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DECORATION

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CONSTRUCTION

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Works at Apollo and Vandergrift, Pennsylvania.

Columbia, S. C., Dec. 18, 1893.

I find it too valuable and have derived too many benefits from it to part company.

FRANK NIERNSEE, Architect.

New York City, Dec. 3, 1893.

Having always given your paper my best support, I shall continue to do so.

H. D. HOODER, Architect.

Worcester, Mass., Dec. 24, 1893.

The Worcester County Mechanics' Association has taken the Regular edition from the commencement of its publication. I believe it is all you claim for it — "the oldest" and "the best" of architectural journals.

W. A. SMITH, Treasurer.

Brooklyn, N. Y., Dec. 19, 1893.

My principal enjoyment is found in your illustrations representing foreign examples of the various periods of architecture, furniture and decorative art. So long as they are well kept up, I shall be glad to continue my subscription.

E. E. JACKSON, Architectural-Lawyer.

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APRIL 18, 1896.



SUMMARY:—

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WE have received full memoranda in relation to the foundations of the new building now in process of construction in New York for Mr. Havemeyer, on the site of the old *Herald* Building, on the newspaper descriptions of which we made some comments in a recent issue, from which it appears that the newspaper account was grossly inaccurate, and inaccurate in a way that cannot be too severely condemned. It will be remembered that the newspaper story described the foundation as one resting on hydraulic jacks, with the object of affording opportunity for levelling up any portion that might settle; and a large illustration, apparently taken from a photograph, showed the hydraulic presses in place under the foot of the columns, a hose connected, and a pump standing near by, with a man at the brakes, ready to lift the building as required. It may be remembered that we were cautious enough to suggest that there were probably some provisions, which did not appear in the drawing and description, made to meet contingencies, but it did not occur to us that so circumstantial an account could contain so large a proportion of pure Munchausenism. It now appears that there never was any intention, on the part of the architect or the owner, of resting the building on adjustable supports of this sort, nor was there ever any occasion for doing so. The sand subsoil, instead of being unstable and treacherous, as we were led to believe, is firm and good. All the buildings in the neighborhood, many of which are of great height, stand on the same sand, one only, the Trust Society Building, having short piles under it, which do not extend to the rock, but simply act by friction. The rock is about eighty-six feet below the curb, and no building in the neighborhood has its foundations carried down to it. None of the neighboring structures, among which are the Post-Office, the *Mail and Express* Building, the Temple Court, the Vanderbilt Building, the *Tribune* Building, the *Times* Building and the *World* Building, all of which stand on the same foundation, have shown any sign of trouble from settlement. In many of these buildings, the pressure on the ground under the foundations ranges from four and seven-tenths to five and one-half tons per square foot.

IN the present case, in order to make sure of the conditions to be met, the bottom of the excavation for the cellar, which is thirty-one feet below the curb, was tested, by loading with six and one-half tons to the square foot. As every archi-

tect knows, all sand or gravel soils settle to a certain extent under a load, and then, when they have reached a certain degree of compression, stop, and, as a rule, never settle any further under that weight. With a load of six and one-half tons, the sand settled nine-sixteenths of an inch, and then stopped, no further compression appearing after a week's interval, although the sand was drenched with water. Borings having shown that the sand was of nearly uniform quality down to the rock, the foundation was designed in such a way as to bring an almost uniform load of three and one-fifth tons per square foot on the ground under it, using, to spread the weight, a double grillage of steel beams, resting on a bed of concrete, twelve inches thick, which is spread over the sand to preserve its surface. About this time, negotiations were opened with the owners of the adjoining estate for using the wall on that side as a party-wall, building half of the foundation on each side of the party line, and a preliminary contract was made with this object. This agreement, as will be seen, introduced a new element into the problem of construction. As Mr. Havemeyer's building is twenty-six stories high, while the adjoining building, although now a low one, might, under the party-wall agreement, be carried to the same height, bringing an additional weight of, perhaps, twenty floors and a roof on the party-wall structure, it was necessary to design the latter to carry not only its own load, but a future load of the same amount. Obviously, the imposition of the future load would result in a corresponding compression of the soil under the footings of the party-wall, in addition to that due to the weight of the present load; and it became an important question how to arrange the structure so that this future additional settlement, which might be, perhaps, one-quarter to three-eighths of an inch, should not strain the joints of the steel frame above, which the architect desired, on account of its great height, to have very rigid. As the best solution of the problem, the architect decided to make the bases of the columns in the party-wall in such a way that a hydraulic press could be inserted in an orifice under the column, and the foot of the latter lifted sufficiently to permit the insertion of additional "packing-plates" between the column and the base. This is by no means a new device, and it seemed to meet the conditions of the present case satisfactorily. Subsequently, however, the party-wall agreement was abandoned, and the foundations of the Havemeyer building made independent of neighboring property all around. The possibility of a future additional load on one side of the structure, and consequent additional settlement, was thus removed; but, as the work of making the bases for the columns on that side was well advanced, they were not changed. No hydraulic jacks were, however, ordered, and it is not probable that any ever will be; and those readers of the New York daily papers who are led by the illustrated accounts to suppose that men would be seen in the cellar of the new building, actively engaged with pumps in meeting its varied gyrations, will be disappointed. So far as we are concerned, we are sorry that we should have been even to a comparatively small extent imposed upon; but the humiliation which we feel at having been so far deceived is not without its recompense in the thought that the affair should have called out a true account of one of the best and most careful pieces of foundation design that we know; and we commend the straightforward and sensible way in which the problem was solved to the attention of all young architects.

THE country has sustained a serious loss in the death of General Thomas L. Casey, which occurred at his residence in Washington last week. General Casey first became generally known to the profession by his ingenious and successful device for strengthening the foundations of the Washington Monument; but he had gained long before that a high reputation in the army as a skilful constructing engineer. He graduated from West Point, at the head of his class, in 1852, and, as is generally the case with cadets who distinguish themselves at the Military Academy, was at once put into a position of responsibility, being detailed as assistant engineer in the construction of Fort Delaware, and other works in Delaware Bay. After this, he was recalled to West Point, as assistant instructor in practical engineering, becoming later the principal assistant-professor of engineering in the Academy.

At the outbreak of the Civil War, he was assistant engineer at Fortreas Munroe, and, in 1861, was made superintending engineer of the fortifications on the coast of Maine. He continued his work in Maine, after the close of the war, until 1887, when he was called to Washington to take charge of the public buildings and grounds there; and the State, War and Navy Department Building was constructed under his supervision. During the same period, the Washington Monument was completed, and its foundations secured. In 1888, in addition to the duties devolving upon him as Chief of Engineers in the United States Army, he was directed to take charge of the execution of the building for the Congressional Library, which is just completed. As principal engineer officer of the army, he was very much interested in our sea-coast defences, and to him is due much of the credit for the work that has already been done toward the systematic strengthening of the Atlantic harbors.

MR. WILLIAM P. WENTWORTH, a well-known architect of Boston, died a few days ago, after a short illness. Mr. Wentworth was a native of Vermont, but studied his profession in New York, and had practised mostly in Massachusetts. He was much employed in church work, and of late had built several hospitals, including one in Lynn, and the Washingtonian Home in Boston; and, at the time of his death, was architect for the State Hospital for the Insane at Medfield. Mr. Wentworth was a man of quiet tastes, and took no very prominent part in public or professional matters, but he was well known and respected throughout the community. The last time we met Mr. Wentworth was in a parlor-car running westward, and during the chat that followed he said he had just been figuring up the number of miles he had travelled while building the church he was then visiting for the last time. It was an elaborate memorial church requiring frequent visits of inspection which had caused him to travel over ninety-seven thousand miles! It is doubtful whether an English architect's whole professional career would require so much travelling as this. An unusual circumstance connected with this unusual job, which required fortnightly visits during several years, was that the building-committee, who were dealing with trust funds and wished to know how they stood at all times, paid the travelling expense at the time of each visit, so there was no unexpectedly large item to dispute over at the time of closing accounts.

FRANCIS R. FAVA, Professor of Mathematics and Engineering in the Columbian University, at Washington, and son of Baron Fava, the Italian Minister to the United States, died a few days ago in Washington. Professor Fava, although comparatively a very young man, was already widely known among architects and engineers for his scientific attainments, and his attachment to his adopted country was warmly reciprocated by his American friends and associates, whose sincere sympathy may, we trust, do something to comfort his distinguished parents for their great loss.

AN interesting case has just been decided by the Federal Court of Claims, at Washington. Some years ago, the Government invited bids for the construction of dry-docks at Norfolk, and at Brooklyn, N. Y. The advertisement calling for bids referred bidders to the Commandants of the Navy Yards at Norfolk and Brooklyn, respectively, "for information in regard to the location and site of the docks." The firm of James E. Simpson & Co., wishing to bid on the Brooklyn dry-dock, went to the Commandant, who referred them to Mr. Asserson, the engineer of the Navy Yard. Mr. Asserson and the Simpsons went over the ground together, and, as the Simpsons claimed, Mr. Asserson, on being asked about the character of the soil, said that he had had borings made over the proposed site of the dock, and had forwarded the results to the Navy Department, at Washington, but that he could not give any information about them until he had heard from the Department. Later, as the contractors say, Mr. Asserson showed them profiles of the subsoil under the intended dock, with the written report which had been sent to the Department. One of the Simpsons made notes of the profile, and of important portions of the report. The contractors asked for copies of the profile and report, but were told that they must apply for them in Washington. Later, however,

they were invited to examine again the copy of the report and profiles in the office of the Commandant at Brooklyn; and, with data so obtained, made up their bid, which was accepted. When they came to carry out their contract, they found quicksand under the site of the dock, of which Mr. Asserson's report had made no mention, and, by reason of this quicksand, they were put to a great extra expense, amounting to nearly two hundred thousand dollars, which they would not have incurred if the soil under the dock had been as represented in Mr. Asserson's report; and the present suit was brought to recover from the Government this extra amount.

OF course, the point involved here is, whether the Government warranted the correctness of Mr. Asserson's report; and a decision against the contractors was, on general principles, to be expected. Before undertaking a contract of such magnitude, a reasonably prudent man would naturally make borings for himself, without trusting to those taken, perhaps for some other purpose, by a person not specially interested in the construction of the dock; and it does not appear that the contractors were hindered in any way from making any borings that they wished. In regard to the borings made by Mr. Asserson, it is evident that they could give certain information in regard to a portion only of the site, without excluding the possibility of quicksand in portions not penetrated by the auger, and, probably, without showing clearly whether the sand penetrated and brought up by the auger was, while in place, in the condition of quicksand or not; and it does not appear that Mr. Asserson, or any one else, warranted that the borings and report accurately represented the condition of the whole of the underlying soil, so as to relieve the contractors of any need of making investigations for themselves. A very similar case was once decided in England against the contractors, but this precedent is hardly needed to show what the decision of most courts would be.

THE Administration of *Le Génie Civil* has recently made its appearance in the French Courts, as party to a case, which is not without a considerable public interest. It seems that, in the investigations which have been going on into the financial management by the Panama Canal Company, the expert employed on behalf of the Government receiver of the Company ascertained, from the books, that something over twenty-one thousand francs were charged as having been paid to the owners of *Le Génie Civil* as a part of the fund divided by the Canal Company among the press. *Le Génie Civil*, at the time of the construction of the Canal, took a great and intelligent interest in the work, and published several excellent maps of that part of the Isthmus; but the intelligence that it had been found by the official experts to have shared the corruption fund which the promoters of the Canal Company set apart to buy the assistance, or, at least, the silence, of the influential portion of the press, surprised its owners as much as anybody. They looked up their books, and found that the Canal Company had paid them at different times about two thousand francs, for subscriptions, advertisements and cuts, but they could find no trace of the twenty-one thousand francs alleged to have been paid them. Meanwhile, the receiver of the Canal Company had commenced suit against them, for the recovery of the money, as having been unlawfully paid them, without consideration, and as a bribe to secure their assistance in the criminal schemes of the Company.

EXAMINATION of the books of the Canal Company, on behalf of the owners of *Le Génie Civil*, showed that the twenty-one thousand francs charged to them had been paid in checks or orders, payable to M. B., the advertising agent of *Le Génie Civil*, who had given receipts for them. On this discovery, the owners of that journal voted to dispense with M. B.'s further services, and notified the receiver of the Canal Company that they would not be responsible for money which had never been paid over to them, and which was paid in pursuance of negotiations of which they had no knowledge. The trial of the suit resulted in the rejection of the claim of the receiver of the Canal Company, on the ground that M. B. was not to be considered as the authorized agent of his employers for making such bargains as those on account of which the money was paid.

THE HOUSING OF THE POOR. — I.

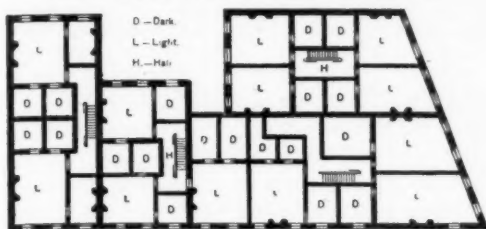


Fig. 1. Tenement-house of 1863 for Twelve Families on each Floor.

THE Eighth Report of the United States Commissioner of Labor¹ is a volume of 450 odd pages, dealing with the housing of the working-classes. It forms a very valuable addition to the literature upon the subject, and will be read with intense interest by every one who has followed the development of "model" building enterprises. The scope of the report includes about everything that has been attempted in this country and abroad. It is fully illustrated with plans and exteriors of most of the classes of buildings referred to, and contains a mass of statistics which have a great value in that they are prepared at first hand and result from personal and direct examination and study of what has been accomplished. In general, the report does not undertake to institute comparisons between results, rather presenting the facts in a fair, complete manner, and leaving inferences to be drawn by the reader. There is so much in it of value, and so many manifest lessons to be drawn from a study of what the work presents that it deserves a more than passing notice, especially by the architectural profession. The improvement of cheap dwellings or tenement-houses has in the past been very largely in the hands of philanthropists, who have pursued their investigations entirely along the lines of individual development. Architects have rarely interested themselves in such studies, and consequently a very considerable portion of the model dwellings, so-called, while well-arranged and successful in what they undertake to accomplish, are by no means architectural, and the element of beauty is, to say the least, not much regarded. It would seem to be a pity that architects are not able to take a more personal hold upon problems such as are presented in this volume. It surely stands to reason that an architect, by his training and bent, could accomplish better results in improved dwellings or tenement-houses than a philanthropist or public official, who would view the matter from a purely humane or economic standpoint. The architect could, doubtless, be just as humane, fully as economic, and could add the element of attractiveness and probably of fitness, which is generally so conspicuously lacking in modern tenement-houses.

The facts stated in this article are taken almost entirely from the report and are quoted as directly as is consistent with the connection of ideas, but the limitations of space can permit a detailed notice of only a few of the many buildings and societies described.

The housing of the miserably poor is one of the problems of modern civilization, and it has assumed a magnitude which has required in some cases pretty heroic treatment. The incentive to action has in the past sprung almost entirely from the sentiment of individuals.

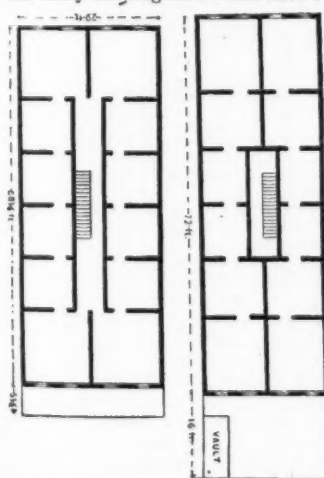


Fig. 2. Tenement-house Prior to 1879, New York City.

many building-laws which have been enacted from time to time in the various cities looking to a control of tenement-house construction, while they have undoubtedly prevented the erection of badly-planned and unsanitary structures, have very seldom been productive of anything like a distinct improvement in the character of the tenements. The improved dwellings, almost without exception, have been due to individual effort, in most cases directed from a philanthropic standpoint. Progress has been more marked in London, Glasgow and Edinburgh, than in any of our American cities. Model housing of working-people on a large scale began first in England, and it has received its chief development in that country. Just how many agencies are in existence there, it is impossible to say, but it is estimated on fairly good authority that model-block buildings in London alone are now housing upwards of 150,000 people. Nearly one-third of this number are accommodated by the

Peabody Donation Fund and the Improved Industrial Dwellings Company. We hardly appreciate here what slums are, in the London sense. The worst and most crowded districts of Boston are bad enough, to be sure, but they are so much better than the conditions which exist in other large cities, that there never has been the vital necessity here for the extended action which has resulted elsewhere. Even New York in its worst districts is a great deal better off than Whitechapel: the overcrowding in London and Liverpool is almost beyond belief. One of the most significant indices in this direction is the extent to which in some localities males and females who are not married are found occupying the same room. During 1892, says the official report of Dr. J. Stopford Taylor, the medical officer of health of Liverpool, 632 rooms were thus indecently occupied by 1,001 males and 1,069 females, besides 428 children, between the ages of three and twelve. In 322 instances, one man and two women were found in the same bedroom; in 156 instances, two men and one woman; in 48 instances, two men and two women; in 23 instances, one man and three women; in 70 instances, three men and three women; in three instances, two men and three women; in three instances, three men and two women; in one instance, one man and four women; in one instance, four men and one woman; in two instances, one man and five women; in two instances, five men and one woman; and in one instance, six men and two women.

Notwithstanding all that has been done during the past half century to ameliorate the condition of the miserably poor, the tenements which are sanitariously bad, are still very numerous. Mr. George E. Arkell, in Charles Booth's "Labour and Life of the People of London," has classified the existing block dwellings of London into various categories. One hundred and fifteen blocks, containing 6,859 tenements and sheltering 37,911 people, are reported as bad or very bad from the standpoint of light, air and sanitation; and 360 blocks, including 28,921 tenements, and housing 151,197 people, are set down as fair, good, or very good. The question is often asked, Why do the tenants of the poorer houses remain in them? This has been answered in a rather unexpected way by Horace G. Wadlin, Chief of the Massachusetts Bureau of Statistics of Labor, who states that a special inquiry covering 475 families, comprising 2,140 persons residing in tenements classed as *poor* or *bad*, showed that out of this number only 103, or less than five per cent, made the choice on account of personal poverty, while 240, or over eleven per cent, actually preferred to be in these surroundings, and 912 were so situated because of intemperance. Of course, these figures are taken from

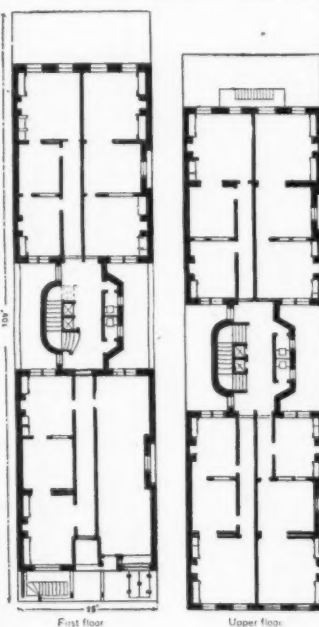


Fig. 3. First-Prize Plan, Tenement-house Design Competition of 1879, New York City.

Boston and would not apply with equal force to the crowded districts of London and Liverpool, and yet the fact has been demonstrated repeatedly that the miserably poor really do not want better accommodations in the majority of cases.

Although America has not been forced to deal with such conditions as exist abroad, there is plenty of room for improvement on our shores. The wonderful progress which has been made in tenement-house construction can be most graphically presented by the accompanying plans. Figure 1 is the plan of a building which existed in 1863 accommodating twelve families on each floor. Fourteen rooms out of thirty-three are totally dark. Figure 2 shows the form of tenement-house which existed for a great many years in New York prior to 1879, with a staircase in the centre, totally dark, two rooms on the front on each side lighted from one side, and eight rooms in the centre with no light whatever. Figure 3 was the first-prize plan of the tenement-house design competition of 1879, arranged for four suites of three rooms each, with one well-lighted room, one fairly-lighted room, and one poorly-lighted room. Figure 4, showing one of the prize plans though it did not receive the first prize, was the best lighted of the lot, every room having direct communication with the outside air.

The buildings for housing the poor are divided into three categories: tenement-houses, as such, in which three or more families live under the same roof; model dwellings, containing not over two families in each house; and model lodging-houses. A study of the report seems to show that the attempts to build model tenement-houses have been carried much farther than either of the others, and from the numerous examples presented there are three groups

¹ "The Housing of the Working-People," Eighth Special Report of the Commissioner of Labor. Prepared under the direction of Carroll D. Wright, Commissioner of Labor, by E. R. L. Gould, Ph. D., Washington: Government Printing-office, 1895.

of buildings which seem to be pre-eminently satisfactory. These are the White buildings in Brooklyn, N. Y., the structures erected by the Guinness Trust in London, and those built under the Salomon Fund in Leipsic.

The Improved Dwellings' Company, Brooklyn, N. Y., is the outgrowth of a successful experiment by Alfred T. White in providing tenements for working-people. Nearly twenty years ago he made a private investment and succeeded so well that he induced other members of his own family to cooperate in the work. The result has been the erection of buildings accommodating nearly five hundred families and affording the most satisfactory demonstration that has probably yet occurred in this country of the financial success which may attend this form of philanthropy. The plan (Fig. 5) shows the general arrangement of the buildings, which have a total superficial area of about 60,200 square feet, only one-half of which has been built upon. The greater portion of it is laid out in grass-plots, including a playground for children and a paved driveway and walk. In the centre is a music pavilion where a band plays every Saturday afternoon at the expense of the proprietor. The buildings are six stories

Figure 6 shows the arrangement of the individual tenements. The stairs communicate with external balconies and thence to the private halls, each balcony and hall being used by three families in common, the most general type of three-room tenements consisting of a living-room 18' x 10', a bedroom 16' x 8', and a parlor 16' x 8'. The three-room tenements rent for \$2.60 to \$2.90 per week on the first floor and diminish by ten cents per floor for the upper stories. The external staircase has been criticized and in the beginning was deemed quite impracticable, but no objection has been made by tenants.

The Guinness Trust is due to the benevolence of Edward Cecil Guinness, who made a gift of £250,000 to improve the living environment of the London working-people. By the terms of the Trust the poorer element only among the working-people are to be accepted as tenants and the net returns are to be applied to perpetuating the work. Provision for 3,245 people has already been made in London. The Brandon Street tenements erected by the Trust have a frontage of 218 feet in two rows covering only 40 per cent of the lot. The open space between the two rows is used by the

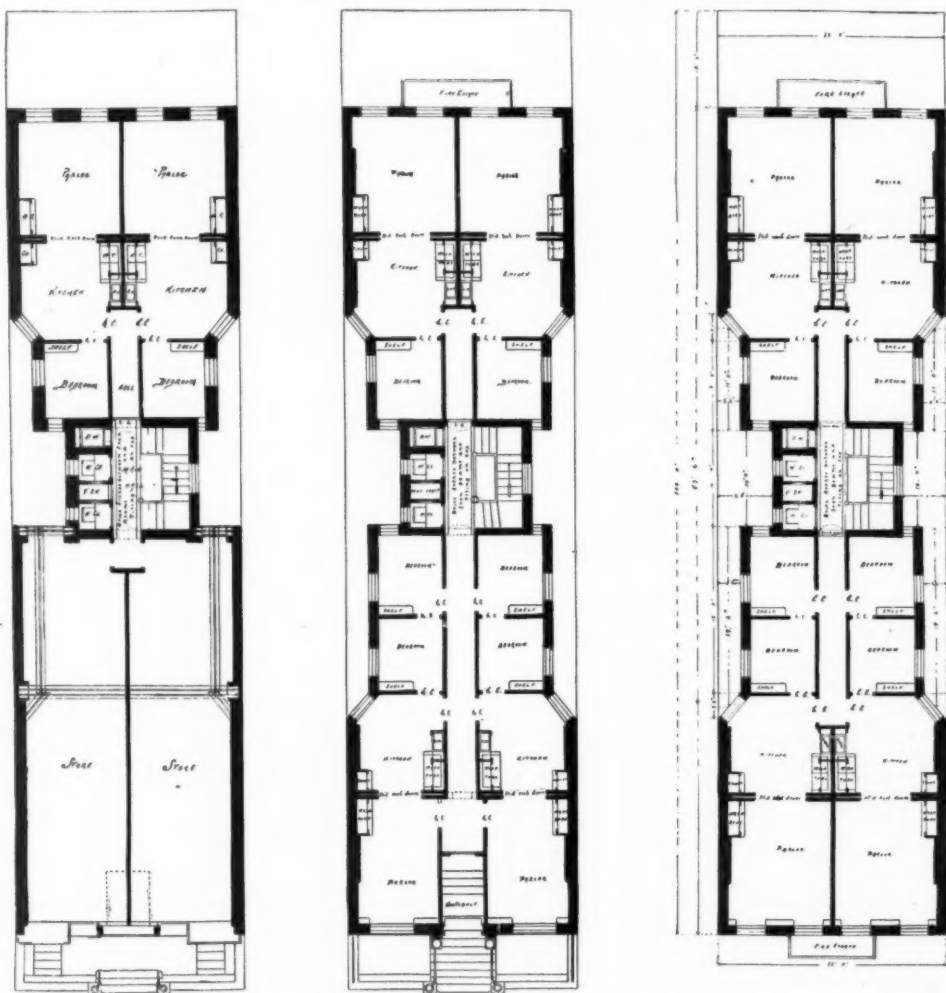


Fig. 4. Prize Plan, Tenement-house Design Competition of 1879, New York City.

high, of brick, with almost absolutely fireproof construction. Each dwelling is self-contained, that is to say, the water-closets, scullery, etc., are independent and not shared in common by different tenants. Each family has a water-closet, and scullery with a sink, stationery wash-tub and ash-chute in an extension at the rear. Each kitchen contains a coal-box which holds a quarter of a ton. There are dumb-waiters for raising fuel and provisions for the different stories. There are no garbage receptacles; all garbage must be burned. The ash-chutes discharge into the cellars in the rear and are emptied twice a week. The heating is by stoves resting upon slate slabs. Inside shutters are found throughout. Gas is provided on the stairs, but the tenants burn oil in the rooms. In the planning of these model tenements four things were considered essential—first, privacy; second, health; third, safety; fourth, comfort. Domestic privacy seems to be regarded of greater importance in American life than elsewhere, and Mr. White's buildings have been constructed with the aim of providing as much as possible.

tenants. The buildings are of brick, five stories in height. The thickness of the exterior walls is fourteen inches. The roofing is of wood, covered with slate. Staircases are made of concrete; and iron girders supporting concrete floors seven inches thick and ladders give to the building a fireproof character, and guarantee means of escape in special exigencies. There are several separate street entrances. Four or five families enter their dwellings from each landing. The passages and hallways are finished to a height of five feet in white glazed bricks or tiles, which material is also used in the water-closets. Not more than one door from every family lodging opens directly upon the stairway or hallway. Every room communicates directly, either by doors or windows, with the open air. All windows have Venetian blinds. Walls have been painted a salmon color, and the tiling in the halls presents a fine appearance. Externally, the general appearance of the buildings is far removed from the dull, stolid look so common to model dwellings. Many of the three-room tenements are in reality large two-room tenements, but in order to cater to the necessities of a worthy but

impecunious class which is much desired as tenants, and at the same time to bring about the separation of the sexes, a wooden partition (which does not quite reach to the ceiling) divides what would be a very large bedroom into two rooms, for sleeping purposes. The

meant to be benefited. Consequently the earnings of every head of a family are carefully estimated before he is allowed to move in. At the end of the fiscal year, 1892, 18s. 7d. (\$4.52) per week represented the average earnings of each family, not the head of the

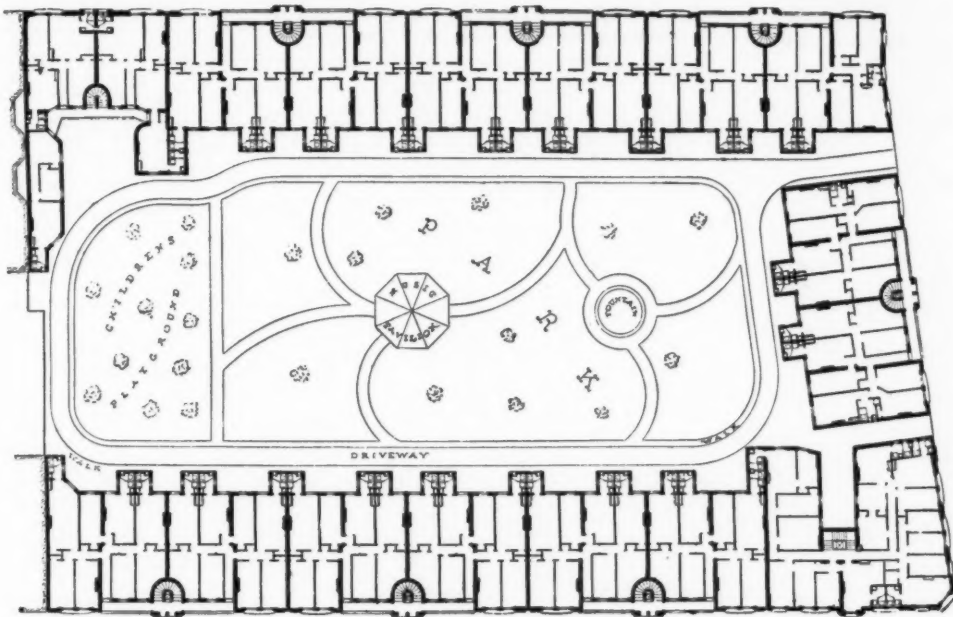


Fig. 5. Riverside Buildings, Brooklyn, N. Y.

rooms are 8' 6" high throughout. In single-room tenements a man, wife and two children, whose average age does not exceed seven years, are allowed as tenants.

The Guinness Trust, under the wise administration which has characterized it thus far, is likely to point out the way to a satisfactory solution of the housing question, so far as philanthropy may be made to operate in the interests of a class which has hitherto rarely been catered to—those who have casual employment and small earnings. Great care is exercised in ascertaining the financial

family but the whole family as a unit. One year later, 1893, the average had declined to 18s. 1d. (\$4.40). It is estimated that about 22 per cent of the earnings of the heads of families is paid for rent. Strange as it may seem, the conviction is voiced that the poorest people are the best to pay. The total sum lost from arrearages of rent during the fiscal year was a little less than £20 (\$97.33) out of a total rent-roll of £1,857 1s. (\$9,037.33), or a little more than 1 per cent.

Figures 7 and 8 illustrate some of the buildings erected by the

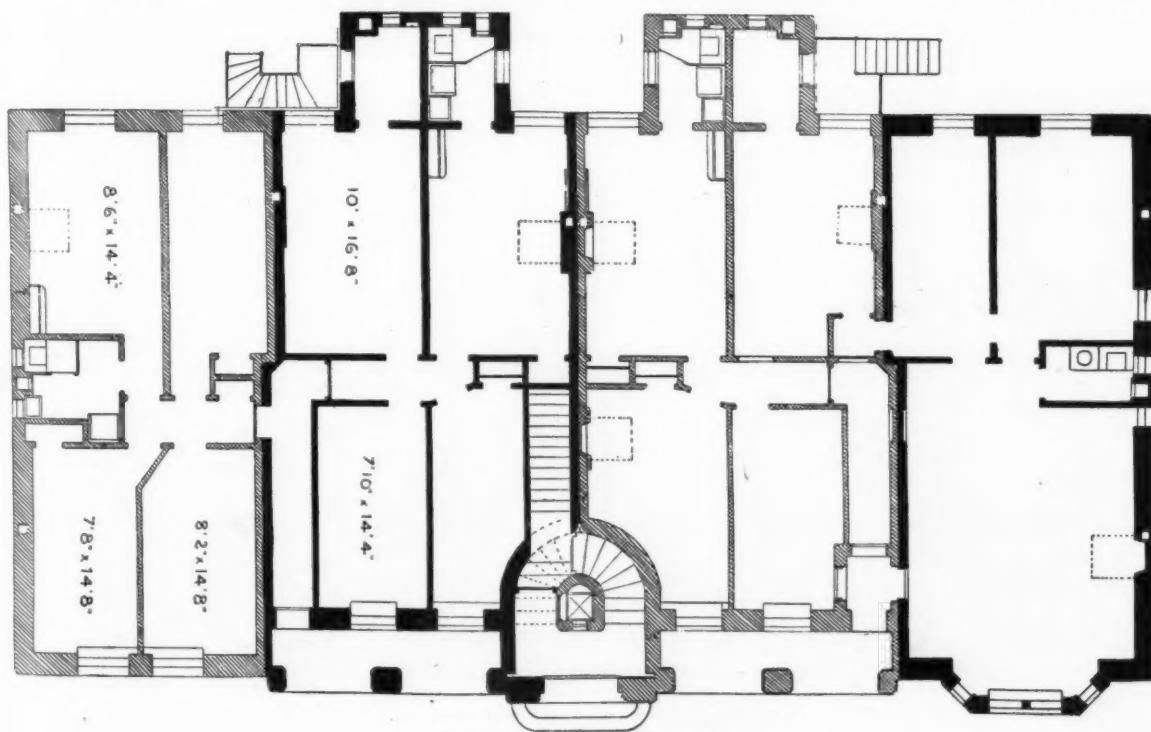


Fig. 6. Riverside Buildings, Brooklyn, N. Y.

standing of prospective tenants. It has been determined by the trustees not to allow the object of the Trust to be diverted from the intention of the founders. The poorer strata of working-people are

Salomon Fund in Leipsic. These are built of brick. A trifle over 30 per cent of the lot is built upon, the remainder lying open in the form of a court-yard. The roofing is of tile; fire-walls are placed

between every two staircases, and extinguishing apparatus connecting with the city water-pipes are also provided. Special means of escape in case of fire exist in the attic, where iron doors have been

accommodations are made, the circumstances of the applicant are investigated, so that only the poorer working-people may be taken. (To be continued.)

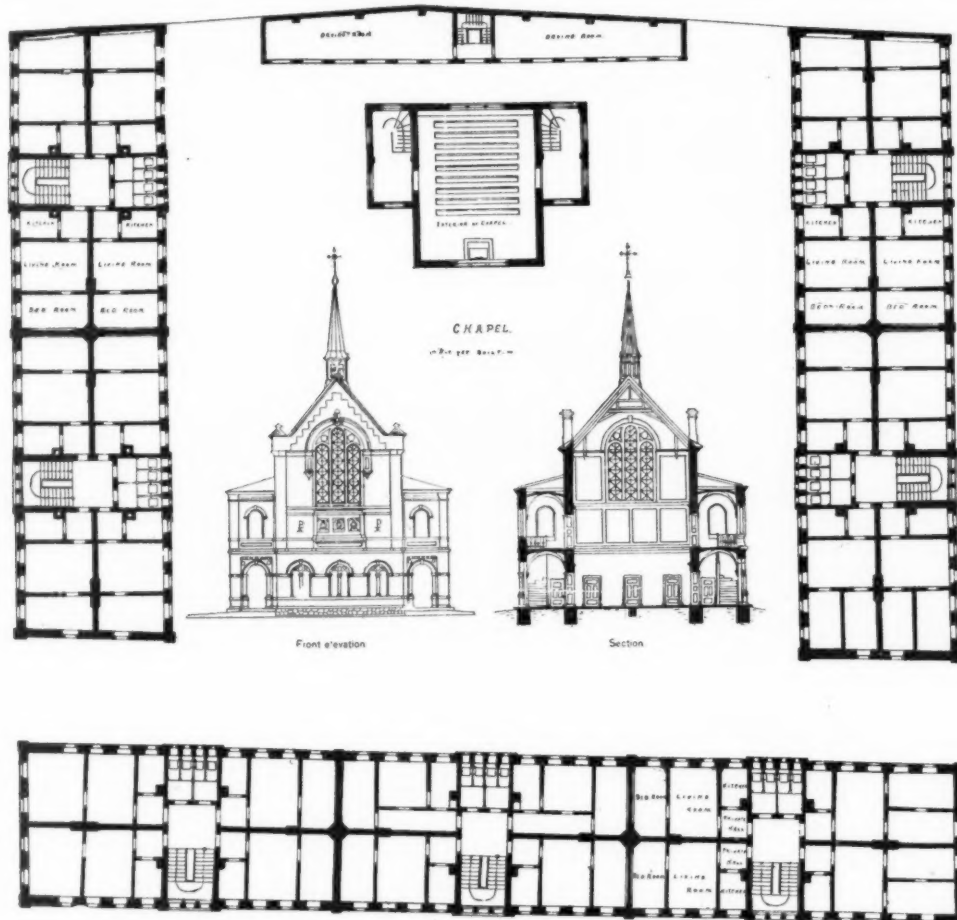


Fig. 7. Salomon Fund Buildings, Leipsic-Reudnitz, Germany.

placed in party-walls. Opposite each stairway towards the rear are four water-closets, each with a large window communicating directly with the open air. The stairs are 3' 11" wide. One door for each family-lodging opens directly to the stairway or hall, but each family has its own private hallway, one door opening to the staircase, one to the kitchen and one to the other rooms. The garbage receptacle is a vaulted pit at the rear. The fuel is stored in

NEW STATUARY FOR PHILADELPHIA.—General William Moffat Reilly, who died in Philadelphia lately, left a large fortune, a portion of which he directs in his will shall be used for the erection in front of Independence Hall of bronze statues of Lafayette, Montgomery, Pulaski and Steuben, in recognition of their services in the American Revolutionary War. In addition, the will directs that statues of Generals Wayne, Greene, Sumter and Morgan and Captain Paul Jones

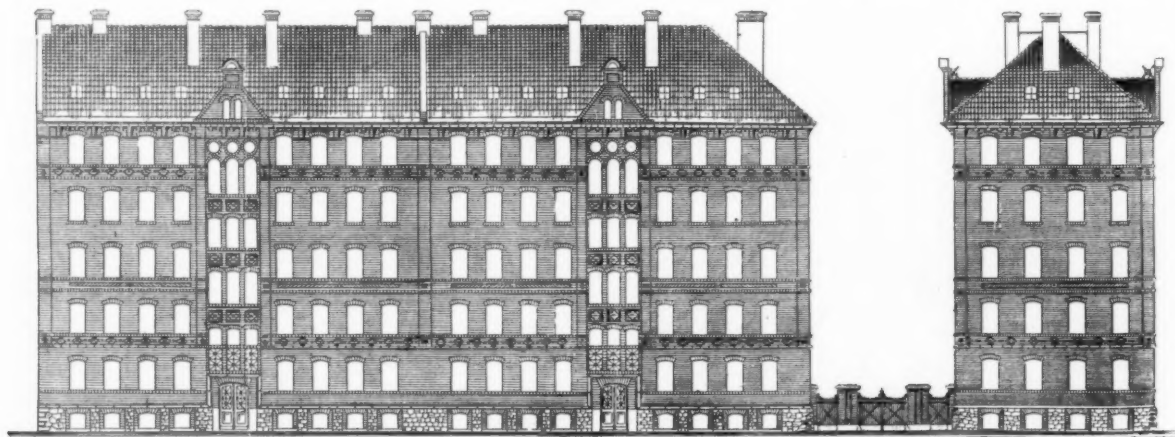


Fig. 8. Salomon Fund Buildings, Leipsic-Reudnitz, Germany.

the cellar. The average sizes of the rooms in the two-room tenements are: kitchen, 6' 7" x 11' 3"; bedrooms, 11' 6" x 11' 3". The height of the rooms is 9' 10" throughout. When applications for

be erected in Independence Square. The will provides also for the erection and endowment of a free eye-and-ear hospital. — *Boston Transcript*.

GERMAN CASTLES.¹—VII.

THE PALAST, OR PALACE.

THE Berlin Castle became one of the largest city-residence buildings, of a compact mass, in the whole of Germany. Its enlargement was a symbol, if the foresight of German princes could have but discerned it, of the growing ambition and might of the parvenu house of the Hohenzollerns. Within two hundred

to be obliged to mount many steps. Palaces should be built low, especially as it showed a lack of propriety, furthermore, to have princes lodged under the feet of other persons: palaces, if possible, should consist of but one single story, in other words. And of one single story, accordingly, many palaces were built; in Potsdam, for instance, Sans Souci. The new palace (Fig. 48) was loftier; but most conspicuous was made to appear the floor in which royalty lodged. The ground-floor is low in contradistinction to this *bel-étage*,



Fig. 48. Neues Palais, Potsdam.

years, Prussia herself was to become the biggest State. Hitherto, she had been a raw province in the eyes of elder electorates, something like what Kansas might have appeared once to old New England; she was nothing, hardly, but "a new colony." What young strength was in her, and how this youthful robustness was destined to overcome the motherland, or Germany left of the Elbe, annex her neighbor's property, beat her rival, Austria, and become mistress, was not yet guessed or anticipated. The strivings of Frederick William I, Frederick II, called the Great, and their successors to build magnificent palaces, was regarded as an effort merely to keep up with their betters. And there is something pretentious, gaudy and raw in Prussian royal palaces when compared with the palaces of the elder German dynasties; for instance, in Berlin, the walls outside are stucco instead of stone masonry, while the pretentious columns of the salons within are in many cases imitation marble, not real, while the ornamentation for the most part is in the overladen, noisy style of ostentatious barrockism. In Potsdam, moreover, the summer-resort of the court, the rococo decoration of the Palace Sans Souci is of the cruder quality of German rococo (Louis Quinze).

Nevertheless, I choose the new Palace in Potsdam as illustrating the type of its kind. Its very pretension renders it characteristic.

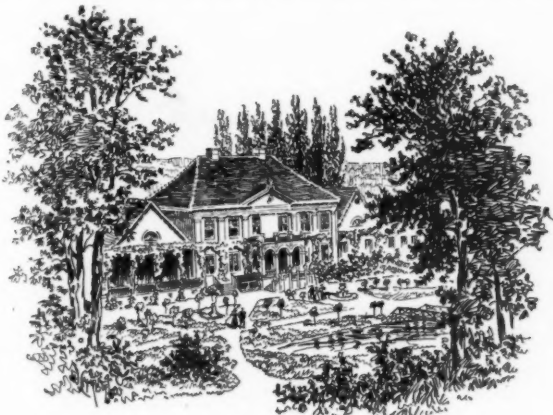


Fig. 49. Varzin.

Pretension, a love of spectacular grandeur, bigwigism, was the order of the day in the eighteenth century, in which it was built. Architecture was subjected, like every other art, to theories of court etiquette. Great lords and ladies, it was solemnly declared, ought not

and the very existence of an upper floor is as good as denied, by the architectural devise of brow-beating this top story with a heavy entablature, and lighting it by round openings that look like ornamental medallions, rather than the familiar and practical things known as windows.

The new palace possesses also a *cour d'honneur*, or *zwinger* (bailey), after the French style, formed by projecting the right and left wings of the building forwards at right angles to the main structure. The dome that surmounts the new palace is a reminiscence of the classicism that was competing with rococo for sovereignty in architecture. It appears to have been greatly favored by the Hohenzollerns, for this architectural symbol of empire, which is wanting in other celebrated castles in Germany, the Heidelberg Castle, Albrechtsburg, Aschaffenburg, Würzburg, etc., occurs in all three of their principal palaces: in the Schloss or Castle in Berlin (Fig. 47), in the castle in Charlottenberg, and in the new palace at Potsdam.

Charlottenberg Castle, which was the residence of the late Emperor Frederick III, during his short last sojourn in Berlin, and the park of which contains the charming mausoleum in which repose the remains of Queen Louise of Prussia and the first Emperor William, lies half an hour's distance from the Berlin Castle, on the western outskirts of the woods known as the Thiergarten Park. It is extraordinary among German castles for its length, 500 metres, its only equals in this respect of great note in history being Castles Schönbrunn, near Vienna, and the Nymphenburg.

But immense length was apparently everywhere the ideal, where great height was relinquished, as a means for obtaining an imposing grandeur of aspect. Numerous small palaces are characterized by extent, if by no other peculiarity: (see Varzin, a seat of Prince Bismarck's, Fig. 49). Where the purses of the ambitious builders of such palaces would not admit of the enormous stretch being carried out in massive masonry, it was carried out in roofless colonnades. I give the ground-plan of Castle Schleissheim as an example of the German palace of this kind, Schleissheim being 335 metres in length, an average extent (Fig. 49b).

Palaces which date from the eighteenth century are characterized also by their parks, in so far as their sites are in the country. Lenôtre in France had made popularly known, in Louis XIV's time,



Fig. 49b. Plan of Castle Schleissheim.

an ingenious theory to the effect that gardens ought to be an integral part of an architectural composition. Now in the preceding centuries costly gardens had been laid out quite frequently in connection with palaces, the terraces of Heidelberg Castle being, in Germany, only one among numerous famous pleasure gardens of their

¹ Continued from No. 1050, page 61.

like. But though most artificial and fantastic, these gardens of the Renaissance were condemned by Lenôtre and his eighteenth-century German apostles, as being designs without stylistic harmony, with the architecture on one side, and without any gradual adjustment to nature on the other. For nature in her untriflingness must

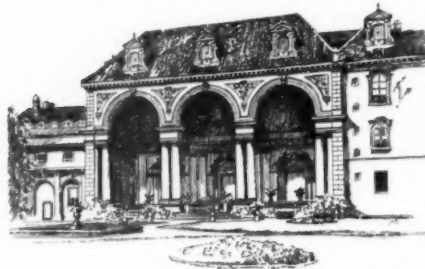


Fig. 50. Court-yard, Wallenstein's Palace, Prague: built in 1629 by Giovanni Marini.

never draw near to the mathematical, precise majesty of palaces in an unmitigated way, any more than a peasant should be allowed to come, in his native garb, within the throne-room of the sovereign. In the case of parks these intermediaries must be objects of nature, of the greater trimness the closer they stand to the palace, just as at an actual court the personages closest to the monarch are the most elegant.

These theoretical ideas are winning even at this date, and they were so irresistible in the eighteenth century that wherever Rococo or pseudo-classical palaces are found, parks are to be found laid out in more or less consistency with them. On the outskirts of the park the trees are left in their native shapes and outlines; the shrubbery is grown wild. We are among the park's plebeians. We advance nearer, and find ourselves in a broad, straight avenue, along both sides of which trees of straight growth are planted, like a double file of guards. To the right and left of the avenue-entrance stand groups of statuary, of large size and common materials — the first, scanty bits of art, the discreet indications of the higher styled, costlier works that await us farther on. And, indeed, by degrees the trees around us become more and more trim in aspect, until, at a second station of the avenue, where the woods vanish, we find ourselves on the verge of a space of ground in which corrective hands have been laid upon every inch of soil and the foliage of every plant. At the right and left again are statues; this time of more expensive material and finer workmanship. The vegetation is recognizable indeed, but in what cleanliness, what trimness! The familiar plants look like old acquaintances in court livery! Grass of velvet, flowerbeds of Oriental rugs; and, at precise intervals apart, a minuet company of slender pyramids of taxus and globes of box-wood. Then graceful ladies in flowing robes, carved in marble and youthful manly figures, in fine stone. Still closer to the majestic palaces glistens the tropic foliage of exotic plants, orange and lemon trees, with tops as regularly cut as the blond hair of the wigs of foreign courtiers. A long imposing line of statues or busts, frequently the portrait busts of Roman emperors, are admitted finally to closest proximity with the palace: these last two, the tropical plants and the Roman emperors, being raised upon a terrace, as upon the step of the same throne whereon the palace has its seat.

The pilasters of the palace front seem but a continuation in the perpendicular of the straight lines of the garden walks; while the cornice sculptures, in their turn, appear to be only so many stone copies of the formal flowers of the garden's parterres, and the roof statues but the uplifted companions of the marble youths and ladies on the grassy carpet below (*vid.* Fig. 48). Wherever the possibility of procuring sufficient water existed, fountain basins were constructed and abound with grottos or sculptures. In Potsdam, the water-works of Sans Souci compose the costliest part of the garden design. In the Marcolini palace garden in Dresden, the fountain is



Fig. 52. Rear View, Kaiserpalast, Strassburg. H. Eggert, Architect.

similarly the chief bit of construction. In other palace gardens, the garden pavilions are the principal attractions. The pavilion in the garden of Wallenstein's palace in Prague (Fig. 50), built by Giovanni Marini in 1629, is one of the finest specimens of the pavilions of its kind (Renaissance). Later, eighteenth-century pavilions are generally open on all sides. Imitations of these baroque fountain basins and pavilions are those belonging to castle Lindenhof, of Ludwig II of Bavaria (*vid.* Fig. 46).

In the nineteenth century, which has been a century of research not only of one period of history, as was the case in the Renaissance period, but of all past times, castle-building has been very varied.

The styles of the past have been each and all copied, Romanesque, Gothic, Renaissance and Rococo, though the latter seldomer, perhaps, than the other two. The only kind of palace which one can date as certainly of modern structure, when a castle presents itself to the eye of a traveller at a distance, is an interesting mixture of the three latest great styles, baroque, pseudo-classical and Renaissance. Such a castle is the Royal Palace in Strassburg, which was designed by Hermann Eggert, and attained completion, I think, in 1888. (See Figs. 52 and 53.) Here we have the characteristic Rococo arrangement of the floors: a low ground floor, a lofty *bel-étage*, and an inconspicuous top floor. Here, at the same time, are found the heavy, baroque, sumptuous fulness of decoration, the high roof and roof obelisks of the German Renaissance, and the dome and ressaults of pseudo-classicism. This motley mixture of architectural motifs is an eclecticism of unmistakable newness.



Fig. 53. Kaiserpalast, Strassburg. H. Eggert, Architect.

And now a word about palace court-yards. Such unroofed open spaces compose a feature of most old German castle-palaces. They are wanting in small piles, but seldom in large palaces, save in those of the eighteenth century, where vestibules took their place; that is to say, where such courts were relegated, like the old-time staircase, within the interior of palaces. The necessity for courts is two-fold: first, for light and air; secondly, for the reception of the equipages of guests. The outer bailey, or *zwinger* court, served this latter purpose when no palace court-yard was present. But as the equipages of great lords were jammed here among the horses of retainers, the custom of separating the first from the latter came early into vogue, and is retained, in a way, down to the present time. The carriages of princes and "excellencies" at the court balls in Berlin, Dresden, Vienna, Munich, Stuttgart and Carlsruhe are not only allowed to pass into the castle grounds in advance of those of other persons whose carriages may be waiting in line, they are relegated to the parts of the palace court-yards which are most conveniently near to the vestibule. If the space of the several palace court-yards is too small to provide waiting-room for the equipages of all the guests, moreover, those of guests of inferior court rank must stand in the outer court-yard or on the street. Palace court-yards, on the evenings of drawing-rooms and balls, flicker with hundreds of carriage lanterns.

The native German closed palace court is more to the taste of the German feudalistic aristocracy than the French *cour-d'honneur*, which is open to the gaze of a prying public. Such court-yards, consequently, are being reproduced in designs for modern great palaces, and the open courts of the Rococo (eighteenth century) period are going out of fashion. The new Royal Palace, in Strassburg, has its two palace court-yards within the palace.



Fig. 54. Old High Type of Palace and Court, Innere Burg, Vienna.

Figure 54 shows an old palace court-yard of the Hofburg, in Vienna, the residence of the Austrian emperors.

L. VON KROCKOW.

[To be continued.]



EMPLOYERS' LIABILITY.

Negligence of Contractor.—The Supreme Court of New Jersey holds that where one engaged in laying a sewer in a building is injured by a falling brick, in the absence of explanation by the contractor doing the brickwork, it will be presumed that it occurred from want of reasonable care on his part, or that of his employés, and he is liable for the injuries received. The court said: The bricks were in the custody of the workmen of the contractor at the time that this one fell, and it was their duty to so handle them as not to endanger other persons, who were engaged in other work upon the same premises. This brick could not have fallen of itself, and the fact that it fell, in the absence of explanation, raises a presumption of negligence. If there are any facts inconsistent with negligence, it is for the contractor to prove them.

[Sheridan vs. Foley, 33 At. Rep. 484.]

Liability of Both Owner and Contractors for Injuries.—The Supreme Court of Wisconsin holds that, where one who is exercising ordinary care is injured by the failure of the owner and two independent contractors, one of whom is constructing the masonry and the other setting the ironwork in a building, to comply with the terms of an ordinance—which requires "any owner or contractor who shall build or cause to be built" any building abutting on the public sidewalk, after the completion of the first story to cause a roofed passageway to be built in front of the building, on the sidewalk—he may base a claim of negligence on account of such failure against all three.

[Smith vs. Milwaukee Builders' & Traders' Ex., 64 N. W. Rep. 1041.]

Liability of Builder under License to occupy Street.—Where a party executes an agreement to indemnify the city for damages arising under license to occupy part of a street while it is erecting a building, the city must show that the defect, which caused the injury, was caused by such use of the street during the term of the license; but it may do this by showing facts and circumstances from which it may be fairly inferred, as by evidence that when the license was issued the street was in fairly good condition, that during the continuance of the license teams with materials for the building drove across it and broke it all up, and that after the accident the sidewalk was relaid by the said contractor.

[City of Springfield vs. Boyle (Sup. Jud. Ct. Mass.), 42 N. E. Rep. 333.]

Negligence in Building Operations.—In an action for injury to an employé engaged in making an excavation, caused by the falling of one of the piles put around the place to be excavated, the complaint alleging as negligence that the piles were "carelessly and improperly driven," and this being denied, the issue is not whether they were driven sufficiently deep but whether they were driven carefully and properly.

[Jenkins vs. McCarthy (Supreme Ct. S. C.), 22 S. E. Rep. 833.]

Liability for Dangerous Premises.—In an action against a party and his wife for injuries from an excavation in front of certain premises, her answer admitted that she owned the premises, but denied that she occupied and had control of them, and alleged that her husband occupied and controlled them for the purpose of erecting a building thereon for her. It was held that, in the absence of evidence that he was erecting the building as an independent contractor, the wife's answer would be construed as an admission that he was acting as her agent.

[Callahan vs. Matthews (Supreme Ct., General Term, Fifth Dept.), 34 N. Y. S. Rep. 499.]

Injury to Employé during Building Construction.—A party engaged in taking bricks and mortar, by an elevator, up into a building being erected by a contractor, he being in the employ of such contractor; and after the elevator had been unloaded by means of a wheelbarrow operated by this employé, on and along a narrow plank leading from the elevator to the scaffolding, where other workmen were engaged, he walked hurriedly backward along the plank, without looking to see whether the elevator had descended or not, and fell into and down the elevator shaft, and was injured. The court held, that this conduct was such that he was chargeable with contributory negligence, and debarred him from recovery, whatever negligence may have existed by reason of the sending down of the elevator by others.

[Smith vs. Van Scilver (Ct. Errors, N. J.), 33 At. Rep. 390.]

Action against Contractor for Personal Injuries to Employé.—In an action against a contractor for injuries by stones falling from the coping of a building through the failure of the contractor to fasten them by iron rods to the wall, there was evidence that such rods were necessary, and that no effort had been made by the

contractor to furnish them, or fastenings in lieu of them. There was evidence that the work was reasonably safe without them. It was shown that the party injured, an employé, though an experienced person, had never set terra-cotta coping brackets before, and did not know that irons were required, and relied on the foreman for instructions. The Supreme Judicial Court of Massachusetts held, that the question of whether the contractor was negligent was for the jury to determine. The jury also, in such a case, must determine whether the employé assumed the risk, and whether he contributed by his negligence to the injury.

[Gibson vs. Sullivan, 42 N. E. Rep. 110.]

When Owner is liable for Injuries during Construction.—One constructing a building by employing a contractor with his employés to do the carpenterwork, paying the wages of such employés to the contractor, but keeping himself the control and management of it, becomes a master of such employés, and is liable for personal injury caused by the negligence of such employés.

[Dehority vs. Whitcomb (App. Ct. Ind.), 41 N. E. Rep. 1059.]

What constitutes Safe Place for Servant to work.—A heavy piece of flooring, standing on edge near the place where men were working, was supported, as could be plainly seen, by other pieces. The contractor placed a sufficient number of competent men at work moving the flooring and putting it in place. They removed the supporting piece first, and the other piece fell on and killed one of the men. The contractor was not chargeable with negligence in not providing a safe place for his men to work.

[Smith vs. Empire Transp. Co. (Supreme Court of N. Y.), 35 N. Y. Sup. 534.]

Evidence as to Strength of Materials.—In an action for damages for death of an employé, caused by an insufficient scaffold, a carpenter may be permitted to give his opinion of the nature and character of hemlock, of its strength as material to be used in scaffolding, and to state that a stick of timber, 2" x 4", would exceed in strength one "being made of inch boards."

[Kuhn vs. Del. L. & W. R. Co. (Sup. Ct., Fourth Dept.), 36 N. Y. S. Rep. 339.]



THE ENGINEERS' CLUB OF PHILADELPHIA.

AT the regular meeting, March 21, 1896, eighty-seven members and visitors were present.

The first paper of the evening was read by Mr. Thomas G. Janvier, and described, with the aid of lantern illustrations the "Sewage Disposal Works at Wayne, Pennsylvania." He prefaced his paper by stating that he had nothing essentially new to present, but that he might give some ideas that would open the discussion of the evening upon the general question of sewage disposal. His description of the plant at Wayne he credited to an interesting pamphlet¹ issued a number of years ago by Colonel Waring, who had gotten up that system.

The general problem of sewage-disposal is one of the most serious ones confronting suburban towns, and up to the present time but little has been done towards solving it. If the drainage is not properly disposed of, it finds its way into near-by wells of water used for drinking and household purposes, thereby causing and spreading disease. There is hardly a locality in which one of the four following systems cannot be successfully used. The first and simplest is by means of a pipe-line constructed to tide-water; the second is by stone filtration, and purification by aeration and irrigation; the third is by sand filtration and aeration; and the fourth is chemical purification.

The second system is the one which has been in successful operation at Wayne, Pennsylvania, for the past four and a half years. The general plan of the sewage-field shows a tract of about eleven acres with a stream running through it from west to east. This is subdivided into five smaller fields, two on the north side of the stream and three on the south. The section on the north side was very irregular and quite flat, and was thoroughly underdrained and brought to a smooth and uniform grade. The section on the south side was very steep and rocky, and with the exception of removing the underbrush and some grading, very little was done to prepare this part for the construction of the necessary filter-beds, barriers, etc.

The sewage is carried by gravity through a twelve-inch pipe to the screening-chamber, from which it passes into a tank to be lifted by two duplex Barr pumps, with a capacity of 22,000 gallons per hour, through a force main, laid first on piers and then in the ground, to the distributing-well at the top of the hill. From this the sewage flows in a strong stream to stone filter-beds, and thence to, over, and through several barriers of porous embankments built on the contour lines. As it passes the barriers and the intermediate ground, it gradually becomes purified, and by the time it reaches the stream it is tasteless, colorless and odorless.

¹ See American Architect for July 2, 1892.

Illustrations were shown to fully describe the details of the plant. The sewage-tank has a capacity of 90,000,000 gallons. When this is nearly full, the contents are aerated by a very powerful flow entering the tank from the four-inch aerating-pipe for about an hour, during which time there is no discharge to the distributing-well. In this way the contents of the tank are set in active and rapid motion and a large amount of oxygen introduced. It takes from six to twelve hours to fill the tank and about five hours to empty it.

Mr. Janvier also described views of the pump-house, with pumps and piping, and the distributing-well, with its three outlet-gates opening upon the three different fields. The sewage flows out of the well over a width of fifty feet covered with broken stone; and, lastly, over and through the porous embankments or barriers, which are about one foot high and three-and-one-half feet wide, composed mainly of locomotive cinders, backed or loaded with heavy stones, to prevent their being washed away.

In the discussion which followed this paper, Mr. Janvier stated, in answer to questions, that the frost did not seem to have any effect upon this plant, as it had been in operation for nearly five years past. He had not heard of any chemical tests having been made of the purified effluent. The town of Wayne has about 2,000 inhabitants, increased to about 2,300 during the summer, with about 400 houses and one or two large hotels. It costs about \$2,500 per year to run the plant.

Prof. Edgar Marburg called attention to the fact that the present system of sewage disposal at Wayne was constructed largely in response to protests from the property-holders along the creek into which the sewage was formerly discharged in a raw state. Injunction suits were threatened, to abate what was claimed to be a nuisance and an injury to live-stock watered from the creek. The success or failure of the system in accomplishing its purpose—namely, the prevention of the excessive pollution of the stream—can be conclusively demonstrated in only one way, namely, by actual chemical and bacteriological tests of the water in the creek above and below the plant. From a comparison of such results, reliable inferences could be drawn. The statement that the effluent is translucent and odorless signifies little to the sanitary expert, although it may serve to pacify the adjoining property-holders. It would be interesting to learn whether such tests have been made, and if so, whether the results have been published. In view of the small area of the field, and its otherwise unfavorable features, it may be seriously doubted whether the purification is in reality as effective as has been claimed. Such claims must be supported by scientific tests in order to carry conviction.

Mr. James Christie called attention to the fact that the wet disposal of sewage in countries where there is the usual need for it has not generally been a commercial success, excepting in arid regions. In the dry season this system is advantageous, but if the rainfall is at all excessive, growing crops are apt to be rotted.

Mr. C. D. Rinald stated that he understood that in Berlin the system had been operated with considerable commercial success. Large areas of sand had in a few years been converted into valuable truck farms, from which the city derives considerable profit.

Following this discussion, Mr. William Easby, Jr., showed a series of lantern slides, and gave a brief description of various methods of sewage-disposal.

A table was exhibited to show the growth in the urban population during the past century. In 1790 but 34 per cent of the total population was urban, and in 1830 the proportion was nearly doubled. The rate of increase has been steadily accelerated up to the present time, and this concentration of population is the principal reason why the question of sewage-disposal has become such an important one.

A diagram of the number of deaths from typhoid fever per 10,000 population, before and after the introduction of water-supply and sewerage, showed a very marked decrease in some of the principal cities in this country and Europe after the improvements had been made.

Boston probably affords the best example of main drainage for the disposal of sewage. Prior to the construction of its plant there were about forty-three separate outlets directly into the harbor and near the end of the docks where there was little wave action. Now it is carried by means of interceptors into a main sewer, and after passing through a depositing-main and an inverted siphon, is carried by means of an embankment to a storage-reservoir on Moon Island. The storage-reservoir on the island is so arranged to discharge its contents in half an hour if necessary, although it usually takes about eleven hours for the reservoir to fill. About an hour and a half after discharge at a distance of two miles, no contamination is noticeable. This is one of the most successful exhibits of disposal by dilution to be found in this country.

The sewage farm at Berlin, Ontario, is generally classified as an instance of broad irrigation, but as the field was constructed by excavating trenches about seventeen feet apart, with tile drains and back filled with gravel, it acts rather as a filter for the sewage. The amount of sewage disposed of is about 15,000 gallons per acre per day. The field of eight acres cost \$800, and the cost of preparation was \$3,000, making the total \$3,800.

The broad-irrigation field at Pullman, Illinois, does not seem to be so great a success as has been claimed by those directly interested. A reliable authority stated that upon the occasion of a

visit he found that a 140-acre field for broad-irrigation had not been used for three years, and was being otherwise fertilized, while a supplementary filtering area of fifteen acres had not been used for a month. The total sewage from the town of 10,000 inhabitants was being carried in an open ditch to Lake Calumet, and the plant seemed to be operated not to purify sewage, but to make money. The soil at this place was not at all suitable for sewage-filtration or for broad-irrigation.

The ridge-and-furrow method of irrigation, which is extensively practised in England, was then described. The sewage is carried along main channels, and thence along canals cut in the top of the ridges, which are accurately graded, so that the sewage overflows each ridge uniformly. It then flows down into the furrows, and that which has not been absorbed is carried off by a lower channel into another ridge-and-furrow bed below. The transverse grade of the ridge is from 1 in 50 to 1 in 150, according to the absorbent qualities of the soil. The cost of preparation of such a field upon the basis of American labor is from \$175 to \$450 per acre. The cost of maintenance is considerable, as the grading must be carefully looked after to effect an even distribution. Absorption ditches are also used for the disposal of sewage, and in England these fields are usually cropped, which is thought to be poor practice, because if this is to act as a filtration area, there should be nothing to disturb the homogeneity of the beds, while cropping is found to produce small canals around the roots.

At Summit, New Jersey, they have a filter area, 8 acres in extent, graded on a hillside and covered with sand. It takes care of only about 8,000 gallons per acre per day, which will probably be increased in the future. The area is divided into fields which are used in rotation.

Another filter-bed is that at South Framingham, Massachusetts. It has been found here that in winter if sewage is introduced beneath the snow or ice-bed, the field will work quite well, but if it is carried over the snow it becomes so chilled that it acts as a clogging agent. Of course the efficiency of the field is much lessened by the cold, and sewage must be applied in larger doses.

At Canton, Ohio, they have a plant for the chemical disposal of sewage. It is first treated to eight grains of lime and one and six-tenths grains of sulphate of alumina per gallon. It is then passed into a channel where it is agitated by boards sticking out at the sides; from there through a series of tanks where most of the solid matter is precipitated, and flows out over a series of steps, by which it is aerated. The sludge is forced into a filter-press at a pressure of 100 pounds per square inch, which reduces the precipitated matter to the sludge cake. The cost of this process is a little over \$11 per million gallons of sewage purified.

At Long Branch, New Jersey, the sewage is treated chemically by alum and lime.

In the discussion which followed Mr. Easby's descriptions, Mr. R. L. Humphrey called attention to the interesting method of sewage-disposal used at the World's Fair in Chicago. The solids in the sewage from the Fair Grounds were chemically precipitated by the use of copperas and lime and were then compressed and burned in the garbage crematory. It seemed to be a complete success.

In answer to a question as to the experiments being made in New York City, Mr. Easby stated that the process was one of the many patented ones, of which it is difficult to get descriptions. In the experiments made at Lawrence with one filter that had been operated for two years under 86,000 gallons per acre per day, the purification was affected to the extent of removing 94 per cent of the organic matter and 98 per cent of the bacteria. Another filter, run for the same length of time under 49,000 gallons, removed 97 per cent of the organic matter and 99 per cent of the bacteria. In the chemical process the sludge which comes from the compressors is little valued as a fertilizer: the farmers will hardly take the trouble to cart it away.

Mr. John C. Trautwine, Jr., described a small experimental filter that had been set up near the Spring Garden pumping-station to see what could be done by rapid straining, to improve the appearance of the water furnished to the "direct-pumpage" district. A cast-off separator, four feet in diameter, was fitted with a perforated false bottom and with pipes for bringing in and discharging the water. A bed of coal-ashes about three feet in depth was placed in it, and when the black water charged with coal dust brought down by the recent rain-storm was passed through this simple device, the discharge at the lower end was sufficiently improved to be fairly acceptable for wash-day purposes. The average rate of flow corresponded at first to about 90,000 gallons per acre per day, but fell off rapidly as the bed became clogged. No precautions had been taken to allow the access of air above the filtered water, and the rate therefore probably suffered somewhat from the formation of the vacuum.

Mr. Trautwine then called attention to the matter of sedimentation. In the recent discussion in City Councils on the appropriation to establish a filter-plant, it was urged by some Councilmen that sedimentation would be as effective as filtration, if not more so. To experiment upon this, the smallest basin of the East Park reservoir was shut off, and the water was tested chemically and bacteriologically, from day to day, by Dr. A. C. Abbott, of the University of Pennsylvania. The sample taken after twelve days of sedimentation shows considerable clarification, but far less than

would result from proper filtration. Sedimentation and filtration both appear to have but little effect upon the chemical composition of water.

Mr. Trautwine exhibited a table showing the bacteriological effect of sedimentation and of filtration as found in London and elsewhere, and in the recent experiments at the East Park reservoirs. In the latter instance the number of microbes in a cubic centimetre was reduced in the sedimentation, in two days, in the ratio of 1,000 to 131, and no marked change either way was observed after that time. In London, sedimentation reduced the number in about the same proportion, while filtration, as is well known, removes from 95 to more than 99 per cent of the bacteria.

In a recent editorial in *Engineering News*, favoring a filtration plant for this city, a rather damaging and somewhat incorrect statement about the health of our city was made, based upon the prevalence of a typhoid fever during the Centennial. Mr. Trautwine exhibited a diagram constructed from figures furnished by our Bureau of Health, covering the years from 1861 to 1895, and showing the number of typhoid deaths per 100,000 persons living. During the Civil War and during the Centennial, our actual population was greatly swelled by temporary residents who do not appear in the divisor used in obtaining the ratio. In the latter case the weather was unusually hot, a large proportion of the population were physically exhausted by sight-seeing and over-crowding, and the sanitary conditions at the Exposition grounds were defective. Since the completion of the intercepting sewer for the protection of the Fairmount pool, in 1888, and the final abandonment of the Otis Street pumping-station, in 1890, there has been a marked, and apparently permanent, decrease in the number of deaths. Figures furnished by the Board of Health show that the number of deaths in proportion to the number of cases has steadily decreased, indicating, as pointed out by Dr. Leffman, that we now understand better how to take care of this disease.

Mr. James Christie stated that in investigating the subject of filters, recently, he was surprised to find what an immense number of private ones are in use in Philadelphia, of capacities ranging from 5 to 20 gallons per minute, supplied on a large scale by at least six different manufacturing concerns. All hotels, hospitals, etc., have them, and the use of filtered water among the better class of residents is very common. In a laundry which was visited a filter was used having a capacity of 15 gallons per minute, the purification being aided by the use of a coagulant and the reversal of the filter.

In old Philadelphia it was a common practice for the women of the families to tie a piece of cloth over the hydrants to strain the water, and the organisms collected at that time were by no means microscopic. The water that was used 30 years ago in some parts of Philadelphia would not be tolerated now. At the time of the cholera epidemic in 1866 the greatest number of cases were in the district supplied by direct pumpage from the old Kensington water-works, which have since been abandoned.

Mr. Edwin F. Smith explained that at the Reading Railroad depot their water is filtered with the aid of alum as a precipitant. The maximum capacity of their filter is 10,000 gallons per hour. When the supply in the mains is very dirty, the water is filtered for the boilers and the alum has to be left out.

L. F. RONDINELLA, *Secretary*.

SKETCH-CLUB OF NEW YORK.

THE regular monthly meeting and dinner of the Sketch-Club of New York was held Saturday evening, April 4th, thirty-five members being present.

Prof. A. D. F. Hamlin of Columbia College, who was expected to be present and address the Club on "The Workings of Sketch-Clubs," was unable to attend, but the members found in Mr. W. T. Partridge a worthy substitute who had made a study of the subject and was able to offer some valuable suggestions.

Mr. Partridge stated that he had communicated with some of the leading Sketch-Clubs and had found that the plan of monthly competitions had proved impracticable. Wherever these competitions had been tried, members at first submitted a fair number of drawings, but those who were continually unsuccessful gradually dropped out and the scheme had to be abandoned. He suggested that the Club be divided into groups, each one of which should be assigned some subject for its study to be reported upon at a stated time. An interesting letter from the Chicago Architectural Club was read by Mr. Partridge, describing the work which they are doing.

HARRY P. KNOWLES, *Recording Secretary*.

BOSTON SOCIETY OF ARCHITECTS.

AT the regular monthly meeting of the Boston Society of Architects, held April 3, the following resolutions were adopted:

Whereas, It appears that it is proposed to destroy the present Bulfinch State-house on Beacon Hill and erect a new and different building in its place; and

Whereas, It appears from the report of the "Commission to provide for the Preservation of the Bulfinch State-house," appointed by Governor Greenhalge last year, that the present building can easily be made permanent and substantially fireproof, at a cost of \$375,000; and

Whereas, The plan recommended by the State-house Construction Commissioners for a new and different building calls for a first appropriation of \$1,500,000;

Resolved, That if the General Court of Massachusetts shall decide to obliterate this beautiful, old historic structure, and erect a new building, as proposed, in its place, it will be a needless destruction of one of the most attractive and beautiful public buildings in America, and an inexcusable waste of over a million dollars of the taxpayers' money, and will be on a par with the short-sighted policy which robbed the Commonwealth of the famous old Hancock House.

Resolved, That this Society protest most earnestly against the destruction of such an exceptional building as this—exceptional, not only from an architectural point-of-view, but also for its historic value—especially in view of the fact that no one denies that it can easily be preserved at a cost of less than one-third the amount asked for the erection of a new building.



[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

MONROE STREET ENTRANCE OF THE WOMAN'S TEMPERANCE TEMPLE, CHICAGO, ILL. MESSRS. BURNHAM & ROOT, ARCHITECTS, CHICAGO, ILL.

[Gelatin Print, issued with the International and Imperial Editions only.]

A PRIZE COMPETITIVE DESIGN FOR THE NEW YORK CITY-HALL, SUBMITTED BY MESSRS. GORDON, BRAGDON & ORCHARD, ARCHITECTS, ROCHESTER, N. Y.

AS the Mayor and Board of Estimate decline to allow the publication of the prize-winning designs submitted in this notorious competition, architects, whether competitors or not, will have to remain in ignorance of the character of the six designs which at length secured the premiums. One of the five equal prizes was awarded to the authors of the design here shown, who by chance amused themselves by putting their design into perspective, although the drawing itself was not submitted to the judges with the required drawings.

SUMMER COTTAGES FOR MESSRS. C. PETER CLARK AND F. C. HYDE, HULL, MASS.; LAWRENCE MAYO, NORTH SCITUATE, MASS., AND J. T. DAVIDSON, YORK VILLAGE, ME. MESSRS. RAND & TAYLOR; KENDALL & STEVENS, ARCHITECTS, BOSTON, MASS.

ENTRANCE TO DIRECTORS' ROOM OF THE FIRST NATIONAL BANK, PATERSON, N. J. MR. CHARLES EDWARDS, ARCHITECT, PATERSON, N. J.

THE companion print shows how the Guastavino cohesive method has been employed in constructing a spiral staircase in the same building.

EPISCOPAL CHURCH OF THE "PRINCE OF PEACE," WALLBROOK, MD. MESSRS. J. A. & W. T. WILSON, ARCHITECTS, BALTIMORE, MD.

THE basement and chimney are of local rough stone. The entire exterior is covered with white-cedar shingles, including the gable cross. The inside walls are covered with dark-red paper instead of plastering. The open-timbered roof, wainscoting, pews, chancel-screen and other interior wood are of Georgia pine, finished in natural color.

RESIDENCE OF THEODOR G. LÜRMAN, ESQ., CATONVILLE, NEAR BALTIMORE, MD. MESSRS. J. A. & W. T. WILSON, ARCHITECTS, BALTIMORE, MD.

THE walls are of dark-colored rough brick, with quoins and arches of red brick. The sills and pier caps are of dark-red sandstone. The roofs are shingled and gables weather-boarded.

[Note: Too late for insertion in its proper place we learn that the Palazzo San Cataldo, illustrated in our issue for April 4, was built in 1866, after the designs of Cav. Tomasso di Chiara, Architect.]

[The following named illustrations may be found by reference to our advertising pages.]

LUNETTE IN THE HALL OF AURORA; LUNETTE IN THE HALL OF DREAMS; LUNETTE IN THE SALA DEI LANIFICII; LUNETTE IN THE HALL OF JUSTICE IN THE PALAZZO FARNESE, CAPRAROLA, ITALY.

LOWER PORTION OF SGRAFFITO DECORATION, NOS. 31, 32 VICOLO CALABRAGA, ROME.

HOUSE, 12 RUE DE TURIN, BRUSSELS. VICTOR HORTA, ARCHITECT.

SKETCHES FROM VENICE.

[Additional Illustrations in the International Edition.]

REAR ENTRANCE: ALLEGHENY COUNTY COURT-HOUSE, PITTSBURGH, PA. H. H. RICHARDSON, ARCHITECT.
[Gelatine Print.]

STATUE OF ST. FIRMIN, FROM THE LEFT-HAND PORCH OF AMIENS CATHEDRAL.
[Copper-plate Etching.]

NEW PREMISES, PRINCES ST., EDINBURGH, SCOTLAND. MR. W. HAMILTON BEATTIE, ARCHITECT.

THE TEA-ROOM IN THE SAME BUILDING.

COMPETITIVE DESIGN FOR THE WEST HAM TECHNICAL INSTITUTE AND PUBLIC LIBRARY, WEST HAM, ENG. MESSRS. NEWMAN & NEWMAN, ARCHITECTS.

NEW YORK ARTISTS AND ARCHITECTS PROTEST AGAINST BOSTON VANDALISM.

THE united expression of the leading artists and architects of New York is vigorously in favor of preserving the historic State-house in Boston just as it stands to-day. They have sent the following appeal to this city:

THE FINE-ARTS FEDERATION, OF NEW YORK,
New York, April 4, 1896.

THOMAS A. FOX, Esq., BOSTON:—

My dear Mr. Fox.—It is with regret and surprise that we in New York learn of the proposal to destroy the old Bulfinch State-house. I think that residents of Boston hardly realize how strong is the feeling of affectionate association which Americans, and especially those of New England descent, have for the two or three public monuments of our historic past, which Boston has so far preserved. Let us beg the Legislature and the officials of your State and city to remember how easy it is to destroy, and how impossible to restore. In the near future all Massachusetts and all intelligent America which has affiliations with Massachusetts would deplore and resent such destruction, if it should now be allowed.

If opportunity might be afforded, I am very sure that a very full expression of opinion to this effect would be made in New York and vicinity. Cannot time be allowed also for the public hearing in the matter?

Yours very sincerely,

RUSSELL STURGIS, *President.*
C. Y. TURNER,
H. J. HARDENBERGH,
WM. R. MEAD.

[This letter bears the following indorsements.]

The above would seem to me to represent the feeling of such American artists as I have the honor to know.

JNO. LA FARGE,
Honorary President Society of Mural Painters;
Vice-President Society of American Artists.

The State-house is beautiful in itself and for its associations. Preserve it.

FREDERIC CROWNINSHIELD,
First Vice-President Mural Painters.

Let us at least save the little we have.

ELIHU VEDDER.

I agree with Mr. Vedder. The endeavor of the artist should be to do good things, not destroy them.

WILL H. LOW,
Vice-President Architectural League;
Delegate of Society of American Artists to F. A. F.

Clearly every effort should be made to save this historic building.

HENRY RUTGERS MARSHALL,
Member of Executive Committee of the Architectural League;
Member of Executive Committee of the Sculpture Society;
Member of Board of Control of the Society of American Artists.

Boston's silhouette, without its old and gilded dome, suggests to an enthusiastic, though absent, Bostonian, an attempted sunset without a sun.

EDW. H. KENDALL,
Member of American Institute of Architects;
Architectural League of New York;
Fine-Arts Federation and Society, etc.

I heartily concur in the above letter, and its individual indorsements, and have already expressed my views in a communication to Mr. Fox upon this subject.

GEO. B. POST,
President American Institute of Architects;
President Architectural League of New York;
Member F. A. F.; National Sculpture Society, etc.

NOTES & CLIPPINGS

GREEK STATUE TO BYRON.—This afternoon, in the presence of a great and enthusiastic assemblage, the statue to Byron executed by the French sculptors, Chapu and Falguière, at the expense of the late M. Demetrius Skylitsis, of London, was unveiled by the King in the Zappeion Park. After the presentation of an address by a representative of the Skylitsis family, the Minister of the Interior, M. Kyriakoulis Mavromichali, made a short but stirring speech, in which he accepted the statue on behalf of the Government and uttered an enthusiastic eulogy of Byron's talents and the sacrifices which he made for Greece. His speech was received with prolonged cheers. The statue, which is of Carrara marble, represents Greece crowning Byron with a laurel branch, while a young Greek below stretches his arms in newly-found liberty. On the pedestal is the inscription: "Hellas to Byron."—*Athens Despatch to London Times.*

CHARLESTON'S HISTORIC POST-OFFICE.—Among the quaint old structures of Charleston, S. C., the old Post-office Building takes the lead in historic interest. It was built of brick imported from England in 1767 under the direction of a committee of the Colonial Assembly. Its leading members were John Rutledge, Henry Laurens and Thomas Lynch, who later took a prominent part in the formation of the republic and whose names will be found among the signers of the Declaration of Independence. During the occupation of Charleston by the British it was used as a prison, and between sixty and seventy of the best citizens were confined there before their removal to St. Augustine, Fla. In the number was Col. Isaac Haynes of the celebrated family of that name. In revenge for the execution of Major André, Haynes was led out from prison and suffered the death penalty by order of Colonel Balfour, then in command, without the formality of a trial.—*Boston Transcript.*

LEIPSIK'S MOUNTAIN OF ASHES.—The City of Leipzig is situated in a plain, which is rather uninteresting on account of its monotony. In order to bring a little change into the landscape, the City Council has, for a long time past, ordered the deposit of ashes and refuse from the city at one certain point, which, in the course of time, has risen some one hundred and twenty feet, or more, above the surrounding country. This ash-pile, which in the mouth of the people has received the euphonious names of "ash mountain," or after the name of the burgo-master, "Monte Georgi," is situated outside the city limits proper, in a suburb called Rosenthal, or "Valley of Roses," probably because onions and other vegetables are raised there in quantity by truck farmers. This ash-hill will now be covered with vegetation at the expense of Leipzig, the City Council having appropriated 10,000 marks for that purpose. They are so proud of the mountain, which they have built with ashes and patience, that they will erect on the top a tower, the view from which is even now being spoken of as the great coming attraction of Leipzig.—*Philadelphia Press.*

PAVEMENT OF SWAMP HAY.—Permission has been granted by the mayor of Baltimore to lay a sample of a new pavement, made of swamp hay, in order to test its durability. The material is swamp grass, which grows luxuriantly in the salt marshes along the Atlantic coast. It grows very compactly and in many places to a height of six or eight feet. Laborers go into the marshes with large flat boats and cut the hay, which falls into the boat as it is poled along through the water. The material is then put into bundles, and cut up into the proper length by a machine similar to the ordinary hay-cutter. It is afterward subjected to a moderate pressure and made into blocks about six inches thick by sixteen long and twenty wide. These are then fastened by wires, very much in the manner that hay is put up. Before the blocks are shipped from the factory they are treated with a preparation of "deda oil," and they are then ready to lay upon the streets. The cost of putting down this pavement complete, including the preparation of the concrete foundation, is given at from \$1.40 to \$1.70 per square yard.—*Boston Transcript.*

PREVENTING FROZEN WATER-PIPES.—Sir James Crichton Browne has offered a suggestion for the cure of frozen water-pipes. Speaking at a congress of plumbers, he pointed out that water-pipes would never burst if protected by a vacuum. In the experiments at the Royal Institute upon liquid air and liquid oxygen, fluids were dealt with at a temperature of 180 degrees below freezing point. At such a temperature it would have been impossible to work with the fluids under ordinary conditions, but in tubes or beakers with vacuum jackets they were handled with the utmost facility, and poured from one to another without any difficulty, because the temperature could not pass through the vacuum. "Why," asked Sir James, "could not plumbers invent a vacuum pipe? A space even an eighth of an inch of a high vacuum would be sufficient. Inclose the pipe to be protected in an outer tube, exhaust the air from the intervening space, and hermetically seal the inclosing tube at the ends; then no changes of temperature could affect the protected pipe." Criticising this suggestion, a correspondent says the idea is not new, as he suggested it ten years ago. He has done more; he has tried to utilize it, but found that as the inner pipe must be supported throughout its length, these points of contact form conductors. A simpler plan, he says, is to enclose the pipes in a bituminous cylinder, which, when slightly warmed, can be curved or bent, thus adapting both tubes simultaneously to any necessary curves, as well as of affording better facilities for jointing and connecting.—*St. Louis Globe-Democrat.*

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EPISCOPAL CHURCH OF THE PRINCE OF PEACE, WALLBROOK, MD.

J. A. & W. T. WILSON, Architects.

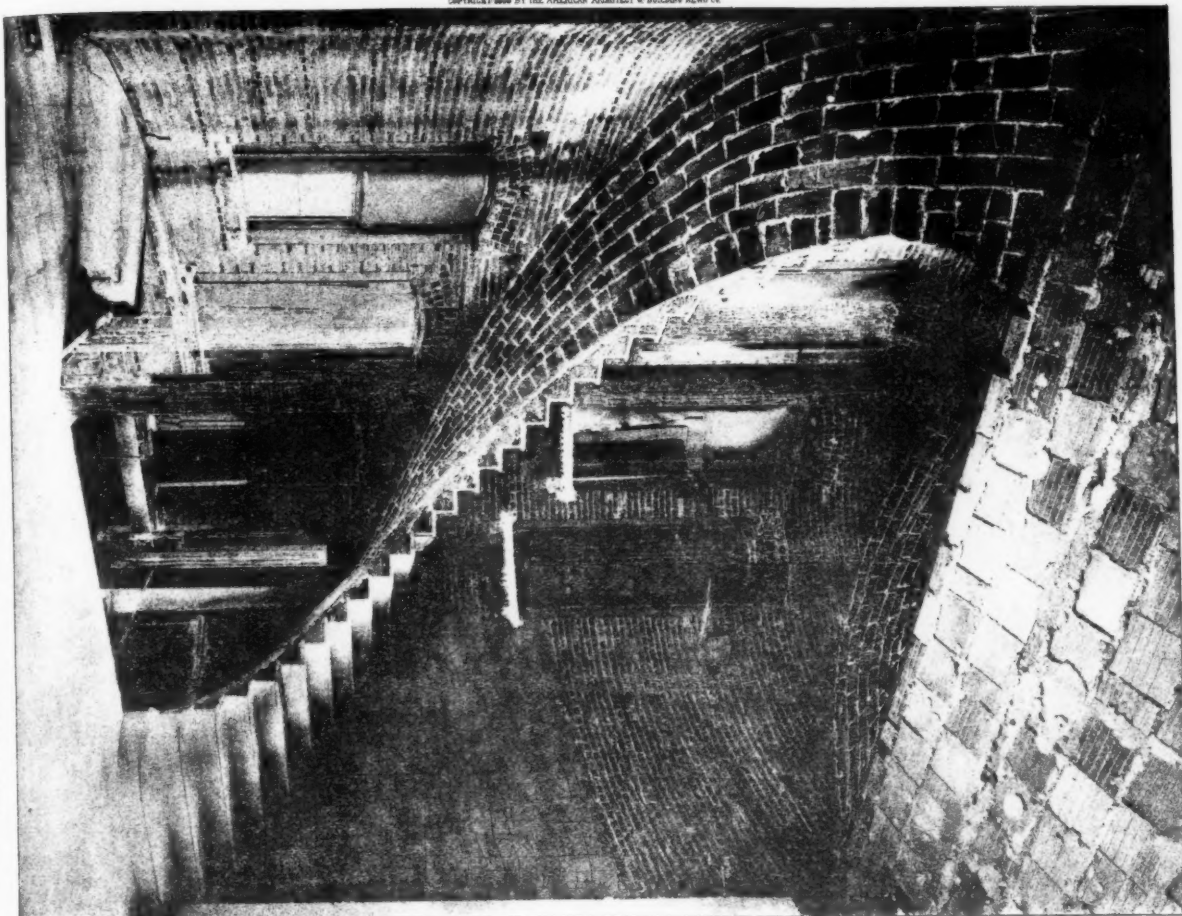


HOUSE OF THEODOR G. LÜRMAN, CATONVILLE, MD.

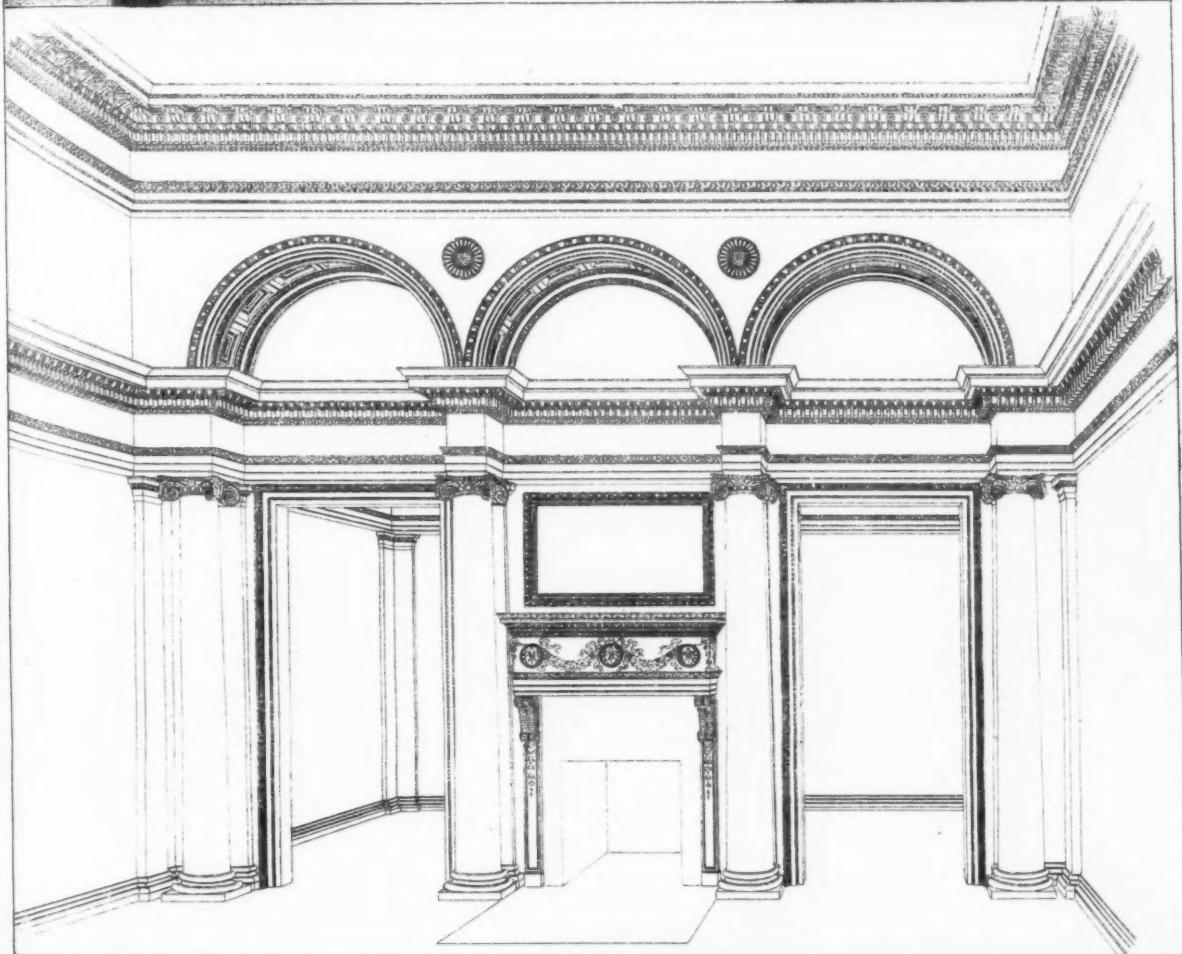
J. A. & W. T. WILSON, Architects.

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SPIRAL STAIRCASE FOR THE FIRST NATIONAL BANK, PATERSON, N. J.



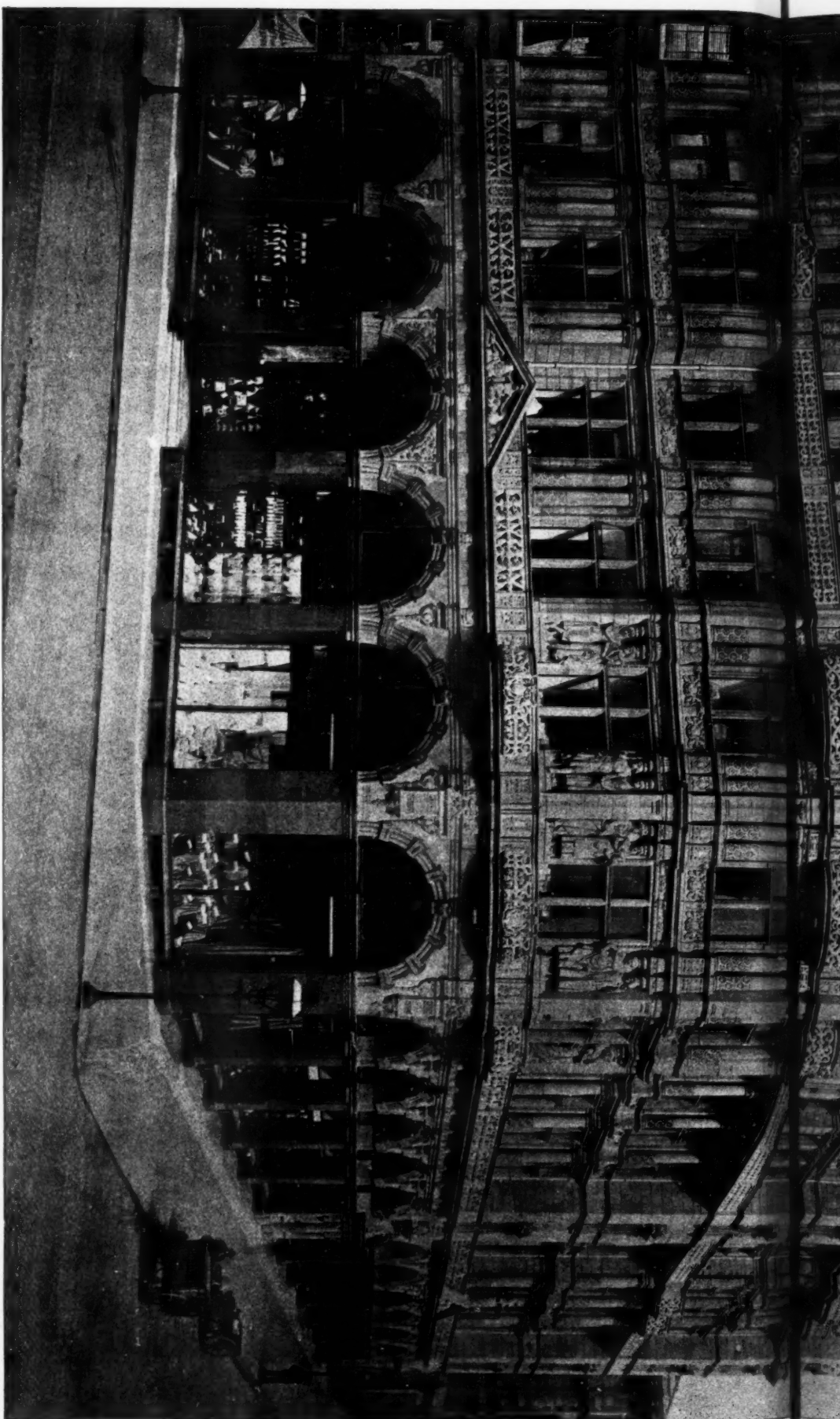
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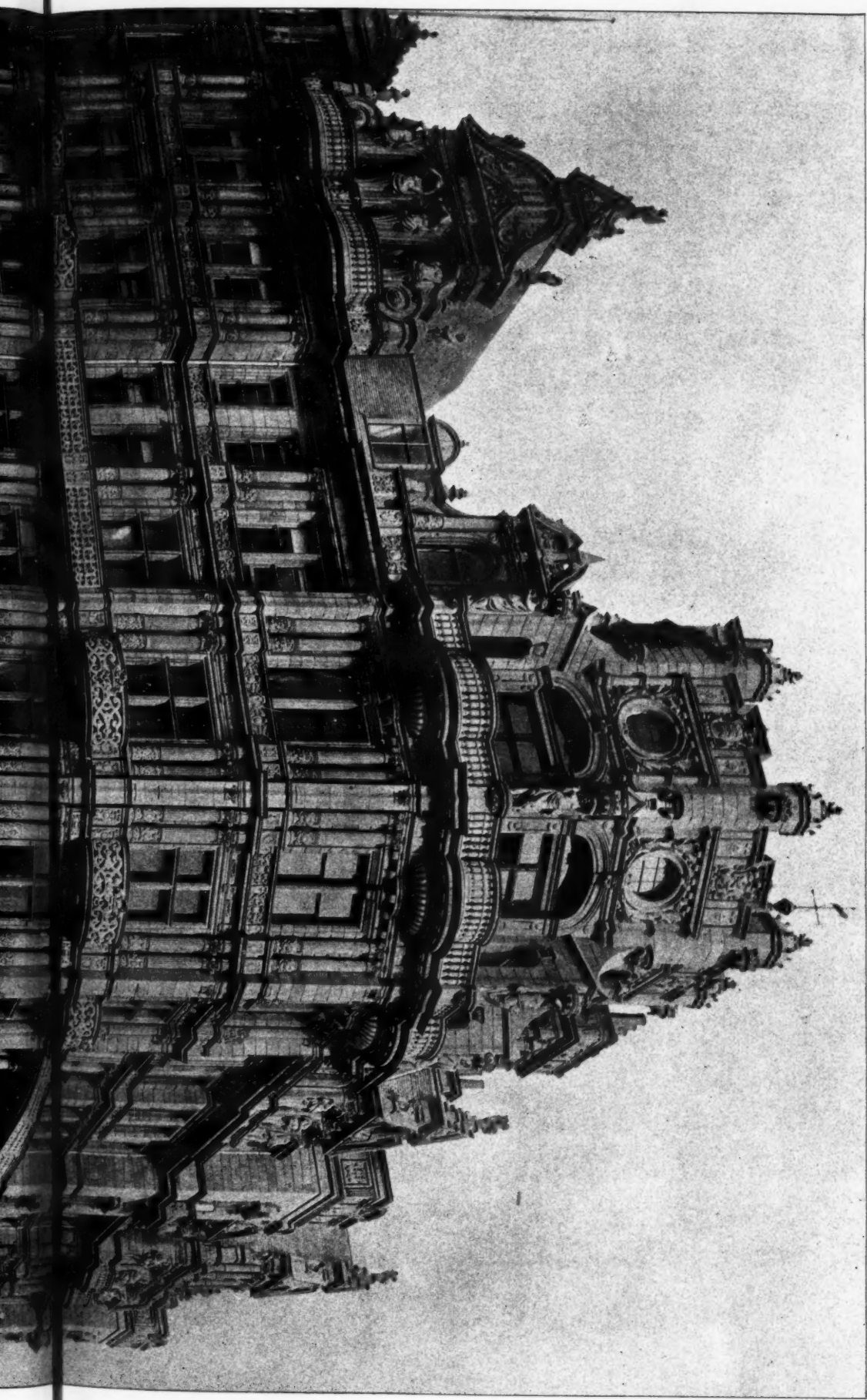
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NEW PREMISES, PRINCES STREET, EDINBURGH.
W. HAMILTON BEATTIE, Architect.

1884-PHOTO SPRAGUE & CO 44 EAST HANCOCK STREET, FETTER LANE, E.C.



AMERICAN ARCHITECT AND BUILDING NEWS, APRIL 18, 1896. No. 1060.





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THE TEA ROOM: NEW PREMISES PRINCES
W. HAMILTON BEANE, Architect



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PREMISES PRINCES STREET, EDINBURGH.
MILTON BEAUMONT, Architect.

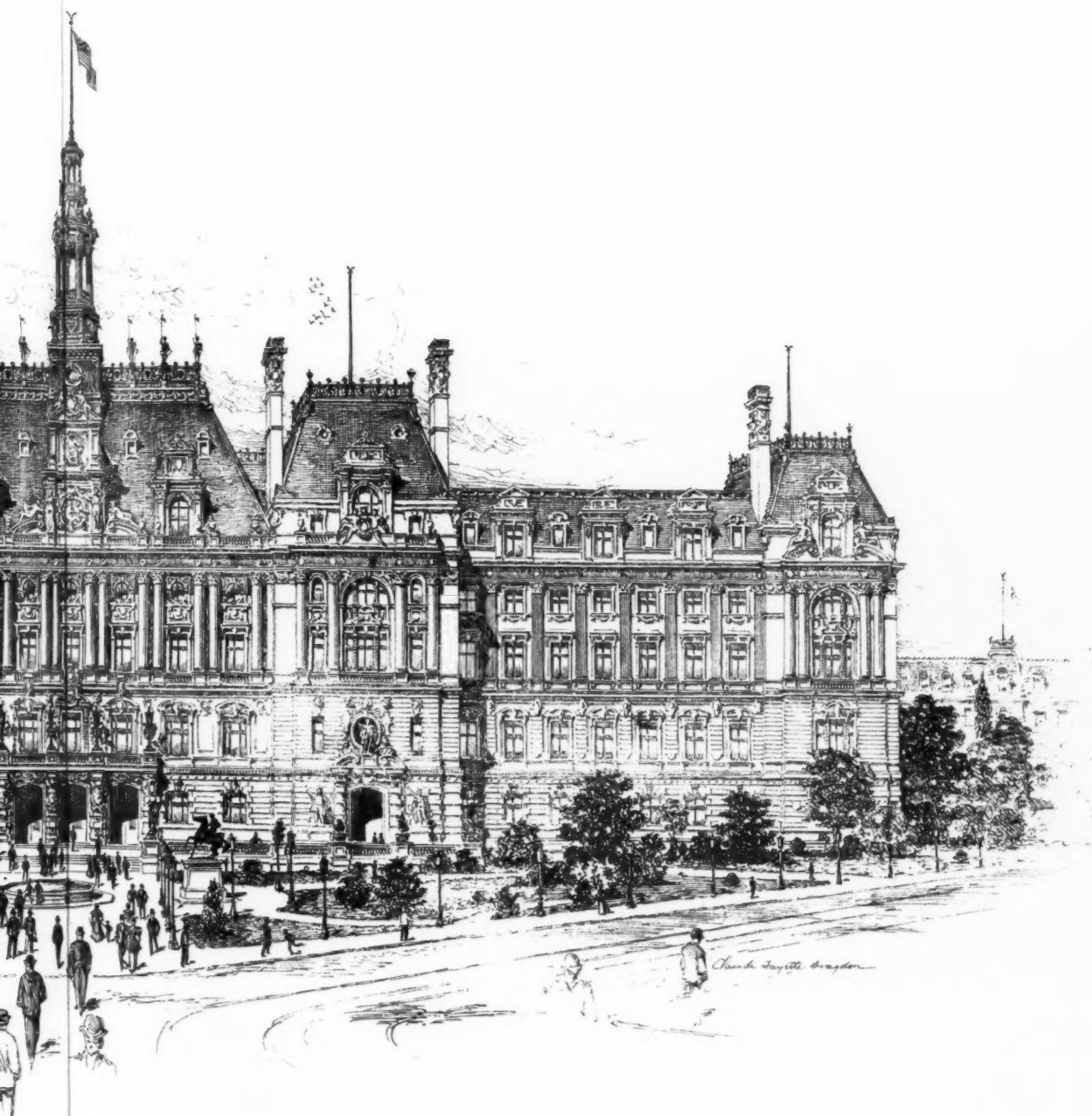


DESIGN FOR THE
WEST HAM TECHNICAL INSTITUTE
AND
PUBLIC LIBRARY
by Messrs Newman & Newman



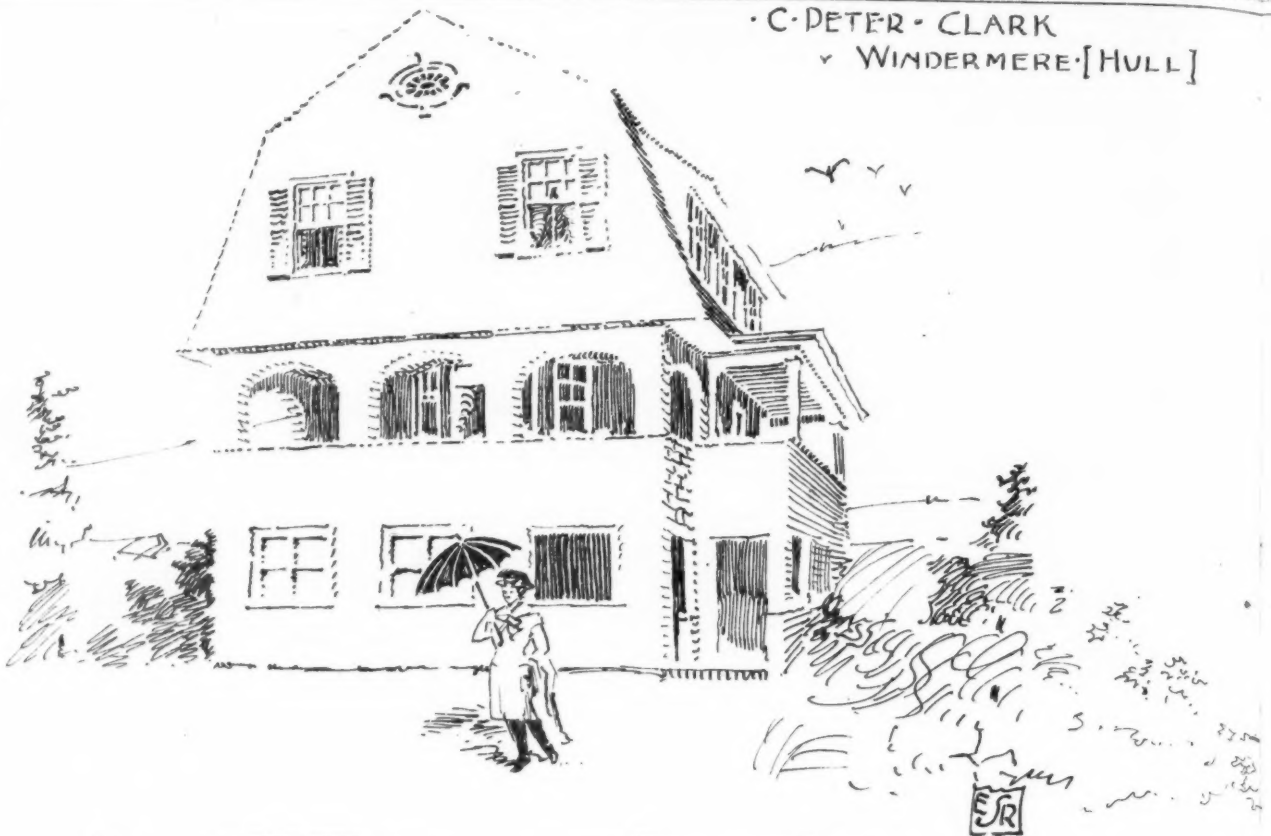


A PRIZE COMPETITIVE DESIGN FOR
GORDON, BRAGDON & ORCH



DESIGN FOR THE NEW YORK CITY HALL.
BRADLEY & ORCHARD, ARCHITECTS.

• C. PETER • CLARK
• WINDERMERE • [HULL]



• SUMMER • COTTAGES • BY • RAND • TAYLOR

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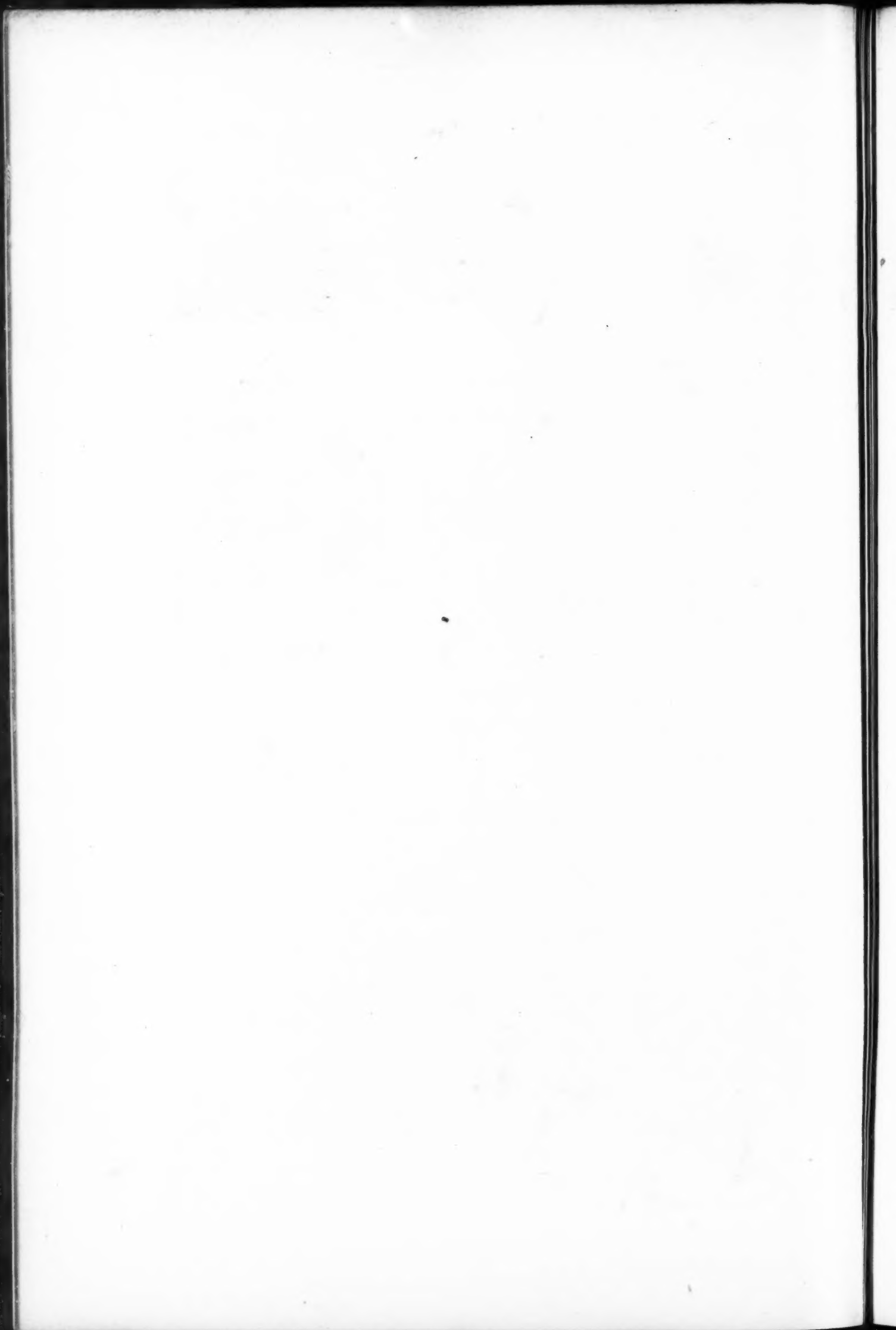
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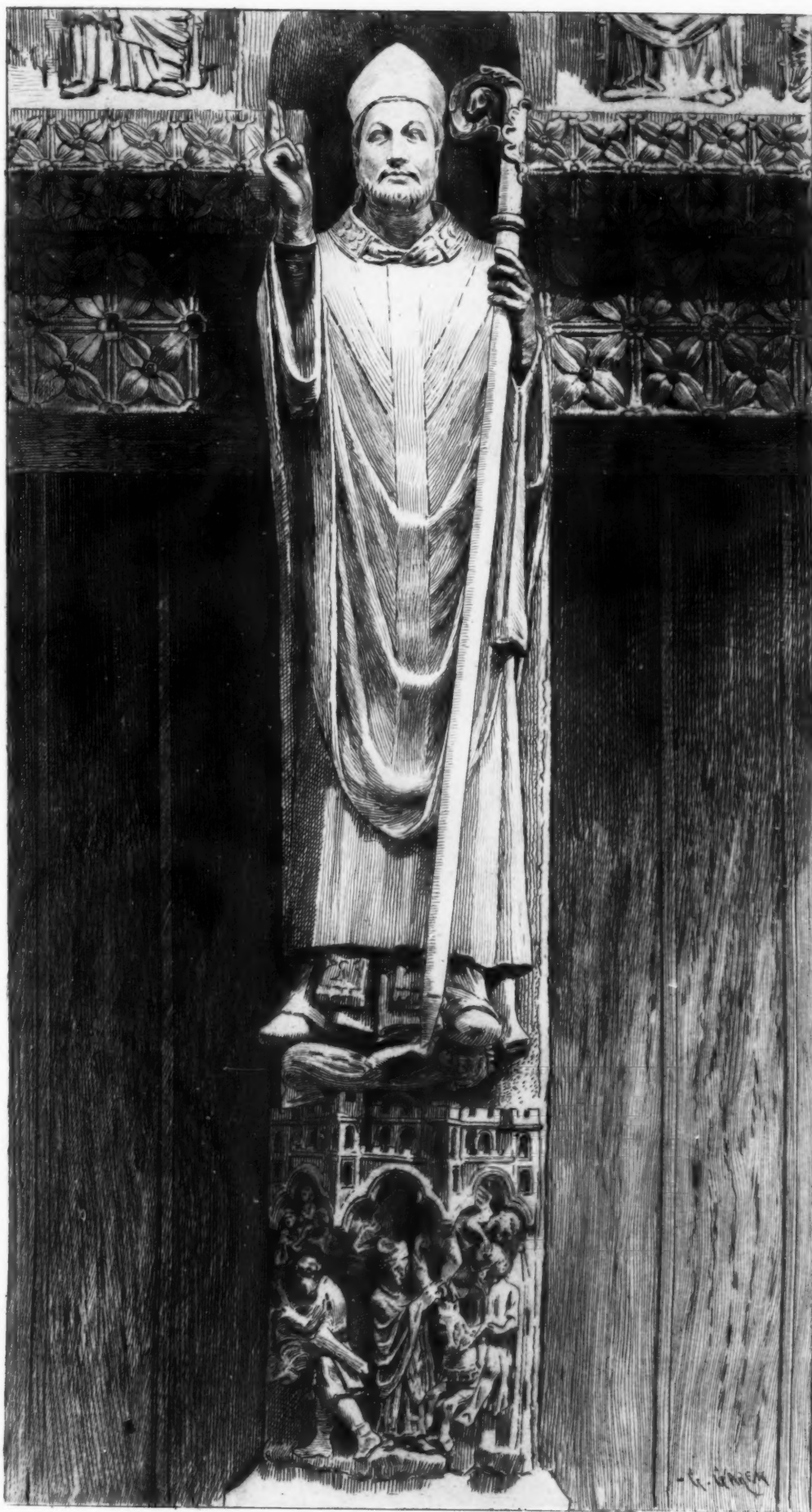


FOR KENDALL & STEVENS ARCHITECTS

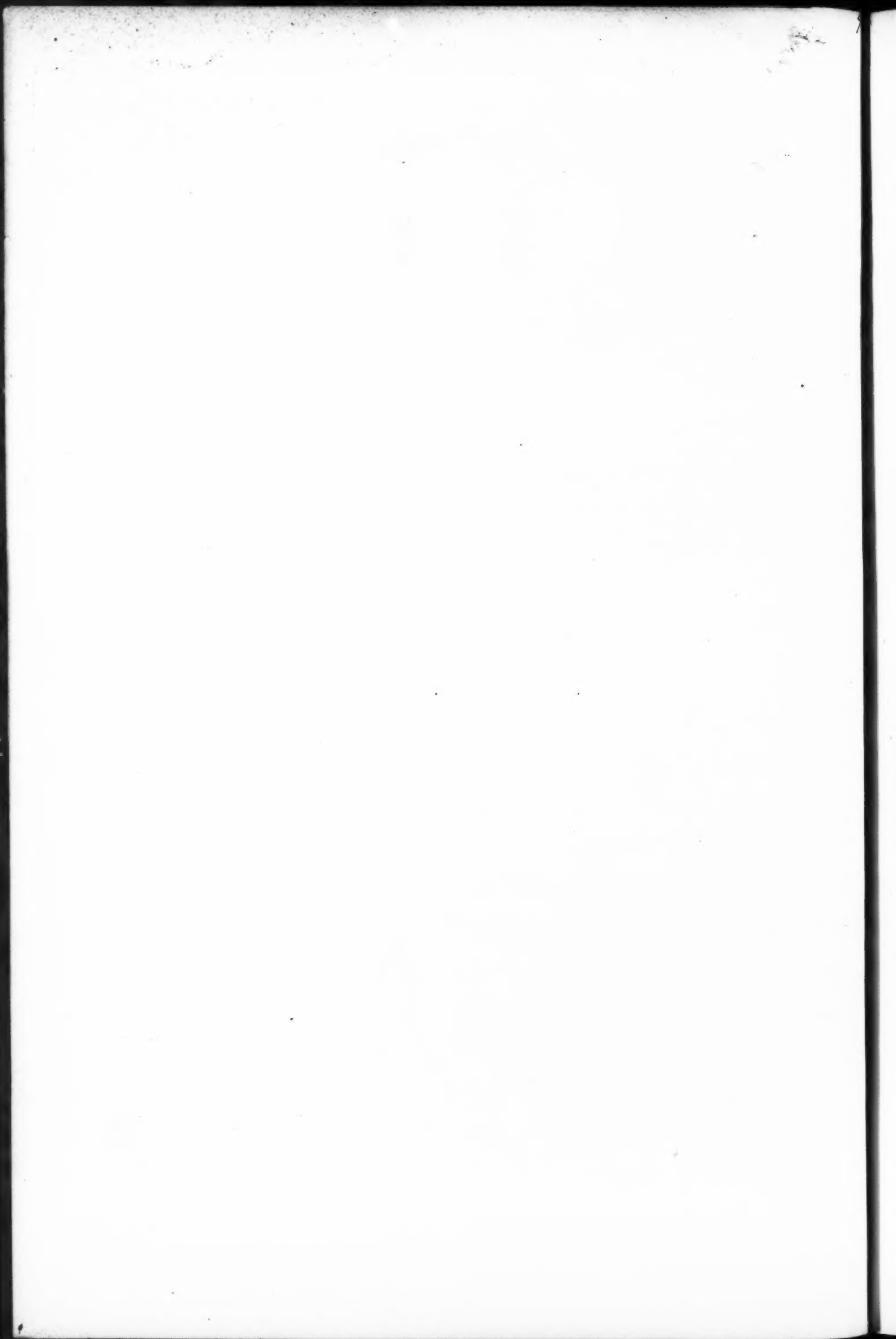
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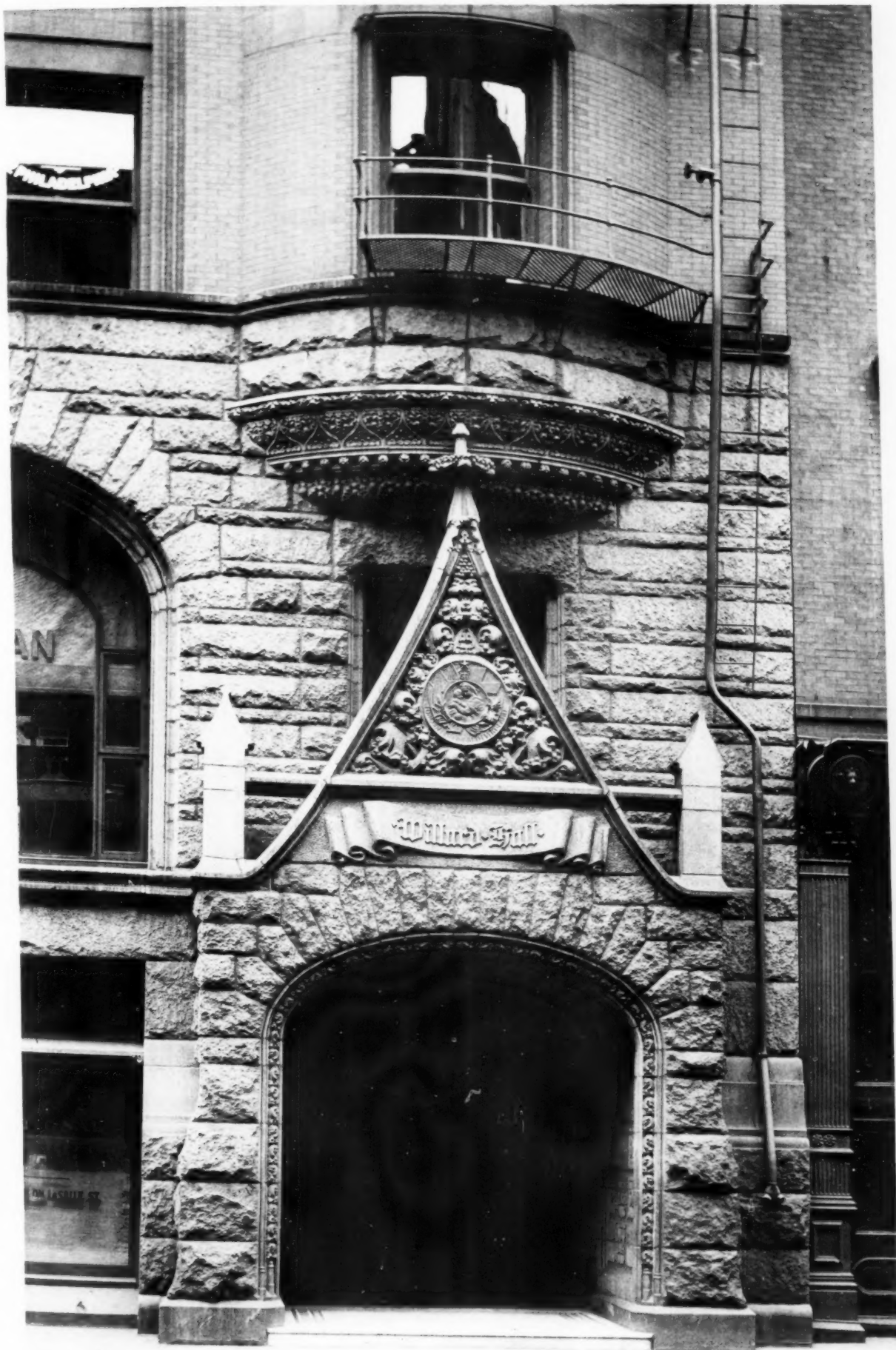






CATHÉDRALE D'AMIENS
Saint-Firmin, Porte gauche du grand portail.





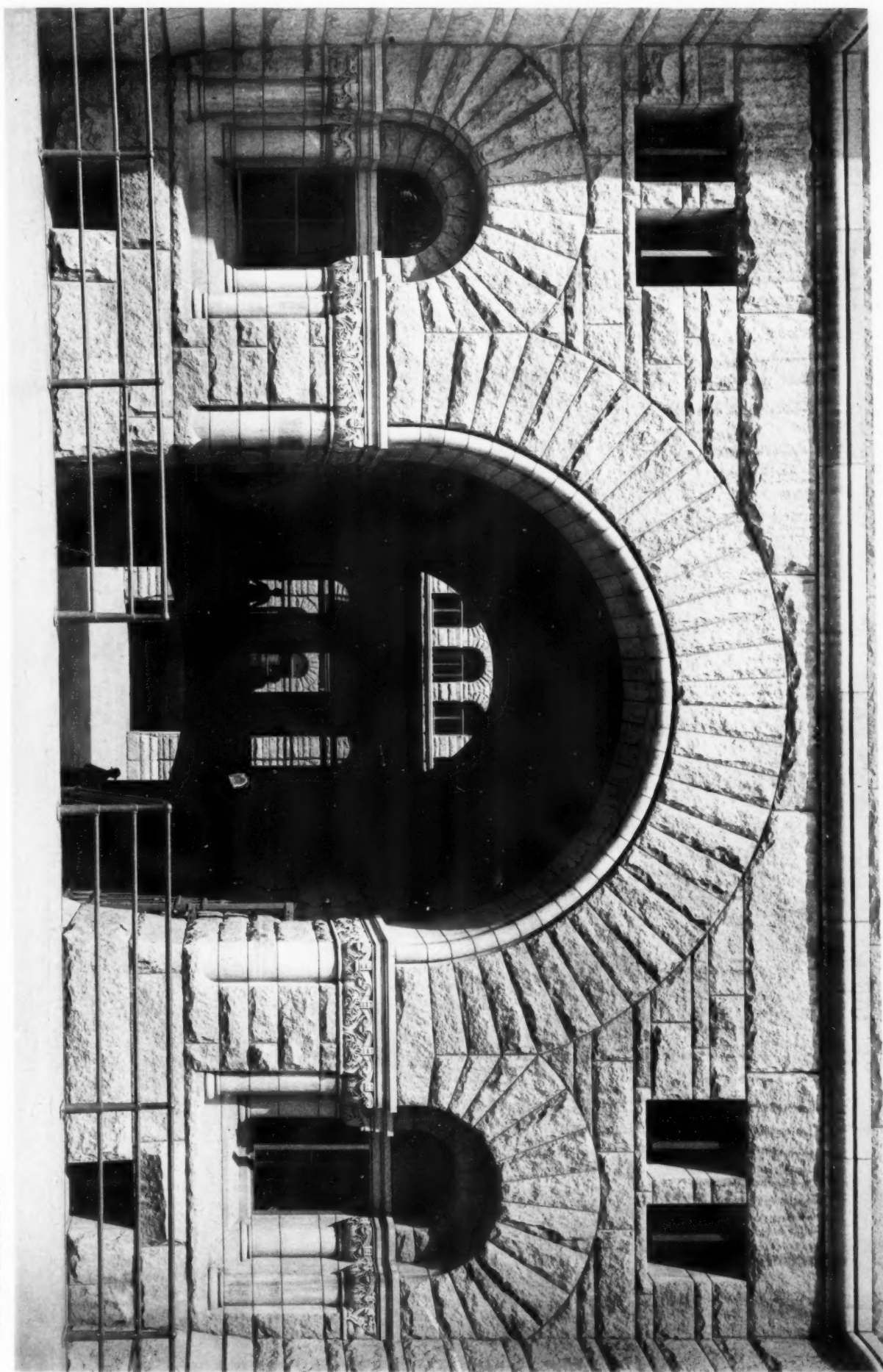
THE HELIOTYPE PRINTING CO., BOSTON

MONROE STREET ENTRANCE OF THE WOMAN'S TEMPERANCE TEMPLE, CHICAGO, ILL.

BURNHAM & ROOT, Architects.

REAR ENTRANCE: ALLEGHENY COUNTY COURT-HOUSE, PITTSBURGH, PA.

H. H. RICHARDSON, ARCHT.



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