Vestal Lumber and Manufacturing Company of Knoxville, Tennessee through the Southern Pine Association. When the material arrived it had not been adequately

seasoned, so arrangements were made to have it kiln dried in easy stages over a period of two months by a local lumber-processing plant. This drying has now been completed and arrangements are in hand to have the millwork done.

For the replacement of wood grilles or "dusk-boards", Item (c), above, and Illustration #13, this office was able to obtain "Clear Heart or A" grade tidewater red cypress from a local yard. The carpenter work is being done by the carpenter on the staff of this project.

The patch carpenter work on outside wood trim, etc., Item (d), above, has not been entirely satisfactory. One union carpenter was hired on force-account to work along with the painters and repair all defects which they should discover. It proved very difficult to obtain any carpenter for this position in this season and conditions of high employment and the one who finally took the job was released after two weeks because his work did not measure up to expectations. Some patching was done by this man and more by the carpenter on the project staff. Part of the difficulty lay in the fact that the painters neglected to point out all the defects which they found, although some defects were found and reported by them. It is believed that this reporting might have been handled more positively if the painting contract had been let.

M - Miscellaneous

Other items of rehabilitation work planned, in progress, or completed during this period included the following:

- (i) Replacement of defective parts of the sprinkler system for fire protection.
- (ii) Repairs to heating system.
- (iii) Installation of two fire doors in basement.
- (iv) Replacement of automatic gas hot-water heater.
- (v) Repairs and additions to electric layout.
- (vi) Carpenter work in West Wing building, incidental to setting up Reception Center for the Project.
- (vii) Improvement of the lawns.

IV - CONCLUSION

An analysis of the problem of securing first class craftsmen for maintenance and alteration work on this project follows. It is generally agreed that the ideal arrangement would be to build up a permanent maintenance force of building trades people of the very finest type as a part of the staff of the project. However, there appear to be only two methods open to this office for hiring individual tradesmen:

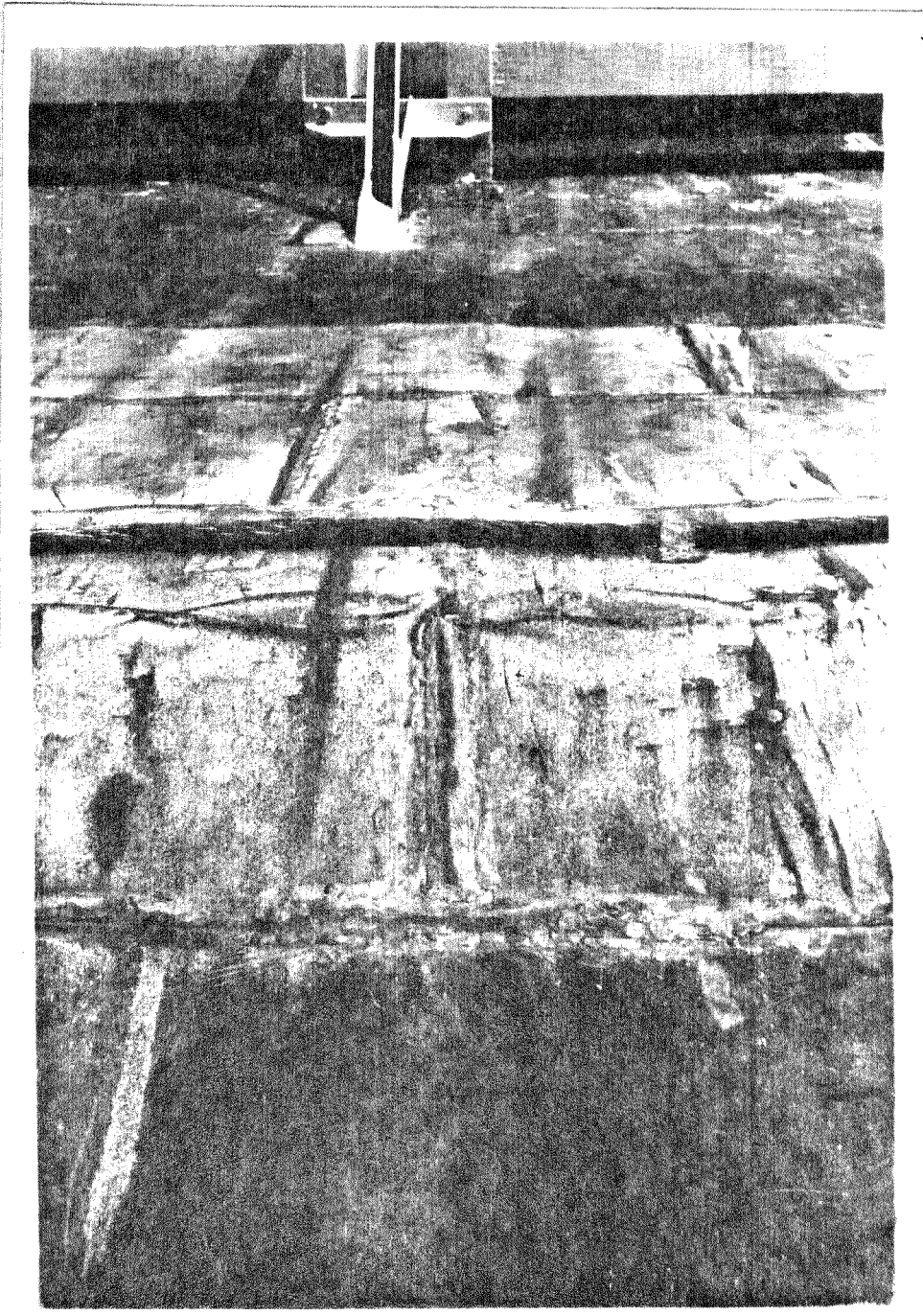
(1) By having positions set up within the organization. In these cases, Civil Service salaries apply to the positions and, since these salaries are not comparable with the wages of currently available jobs on contractor's work, this office cannot hope to secure the "cream" of the skilled labor "crop" in a metropolitan area like Philadelphia unless there is a depression in the building industry.

(2) By hiring tradesmen temporarily as "force-account" labor for periods of less than thirty days at the so-called "predetermined wage rates", which, in Philadelphia, are equivalent to union rates. In these cases the best men are not anxious to take the positions because they are so temporary and because contractors are currently paying higher than union wages for particularly useful men. Furthermore, in many cases it is extremely difficult to get anyone at all to take these jobs due to the fact that the Government makes them wait from two to three weeks for their first pay, and due to the fact that there is no lack of ready employment in the building trades in this locality just now. As the result of all these factors, hiring of tradesmen by this method has practically amounted to "scrapping the bottom of the barrel" in the skilled labor market.

In view of the manifest impossibility of building up a top notch maintenance force by either of the above methods in this project under present conditions, one is forced to the conclusion that important work might well be performed by contract rather than force-account.

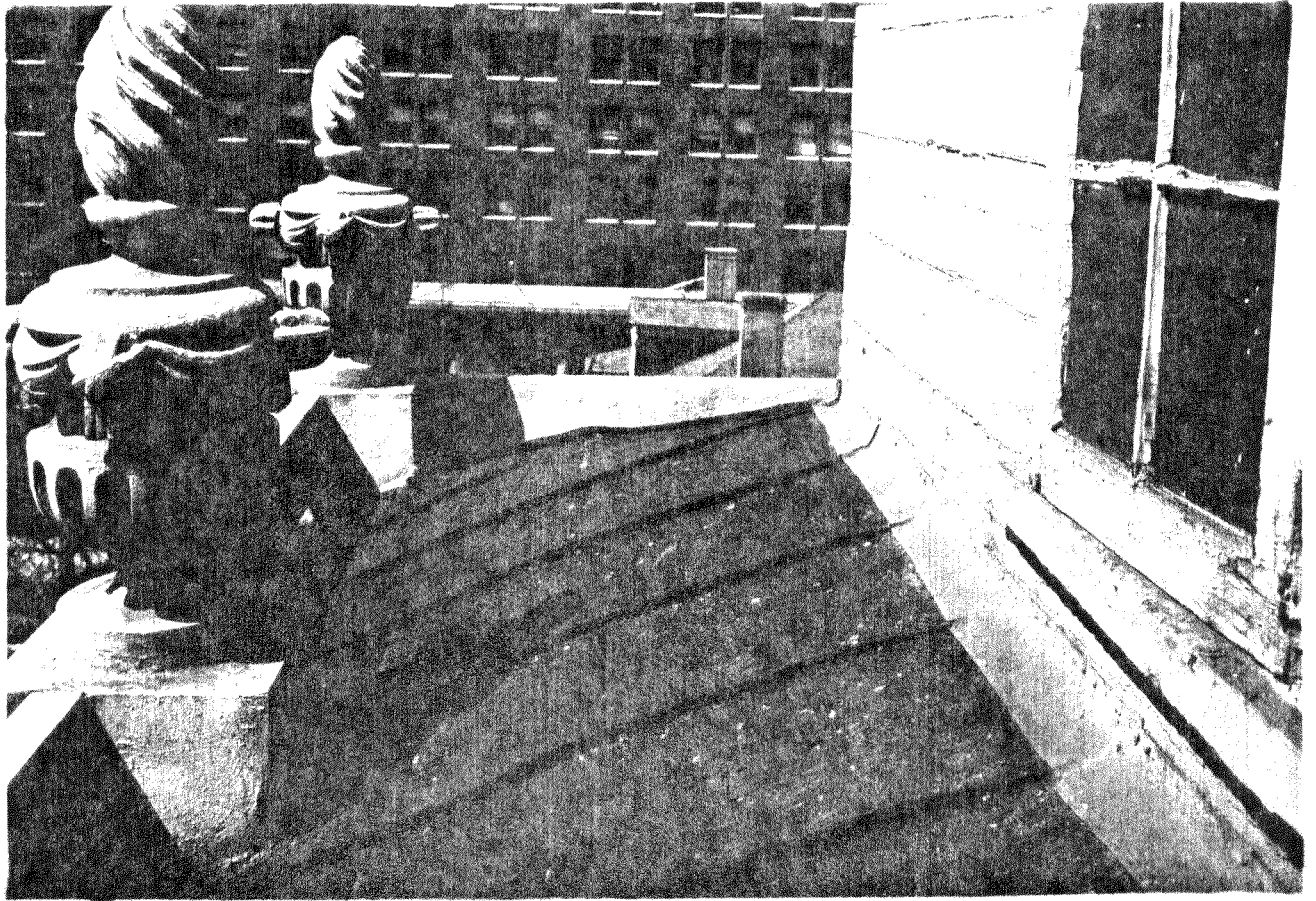
#1 - Repaired Seams in Copper Deck on Top of Main
Roof of Independence Hall.

(The repaired seams appear as an inverted "T"-
shape just below center of picture. Repairs
were made by laying new strips of copper over
the open seam and soldering around all sides
of the strips.)



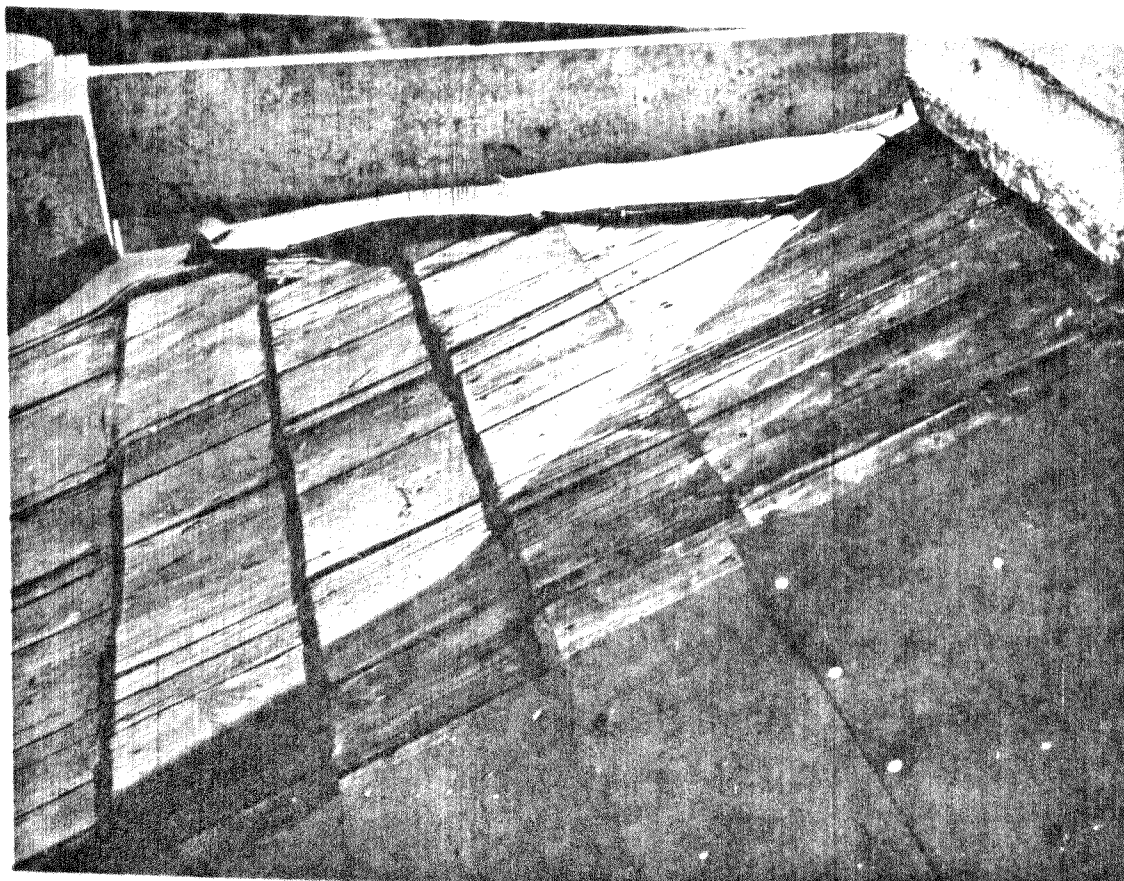
#2 - Old Tin Roof before Repairs, Independence Hall
Tower.

(Note holes through tin in center foreground.)



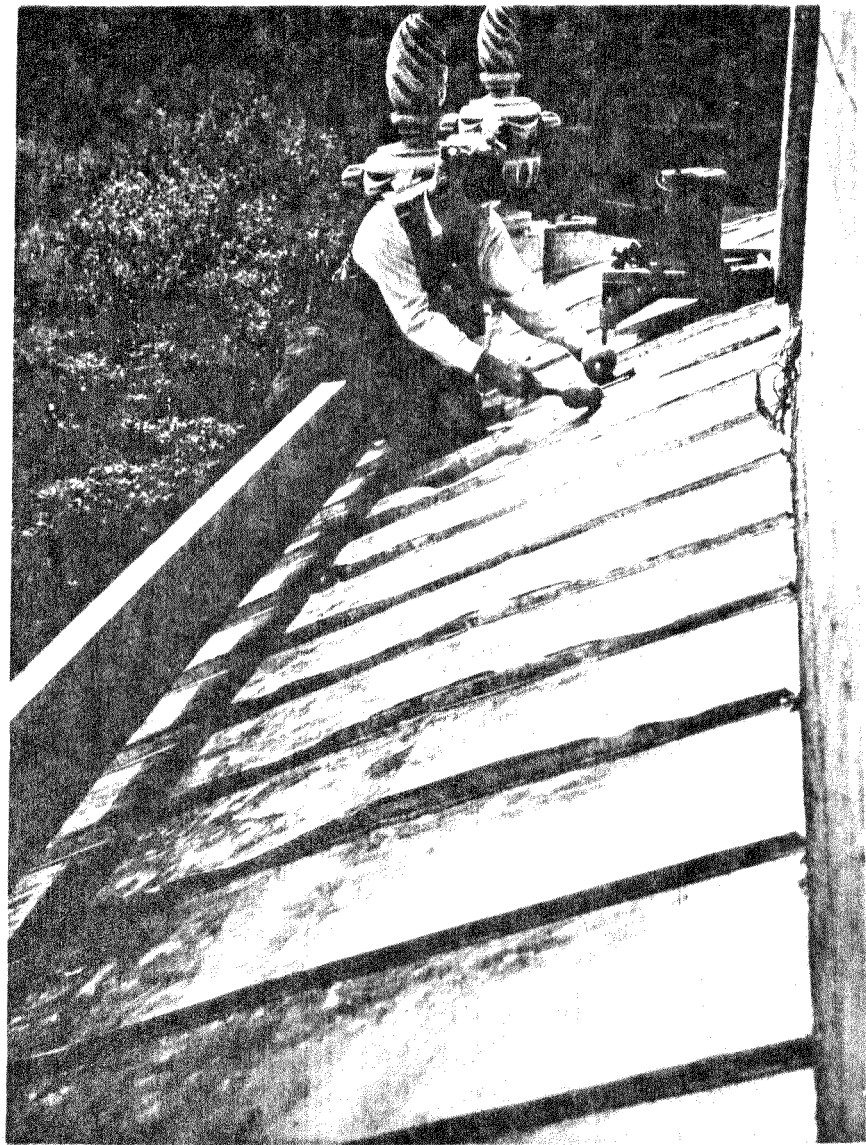
#3 - Old Shingles Exposed During Replacement of Tin
Roof on Tower, Independence Hall.

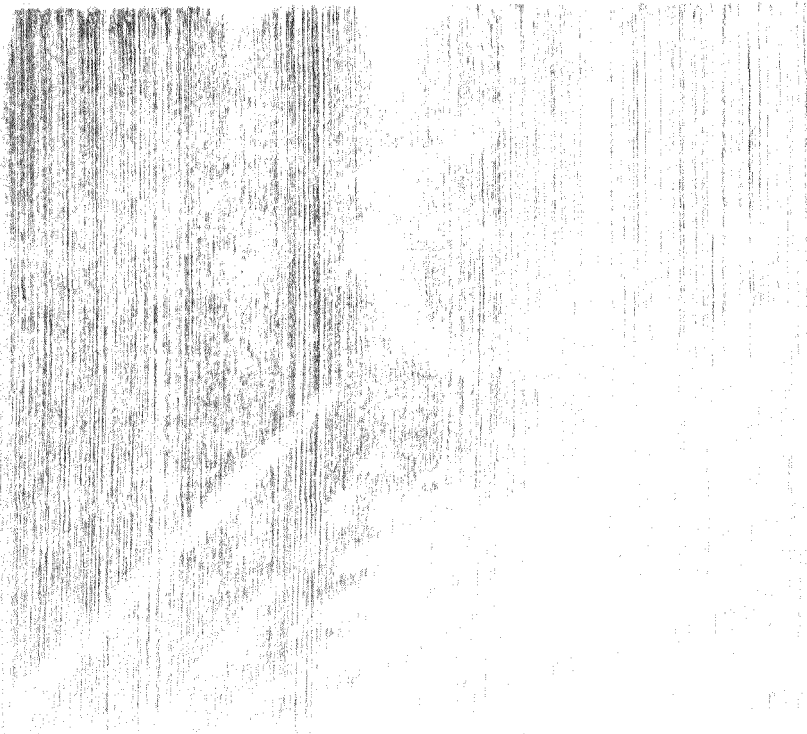
(Note bevelled butts.)



#4 - Installing New Tin Roof, Independence Hall Tower.

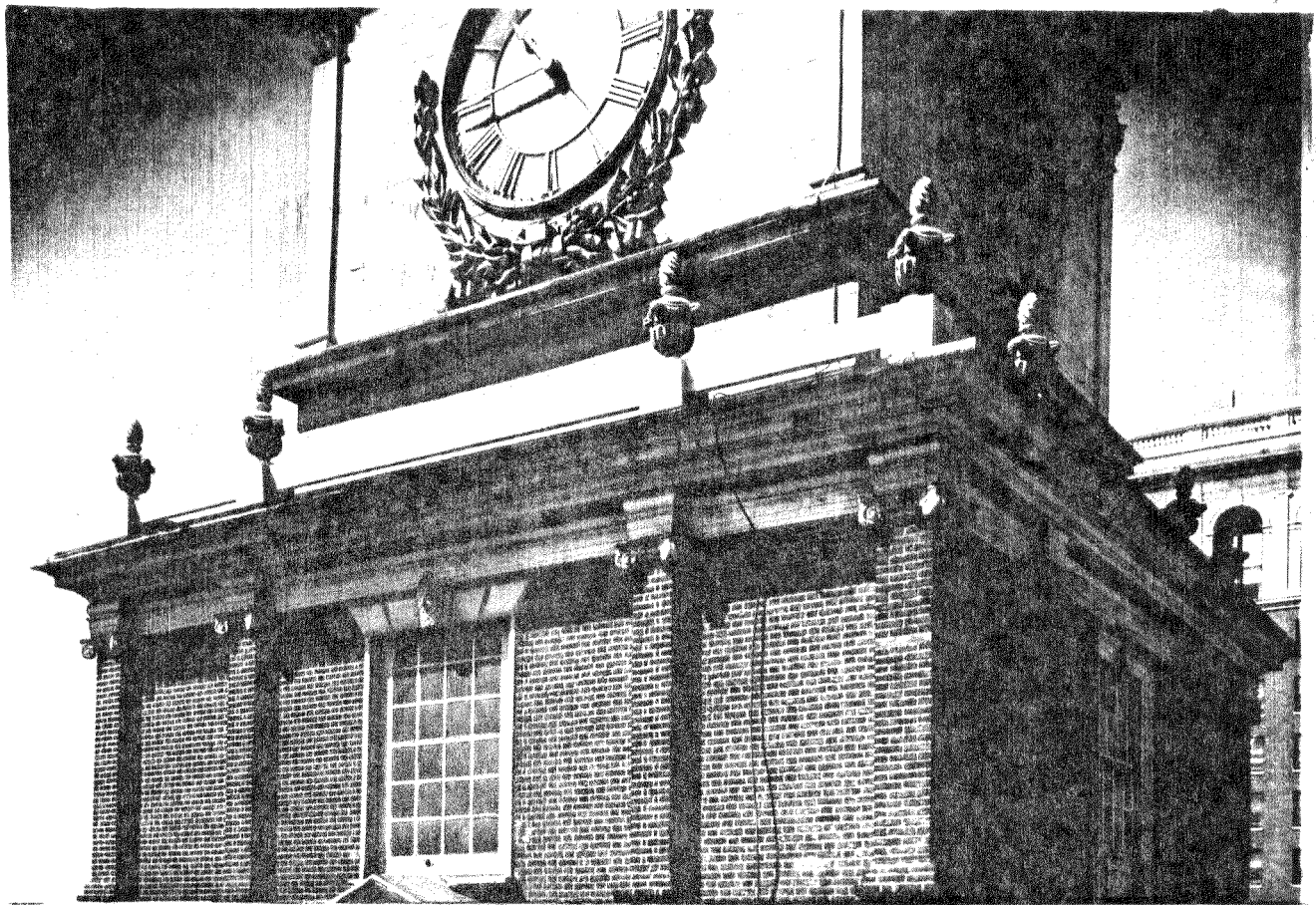
#4

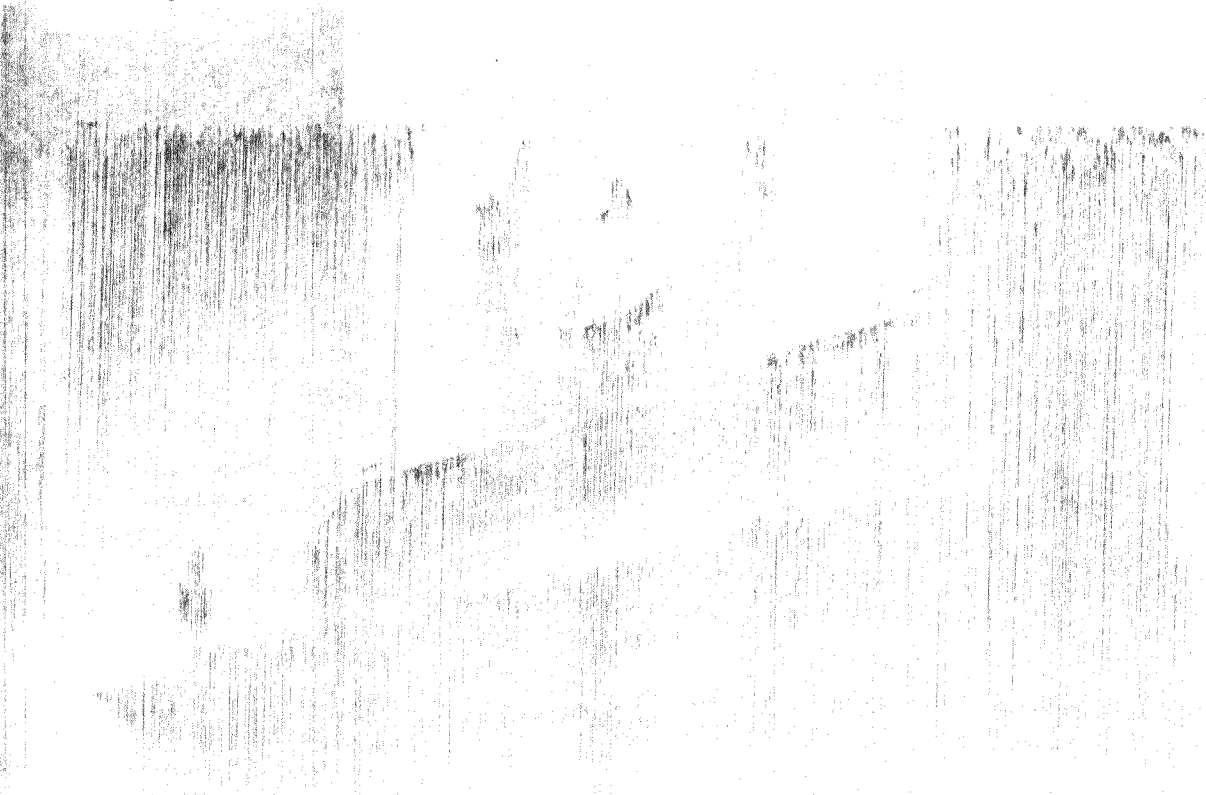




#5 - Tower before Repairs, Independence Hall.

(Note rusted edge of old tin roof and rust-streaks on wood cornice below.)





#6 - Tower after Repairs, Independence Hall.

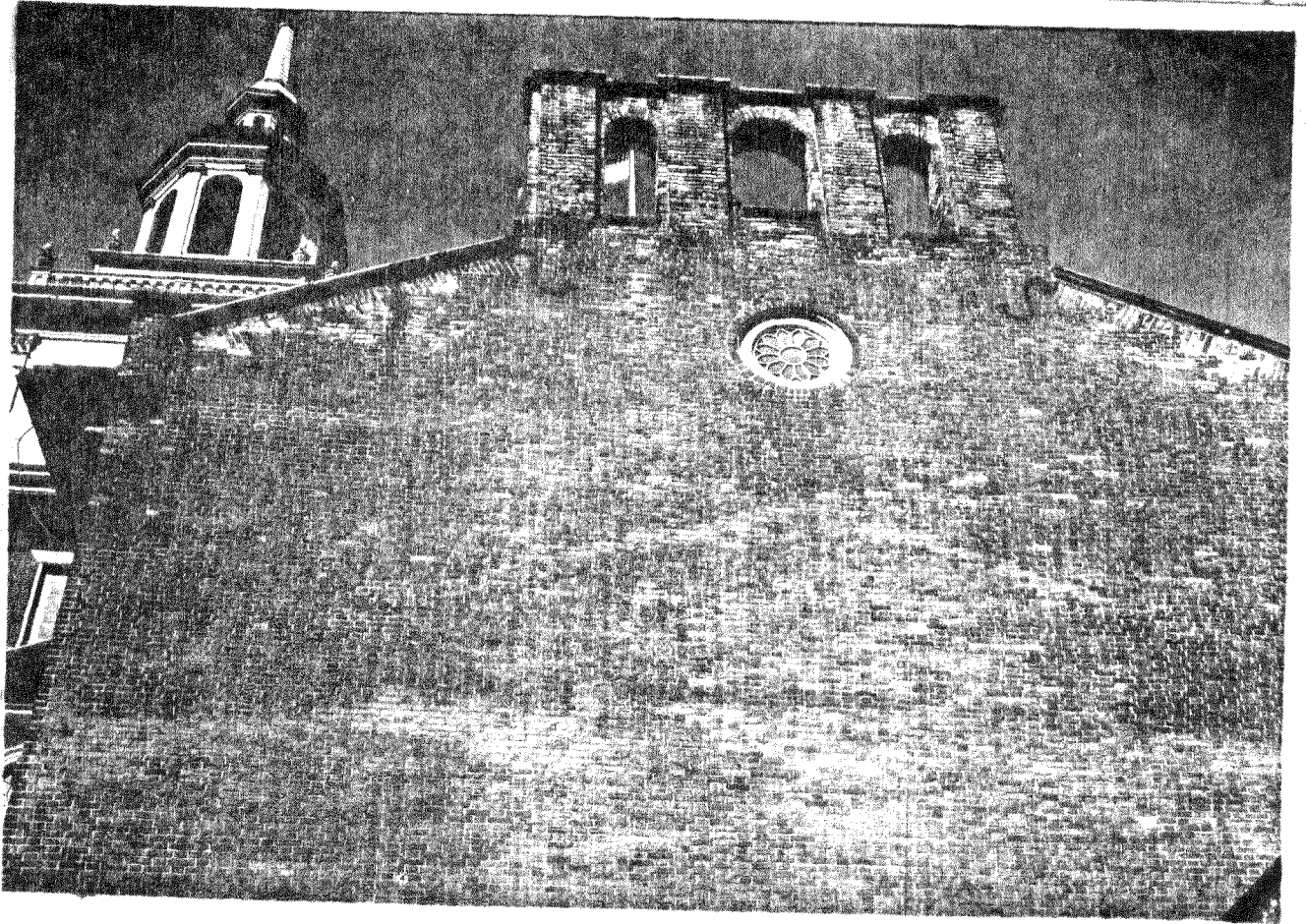
(Painting still in progress, July 6, 1951.)

#6

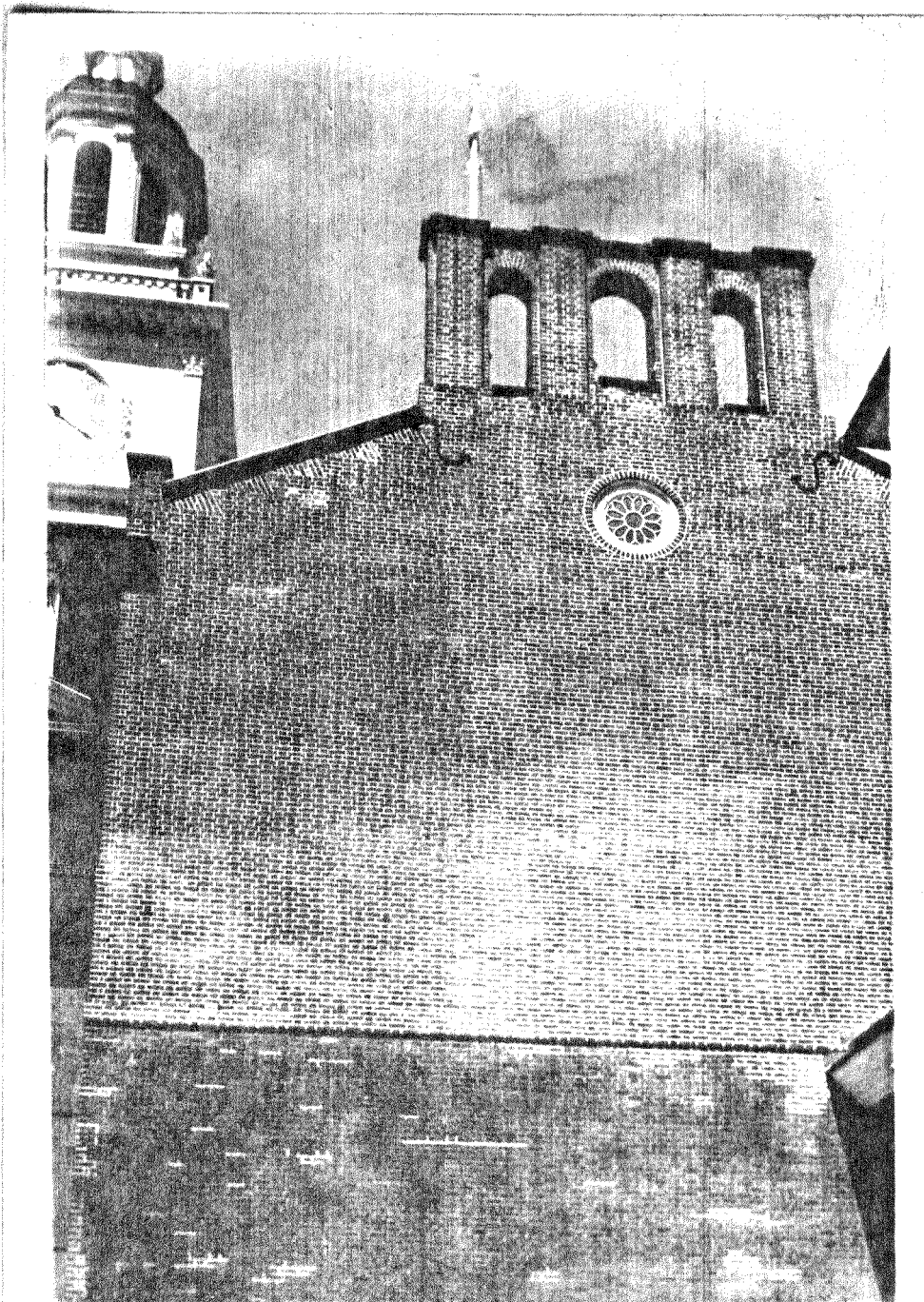


#7 - East End of Independence Hall before Repairs.

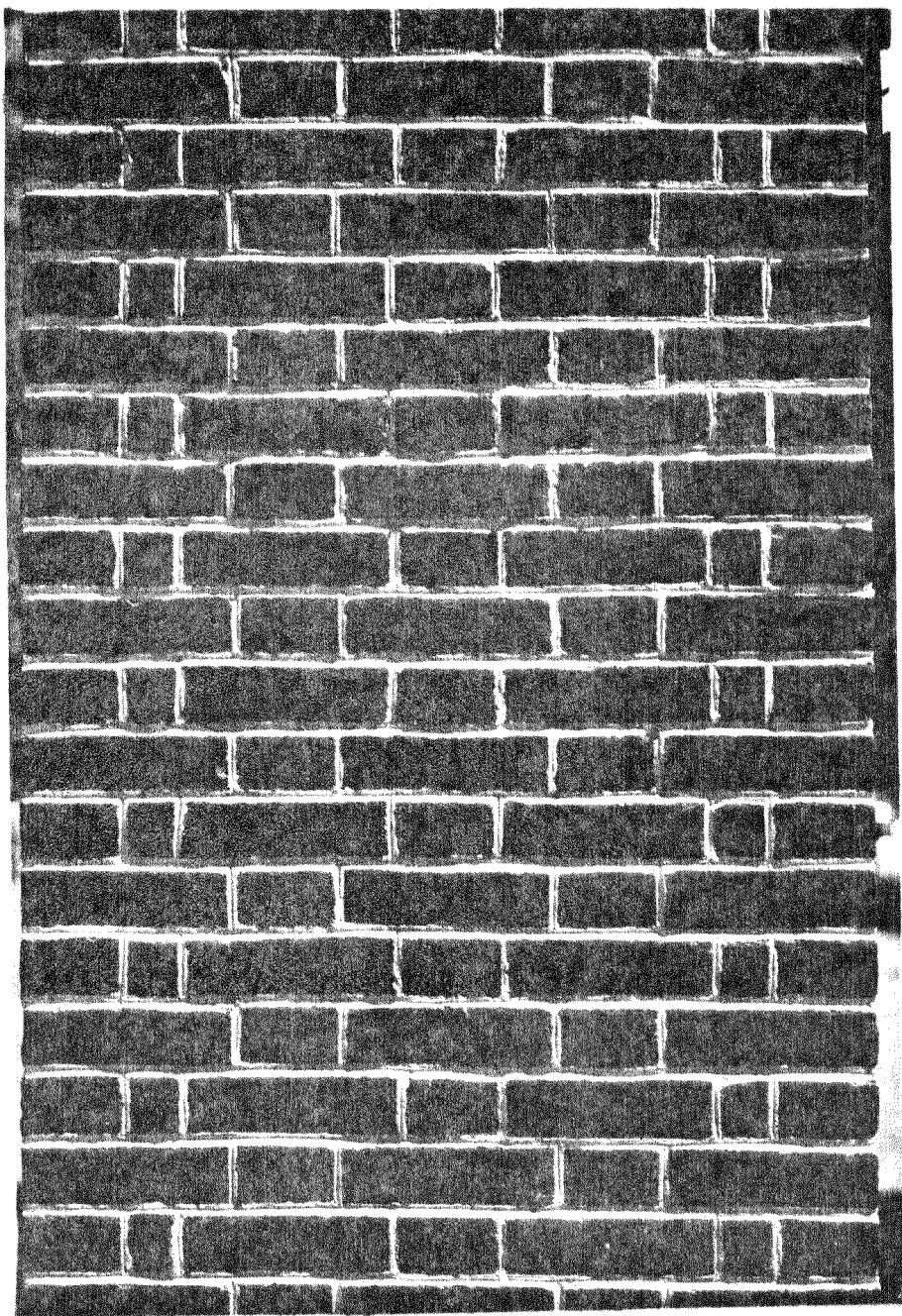
(Note bricks out of plumb just below central arched opening in chimney. Also, vestiges of roof-line of Robert Mills' fireproof wing buildings, built circa 1813 and removed in the 1890's.)



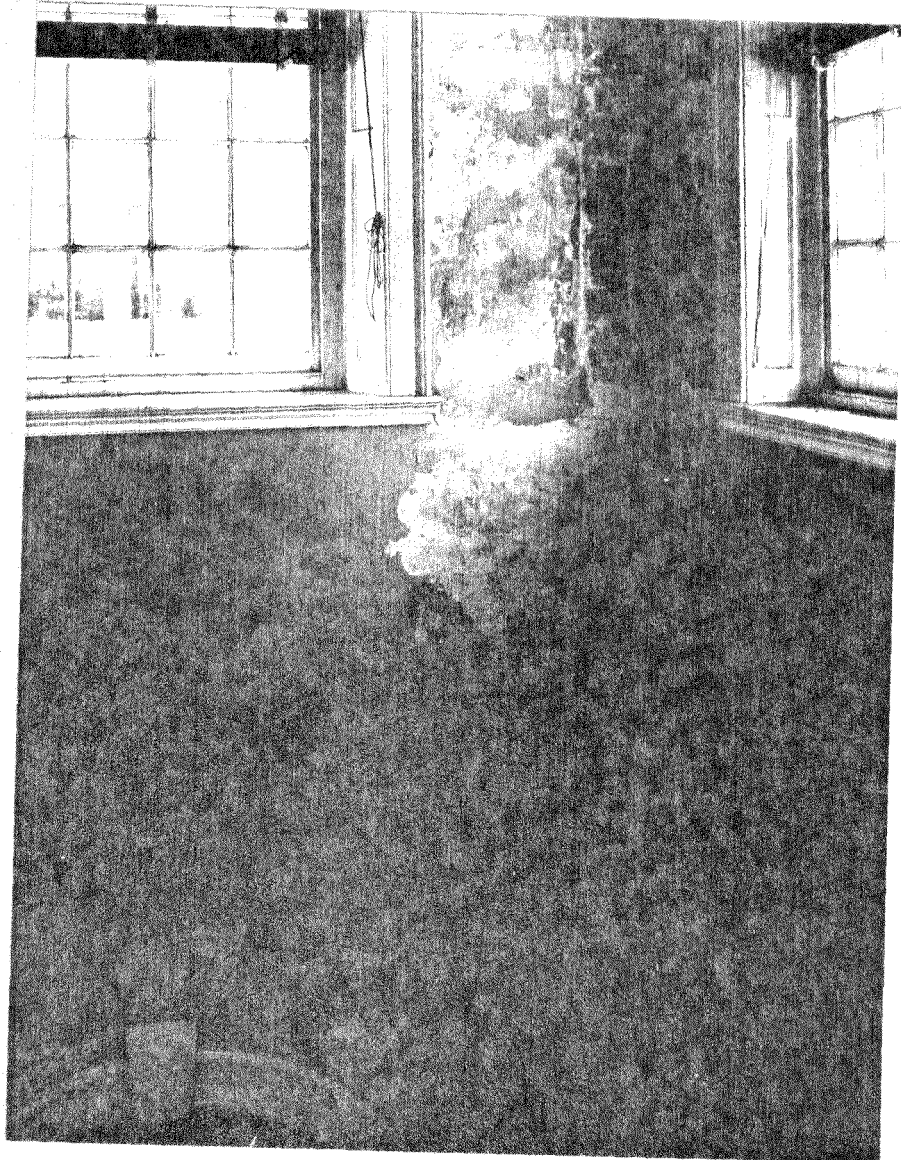
#8 - East End of Independence Hall after Repairs.



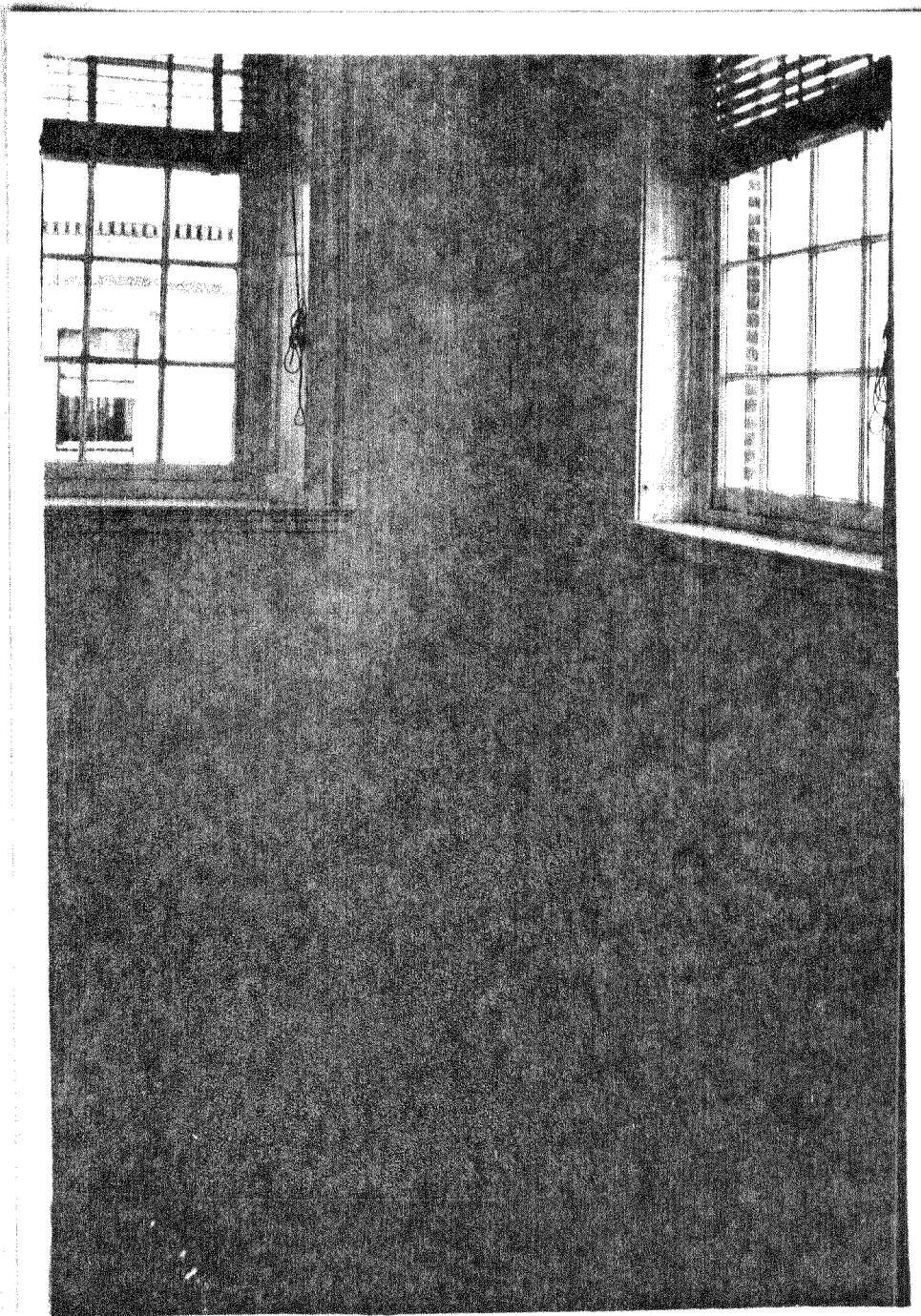
#9 - New Pointing of Mortar Joints in East Arcade,
Independence Hall.



#10 - Plaster Wall in Congress Hall before Repairs.



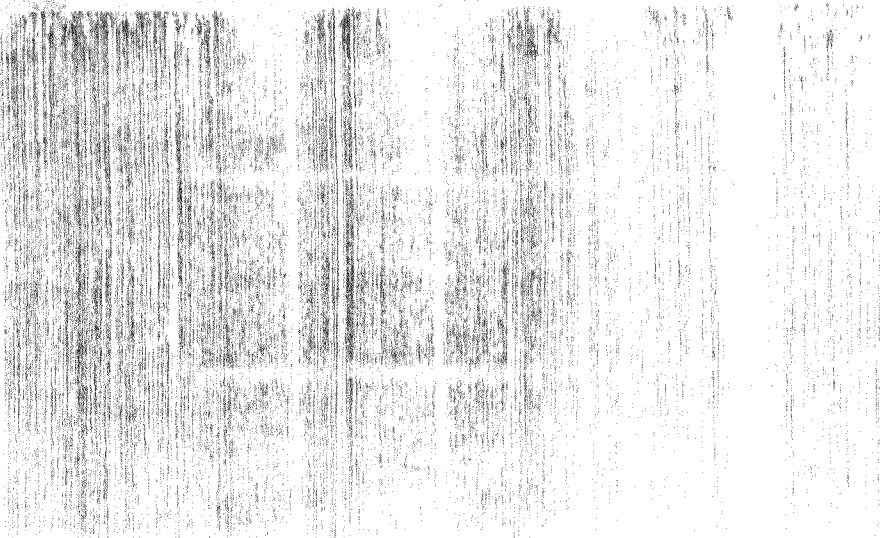
#11 - Plaster Wall in Congress Hall after Repairs.



#12 - Exterior Window-Sill, Congress Hall, before
Painting.

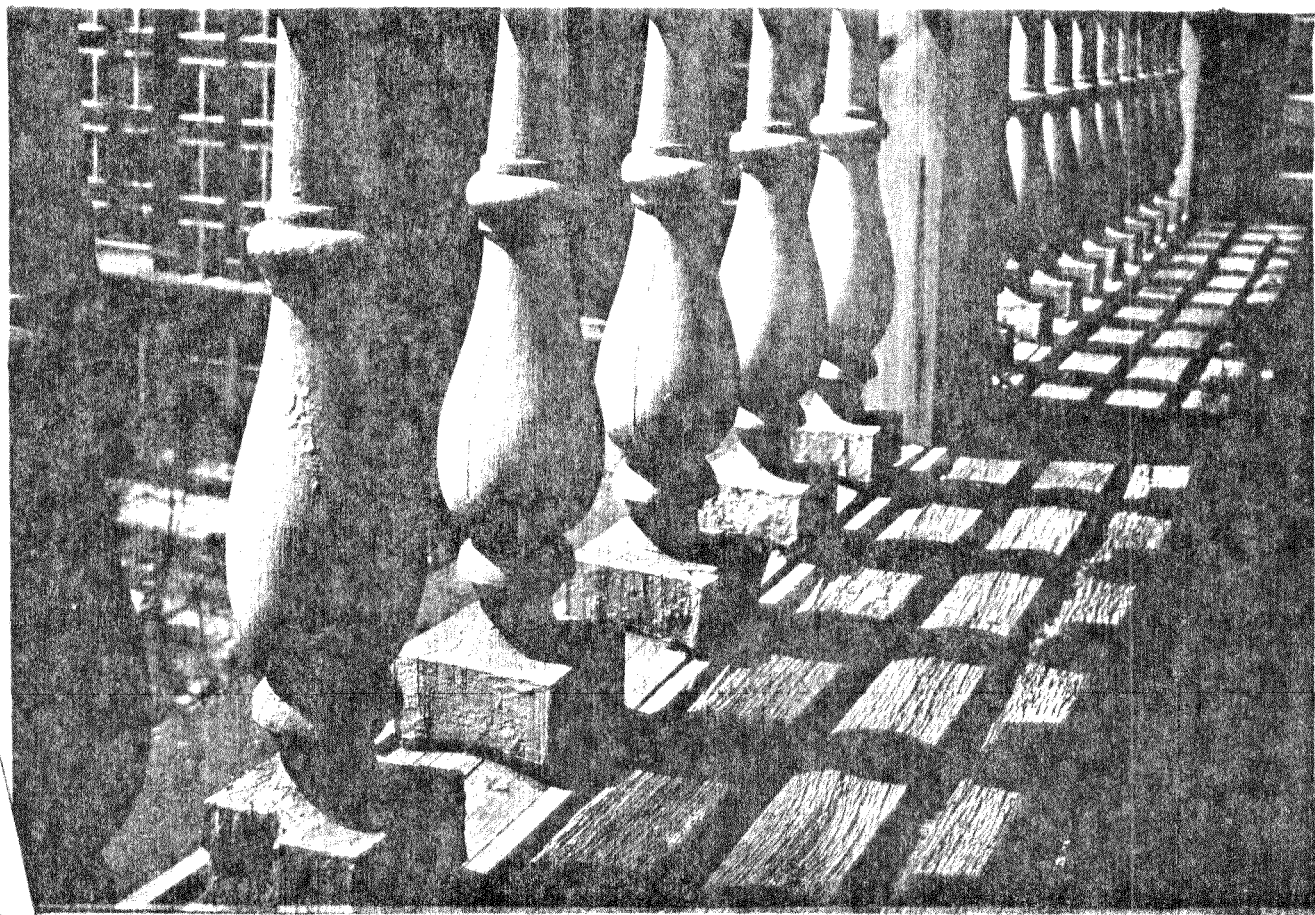
#12





#13 - Ballustrade on Tower of Independence Hall before
Repairs.

(Note bottom rail temporarily reinforced with
1" X 6" battens; also, old wood grille or
"duck-boards".)



#14 - Lumber for Replacement of Treads in Main Stair
Being Unloaded after Shipment from Florida.

#14

