

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XVII.

JUNE, 1891.

No. 3

THE INLAND ARCHITECT AND NEWS RECORD.

A Monthly Journal (with an Intermediate News Number) Devoted to

**ARCHITECTURE,
CONSTRUCTION, DECORATION AND FURNISHING
IN THE WEST.**

PUBLISHED BY THE INLAND PUBLISHING CO.,
19 Tribune Building, Chicago, Ill.

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C. E. ILLSLEY, Associate Editor.

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TERMS: Regular number, \$3 a year; Photogravure edition, \$8 a year. Single copies, Regular number, 25c.; Photogravure edition (including 7 photogravures), 75c. Intermediate number, 10c. Advance payment required.

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Columbian Exposition Success and Progress.

To us at the center of activity in the preparation for the World's Columbian Exposition to learn that a prominent railroad official in England writes to a friend in this country asking "if the fair will really be held, and when," seems almost impossible. If no information had gone abroad other than the President's proclamation, the universal enterprise of the citizens of the United States should be a guarantee that the project would be carried out. But a "prominent railroad official" in England, or in Patagonia, would be supposed to read the newspapers and journals of the day, and for a year the public has been kept informed of the progress of this great movement. It is true that the jealousy of some newspapers has led them to magnify difficulties and ignore advantageous facts, and these reports, coming from the city recognized in foreign countries as the metropolis of this, has influenced many foreign journals, and through them the people have been misled; but even this should show that something was being done, and those interested in the matter could easily obtain exact information from business men of their acquaintance in Chicago. The fact, certified to by the President's proclamation, that \$10,000,000 had been subscribed and guaranteed for the buildings, and additional funds since acquired in the shape of stocks, bonds, government appropriations, etc., to the total amount of \$14,645,000, should be some indication that a spoon of large dimensions was in the process of manufacture, or a most costly horn was being spoiled. Adding to this the amounts that in many states will be added to, and, in some cases, doubled by the next legislatures, and the amounts raised in states by private subscription, the total amount expended in buildings and general preparation will not be short of \$23,000,000. At present, out of some thirteen main buildings, costing from \$200,000 to \$1,000,000 each, contracts have been let for five, and the remainder will be let within the month, several of them to be finished by the first of next January. Since the different designs for these buildings were approved in February, a plot of ground, a mile and a half long by a mile wide, has been prepared for their reception. The construction department is in charge of a chief whose executive ability is recognized and relied upon, whose judgment is never questioned by his professional co-laborers, and he has surrounded himself with young men whose abilities in their several lines has been tested, and who bring an enthusiasm into the work. Under these conditions there is no room for doubt regarding the completion of the buildings in ample time for exhibits to be received and arranged before the date of opening, gigantic as the enterprise is beside all previous world's expositions. Paris, in 1889, spent \$8,600,000, and covered one hundred and seventy-three acres. Here a thousand acres will be occupied, and three times the amount of money expended. Even now many of the buildings are thought to be inadequate to contain the exhibits, and recently a strong effort was made by electricians to double the size of the electric building. Plans will not be changed, however, and the exhibitors in all lines will do well to make application for space as early as possible. The department of publicity comes next in importance to that of construction. Here the best linguists, the most able writers and statisticians are organized,

to keep the world informed upon every question relating to the fair, and no prominent official in England or bone carver in the South Seas need be ignorant if he has learned to read, or can address a communication to the department.

**Musical
Requirements
in English
Churches.**

A joint committee of organists and architects recently presented to the Council of the Royal Institute a report upon the musical requirements in churches, which may ultimately be issued by the Council, but possibly with amendments, the report being an ideal rather than a practical in all its recommendations. The organists upon the committee are all distinguished men of great practical experience in their profession, and especially qualified to deal with the subject. The report was submitted to the Council May 4, and ordered printed in the *R. I. B. A. Journal* prior to its consideration by them. The Council of the College of Organists were prompted to propose a joint committee through a paper read by Mr. John Belcher before the Royal Institute, upon musical requirements in church planning, and a strong committee was appointed in consequence. The committee consisted of four Fellows of the College of Organists: Dr. Martin, of St. Paul's Cathedral; Mr. Walter Parratt, of St. George's Chapel, Windsor; Mr. James Higgs and Dr. Turpin. That from the Institute consisted of five Fellows: Architects J. Belcher, R. H. Carpenter, J. D. Sedding, H. Stannus and H. H. Statham. The committee added to their number Mr. Somers Clarke, Dr. F. E. Gladstone and Rev. W. Russell, succentor of St. Paul's Cathedral, as authorities on many points of importance, and the committee also had the advantage of a conference with Mr. Micklethwaite and Mr. St. John Hope. The recommendations of the committee appended to the general report were as follows:

RECOMMENDATIONS.

1. That the organ and the choir be so placed in the church that they may most effectually assist in the services.
2. That it is essential to acoustic success that in the erection of new churches ample height should be provided for.
3. That in arranging any position for the organ, ample space should be allowed as regards area, "speaking-room," and height.
4. That no "open-flue" pipe should have less than its own speaking length (the speaking length of an "open-flue" pipe is the length from the slit or mouth above the conical foot up to the top of the pipe) above it.
5. That the organ should be concentrated, and not divided into two or more parts at a distance (excepting to place the choir organ in advance of the main instrument in the architectural design of the case).
6. That the ground space to be provided for an organ, exclusive of engines employed as blowing apparatus, should not be less than 600 superficial feet for an organ of 60 stops, of 310 superficial feet for an organ of 40 stops, and of 180 superficial feet for an organ of 20 stops.
7. That the organ should never be placed in a "chamber," but that the best position for an organ is that which has a sufficiency of open space above it and on three sides, and a solid, unpierced wall at the back.
8. That the term "organ place" be adopted, because it is more comprehensive (including gallery, etc.), and because the term "organ chamber" is misleading, inasmuch as a chamber (or enclosed place) has been determined to be not suitable for an organ.
9. That the internal surface of the roof above the organ should not be of wood, but of stone, plaster, or other non-absorbent material.
10. That in order to avoid noise and economize space the organ "feeders" should be placed at some convenient distance from the organ, and outside the main body of the building.
11. That the air supplied to the "feeders" must be derived directly from the church itself, in order to obtain the same temperature.
12. That the organ should be placed at a short distance from the choir, and that the best distance is about twenty feet.
13. That the organ should never be placed between the choir and congregation.
14. That the sound of the organ should not have to pass over one-half of the choir to reach the other.
15. That when possible the organ should be equidistant from both halves of the choir.
16. That the choir be placed on raised floors, or in low projecting galleries architecturally treated.
17. That the height of the platform, steps, or gallery on which the choir is placed should be regulated by the length of the church.
18. That provision should be made for the accommodation of large bodies of voices for special occasions to be seated in due musical relation to the choir and organ.

19. That it is desirable in churches of adequate size that provision should be made for an orchestra on special occasions.

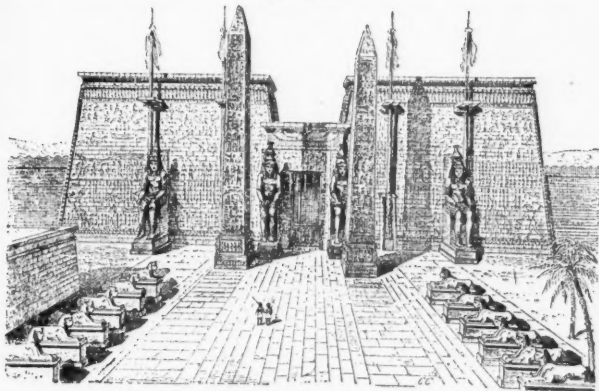
While the report deals entirely with English churches, the recommendations will apply to the construction and acoustics of all church and music hall edifices, and are valuable as the consensus of the experience of some of the best organists and architects in the world, and are equally applicable to American churches.

**Organized
Labor
and the
World's Fair.**

That un-American institution, the trades union, has developed its un-American principle of curtailing or abolishing the personal freedom of the individual in a new direction, that of seeking, as far as possible, to cripple the World's Fair, and that simply because the directors could not or would not make the construction of the buildings, as they term it, a union job. The representatives of the unions in the building trades first made an arbitrary demand upon the directors, seeking to obtain their guarantee that none but union men should be employed. The directors paying no attention to this, they sought and obtained recognition in the shape of an agreement that all disputes should be settled by arbitration; but when the establishment of a minimum rate of wages was insisted upon, the directors refused to concede. At this juncture a bill was placed before the Illinois state Legislature asking for \$1,000,000 appropriation for the state exhibit, and the unions sent delegates to the state capitol to endeavor to defeat the bill. In this they were partially successful, through the speaker of the house, who, seeing political capital in opposition, made every effort possible to defeat the measure, and succeeded in cutting down the appropriation by \$200,000. As most of the unions in this country are managed by men who, though American citizens by act of congress, are foreign born and educated, it is not surprising that the compulsory methods of the old world are thought by them to be necessary in the new; but that they should seek to defeat the greatest national enterprise of the century in the country of their adoption, simply because they cannot control it, would be called treason in countries less enlightened and more arbitrary than ours. It does not alter the status of the case that it would be better for both contractors and workmen, as well as the "owners," if a minimum rate of wages could be established, thereby giving each contractor a basis to figure upon and each workman the assurance that their competition with each other would be upon personal ability rather than upon required compensation. Injustice can never aid a good cause, and is always an adjunct of a bad one. It is probable that the directors would have been unable to dictate to contractors regarding the wages they should pay, even if disposed to do so; but it has not helped the cause of organized or disorganized labor to attempt to arbitrarily control their action. Of course, the next argument will be a strike; but no strike in the building trades will be effective during the next two years in Chicago, as the supply of workmen will be so much larger than the demand, former strikes having already so overstocked the market as to make it exceedingly difficult for a stranger to obtain work. This is especially true in the carpenter trade, by which most of the labor upon the fair buildings will be done. As upwards of ninety per cent of the entire money expended will be represented by labor in some shape, and not ten per cent of it has been subscribed by labor, the position taken by the trades unions and their claims in the premises does not call for any further comment.

Architecture and the Allied Arts.

BY BARR FERREE, LECTURER IN THE SCHOOL OF ARCHITECTURE, UNIVERSITY OF PENNSYLVANIA.



FAÇADE OF TEMPLE OF LUXOR.
Restored by C. Chipiez.

AN architectural style is the resultant of many causes; it is made up of numerous distinctive elements all of which are necessary to the whole, and scarcely one can be considered as more important than another. If any one part of the characteristics of a style is especially marked, it is clearly the ornament and decoration that forms a large portion of its individuality. Style in architecture does not consist in ornament alone, but of ornament in connection with construction, materials, the influence of manners, customs, environment, religion, culture, government and similar elements. It is, however, so readily distinguishable as a component part of style, and styles are to a certain extent so readily determined by special modes and methods of decoration, that a study of its influence upon the development of architecture apart from its historical connection is both legitimate and interesting.

It is proposed to trace the influence of the allied arts, of painting, sculpture, enameling, work in metal and other minor forms of art that have a decorative purpose, upon the development of architecture and the special manner in which they became characteristic portions of the more important historical styles. No effort is made to condense the characteristic systems of decoration, of proportion or of coloring, of methods or of historical sequence, but simply to note the part taken by the allied arts in architecture and their importance in the formation of styles. In its broadest sense such a programme would be little short of a summary of the whole history of art, for while these elements do not constitute architecture they form so large a portion of what it is popularly considered to be that it is difficult to tell their story properly and fully without reviewing architectural history in its entirety. Such a work would be quite beyond the limits of this series of papers, and it will, therefore, be limited to the special subject in hand, the relations of the varied arts to architecture.

Unless this limitation is fully understood at the outset this sketch must appear incomplete and distorted. The arts are viewed primarily from the standpoint of architecture and their progress and development noted from this basis. It is a remarkable fact that the part taken by any form of art in architecture is not most evident at the beginning of a style nor at its close. The earliest forms of any architecture, when the monuments permit us to study its beginnings, show but a limited use of ornament of any kind. Painting and sculpture, even if in the form of carving, is rude and undeveloped, and architecture alone—the building, the construction—seems to make progress. Both painting and sculpture have a tendency to progress in a more rapid ratio than architecture. Sometimes the increase in superior technique in all three is relatively the same. This was the case in Greek art, in the golden age of which architecture, painting and sculpture were of the highest degree of perfection, and when they declined all three disappeared at the same time. In the middle ages, when architecture again rose to a supreme height, the allied arts progressed in the same manner, though neither obtained the same relative rank that architecture did. While the decadence of Gothic architecture was accompanied by a similar decadence in painting and sculpture, in the Renaissance they easily surpassed architecture in point of merit, and have retained this supremacy to the present day.

Painting and sculpture both had their origin as adjuncts to architecture, and as they progressed they naturally departed further and further from it, lost their especial architectural characteristics and took more and more the form of individual arts. In noting their

influence upon the development of architecture a certain amount of unevenness becomes manifest, for in many periods as painting and sculpture progressed they became less and less essential parts of the architecture. The decline of the arts in architecture is, therefore, by no means synonymous with their individual decline, and the reader will do well to remember that as they gradually become independent their architectural value and interest diminishes.

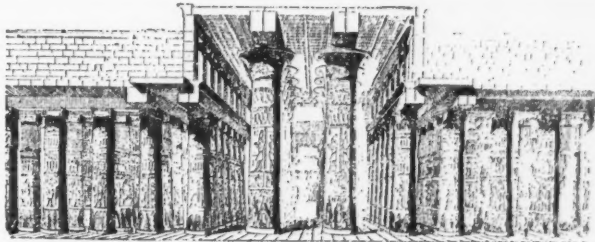
Without undertaking to chronicle the history of architecture, of sculpture or of painting, there still remain a body of facts relating to the joint history of these great arts and the minor ones developed in the history of culture. Though thus restricted to this border land that is difficult of precise definition, the field is a broad one, and a more extended treatment would doubtless bring together much more interesting data than can be found in the limits of these chapters.

PART I.

PRE-GRECIAN.

The history of architecture shows that those styles in which the union of architecture and the allied arts, painting, sculpture and various minor arts, is the most intimate, are the most successful and the most beautiful. Architecture is the oldest of the arts because it originated through the necessity of man for shelter; painting and sculpture, if the earliest rude carvings can be so designated, being first used as adjuncts to it, it is natural that the association of all forms of art should be noted from the earliest times. The broad line which has been drawn between the three great arts is of comparatively modern invention. In the golden ages of architecture, in the Egyptian, the Assyrian, the Greek, the Roman, the Gothic, all three arts were closely connected. Each had its subordinate part to play in the work, and the art of the structure consisted in the union of all. There was a balance and evenness between the parts that added much to the success of the edifice. It is this which makes the buildings of former times so generally successful, and a knowledge of the relations of painting and sculpture to architecture and the effect they had on its development is of great importance to the understanding of the true meaning of the art, and an appreciation of its greatest monuments.

The architecture of the east furnishes many splendid and rich examples of the union of the three great arts. The Orientals have an especial appreciation of the proper use of accessories, and they freely used them. Their buildings in both ancient and modern times are covered with glowing colors, and though sculpture is not highly developed it is more from a lack of technical knowledge than any disinclination for it. The further east we go the more noticeable this phenomenon becomes, the richer are the accessories, the more brilliant and vivid the colors, the more elaborate the designs. To the



INTERIOR OF HYPOSTYLE HALL, KARNAK.
After Chipiez.

western eye the superb decorative ornament of India, China and Japan is almost bewildering. It is an integral part of the architecture, and the actual effect of a Chinese or Japanese structure is quite unintelligible without it. The natural causes of this are not far to seek. The brilliant, cloudless atmosphere of the south deprives a building of neutral tint of much of the advantages of size and form. Color is needed to accentuate it and bring it out distinct from the landscape, and give it the definite character without which any building is intolerable. A recent writer has pointed out, with great truth, that as we find the colors of birds and flowers increase in brilliancy toward the tropics, so there is an increase in the warmth of the decoration of the architecture. It is not a matter of taste, but a physical fact operating under a physical law.

The application of color to the external ornamentation of a building is dependent, primarily, upon the climate. The warm, dry, even temperature of India, China and Japan permits the use of an elaborate polychromy, and it is carried to a high degree of perfection in these countries. The designs are sometimes fantastic, the tints harsh, the execution barbaric, but the results are always splendid, and under the brilliant sky of the south are thoroughly in keeping with the

environment. The architecture of these countries is light and graceful, almost flimsical at times, judged by European standards, and hence color is necessary in order to give the character it otherwise would not possess. A similar condition is found in all the leading



PAINTED COLUMN.
From Rhamession, Thebes.

styles, though each worked out its development in its own way. No one art was sacrificed to another. Surfaces were not prepared that they might be covered with paintings, nor were pedestals set up for no other purpose than that statues might be placed on them. On the contrary, the universal practice of good work in previous times has been to subordinate both painted and sculptured decoration to the architecture. The buildings of the Aztecs and ancient Peruvians are an exception, for their surfaces seem to have been especially designed to receive the elaborate carvings which were characteristic of these styles. They stand, however, entirely outside the limits of the progressive history of architecture and are of importance only as showing the unsatisfactory results of building for ornament, instead of ornamenting the building.

The Egyptians relied chiefly upon painting as an ornament for architecture. Every part of the building, the walls, both within and without, the ceilings, the columns, the capitals, the doorways, the openings, all portions, in fact, had their colored decoration. Every inch of the surface was covered with designs,

figures, human and divine, representations of life in this world and the next, occupations, manufactures, arts, amusements, animals and plants and geometrical combinations. The whole story of Egyptian life, history, thought, belief was at one time or another displayed in the painted decoration of the walls. The designs were spread over the surface like great pieces of embroidery, without any attempt to accentuate the lines of the building, or to follow the forms of the architecture. Usually, instead of being painted, the picture was worked in very low relief and then colored. The general effect, however, did not differ essentially from paintings, and the Egyptian is, therefore, more than any other a painted architecture, though the art of the sculptor lay at the foundation of it all.

Doubtless the religious belief of the Egyptians was largely instrumental in determining their system of decoration. They believed in an animation of objects whereby the figured representation had a real and actual existence. In the tombs, which were as richly decorated as any structures intended for the living, the scenes on the walls had, for the spirit of the dead, as real and tangible existence as that of those who had executed them.

It is somewhat inconsistent with the general massiveness and stability of Egyptian architecture that the decorations should not have been made with the attention for eternity shown in the structure itself. The painted decoration was spread over a stuccoed surface which was liable to fall to pieces at any moment and seriously injure the whole design. Even when the figures were incised the color was laid over a plastered surface. Nor was this all, for as the decoration covered the entire surface of the walls without reference to construction, it was carried across cracks, joints and imperfections in the stone without regard to consequences. A new factor in disintegration was thus introduced which must have required constant care and considerable expense to counteract. In this way the architectural decoration of the Egyptians was, in a measure, independent of the structure on which it was placed. It was, however, never intended to be considered apart from it. So far as final effect was concerned the colored decoration of Egyptian buildings was quite as much an integral part of the whole as the stones of which they were built. No edifice was completed until it had been covered with ornament, and

it is impossible to obtain a correct conception of the grandeur of Egyptian architecture from the dismantled and denuded monuments on which we now depend for information. The rich ornamentation changed, to a very considerable degree, the general appearance of the architecture, which in its forms and outlines was massive and gloomy, and gave it life and vitality.

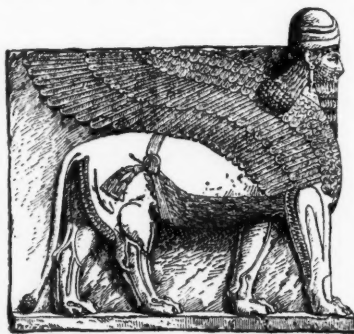
From a constructive standpoint Egyptian architecture did not lack variety of form, but the free use of painting and ornament gave it an added richness and variety of surface which could not have been obtained by the use of stone alone. Sculpture played rather a subordinate part in Egyptian architecture, though not in Egyptian art. Colossi were frequently used in conjunction with the temples, and figures were occasionally applied to the outer surface of a pilaster. A capital, bearing on its four sides the head of the goddess Hathor was sometimes used. The great rock-cut temples at Ipsamboul have their façades ornamented with life-size human figures cut from the living rock and are unique applications of sculpture to architecture. It is in such instances that the Egyptians made use of sculpture. Their architectural ideas did not require statues as distinguished from bas-reliefs and they were too sound artists to manufacture places for its display.



BAS-RELIEF, SARGON.

Both painting and sculpture had their own places, and though the former was more largely used, it must not be inferred that the latter was not appreciated. Its development was hindered by the fact that it was chiefly in the form of low reliefs, and, being colored with scarcely any projection, did not differ in visual effect from painting itself. Sculptured ornament, as it is found in later styles, is comparatively rare in Egypt, possibly because the stone used was hard. Its place was taken by painted ornament. The painted decorations of the Egyptians not only included pictorial scenes from life and history, but geometrical and other ornaments, which were used, both as surface decorations and on moldings, and similar places where in other styles carved decorations were employed. Some of the tombs contain examples of painted doors and walls that are of almost unsurpassed brilliancy and wonderful complexity of design, showing that this form of art was practiced and carried to a high degree of elaboration.

While sculpture in the form of statues was not much used by the Egyptians architecturally, it was a favorite form of art and was practiced from the earliest times. Every Pharaoh had his statue and every Egyptian who could



WINGED BULL.

afford it placed at least one image of himself in his tomb. In fact portrait sculpture is one of the most ancient of Egyptian arts and our museums are crowded with its remains. The phenomenal activity in this most difficult of arts—and the Egyptians exhibited a profound skill in it, producing portraits of intense individuality and frequently in the hardest

stone—was due to the belief that a portrait statue would serve as an abiding place for the *double* of the soul on its return to this life. It is somewhat singular that a people who were thoroughly acquainted with the technique of statue-making did not employ it to a greater extent in architectural combinations. With the exception of the colossi and the avenues of sphinxes which formed the approach to every temple of importance it is almost wanting as an architectural adjunct, though abundantly used as statuary.

Chaldean and Assyrian architecture depended on the allied arts for complete effect to the same extent as did the Egyptian. The

methods and substances used were different, but like the older art it was never intended to be considered apart from the accessories. The chief of these was metal, and in this respect Chaldean and Assyrian art stands almost alone in relying more on these substances than any other form of architecture. This was due to the geological nature of the country. In Chaldea

the almost total absence of any building stone, and the necessary reliance on brick and clay, necessitated the employment of a different decoration than was suitable where stone was plentiful, or could be had with small trouble.

A very considerable quantity of precious metals could be transported with little labor, and they formed an effective decoration. The general conditions under which they were employed have been admirably epitomized by MM. Perrot and Chipiez:

"They could be used at will in flexible threads or long, narrow bands, which could be nailed or riveted onto wood or brick. They may be beaten with the hammer, shaped by the chisel, or engraved by the burin; the variety of shades of which they are capable, and the brilliance of their reflections, are among the most valuable resources of the decorator, and the coloring principles they contain provide the painter and enameller with some of his richest and most solid tones. In Chaldea the architect was condemned by the *force majeure* of circumstances to employ little more than crude or burnt brick and bad timber; in Assyria he voluntarily condemned himself to the limitations they imposed. By the skillful and intelligent use of metals he managed to overcome the resulting disadvantages in some degree, and to mask under a sumptuous decoration of gold, silver and bronze the deficiencies inherent in the material of which his buildings were mainly composed."

The Chaldeans and Assyrians did not, however, rely solely upon metals as a means of decoration, but employed sculpture, painting and enamel as well. Their system of sculpture as an architectural accessory differed from that used by other peoples of antiquity, owing to the materials they employed in their buildings. The soft clay of which their structures were built did not permit of any general system of sculptured decoration as in the Egyptian. A scarcity of good stone was another element in determining their method. They were forced to content themselves with an economical use of such as they could obtain, and did not do more than face the lower portions of their walls with it. It is a singular fact that an examination of the remains of Assyrian buildings shows that no general system of bonding was employed to keep these stones in position. Dependence was placed on the adhesion of the stone to the surface of the clay walls. It is obvious, that with such an imperfect method of construction it would have been impossible to make use of more than one layer of the applied stone. This was carved in figures and groups, frequently life-size, the relief being higher than with the Egyptians, and placed on a direct line with the eye of the spectator instead of being spread all over the surface of the wall. The range of subjects was scarcely as varied as the Egyptian; and sacred figures only were carved on the exterior of buildings, while the interior decoration related to human affairs, and was concerned chiefly with the monarch and his glory. The winged bulls and lions, which guarded the more important entrances to all Assyrian structures, were monuments of great grandeur, and as guardians of the building fulfilled their object in a calm, dignified and imposing manner that has seldom been surpassed.

The walls above the sculptured base were decorated with enameled brick of various colors. Enamel had been used by the Egyptians, but not on the scale it was by the Assyrians, who, if they did not invent the art—and it is very likely they did—gave it a character and importance not found in other styles. Sometimes the walls were plain and in one tint; sometimes a variegated design was used, and sometimes the brick was ornamented with human figures or geometrical or conventional combinations. This formed a brilliant surface and aided largely in the diffusion of light in the dark apartments of an Assyrian building.

Assyrian architecture presents us with no well preserved ruins such as we have in Egyptian art, and we must depend upon scattered fragments in order to obtain an idea of their finished effect. Enough has, however, been preserved to make clear the extent to which the

allied arts were essential to its full understanding. The complete effect must have been of great brilliancy and designed to exhibit most advantageously the various decorative arts of which the Assyrians were masters. The lack of definite knowledge of the manner of roofing these structures necessarily prevents us from obtaining an accurate idea of the actual appearance of an interior, but whatever may have been the means employed it certainly was one that enabled the spectator to enjoy to the fullest the richness with which they were decorated.

One other characteristic Chaldean decoration may be mentioned, and that is the system of external decoration by grooves. This was a favorite form and gave a pleasing variety to the huge wall surfaces, which, owing to the material, they must otherwise have been without. Sometimes the wall was molded to resemble columns, at other times the grooves were straight and paneled.

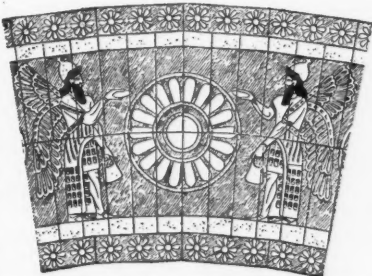
The Assyrians were not satisfied with the results obtained from enameling surfaces alone, but adopted another process of enameling in relief. This was done by modeling the design on a large block of clay, which was cut up in pieces of the proper size for baking, and the design then built into position. While practiced to a considerable extent by the Assyrians, the best specimens of this decoration belong to Persian art. The finest example which has been recovered by modern research is the famous frieze of the archers which M. Dieulafoy resurrected from the façade of the *apadāna* of the palace of Artaxerxes Mnemon, at Susa, and which has been set up in the Louvre. It consists of a series of soldiers marching in profile. On the left shoulder is carried a bow, colored yellow, and a quiver, of reddish brown. Both hands grasp a pike that is tipped with a silver knob. The tunics, which are alternately of white and golden yellow, are narrow, and open at the sides, with broad sleeves. The material is spangled with green or blue daisies, or with lozenge-shaped designs, and there is an embroidered border. The turban is twisted into rolls, and is of a greenish color. The soldiers wear sky-blue leather boots, and are adorned with earrings and bracelets. The figures are exact duplicates of each other, though the colors vary. The tints are brilliant and strong and the enamel transparent and iridescent. No decoration of pottery or tiles ever approached these in sublimity of effect.

Hebrew art was not sufficiently developed to exercise any considerable influence on the general progress of architecture. It was probably closely allied to the Assyrian, and in some respects it was undoubtedly so. This was in the use of metals, of which scripture gives us elaborate accounts. The sacred vessels and furniture of the tabernacle were of wood, overlaid with pure gold. The ark of the covenant was of shittim wood, overlaid with gold, and "upon it a crown of gold round about."

The mercy seat was of pure gold, as were also the two cherubim of "beaten-work." The boards forming the walls of the tabernacle were overlaid with gold and coupled with bars, similarly covered, held by rings. These boards were fastened in sockets of silver. The curtains which covered the whole structure of the tabernacle were fastened with taches of metal.

The magnificence of this structure was far exceeded by the temple of Solomon. "So Solomon overlaid the house within with pure gold; and he made a partition by the chains of gold before the oracle; and he overlaid it with gold. And the whole house he overlaid with gold. . . . And the floor of the house he overlaid with gold, within and without." (1 Kings vi, 21, 22, 30.) The adjuncts to the tabernacle and the temple were all of metal.

(To be continued.)



PORTION OF ENAMELED ARCHIVOLT, KHORSABAD.



ARCHER, SUSA.

Tall Buildings.

ARCHITECT DANKMAR ADLER, in a letter to the *Economist* regarding a movement to secure legislation pertaining to Chicago building, protests against the proposed law upon the ground that it is unnecessary and inoperative. Pointing to the approaching greater concentration of all lines of business in the centers of great cities, which will cause a demand for still higher structures, Mr. Adler gives the following thoughts and conclusions regarding the development of the tall buildings and the necessity for carrying them to the utmost possible height.

As a participant in and an interested observer of the development of the "tall building" so characteristic of Chicago, the discussion instituted by you has brought to my mind the following thoughts and conclusions which may interest you and your readers:

First, as to the tall building considered merely as a thing to be constructed, and ignoring for the present its foundations, and assuming that the riveted steel skeleton construction must be adopted to make it a possibility in its ultimate development, I start with the statement that, floor for floor, the height of the building has no bearing upon the difficulties of the construction. By this I mean that it takes no more strength of tile arch, of I-beam or of girder, nor does it take a greater number of rivets to fasten the beams to each other or to girders or posts, nor does it require a heavier bracket or lug to carry a given floor load at the twenty-fifth story than for the same load at the second. Nor is the metal area required for a pillar of given height any greater to carry this floor load on high than to sustain under the same conditions a similar load near the ground. Again, the concentrations of load upon riveted steel pillars in the lower stories of even the tallest buildings are so far within the capacity of our rolling mills and bridge shops, the transmissions of strains downward from story to story are ordinarily so direct and within the line of greatest resisting power of the pillars, and the attachment to the pillars by the usual means of the beams and girders carrying the successive floors forms so effective a system of lateral bracings for the pillars, and thus pillars, girders and beams are, in ordinary good practice, so effectively and efficiently knit together that, as regards safety in the mere downward transmission of loads to the foundation is concerned, the design of the tall building can hardly be called a very difficult problem.

To secure under prevailing conditions the proper degree of resistance to wind pressure is a most complex problem. Assuming the weight of structural parts and the base area of the building to be constant, the destructive effectiveness of wind pressure increases with the height of the walls. The most effective opposition to wind pressure is in mere weight of structure and in base area. The increase of the former is limited by the bearing capacity of foundations, the latter by the area of the building site. Either the mere dead weight of the structure or its base area, or both combined, can be made more effective as opponents to wind pressure by thorough internal bracing of the structure, and by the general use of good material and workmanship. In a general way, however, it may be assumed that buildings covering a large area, can be made higher than those of smaller dimensions; and it may be safely predicated from this that there will be a tendency toward the acquisition by single wealthy individuals or corporations of large blocks of realty in choice localities, with a view to their utilization as sites for unusually tall business buildings. Mere dead weight being then an important aid toward resistance to wind pressure, this weight will increase more rapidly than the height of the structure. Hence increase in bearing power of foundations must be a most essential factor in the design of the taller and the tallest buildings. But neither theory nor practice of foundation construction have as yet arrived at their ultimate development. In our practice, past and present, are germs for the development of a system of foundation construction that will be competent to serve the needs of the tallest building of the future.

Neither the timber and concrete foundations of the Board of Trade and the Pullman buildings, nor the rail and concrete foundations of the Rialto, Phenix and Rookery buildings, nor the timber, concrete, rail and I-beam foundations of the Auditorium, nor the concrete and I-beam foundations of the Tacoma and later buildings are the last word. They have all served their purpose with more or less efficiency and each is an honest and intelligent effort toward the final solution of a still unsolved problem. Each carries successfully under present conditions a tall building of today. None alone is competent to carry the taller buildings of tomorrow, and still less the tallest buildings necessary to fulfill the demands of the day after tomorrow.

All of these foundations are designed upon the hypothesis that our soil is compressible, and that equal loadings per unit of foundation area produce equal settlements, and that increase of load produces increase of settlement in ratio greater than this increase of load. Experience and practice have demonstrated the correctness of this theory.

All Chicagoans are familiar with the effect upon an existing structure of the erection of an adjacent heavy building. There is not as yet an example of the erection next to an existing "sky-scraper" of another structure of the same type. Assume, however, the case of such a one, the foundations of its party walls perhaps 20 feet or more wide. Most of these are loaded over 3,000 pounds per square foot of foundation area, some nearly if not quite 4,000 pounds, and one to my knowledge even more. Assume the load on a foundation 20 feet wide to be at the rate of say 3,500 pounds per square foot, a safe low average. Suppose that a building fifteen stories high—not an excessive height as buildings go—is to be erected on the adjacent property and assume that the nearest line of supports is 18 feet distant from the party wall. Suppose that the existing building is also fifteen stories high, and that both are office buildings. You will then have the most

favorable conditions. The construction of the adjacent building will increase the load per square foot of foundation area from 3,500 pounds to 4,220 pounds, sufficient to induce, as I have myself observed, an increase of settlement on the part of the already existing structure of from four to six inches. This would probably become somewhat greater at the front and rear walls where there would also be the additional load of the corner pier and half the fillings between the nearest openings.

It may be said that the old wall may be held on screws and new foundations inserted. But as the load to be held would begin with 35 tons per linear foot of wall and would end with 42 tons, and as the spread of bearing would have to be for nearest points only 24 feet, and the total width required for this operation would be almost 40 feet, of which 20 feet would have to be taken out of the completed building, this occupation of valuable space would alone constitute an almost insurmountable obstacle. And if one considers the character of a good concrete and I-beam or rail foundation, the desire for removing it to make way for another and larger one will be apt to disappear altogether.

It may be suggested that the additional load imposed by the new structure shall be carried not on the old foundations, but on cantilevers from an independent foundation within the limits of the new structure. A little reflection will show that this expedient is practicable only within rather narrow limits, far inside the requirements of the taller and the tallest buildings. Nor do I believe that Mr. Frederick Baumann's ingenious method for enlarging foundations of existing buildings can be applied under these conditions.

I know full well that in thus attacking existing methods of foundation construction I assail my own work, as well as that of my confrères. But as we are none of us perfect, so our work shares and exhibits our mental imperfections and limitations. Yet neither we nor our work should therefore be condemned. Each of us has contributed his share toward the solution of a difficult problem. Each has learned from the others and each has taught the others what to do and what to avoid, and together and all conscientiously working toward the same end we shall evolve before many years a system of foundation construction equal even on our soil to the bearing of structures perhaps thirty or forty stories in height.

Valuable contributions to the final result have been made by many, and some of these exist even in apparently unsuccessful work—work that was unsuccessful because the conditions were only partly understood. While admiring the brilliant exposition of the theory of isolated piers made twenty years ago by Frederick Baumann and since followed by all of us, we must not lose sight of the futile effort made by Mullett to produce a monolithic foundation for the United States government building, an effort which if made today with the means and knowledge now at our disposal would not have met with so ignominious a result. We should take into consideration the brilliant success of pile foundations as used under most trying conditions as supports for our grain elevators and as the substructure of the Northern Pacific Railway station. All these may be combined with each other and with other expedients not yet tried but quite applicable in Chicago soil.

Ecole des Beaux Arts.*

SINCE my first letter was written to this journal regarding the Ecole des Beaux Arts and the examinations which were in progress, these have been decided. These examinations extend over a period of about one month. As then stated, there were over two hundred applicants for admission to the school. Of these, thirteen were Americans, of whom three only were admitted, though out of one hundred and seventy Frenchmen only twenty were admitted. The remaining seven who were admitted, making in all thirty, were Spaniards, Portuguese, etc. Mr. Howard, from McKim, Mead & White's office, in New York, stood among those admitted. At one time he was a student in the Institute of Technology, in Boston, and, later, draftsman in Mr. Richardson's office. Mr. Stoughton, another American, stood sixth among those admitted. He is a graduate of the Architectural Department of Columbia College, and has been in Paris nearly a year preparing for the examinations. Mr. Wright, of Minneapolis, who was from the Institute of Technology, made special preparation for this examination in the atelier of M. Duray, of Paris.

Fourteen or fifteen Americans will try the next examinations, on the twelfth of June, and, possibly, quite as many Frenchmen as before. At the previous examination the number admitted was limited to thirty. This time there will be a change in the programme in this respect, there having been more or less discontent expressed in regard to the large proportion of foreigners admitted. There will now be forty Frenchmen admitted, and as many foreigners as stand in marks between the highest and lowest received by the Frenchmen admitted.

It may be of interest to draftsmen and others to indicate the admissible requirements of this school. As stated in the previous letter, the prime requirement is in architectural composition and rendering, which involves a good knowledge of the orders, a fair knowledge of their use in composition, and an ordinary facility in rendering. All solutions of the problems given are in the classic or renaissance styles. The detail from memory of the order used is required of each solution. Thus, if the Ionic order is used, a detail of the Ionic base, column, cap and tabature is required. While they are not generally rendered elaborately, frequently only in pencil, they are expected to indicate the student's knowledge of the detail of the order given. Nominally, twelve hours are required for the solution of the problem given and the detail of the order. In truth, ten hours is about all the time one can expect to use, as two hours are devoted to the formality

* Paris correspondence continued from Vol. xvii, No. 3, page 47.

of calling the names of applicants, signing documents, distribution of programmes and preparation for drawing. Furthermore, the work is done in a pandemonium of howling Frenchmen, who feel it incumbent upon them to make all the noise and disturbance possible on this occasion.

The highest possible mark in architectural composition is twenty. The highest mark given at the last examination was seventeen. Mr. Howard, who stood second in composition, received sixteen. His design was conceived in a scholarly spirit and rendered in a way to do credit to a water-color artist of great experience. All who received seven or more were admissible to the other examinations, though it is well to bear in mind that the mark in architecture is multiplied by twelve in making up the general average; that in mathematics is multiplied by five, the modeling and freehand drawing by two, and in history by one.

Following the examination in architectural composition come the following: Freehand drawing from a plaster cast, to be executed in eight hours; modeling in clay in bas-relief from a plaster cast, to be executed in eight hours; written examination in arithmetic, algebra and geometry; oral examination in arithmetic, algebra and geometry; oral examination in descriptive geometry; oral and written examination in history.

The freehand drawing is from decorated casts. Sometimes an urn is used, at other times a griffin, and again, a fragment of the upper part of a caryatid, and as it is generally known that it will be one of these three, there is special preparation with reference to it. Some of the Frenchmen have been known to take all three drawings of these subjects carefully rendered into the room with them and at the end of the time to pass in the cast selected. In the examination in geometry two or three questions only are asked, so it is necessary to be well up in the entire range of plane and solid geometry in order to feel reasonably certain of getting a good mark. The examination in history is usually a very simple matter, though it is well to bear in mind that this as well as all other examinations are conducted in the French language.

The difficulties of getting into the Ecole des Beaux Arts should not stand in the way of anyone in coming to Paris to study architecture, as the means of acquiring a good academic knowledge of architectural composition and rendering are numerous and of the highest character, being, for the most part, under the general patronage of the Ecole and management of French government architects. The museum and library of the Ecole des Beaux Arts is open to all. The work of this institution is all in the classic and renaissance styles, although at the Trocadero most of the space is given to Viollet le Duc restorations of the gothic monuments of France. This includes all of the prominent cathedrals, chateaus and other structures. There is a large amount of gothic and other architectural material in the museum of the Louvre and at Cluny, and, more than all this, the splendid architectural monuments of Paris and the near vicinity.

There are several Americans in Paris who are studying architecture without the desire or expectation of getting into the Ecole des Beaux Arts. In truth it is coming to be generally recognized, among those who stop to seriously consider this matter, that one cannot expect to get the best results by entering the school unless he has three or four years to spend therein. As it may take a year or more to secure entrance, such a programme would involve four or five years. One who studies here must expect to lay all of his American ideas of practicability, picturesqueness and convenience aside for the study of an architecture which is thoroughly academic or scholastic. This applies not only to the composition in a general sense, but the detail, decoration and rendering; for while the different ateliers have their peculiarities of method and drawing, all are controlled by the same general formulas, which are of a high scholarly character and fill that void so lamentably apparent in our American architecture, namely, the lack of knowledge of the foundation principles of good design. A schooling in the French academic work does not necessarily imply rigidity or lack of a picturesque quality. However, it does imply a knowledge of foundation principles and practice in their application, and in the end, admits of an intelligent departure from severe lines, and composition in picturesque structures.

I send herewith the design which won the American prize in a recent competition in the Beaux Arts. It will be remembered that a few years ago certain of the Americans, recognizing the obligation which the American architects were under to the French school, raised a fund of some fifteen thousand dollars, which was invested for the purpose of contributing funds for an annual cash prize for the French students of that institution. This year the prize was won by M. Chaussemiche. The work is characteristic of the French school and has the local interest of being the outgrowth of American interest in this institution. The subject of the problem was an archaeological museum, of which the following is an extract:

"This museum should be designed to receive all collections which would be of service in study of the history of ancient art. The monuments and objects of art of all kinds should be represented here by originals, castings, drawings and paintings.

"These collections should be divided in three divisions:

"In the first and most important should be placed antiquities: Egyptian, Greek, Etruscan and Roman.

"The second should contain antiquities of France from the Celtic epoch to the Renaissance.

"The third should contain objects of oriental art, Byzantine and Arabic, that of Media, Assyria, Persia, Babylonia, India, China and Japan.

"This division will be, as is readily seen, more geographic than chronological.

"Each of these salles should be so arranged with galleries of different dimensions, as to permit of the methodic exposition of the

various objects therein contained. Such objects as are too large for exposure in the rooms should be so placed in the courts as to reconstruct, partially or entirely, the historical connection.

"In proximity to these galleries there should be several rooms for study, a library containing 50,000 to 60,000 volumes, and rooms for the professors."

PARIS, May 28, 1891.

LOUIS H. GIBSON.

Notes from our French Exchanges.*

PROPOS of the recent death of Aimé Millet, *La Semaine des Constructeurs* says that he was one of those extremely rare persons, an "architect sculptor." Of all his works, the groups of Apollo, on the main gable of the grand opera house at Paris, was probably the most important, and M. Garnier, speaking of it, says: "The gable over the stage of the opera house is on the side of the main front, ornamented with three metal groups, the middle one having been executed by Millet. These three groups make, in fact, the silhouette of the building. Now it is no easy matter to compose a silhouette, and more than one sculptor of the greatest talent would have failed when an artist of less note but having the decorative feeling would succeed to perfection. I would not mean to say that Millet was a sculptor of the second class, for he has shown his right to a place in the highest ranks; I would only say that he had a veritable intuition of what decoration required, a sense so rare and valuable that for this piece of work I can almost call him a 'co-architect.'" "His studio," says M. Garnier, "was at the opera house, and I have seen him each day climb up the great ladders. It was truly a curious sight to watch this little man and true artist, by the side of the great statues, whose knees he could scarcely reach. The arms of Apollo were larger than



he himself, and I often wondered by what process of reasoning an artist could get the right proportions for the members and muscles of which he could only see a small portion at a time. However that may be, Millet accomplished his task with a most astonishing enthusiasm and courage; never rebuffed by any difficulty and recommencing without hesitation any part that seemed to him imperfect. He

*Translated and arranged by W. A. Otis, architect

spared neither time nor pains in this great work, for which, like all artistic work, much less was paid than it was really worth. I learned during this long labor to sincerely esteem this artist of great worth, and when I think of those 'commercial' painters who only make of art a means of coining money, I am deeply touched by the loyalty and professional sincerity which animates the courageous sculptor. If the work had by chance proven bad I should certainly have even then respected the conscientious work of the artist; but being above criticism, to respect for work must be added the respect for genius."

The idea of the god holding the lyre above his head like the holy sacrament, as says Millet, is the idea of the sculptor and not of the architect, as M. Garnier confesses with his usual frankness. "In order that there may be no misunderstanding," he says, "and that honor may be given to whom honor is due, I openly declare that the idea of Apollo holding up the lyre belonged entirely to Millet. It is a very simple thing when once it has been found, but I consider it one of the spontaneous and original compositions which are not always found in works of art; and mark well that, as architect, I care less for the idea than for the outline; but the first led to the second, and I take great pleasure in acknowledging that sentimental art is also decorative art."

CATACOMBS OF THE PRIESTS OF AMMON.

The *Journal Officiel de Caïre* publishes an account of the finding and exploration in Egypt of the catacombs of the priests of Ammon, which it considers one of the most important discoveries of recent years. On January 31, 1891, excavations were commenced at the east of the temple of queen Hatasou, and soon led to the discovery of a shaft about fifty feet deep, at the bottom of which appeared a door, closed by great stones placed against it. The door having been cleared, an entrance was effected into a first gallery, 215 feet long, at the end of which was a short flight of steps descending into a second and smaller gallery. These two galleries had a trend from north to south, and at the end were excavated two funeral chambers, one measuring 12 feet, and the other 6 feet. At the top of the flight of steps is a door into a second corridor, 165 feet long, running from east to west; the total extent of these catacombs being about 460 feet. They are filled with mummy cases, often piled one on top of the other. At the side of each sarcophagus were placed different objects, papyrus, baskets, boxes, statuettes, funeral offerings, flowers, etc. The disorder denoted that they had been hastily concealed there, in a manner similar to the royal mummies discovered ten years ago. Both places of concealment were evidently made under the same circumstances, and in both cases the most recent mummies belonged to the twenty-first dynasty.

The sarcophagi, numbering 163, of this new discovery are principally those of the priests and priestesses of Ammon, although there are some priests of other divinities, as Anubis, etc.

The greater portion of the mummies are inclosed in three cases. The outer ones, being the only ones yet examined, are magnificent, and exceptionally rich in decorations. Upon the coffins of the priests religious representations are executed with particular care, and it is expected that Egyptologists will find a mass of new and most interesting information in this new discovery.

It is scarcely necessary to point out what use the historian will make of the genealogies and titles of a series of priests, extending through several dynasties. What surprises some of these sarcophagi may reserve! Upon many of the coffins the place reserved for the name of the deceased is blank, showing that at the moment when the mummies were concealed work was done in great haste, and that small sarcophagi, or those whose outer case had been broken, were hastily placed in new large cases taken from the storehouses, and that there was not even the time to inscribe the name, so that it cannot be known until the inner cases are opened.

Each one of the priestly mummies should have at least one manuscript, but already there have been gathered up boxes in the shape of statuettes of Osiris, containing seventy-five beautiful manuscripts upon papyrus.

In comparison with these written records, but minor importance is attached to the antiquities of various sorts that are placed about the sarcophagi, notwithstanding many of them will soon occupy prominent places in the cases of the museum. What has first to be considered is the historical interest which this discovery presents. Since excavations have been undertaken in Egypt there has never been a similar group of objects found, which could not but furnish to students accurate and ample information upon a period of several centuries in duration. The doors of these chambers, closed for three thousand years, have been opened in the presence of the officials, an inventory taken, and the sarcophagi, together with all objects found, transported with care to two large barges.

Until their arrival at Ghizeh, more extended information cannot be expected, relative to this unexpected discovery, which will enrich the Egyptian museum with an incomparable collection.

ARTIFICIAL ASPHALT—REPAIRING TERRA COTTA.

A Danish engineer, M. J. Ersleu, has recently taken out a patent for a process for the manufacture of artificial asphalt, according to *La Semaine des Constructeurs*. He mixes eighty to ninety parts of carbonate of ammonia with ten to twelve parts of coal tar, and when thoroughly combined adds one hundred parts of fine sand or dry clay; the whole is stirred until sufficiently mixed, then run off into large cakes which are used the same as natural asphalt. This artificial asphalt resists changes of temperature and even hot water; its hardness is equal to that of the natural article and it adheres perfectly to anything for which it is used as a coating.

The molded portions of terra cotta are liable to chip off or break, but accidents of this kind may be repaired by means of a cement

described by *La Semaine des Constructeurs*. This is prepared by mixing twenty parts of sharp sand, one part of unslacked lime and two parts of litharge with linseed oil to a pasty thickness. The color is obtained by adding venetian red for red terra cotta, yellow ochre for the buff, or Spanish brown for the brown. After a short time this cement acquires the hardness of stone. The manner of its application will vary according to the shape of the pieces.

JEWISH ART AT THE CLUNY MUSEUM.

The Hotel Cluny has just been enriched by a new collection of nick-nacks classed in the catalogue under the title of "Hebrew Objects of Art." Madam Baron Nathaniel de Rothschild presented these jewels and pieces of furniture to the museum of French antiquities, having secured them from the curious collection of Mr. Isaac Strauss, who was better known to the Parisian public as the leader of the orchestra at the opera balls, than as a collector of works of art. A tablet commemorative of this gift of Madame de Rothschild has been placed in the room where this collection is exhibited. The public cannot but be obliged to the donor for seeking to make known what Jewish art was in the sixteenth to the seventeenth, and even in the fifteenth century, but what will be the results for us of this exhibition?

"The Jews," says Lebon in his *History of the Earliest Civilizations*, "possessed neither arts, sciences or trades or anything which really constitutes a civilization. They have never brought the smallest contribution to the building up of human knowledge; never have they passed beyond that state of semi-barbarism of the peoples who have no history. If they ended by finally possessing cities of their own, it is that the conditions of existence in the midst of neighbors, arrived at a higher degree of civilization than themselves, rendered such cities a necessity."

But their cities, their temples, their palaces the Jews themselves were totally incapable of building, and at the time of this greatest power and prosperity, during the reign of Solomon, they were obliged to hire foreigners as architects, workmen and artists, since none then existed in the bosom of Israel. Truly when one examines without prejudice this new exhibit at the Cluny, one is almost forced to agree with this writer.

In fact what is there to be seen here? Some small boxes covered with a series of little squares framed with gilded moldings, which contain sculpture more or less similar to the panels of the French flamboyant style. These boxes, we are told, are reproductions of the ark of the tabernacle. This is pretty hard for the ark, since the commonest of our packing boxes are scarcely less artistic!! Near to the ark in the antique room, where used to be seen the exquisite fireplace with tiles colored by Bernard Palissy, is now placed a desk called the reading desk of the officiating priest. It is decidedly poor in workmanship and thoroughly Jewish. In the middle of the room is a nine-branched candlestick of a shape which is undoubtedly priestly but nevertheless decidedly disagreeable. It is said to be a reproduction of the famous golden candlestick of the temple of Jerusalem. Judging by this sample the cathedral of Solomon the Great must have been furnished in a style to suit the most plebeian taste. In like manner one might criticise the movable altars, the tables of the law, and some German napkins ornamented with figures, neither of man or beast; and behold that is all that this "glorious collection" of Jewish art contains. Certainly none of our designers or carvers will go there to seek models, at least such should be the wish of all who desire anything in the least degree artistic.

International Congress of Hygiene and Demography.

THE Seventh International Congress of Hygiene and Demography will meet this year at London, England, from August 10 to 17. The special subjects to be considered by Section VI of the congress—"Architecture in Relation to Hygiene," are as follows:

I.—LAYING OUT AND EXTENSION OF TOWNS.

A.—RESERVATION OF OPEN SPACE.—For purposes of light and air; for means of communication; for recreative and ornamental purposes.

B.—STREETS AND WAYS.—Alignment; width of roadways and footways; paving; boulevards; subways; business thoroughfares; shops; arcades; markets; mews; street refuges; public conveniences; line and height of building frontages; projections.

II.—BUILDINGS.

Site; aspect; curtilage; materials; exclusion of damp and ground air; basements and areas; roofing; collection and storage of rain water; water supply; sanitary appliances; drainage; external and internal surfaces; walls; floors; ceilings; partitions; lighting, natural and artificial; ventilation; heating by hot air, hot water and steam; open fireplaces; close stoves; consumption of smoke.

C.—PRIVATE DWELLINGS.—I, self-contained houses; II, residential flats.

D.—DWELLINGS PARTLY OR WHOLLY USED IN COMMON.—I, artisans' and laborers' dwellings. II, common lodging houses.

E.—TRADE PREMISES AND WORKSHOPS.—Restaurants; bakehouses; dairies and milk shops; cow sheds; stables and mews; laundries.

F.—PUBLIC BUILDINGS.—Hospitals; infirmaries; asylums; educational institutions; gymnasias; places of worship; theaters; public halls; hotels; courts of justice; prisons; police stations; coroners' courts; mortuaries; markets; abattoirs; baths; wash-houses.

All communications relative to this section should be addressed to Ernest Turner, Esq., 246 Regent street, W. Foreign correspondence to be addressed to Doctor Corfield, honorary foreign secretary, 20

Hanover square, W. In matter relating to the general business of the congress, letters should be addressed to Doctor Poore, the honorary secretary-general, 20 Hanover square, W.

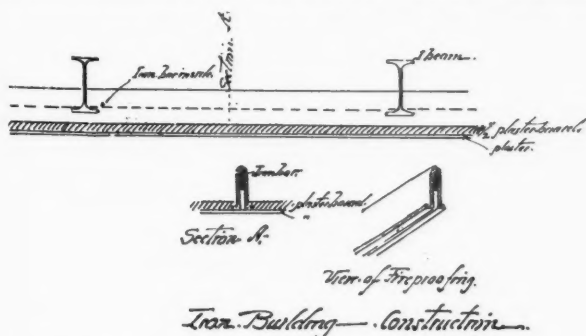
The meetings of Section VI will be held in Burlington house, Piccadilly, London, on Tuesday, Wednesday, Thursday and Friday, August 11, 12, 13 and 14. Abstracts of all papers to be read in the section must be furnished to the honorary secretaries not later than June 15, and the full text of the papers before June 30. Abstracts of papers should not exceed five hundred words, and should be type-written, to insure accuracy in printing and translation. Papers and abstracts may be written, and speeches in the meetings delivered in French, German or English. No paper will be received which has been previously published or communicated to any other society. A limit of fifteen minutes will be fixed for a paper or speech introducing a subject, and a limit of ten minutes for all subsequent speeches or papers on the same subject.

Fire Test of a New Fireproofing Material.

SOME five years ago attention was directed to a new method of finishing walls which had been in vogue in Germany for many years. The composition was plaster or gypsum combined with reeds, which gave the molded form stability and lightness. The method was brought to this country by Mr. Frederick Keppler, an architect of considerable local prominence and popularity, who finally abandoning the profession has since devoted himself to its manufacture and application. This was accomplished in the formation of the Mackolite Plaster Board Company. The first work placed was in the East, such architects as McKim, Mead & White, George B. Post and Peabody & Stearns using it extensively as a covering for walls and ceilings as a superior substitute for lath and plaster. The high fireproof quality of mackolite was soon recognized, and it soon became a competitor with the well-known forms of porous terra cotta, and has recently been adopted by architects from New York to San Francisco. It is in Chicago that its first application to the larger class of steel structures was made. In the Monadnock, an eighteen-story office building now under construction, all the partitions are of mackolite porous terra cotta, it having been previously used in the Illinois Bank building. It should be a material much sought for on account of lightness for partitions in fireproof buildings, as the heights to which they are now built make the weight of material an important factor.

To demonstrate its efficiency in cases of fire and its ready application not only to iron and steel structures, but to the various common forms of balloon and frame wood construction, at low cost, a test was made by the Mackolite Company of Chicago, on June 4, and deemed of sufficient importance to be recorded in detail for the benefit of those who make use of this material.

There was erected upon the lake shore, at the foot of Ohio street, two small structures, one entirely of iron frame, and one of ordinary



wood "balloon" frame, such as is commonly used in the West in the building of frame dwellings. Each structure was eight feet square and ten feet high, with a sloping roof.

The iron building was constructed without a floor. The walls were of mackolite hollow tile, four inches thick, attached to the iron studding; and covered with a suspended ceiling of mackolite one and one-half inches thick, upon which the ordinary plaster course was laid, thus protecting the iron frame in every part.

The frame building had a floor composed of ordinary flooring, deadened by one and one-half inch plaster boards laid upon 2 by 10 joists, and the ceiling had three inches of plaster board above the joists, one inch plaster board below laid upon 2 by 6 joists. Upon the south side of the frame structure a double course of three-fourths inch plaster boards was laid upon 2 by 4 studding on the inside only, while on the east and west sides the studding was protected upon the inside by a double course of inch plaster boards and on the outside by a single course of inch plaster board. The north side was built of three-inch mackolite hollow tile in sections eighteen inches by three feet.

These houses were built about the middle of May and were thoroughly weather-dry at the time of the test.

The houses were designed as they were to show the effect of fire in a single room, as most fires start in this manner, the application of the mackolite in each structure was in every way similar to its application in the building, and though small, were in every way suitable to the purpose.

On the date mentioned, Mr. R. N. Trimmingham, Secretary of the Chicago Fire Underwriter's Association, and a committee of his

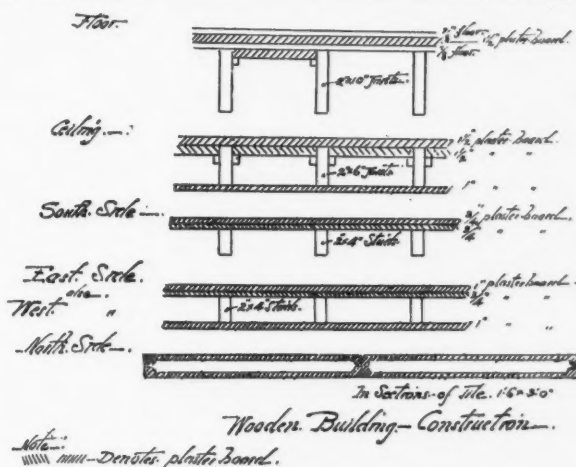
association, a representative of the fire department detailed by Chief Swenie, and a large number of architects and others interested in the development of methods of fireproofing, met and were escorted to the scene of the test.

When all was ready about a quarter of a cord of dry, hard beech wood, which had been stacked in the inside of each house and saturated with coal oil, was fired. An intense fire was raging in each structure in a few minutes, and was maintained with unabated intensity by the addition of fresh wood for two hours.

Each interior had been covered with a quarter-inch coat of brown plaster which peeled off and dropped away a few moments after the starting of the fires, leaving the mackolite immediately exposed to the full fury of the flames.

So far as the iron structure was concerned, no effect was produced in any way on any of the ironwork, either in the sides or the suspended ceiling. Nor were the three-inch mackolite tile forming the four walls of the structure destroyed or thrown out of position.

By reference to accompanying sketches, it will be observed that the 2 by 4 studding forming the frame of the wood structure were simply protected on sides and ceiling by single or double layers of mackolite boards, nailed onto the wood in the usual manner of placing this material. Unusual interest was manifested in this structure,



and predictions were freely ventured by the spectators that it could withstand the fierce flames but a few minutes. The accompanying photographs—one showing a view of both structures taken before the fire, and the other after it had been burning in each with uninterrupted fury for one hour and fifty minutes—show how much at variance this judgment was with accomplished results. These results would seem to indicate the possibility of building wooden houses in which, at a cost little, if any, in excess of prices for current methods of construction, a fire would surely be confined to the place of its origin. There would not probably ever be found in an ordinary room an amount of combustible material equal to half of the beech wood burned to ashes in this eight-feet-square room. No attempt was made at any time to quench the fire or abate its fury; on the contrary, both fires were fed from time to time with fresh fuel to continue their intensity. This ability to confine a fire to the room of its origin is the aim of all fire-proof construction, and if it is now placed within the reach of the home builder at moderate cost, a boon is indeed conferred upon him.

Foundations From Side of Wall Line.

FREDERICK BAUMANN, architect, of Chicago, to whom architects are much indebted for valuable hints and data upon foundation construction, has recently planned a new and simple method of providing old foundations, as they are, with broad bases in order to fit them for tall buildings. In a circular accompanied with an attached diagram, Mr. Baumann explains his method as follows:

The erection of a modern tall building alongside or between walls of old buildings, is oftentimes met with serious difficulties, the neighbor being unable or unwilling to vacate the adjoining cellar for the purpose of tearing out and reconstructing the foundation.

Such cases, in particular, come under my method, which is illustrated on the adjoining sheet. Operations are had on one side only, and no disturbance of any kind is caused to the neighbor. A place along the wall is excavated, about five feet long, and eighteen inches—or thereabouts—below its base. A layer of dry concrete is spread, and four 15-inch I-beams, fitted with bottom plates, are set in position and carefully pushed, by means of two horizontal hydraulic jacks, under the base-stone, to lastly reach four feet beyond the opposite edge of the stone. The spaces between beams are made solid with proper concrete. The process is then proceeded with at both sides of the first spot, and so on, till the ends of the wall have been reached, which ends may be especially fortified in various ways. On this new iron base the additional thickness of the wall can be started and continued up as indicated, with material and with care suitable for the occasion.

The sketch on the adjoining sheet shows the case of a party wall. The construction does not materially differ in case of an independent wall. A height of about 175 feet from the base is assumed. Less or more height, of course, requires a narrower or broader base, as the case may be. Beams 12, 20 or even 24 inches deep may come in demand.

The process does not weaken the ground below the base of old foundation, on the contrary, it slightly compresses it. Proper concrete between the beams, at their other end, ought to make this part of the new base absolutely solid and efficient for carrying the load to be put on.

The method has been sufficiently tried on a smaller scale to assure success in every case. It is covered by letters patent.

Mr. Baumann exhibited his method at a recent meeting of the Chicago chapter of the American Institute of Architects.

Our Illustrations.

The new German Theater, Chicago; Adler & Sullivan, architects.
Public Library for Kalamazoo, Michigan; Patton & Fisher, architects, Chicago.

Examples of artistic wrought-iron work executed by the Winslow Brothers Company, Chicago.

Office Building, D. O. Mills, of New York, at San Francisco, California; Burnham & Root, architects, Chicago.

Perspective view of Transportation Building, World's Columbian Exposition, Chicago; Adler & Sullivan, architects.

Detail of exterior and interior of main entrance to Horticultural Building; W. L. B. Jenney and W. B. Mundie, architects.

Perspective view of Horticultural Building, World's Columbian Exposition, Chicago; W. L. B. Jenney and W. B. Mundie, architects.

Two views of demonstration before Chicago Board of Underwriters of fireproof value of Mackolite plaster boards and hollow tile.

End elevations and main façade of Horticultural Building, World's Columbian Exposition, Chicago; W. L. B. Jenney and W. B. Mundie, architects.

PHOTOGRAPHURE PLATES.

(Issued only to subscribers for the Photographure edition.)

The Kirkland school building, Chicago; J. L. Silsbee, architect.
Residence of Wirt Dexter, Chicago; Arthur Little, architect, Boston.

Houses for John Norcott, Jr., Chicago; Frederick W. Perkins, architect.

University School building, Cleveland, Ohio; C. F. Schweinfurth, architect.

Residence of James P. Gardner, Kenwood, Chicago; Thomas Hawks, architect.

Block of houses, for Mrs. F. M. Dow, Chicago; F. Baumann & J. K. Cady, architects.

Building for the Young Men's Christian Association, Cleveland, Ohio; C. F. Schweinfurth, architect.

Association Notes.

COLORADO ASSOCIATION OF ARCHITECTS.

The first annual meeting of the Colorado Association of Architects was held at the Colorado Club, Denver, May 4, and the following officers elected for the ensuing year:

President, F. H. Jackson; vice-president, John W. Roberts; secretary, E. R. Rice; treasurer, James Murdoch; directors—F. E. Edbrooke, chairman, R. S. Roeschlaub, R. G. Balcom, A. M. Stuckert, J. J. Humphreys.

The meeting was followed by a banquet, at which Mr. Sterner, of Varlen & Sterner, presided. Other architects present were: F. H. Jackson, J. W. Roberts, E. R. Rice, James Murdoch, F. E. Edbrooke, Robert S. Roeschlaub, Henry Dozier, W. A. Mareau, H. W. Kirchner, E. J. Hodgson, E. J. Carr, R. G. Balcomb, F. Goodno, R. Pugh, C. S. Thompson, William Long, J. J. Huddart, J. B. Dorman, T. J. Boal, John J. Humphreys, V. E. Baerresen, H. W. Baerresen, E. B. Gregory, E. P. Varlen and A. M. Stuckert.

A unique feature of the banquet was hand-painted menu cards designed by members of the Denver Architectural Sketch Club, which were auctioned off by the chairman to the amusement of the guests and profit of the club, to which the proceeds were given.

EDINBURGH ARCHITECTURAL ASSOCIATION.

About fifty members of the Edinburgh Architectural Association visited Newhall House, Brunstane Castle, and Penicuik House, on May 9, under the leadership of Architect Hippolyte J. Blanc.

The party drove from Penicuik to Newhall House, where they were cordially received by Mr. John Blair, W. S., and his family, who are the present tenants. It was explained that the present house was begun early in the eighteenth century by Sir David Forbes, the then proprietor of the estate, and that it had by a series of subsequent additions and alterations become expanded to its present commodious residential dimensions. Mr. Blanc explained further that the site had been occupied by a monastery, and afterward by one of the feudal castles of the Crichton family, but no traces of either of these establishments now exist. The appearance of the house as erected by Sir David Forbes and his son was shown by illustrations, and the progressive stages of building to the present time explained. Reference was made to the interest attaching to the house from its having been the rendezvous of the distinguished patrons of Allan Ramsay, who assembled to hear that author's recitation of his charming pastoral poem. Mr. Blair kindly conducted the party over the house, interest in the interior of which centers in the collection of portraits of Ramsay and his patrons, chiefly by Aikman.

Proceeding to Brunstane Castle, a ruined edifice of the sixteenth century, Mr. Blanc noted that from a very early period it also belonged to the Crichton family. The arrangements of the several apartments were traced, and the special architectural features explained. The party next visited Penicuik House, permission having been previously obtained from Dowager Lady Clerk.

Mr. Blanc in his paper traced the successive owners of the Penicuik estate down to the distinguished family whose descendants now occupy it. He further explained that the house was built in 1761 by Sir James Clerk, the third baronet, who, it is said, also designed it. There are, however, strong traces of the hand of Robert Adam, architect, who was related by marriage to the proprietor. After explaining the plan and general features of the house, Mr. Blanc conducted the party to the interior, where they viewed the very interesting collection of portraits by Aikman and others. Some interesting

relics were also seen, among them a fine cabinet of Roman antiquities. The visitors next assembled in the drawing-room, where much interest was felt in examining the splendid decorations upon the ceiling, the work of Alexander Runciman. The subjects depicted are from scenes in Ossian's poems, this circumstance obtaining for the apartment the name of Ossian's Hall.

A vote of thanks was accorded to Mr. Blanc for his papers, as also to the various proprietors, to whom the association were indebted.

The annual meeting of the association was held May 28, in the Architectural Hall, Mr. John Kinross, president, in the chair. The annual report stated there were 289 members on the roll, and that there was a balance in the treasury of £185. It was moved, seconded and adopted.

That the Edinburgh Architectural Association, while it greatly deprecates the need for considering the question of surrendering any further portion of the Princess Street Gardens, hereby expresses its agreement with the compromise indicated in the letter of the Town Council to the North British Railway Company, of May 21, and respectfully urges on the Lord Provost, Magistrates and Council to adhere to the declarations therein contained.

After delivering his valedictory address, the chairman read a paper on "Modern Church Architecture."

New Publications.

SELECTED DETAILS OF INTERIOR AND EXTERIOR FINISH, for Architects, Carpenters and Builders. Thirty-two plates. New York: William T. Comstock, 1890. Price \$5; sent by mail, free of postage, to any part of the world.

This 14 by 18 book, comprising over thirty pages, brings together various details that have previously appeared in the different publications of Mr. Comstock. Many of them are given a larger scale than before printed, and the collection covers a very considerable variety of useful subjects—interior residence finish, and mantels, predominating. Unfortunately, several of the plates are either considerably out of date, or else by persons not generally familiar to the architectural profession. But the great majority of the work is by men of such distinguished ability as Bruce Price, Rossiter & Wright, Schweinfurth, etc., so that it is, upon the whole, a collection unusually worthy of study by draftsmen and designers seeking after really good and refined examples. Usually the size of the plates is such as to clearly bring out the finer moldings, but if not, a larger detail of such portions is ordinarily given.

PANTOBIBLION, a monthly bibliographical journal; St. Petersburg, Russia; A. Kersha, C. E., editor. D. Appleton & Co., New York.

There has reached the table of THE INLAND ARCHITECT the first number of a monthly magazine published at St. Petersburg, Russia, bearing the comprehensive title of *Pantobiblion*, A. Kersha, C. E., editor. The publication of such a journal indicates a spirit of enterprise that is truly refreshing in its originality and unlooked for from that quarter of the globe. Indeed it smacks of Yankee smartness, and only differs from it in the degree that the publishers have been quicker to discern an open and untouched field in magazine literature than their proverbially cute brothers. The character of the periodical and its object will be understood when it is stated its contents are and will be an international bibliographical review of the world's scientific literature, with the text matter printed in all of the modern living languages. The initial number contains critical reviews of the leading articles in the chief scientific periodicals; short notices of interesting current scientific facts; twelve hundred titles of publications, besides an index of two hundred and seventy periodicals devoted to the applied sciences and technical specialties, not to mention other kindred matter. Branch offices have been established at London, Paris, Leipzig, Bologna and New York. The New York office is with D. Appleton & Co., the well known American publishers. It would seem that the *Pantobiblion* must receive a liberal patronage from those whose life duties make such information as it affords invaluable, and who must have felt a thousand times the need of just such a helper. The yearly subscription is named, 24s, post free.

Personal.

ARCHITECTS PARK & FULLER (Horatio T. Park and Alexander Fuller) have established offices at 119 Dearborn street, Chicago.

MR. WILLIAM MORGAN PETERS, known to the profession as one of the most tasteful and practical designers of interiors in the country, has consolidated his furnishing and decorating business with that of the Carsley & East Manufacturing Company, of Chicago, becoming a director of the company, and giving to that already strong combination of furnishing and decorative ability an added strength that will be appreciated by architects in the execution of the interiors of residences, or other buildings, to their complete furnishing.

Legal Notes.

MECHANIC'S LIEN—AGENCY OF HUSBAND.

Where a husband constructs a house upon land owned by his wife, of which fact she has full knowledge, the agency of the husband will be presumed and the property will be subject to a mechanic's lien. *Bradford vs. Peterson*, Supreme Court of Nebraska, 46 N. W. Rep., 220.

EXTRA WORK UNDER BUILDING CONTRACT.

A contractor entered into a contract with a church corporation to erect a church edifice. The contract provided that no extra work should be paid for except upon a certificate of the superintendent and building committee. A sub-contractor did some extra work under the oral direction of a portion of the building committee, for which he seeks to recover. The sub-contractor was chargeable with notice

of the provision of the contract and cannot recover in the absence of the certificate it called for. *Shaw vs. First Baptist Church of Winona*, Supreme Court of Minnesota, 46 N. W. Rep., 146.

GUARANTY IN OBTAINING CREDIT.

Certain contractors threatened to give up a contract on account of inability to obtain supplies, the superintendent gave them a letter to plaintiff who furnished the supplies, charging to defendant and informed the superintendent that he was furnishing them solely on defendant's credit. Afterward, when the job was completed, the defendant's superintendent claimed the goods still on hand. The defendant's promise to pay was not that of a mere grantor and not within the statute of frauds. *Hagadom vs. Stronach Lumber Company*, Supreme Court of Michigan, 45 N. W. Rep., 650.

JOINT BUILDING CONTRACT.

When one contracted with an architect to furnish plans for a building, and told him that he and his father-in-law were building it together, and the architect so entered it in his books, the contract is a joint one and the defendant is not liable on a several recovery. *Van Leyen vs. Wieford*, Supreme Court of Michigan, 45 N. W. Rep., 1116.

TIME FOR FILING MECHANIC'S LIEN.

Under that provision of the mechanic's lien statute which limits the time for filing a lien to a specified time after the completion of the work, the limitation commences to run when the work is actually completed, and the fact that part of it is to be done over, does not extend the commencement of the limitation to the time when such work is done to replace defective work, but the limitation commences at the time the work was first completed. *Harrison vs. Women's Homeopathic Hospital Association*, Supreme Court of Pennsylvania, 19 At. Rep., 604.

SERVING NOTICE OF MECHANIC'S LIEN.

When one claims a mechanic's lien, and it appears that the materials furnished were used in the erection of the building on which a lien is claimed, unless it is shown that they were intended for another purpose, it will be presumed that they had been contracted for to be used in the building. The Kansas statute giving sixty days to file claim for lien and give notice of same to owner, does not require the notice to be given within the sixty days, but only that the lien shall be filed within that time and the notice given within a reasonable time after such filing. *Deatherage vs. Henderson*, Supreme Court of Kansas, 23 Pac. Rep., 1052.

MECHANIC'S LIEN AS AFFECTED BY ASSIGNMENT OF PROFITS.

Where one enters into a contract for the erection of a building, and assigns to a bank a certain portion of the money which should be due after payment of the lien upon the check, and afterward assigned another portion of the moneys due under the contract to another party subject to a prior transfer at the bank, the second party also having a right to a mechanic's lien as a sub-contractor. The assignment of the moneys due did not wipe out the right of lien, but the party cannot claim by both. *Moran vs. Murray Hill Bank*, Superior Court of New York City, 9 N. Y. S., 715.

CONSTRUCTION OF PARTY WALL CONTRACT.

Where a contract for the erection of a party wall provides that a person on whose land it is to be partly built shall not have the right to obstruct the light from any window which the other party shall build into said wall, such other party has by implication the right to build windows in such wall. Where by mistake such party wall is built entirely upon the land adjoining that of the builder, a promise by the owner of the land upon which it is built to pay one half the cost thereof is a good consideration for a new contract as he is under no legal obligation to pay for it. *Grimley vs. Davidson*, Supreme Court of Illinois, 24 N. E. Rep., 439.

Synopsis of Building News.

Buffalo, N. Y.—Architect W. H. Archer: For the Young Men's Christian Association at Tonawanda; a brick and stone building, all modern improvements; to cost \$40,000.

Chicago, Ill.—Architects Thomas & Rapp have closed contracts for a high school to be erected at the corner of East avenue and Lake street. Oak Park, for the board of education of school district No. 1, Cicero. It will be a three-story and attic, the first story being of cut stone and superstructure of buff pressed brick, with trimmings of Bedford stone. The design is an unusually handsome one, with gables, dormers, etc.; the cost will be \$50,000. For George Enger, of Cincinnati, they are preparing plans for two four-story factories, 80 by 100 feet each; to cost \$50,000. They will be erected on Shields avenue, near Twenty-seventh street. For H. B. Smith, on the southeast corner of Vincennes avenue and Fortieth street, a four-story apartment house of pressed brick, terra cotta and brownstone, steam heat, etc.; to cost \$45,000. For Mrs. Cook, on Ellis avenue, near Thirty-eighth street, three three-story residences of pressed brick and stone fronts. For G. D. Holton, on Drexel boulevard, north of Forty-third street, a residence of buff Roman brick with stone trimmings; cost \$35,000.

Architect W. G. Barfield: For Dr. F. D. Clark, at 333 and 334 Michigan avenue, a handsome ten-story apartment building; to cost \$150,000. The first two stories will be of granite, and above this will be of buff Bedford stone. It will be of steel construction and entirely fireproof, with tile ceilings, walls, iron stairways, steam heat, electric light, elevators, etc. He is now working on plans. For Love & Ayer on Forty-fourth street and Lake avenue, he planned six residences; to cost \$38,000. They will have stone fronts, hardwood interiors, hot-water heating, etc. For Zemasky Brothers, on Cottage Grove avenue, near Thirty-first street, a four-story store and flat, to have stone front, copper bays, etc.; cost \$12,000. For C. Chamberlain, on Washington boulevard, near Francisco street, a residence; to cost \$10,000. Stone front, hot-water heating; making plans.

Architect William Strippelman: For John M. Smyth, on Madison street, near Halsted, an eight-story store, 205 by 180 feet; to cost \$250,000; steam heat, six elevators, electric light plant, etc.; the mason work will be done by A. Collender; carpenter work by William Goldie & Son; plumber, Thomas Conlon.

Architects Flanders & Zimmerman: For Coope, Riddle & Co., at Aurora, a four-story store and office building of cut stone, terra cotta and plate-glass front, steam heat, electric wiring, hardwood finish, marble and tile work; cost \$50,000. A three-story school, 75 by 150 feet; of pressed brick, stone and terra cotta front, steam heat, slate roof; to cost \$45,000; to be built corner of Fifty-seventh and

School streets. A three-story and basement school, 50 by 125 feet; to cost \$35,000, on the northeast corner of St. Lawrence avenue and Forty-fifth street; pressed brick, stone and terra cotta, steam heat, etc. For W. Foster, at Glencoe, a residence; to cost \$11,000. For J. B. Mallers, corner of Market and Quincy streets, a ten-story warehouse, 42 by 114 feet; to cost \$150,000; making plans; steam heat, elevators, etc. For J. Schneewind, at La Porte, Ind., a residence; to cost \$7,000. For J. N. Borden, corner Market and Harrison, a four-story flat building; to cost \$40,000; pressed brick and terra cotta front. For the same owner, a seven-story warehouse, 30 by 125 feet; to cost \$50,000; Jefferson street, near Van Buren; pressed brick and stone, steam heat, elevators, etc.; making plans.

Architect Henry Ives Cobb has completed plans and is now taking bids for the sixteen-story office building to be erected at 98 Washington street for the Cook County Abstract Company; the first four stories will be of Bedford stone and above of terra cotta or pressed brick; steam heat, electric light, seven elevators, etc.; size 60 by 182 feet; cost about \$600,000.

Architects Edbrooke & Burnham: For W. B. White, northeast corner Grand boulevard and Boulevard place, a three-story residence of buff stone and brick, with tile roof; cost \$30,000. For G. F. Gosman, at Kenilworth, a three-story frame residence.

Architect R. G. Pentecost: For Ed. Mandel, four three-story stone front residences; to cost \$60,000.

Architect Clinton J. Warren: For Joseph Dee, at 60 South Fulton street, a three-story office building. For Louis Wolf, on Dearborn street, next door south of the Chemical Bank, remodeling five-story building into a first-class, modern eight-story office building; new front of buff brick, with terra cotta of the same color, electric light, steam heat, elevators, marble and mosaic work; cost about \$150,000. Also just broke ground for the Lexington Hotel, northeast corner of Michigan avenue and Twenty-second street; two fronts of Roman brick and terra cotta.

Architect W. H. Drake: For George C. Hutchinson, at 456 Milwaukee avenue, a four-story store and flats, of Vert Island red sandstone front, red slate turrets, etc.; to cost \$35,000. For Mrs. D. Rattk, at 1518 Wabash avenue, a four-story store and flats; to cost \$30,000; Bedford stone front, steam heat, gas ranges, etc. For F. G. Walker, southeast corner of Wabash avenue and Congress street, a four-story carriage warehouse, 80 by 165 feet; to cost \$35,000. For W. S. Payne, at 2409 Wabash avenue, a four-story laundry, and at 2411 a four-story flat building for Hon. H. F. Waite.

Architects J. M. Van Osdel & Co.: For L. C. P. Freer, northeast corner of Fifth avenue and Randolph street, remodeling and adding one and a half stories and converting present building into a first-class, modern office building; pressed brick, terra cotta, copper bronze, four elevators, steam heat, electric light, etc. Making plans for James Casey, northwest corner of Madison and Union streets, a six-story hotel; to cost \$40,000; pressed brick and terra cotta, elevators, steam heat, marble and mosaic work. For H. N. Hobart, on Wrightwood avenue and Hampden Court, a two-story residence; to cost \$40,000; cut-stone front, hardwood finish, hot-water heating, marble work, etc.

Architect S. S. Beman: For the trustees of St. Luke's Hospital, a six-story apartment house, of light-colored pressed brick and terra cotta, hardwood interior, elevators, electric light; size 100 by 120 feet; cost \$125,000; making plans. Also preparing plans for three-story residence on Michigan avenue, near Eighteenth street; blue Bedford stone front, hot-water heating, slate roof, etc.; cost \$35,000. Also preparing drawings for the Pullman repair shops, to be built at St. Louis; there will be seven buildings; pressed brick and stone fronts, steam heat, electric light, iron roofs, etc.; cost \$200,000.

Architects Holabird & Roche: For Chicago Real Estate Trustees, a thirteen-story office building, 50 by 110 feet, to cost \$350,000, on the site occupied by the Vienna bakery on Washington street; the front will be of St. Louis granite brick, with terra cotta trimmings and high roof of red tile. The design shows a handsome building in the François premier style of architecture. The interior will be finished in red oak, marble wainscoting, mosaic floors, have electric light, steam heat, four elevators, prismatic sidewalks; a novel feature will be stairway rails, screens and elevator cabs, all to be made of aluminum. The first story will be 15 feet high, second 12 and the others 11½ feet. Work has already commenced, and the building will be completed by April 1, 1892. The name of the building has not been decided on yet.

Architects Treat & Foltz are preparing plans for the new Wesleyan hospital to be erected on the northeast corner of Dearborn and Twenty-fifth streets. There will be four distinct buildings connected by corridors—the style of architecture being in the early French renaissance—showing handsome four-story structures in pressed brick with stone and terra cotta trimmings; the cost will be about \$225,000. A fuller description with perspective will be published in a future number of THE INLAND ARCHITECT.

Architect Oliver W. Marble: For George C. Watts, on Forty-sixth street and Ellis avenue; three two-story residences, to have stone fronts, hardwood finish, furnaces, etc.; cost \$30,000. For Messrs. Taylor, Allen & Co., on Washington avenue and Fifty-first street; seven three-story stone front residences; electric light, gas fixtures, furnaces, tile vestibules, stained, plate and beveled glass, etc.; cost \$70,000.

Architect J. A. Miller: For Richard Peck, twenty residences of Bloomington stone fronts at Eggleston; cost about \$7,000 each. Will also begin plans at once for twenty more.

Architect Francis J. Norton: For H. B. Orchard, corner Dearborn avenue and Division street, a five-story apartment house, 33 by 125 feet; to cost \$100,000. Bedford stone front; steam heat, elevators, copper bays, electric light, gas fixtures, gas ranges, steam engine, dynamo, marble wainscoting, etc.

Architect Charles S. Frost: For the Chicago and North-Western Railway Company at Fond du Lac, a handsome suburban station; of pressed brick and stone, with slate roof and copper trimmings and pretty tower; inside finished in oak and all improvements; cost \$14,000. For the same company at De Kalb, Illinois, a similar station; to cost \$14,000. For the Chicago, St. Paul, Minneapolis & Omaha Railway Company at West Superior, a neatly designed station of brown sandstone; to cost \$10,000. For the Lake Shore Company, at Grand Rapids, Michigan, a handsome building for station and office purposes, to be of pressed brick and stone; copper trimmings, slate roof, steam heat, all conveniences; cost \$18,000. For the Chicago & North-Western Railway Company at Glencoe, a station; of pressed brick and stone; cost \$10,000. For William G. Hibbard, on Calumet avenue and Eighteenth street, a handsome residence; stone basement, pressed brick and terra cotta front; cost \$18,000. At Rockford, Illinois, a six-story store and office building; exterior of brown pressed brick, brownstone, terra cotta, copper cornice; interior to have hardwood finish, steam heat, elevators, electric light, etc.; to be erected corner of Main and Chestnut streets.

Architects Park & Fuller: For C. J. Harmon and L. Stover, a two-story flat building of 100 feet frontage on Howard street; to cost \$15,000. St. Louis pressed brick and stone, pine finish, furnaces, etc. For J. W. Rowley, at 1279 Adams street, two-story flats; to cost \$9,500. For W. H. Bussey, at Irving Park, frame flats; cost \$9,500.

Architect George Beaumont: For Jarvis & Conklin, on the southwest corner of Wellington avenue and Halsted street, six two-story residences, to have stone fronts, hardwood finish, furnaces, electric work, etc.; to cost \$30,000.

Architect J. E. Scheller: For Mrs. L. La Berge, at 153 W. Madison street, a five-story apartment house; cost \$25,000. Granite, with copper bays, hardwood finish, steam heat, marble and mosaic work, making plans. For Joanes Brothers, at Green Bay, Wisconsin, a four-story building; to cost \$30,000; granite front, hardwood finish, steam heat, elevator, etc.; letting contracts. For the Joliet Opera House Company, a four-story store, office and theater building; to cost \$60,000; pressed brick, stone and copper front; steam heat, electric light, marble and tile work, etc. This was a competition, and Mr. Scheller's plans were adopted as being the most suitable.

Architects Patton & Fisher: Preparing plans for the Armour Industrial School, to be erected on Armour avenue and Thirty-fourth street; it will be five-story and basement, 66 by 225 feet in size and cost \$150,000; brownstone, pressed brick, terra cotta, slate roof, etc. It will be a very handsome structure, a full description and perspective of which will appear in a later number of this journal.

Architect Julius Speyer: For Ed. White & Co., on Michigan avenue, near Fourteenth street, a five-story apartment house, 75 by 171 feet; to cost \$100,000; the front to be of buff Roman brick and stone, hardwood interior, steam heat, marble and mosaic work, etc.; making plans. For C. J. Herbert, at 220 Laflin street, remodeling; to cost \$15,000. For E. Parker, on Fifty-seventh and Indiana avenue, a two-story residence; stone front, hardwood finish, furnace, etc.; to cost

\$10,000. For John McNally, at 2643 Portland avenue, three-story flats of Bedford stone front; to cost \$7,000.

Architects Huehl & Schmid: For Prof. Louis Kretlow, at 401 Webster avenue, a three-story dancing academy, 48 by 100 feet; to cost \$22,000; hydraulic pressed brick and Bedford stone front, hardwood finish, steam heat, electric light, tin shingles, etc. For Mrs. Gills, corner of Oakley avenue and Jackson street, a three-story residence of Bedford stone front; to cost \$10,000.

Architect Perley Hale: For J. & J. C. Beifeld, five three-story residences, to have stone fronts and cost \$40,000; to be built on Calumet avenue, south of Fortieth street; making plans. For Allan McCollough, on State, south of Eighteenth street, five-story store and flats; to cost \$50,000; stone front, hardwood finish, steam heat, etc.

Architect C. C. Miller: For Mr. Winters, on State street, corner of Fifty-seventh street and Court place, four-story store and flats, 152 feet front; to cost \$60,000; making plans. For Wm. J. Wilson, on Canal street, between Adams and Jackson, a five-story warehouse, 146 by 101 feet, to cost \$60,000; steam heat, two elevators, etc. Also just sent out plans for First Presbyterian Church, 100 by 150 feet; to cost \$60,000; to be built at Helena, Montana; rock-faced stone front and tower, steam heat, hardwood finish, stained glass windows, bell, organ, etc.; secretary, N. J. McConnell.

Architect L. G. Hallberg: For Dr. C. S. Smith, on Oakland Crescent, four Bedford stone front residences; to cost \$25,000. For George S. Seaverns, on Wabash avenue, near Fifth street, six Bedford stone front residences; to cost \$35,000.

Architect Frederick Ahlschlager: For Fred S. Espert, at 231 East Kinzie street, a four-story warehouse; to cost \$15,000. For T. L. Sommer, on School street, near Fifty-eighth, a frame residence; cost \$6,000. For Frank Kittler, two frame houses; to cost \$7,500.

Architect John T. Long: For Chicago, Rock Island & Pacific Railroad, station at Morgan Park, of red brick, terra cotta and stone; cost \$16,000. Central Park Presbyterian Church; to cost \$30,000; Bedford stone, steam heat, slate roof, oak finish, etc. Methodist Episcopal church at Fort Atkinson, Wisconsin; to cost \$15,000; pastor J. I. Hartley. Methodist Episcopal frame church at Merrill, Wisconsin; to cost \$10,000; W. H. Flett, chairman of committee. For J. W. Tubbs, on Twenty-second street and Wentworth avenue, three-story flats and stores, to cost \$25,000; making plans.

Architect J. A. Thain: For Dr. E. G. Hirsch, at 3612 Grand boulevard, a Bedford stone front residence, to cost \$22,000. For Adolph Loeb, at 3622 Grand boulevard, a three-story stone front residence; to cost \$20,000. For Louis Morris, corner of Polk street and Ashland avenue, a three-story, semi-detached residence of blue Bedford stone front and side; to cost \$40,000. Also making plans for three-story residence, to have hot-water heating, slate roof, brownstone and pressed brick; cost \$25,000; on Greenwood avenue, near Forty-fifth street; and on Greenwood avenue, near Forty-sixth street, a frame residence; to cost \$20,000.

Architect A. W. Cole: For Grenada, Mississippi, a three-story school of pressed brick and stone, yellow pine, slate roof, etc.

Architect W. L. Carroll: For Mrs. Alice M. Kirby, four-story flats, on Superior street, of St. Lawrence marble front; to cost \$30,000.

Architect E. R. Krause: For Henry Schoellkopf, on Clark street, near Chicago avenue, a four-story store and flats; to cost \$25,000.

Architects I. K. and A. B. Pond: For H. E. C. Daniels, at Evanston, a frame residence. For H. C. Porter, at Rockford, Illinois, a pretty frame residence; stone basement, hardwood interior, furnace, etc.

Architect C. M. Vail: For R. J. Bennet, at Ravenswood, a two-story Young Men's Christian Association building, 97 by 80 feet; of St. Louis brick, Bedford stone and terra cotta coping, yellow pine finish, steam heat; will put in bowling alley, gymnasium, etc.

Architect Thomas Wing: For Mrs. William J. Knight, a four-story store and flats, on southeast corner State and Forty-fourth streets; stone front; cost \$26,000. For Mrs. Mary C. Page, next door to above, a four-story double store and flats of stone, Roman pressed brick and terra cotta.

Architect E. M. Newman: For N. D. Little, a four-story apartment building, on Sixty-first street and Madison avenue; Tiffany pressed brick, with rock-faced brick trimmings, steam heat and all improvements; cost \$60,000.

Architect W. T. Leshner: For Williams & Co., corner Goethe street and Dearborn avenue, a four-story apartment house of St. Louis pressed brick and granite trimmings, steam heat, etc.; cost \$60,000. For B. Mercil, on Madison street, west of Oakley avenue, a four-story flat of St. Louis brick and Connecticut brownstone, yellow pine finish, etc.; cost \$30,000.

Architect J. N. Tilton: For J. B. Waller, on Bellevue Place and Rush street, a four-story store and flat building of Bedford stone, first story, and above of pressed brick and stone, with copper bays; cost \$16,000; making plans. For William D. C. Street, on Schiller street, near Astor, a three-story residence; to cost \$8,000. For R. A. Waller, at Buena Park, two frame residences; to cost \$8,500.

Architect August Maritzen: For the Citizens Brewing Company, corner of Archer avenue and Main street, a brewery; to cost \$250,000; it will be of pressed brick and stone front, of fireproof construction, of handsome design, with a tower 130 feet high, and have a capacity of 100,000 barrels. For Messrs. Glueck & Son, at Minneapolis, Minnesota, new brewhouse, stockhouse, etc.; to cost \$75,000. For the City Brewery, at Eau Claire, Wisconsin, a stockhouse, kiln and malt-house. For Price & Wimmer, at St. Cloud, Minnesota, a new stockhouse. For Winter Bros., at Pittsburg, Pennsylvania, a stockhouse, brewhouse with two kettles of 350 barrels capacity, etc.; cost \$150,000. For the American Brewing Company of Chicago, a new beer depot at Crown Point, Indiana. For Fred Sehring, at Joliet, a two-story brick and stone icehouse. For Glab Bros., at Dubuque, Iowa, new stockhouse, ice machine and washhouse; cost \$40,000.

Cincinnati, Ohio.—Reported by Lawrence Mendenhall: The season's work is progressing satisfactorily, I think, alike to both owner and builder. There are no strikes, and the time of the mechanic is well occupied, and no doubt many a humble home is made bright by the earnings of the father. Right here allow me to express the wish that there were more public reading-rooms and libraries and fewer saloons, which would change and ameliorate the condition of labor, as well as enlighten and broaden ideas. It has been justly said that "education is the keystone of the arch of political economy of nations." Why can't our philanthropic capitalists look carefully at this matter and act, and by their acts of philanthropy build a monument for themselves to be seen by all men?

Architect H. E. Siter reports: For Charles G. Merrill, a residence; materials, frame, shingles, shingle roof, hardwood finish, furnaces, wood mantels, stained glass, gas fixtures, plumbing, etc.; cost \$5,000. For William Beck & Son, a store building (remodeling); materials, pressed and common brick, blinds, gas, plumbing, tin roof, furnace, mantels, etc.; cost \$4,000. For the Fifth Presbyterian Church: A church edifice; materials, stone, brick, slate roof, hardwood pews, furnaces, stained glass, etc.; cost \$20,000.

Architects S. Hannaford & Sons report: For Lewis Seasongood, a residence; materials, brick, plaster, gables, slate roof, hardwood finish, gas, plumbing, furnace, mantels; cost \$20,000.

Architects Crapsey & Brown report: For Robert Peebles, Ashland, Kentucky, a residence; materials, frame, slate roof, pine finish, blinds, mantels, laundry fixtures, plumbing, gas, stained glass, etc.; cost \$4,500. For the Methodist Episcopal Church (South), Marysville, Kentucky, a church edifice; materials, pressed brick, stone, slate roof, stained glass, hardwood finish, organ, furnace, mantels; cost \$20,000.

Architect James W. McLaughlin reports: For Pickering Hardware Company, an addition to their store building of two stories; materials, pressed brick, iron, tin roof, hydraulic elevators, plumbing, gas, etc.; cost \$20,000. For Home of the Friendless, an addition of four stories in rear of present building; materials, brick, stone, tin roof, pine finish, furnace, etc.; cost \$10,000.

Architect M. Rumbaugh reports: For the Methodist Episcopal Church (South), Ashland, Kentucky, a church edifice; materials, brick, slate roof, hardwood finish, organ, pews or chairs, furnace, stained glass, etc.; cost \$20,000.

Architect S. S. Godley reports: A church parsonage for the Glendale, Ohio, Presbyterian Church; materials, frame, slate roof, blinds, furnace, grates, mantels, etc.; cost \$4,500.

Architect A. O. Elzner reports: For Mrs. L. B. Gibson, a warehouse; materials, common and pressed brick, asphalt roof, freight elevator, etc.; cost \$20,000. For J. A. Gray, Covington, Kentucky, a store and flat building; materials, pressed brick, stone, tin roof, blinds, gas, plumbing, wood mantels, grates, etc.;

cost \$7,000. For a Mrs. Miller, a residence; materials, pressed brick, tin roof, blinds, gas, plumbing, stained glass, hardwood, laundry fixtures, etc.; cost \$15,000.

Architect G. W. Drach reports: For Mrs. H. Drehme, a residence; materials, stone, terra cotta, slate roof, gas, plumbing, stained glass, wood mantels, furnace, laundry fixtures, etc.; cost \$15,000. Also for the same party, a residence; materials, pressed brick, plaster, slate roof, gas, plumbing, furnace, stained glass, etc.; cost \$8,000.

Architect John H. Boll reports: For Jacob Krummel, a residence; materials, pressed brick, tin roof, furnace, pine finish, stained glass, etc.; cost \$3,500.

Architect Theo. Richter, Jr., reports: For Frank Kirchner, a residence; materials, pressed brick, cement gables, slate roof, hardwood finish, stained glass, laundry fixtures, gas, plumbing, etc.; cost \$6,000.

Architects Des Jardins & Hayward: Two residences for Leopold Burckhardt; materials, pressed brick, frame, stone, terra cotta, gas, plumbing, grates, mantels, furnaces, etc.; cost \$14,000.

Architect Lucian F. Plympton reports: For E. J. Murdock, a residence; materials, frame, slate roof, blinds, grates, wood mantels, plumbing, etc.; cost \$4,500.

Denver, Colo.—Architects Baerresen Brothers: For G. C. Corning, a three-story hotel building, brick with stone front.

Architects F. E. Edbrooke & Co.: For Davis & Cresnell, a two-story brick foundry; cost \$10,000.

Architect J. J. Huddart: For Mrs. Cleveland, a two-story brick dwelling; to cost \$15,000.

Detroit, Mich.—Architect Leon Coquard: For Sts. Peter and Paul's Cathedral on Adelaide street, a three-story schoolhouse; size 110 by 96 feet; brick and cut stone trimmings, twelve class-rooms and hall, to seat 1,200 people; cost \$40,000.

Architect Peter Dederichs: For John Mark, a block of stores on the corner of Russell and Riopelle streets; pressed brick, stone trimmings; cost \$25,000. Also for M. Beyer, a two-story, pressed-brick dwelling, on Chestnut street; cost \$7,000.

Architects E. A. Walshe & Son: For Dr. D. McLeod, a two-story brick residence and office on the corner of Aubin avenue and Maple street; cost \$5,000. For E. R. Willis, South Bend, Indiana, a two-story residence; brick and stone; cost \$6,500. For Dr. J. Black, a two-story residence on Russell and Kirby avenues; brick and frame; cost \$6,000.

Architect George E. Depew: For William M. Heazlett, a two-story brick residence and barn on Warren avenue, near Hastings street; size \$14,000.

Architects Mason & Rice: For the Newberry estate, a five-story double-brick store on Jefferson avenue and Randolph street; cost \$40,000. For Mrs. Nancy C. Avery, a two-story brick residence on Eliot street, near John R. street; cost \$30,000. For Lewis H. Jones, a two-story residence on Warren avenue, near John R. street; brick, with cut stone trimmings and slate roof; cost \$7,000. Also they are preparing plans for alterations and additions to the residence of James E. Scripps on Trumbull avenue, near Grand River avenue.

Architects Spier & Rohn: For Charles Knorr, a block of three-story brick stores, corner of Gratiot and Meldrome avenues; cost \$12,000. For the Bethel German Church, a brick church, size 45 by 100 feet, on Medbury and Gratiot avenues; cost \$7,000. For Mrs. Charles H. Smith, a three-story brick residence on Frederick and Brush streets; cost \$7,000.

Architect Gordon W. Lloyd: For the St. Mary's hospital, an addition to building; size 160 by 40 feet; cost \$50,000.

Architect Albert E. French: For the First Presbyterian Church Society, Kingsville, Ontario, a brick church to replace one recently destroyed by fire; cost \$6,000.

Architects A. C. Varney & Co.: For Mrs. Alice M. Petette, a two-story brick residence on Congress, near Aubin street; cost \$8,000. For William E. Moss, a two and a half story residence on Alexandria avenue and Third streets; cost \$9,000.

Architects Van Leyen & Hackett: For W. H. Beamer, a two-story frame residence on Piquette avenue, near John R. street; cost \$5,500. For the Detroit Baseball Club, a grand stand; cost \$5,000. For Matthew Slush, at Mount Clemens, Michigan, a three-story frame residence; cost \$8,000. For Frederick W. Kellogg, a two-story residence on Kirby avenue, near Woodward; pressed brick; cost \$9,000.

Architect Mortimer L. Smith: For Stephen Baldwin, six two-story residences on Adams avenue, corner Brush; cost \$12,000.

Architects Gearing & Stratton: For Levi Barbour, remodeling residence on west side of Woodward avenue; cost \$8,500. For William H. Reid, a two-story brick residence on Park street, near Sibley; cost \$5,500.

Architects Donaldson & Meier: For the Brush estate, a four-story building on Monroe avenue and Brush street; size 46 by 106 feet; brick; cost \$28,000. For Anthony P. Petz, a two-story brick flat building on corner of Gratiot and Elmwood avenues; cost \$12,000. For John P. Huckestein a two-story brick residence on Congress street, between Dubois and Aubin avenues; cost \$6,000.

Architect A. B. Cram: For the St. John Episcopal Church, plans for improvements on building, which is to be enlarged and redecored at a cost of \$40,000.

Lima, Ohio.—Architect Charles D. Leech: For Mr. W. Stahl, a two-story frame dwelling, slate roof, furnace; size 38 by 50 feet; cost \$5,000. For Mrs. Eliza Satherwaite, a two-story brick dwelling; size 34 by 36 feet; cost \$3,700.

Milwaukee, Wis.—Architect Charles Kirchoff, Jr.: For the Miller Brewing Company, an eight-story storage house; to cost \$150,000. Also has prepared plans for a three-story hotel for the J. Schlitz Brewing Company, the building to be of brick, and cost \$22,000.

Architects Van Ryn, Andree & Lesser: For Pritzlaff Brothers, an office building; size 50 by 100 feet; brick, stone trimmings; cost \$16,000.

Architects Ferry & Clas: For Matthews Brothers, a six-story brick store and office building; size 100 by 110 feet; brown stone front; cost \$140,000.

Architects Siebold & Wiskocil: For the West Bend Brewing Company, an office building, to be of brick with stone trimmings.

Minneapolis, Minn.—The following buildings are reported: The St. Joseph Catholic Church, additions and alterations; to cost \$9,000.

D. P. Jones, a frame dwelling; \$7,500. For L. Robins, a flat and store building; cost \$15,000. D. Bassett, a two-story brick building addition; cost \$9,000.

Architect A. Maritzen, Chicago: For M. Glick & Sons, a four-story brewery; brick and stone; to cost \$75,000.

Omaha, Neb.—Architects Findlay & Shields: For W. R. Homan, a two-story apartment house; size 44 by 150 feet; brick and stone; cost \$20,000.

Architect F. M. Ellis: For C. E. Bates, a two-story residence; size 38 by 36 feet; brick and frame; cost \$10,000.

Architects Voss & Lateuser: For A. Hospe, Jr., a four-story warehouse; size 44 by 732 feet; brick; cost \$15,000.

Paris, Ill.—Commissioners of Edgar County want plans for court house, to be submitted by June 29. Address F. M. Patteson, Paris, Illinois.

Pittsburgh, Pa.—Architect Maritzen, Chicago: For M. Winter & Bros., a three-story manufacturing building; cost \$100,000.

St. Paul, Minn.—Architect C. A. Reid is preparing plans for a large arcade building, three stories high, to be erected on Wabash near Sixth street; cost to be about \$2,000,000.

Messrs. Deffel & Zimmerman will erect a two-story brick double residence; cost \$10,000.

St. Louis, Mo.—Architect A. Maritzen, Chicago: For Griesedick Brothers, A four-story brewery, size 309 by 275 feet, brick and stone; cost \$300,000.

Architect A. N. Baker: For the Vermont Marble Company, a one-story warehouse, brick with stone trimmings, size 197 by 150 feet; cost \$55,000; also, for the Town School Committee, a three-story public school, size 100 by 90 feet; cost \$50,000.

Architect F. W. Folk: For B. Crean, a two-story residence, size 22 by 64 feet; cost \$5,000.

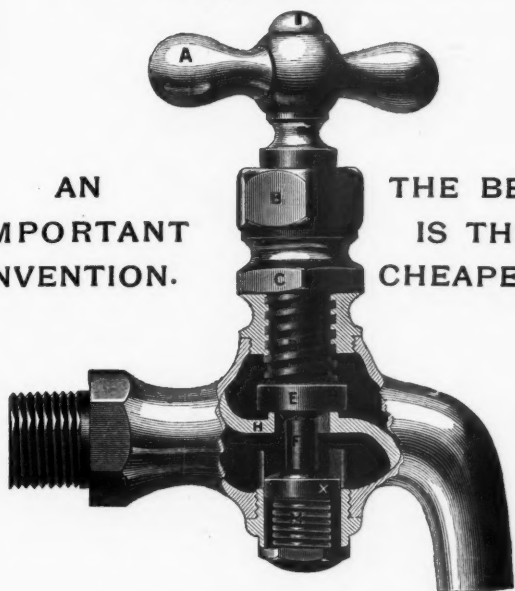
Architect B. Redington: For A. L. Gohen, a hotel and office building; cost \$5,000.

Architects' names not reported: For G. Guffreman, a three-story store and apartment building; cost \$7,500. For E. Dunning, a two-story dwelling; cost \$5,000. For A. DeWolf, a two-story brick dwelling; cost \$11,000.

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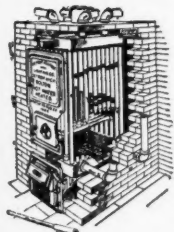
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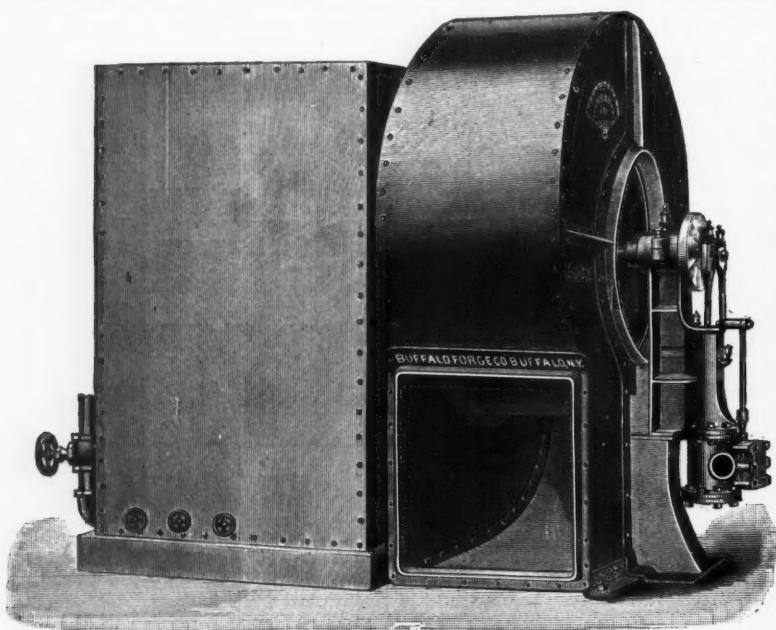
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Please mention THE INLAND ARCHITECT when corresponding with Advertisers.

THE INLAND ARCHITECT AND NEWS RECORD.

Vol. XVII.

ADVERTISERS' TRADE DEPARTMENT.

No. 5

Inspecting and Testing Structural Material.

The readers of THE INLAND ARCHITECT will notice in this number the advertisement of the firm of Messrs. G. W. G. Ferris & Co., of Pittsburgh and Chicago. This firm are the pioneers in the inspection and testing of structural material for building purposes, and have been the means of rendering to the various architects, whom they have represented, a great service in the matter of delivering to them steel structural material from the various mills and shops throughout the country, in a finished condition, ready for erection upon receipt of same at the building site.

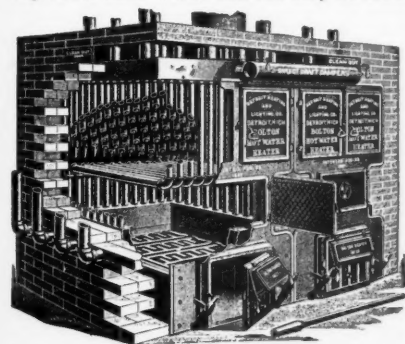
The gentlemen connected with this firm have made a specialty for many years of the inspection of this grade of material, both for railroads and municipalities and architectural work, and can refer to some of the largest buildings in the United States, with which they have been connected, and also to the architects of same.

They have done a large amount of this work in Chicago, and the results have greatly proven the wisdom of their employment. Special reference might be made to such buildings as the Auditorium building, the Leiter building, Pontiac, Kearsarge, Monadnock, Home Insurance, Denver Equitable and other large structures throughout the country.

Messrs. Ferris & Co. will be pleased to correspond with the readers of THE INLAND ARCHITECT, and for the benefit of the trade generally, have compiled a specification for steel and iron to be used in structural building work, which can be obtained upon application to them, either at their Pittsburgh, Chicago, or Philadelphia offices.

The New Bolton Heater.

Not many years ago hot water heating in this country was used only in the largest buildings. When smaller heaters adapted to the warming of residences were afterward introduced, the present "hot water boom" was inaugurated. These heaters were designed for comparatively small work, and have only lately been applied to buildings of large size. By their construction some of them are poorly adapted for such work, and can only be made



to meet the requirements by a multiplication of heaters, which is both expensive and inconvenient. Many, also, are really steam boilers pressed into service as makeshift hot water boilers. The Detroit Heating and Lighting Company, feeling the necessity for a modification of their celebrated Bolton hot water heater that would adapt it to large work, and having on hand several contracts for heating large buildings, have produced what they call their No. 20 series, an example of which (their No. 25, we illustrate. As will be seen, it retains the special features of the regular Bolton heater—the top and bottom casting connected by a row of wrought iron pipes, the intervening space above the fire-pot being occupied by pendent pipes, extending just over the fire. Its manufacturers assert that the Bolton contains less water, in proportion to its fire surface, than any other boiler on the market. They also claim a better proportion of fire surface to the grate surface. The first of the new

series, the No. 20, has a capacity for supplying 2,300 square feet of radiation surface. The No. 25, which is the one shown in our illustration, consists of the two 20's united so as to form practically a double fire-pot boiler, with a capacity of 4,500 square feet. The No. 30 consists of three No. 20's, similarly combined, and has a capacity of 6,500 square feet of radiation.

An advantage claimed for this construction over the ordinary "tinned" cast-iron boilers is that when only one fire-pot is in use the heat may be made to pass all over the heating surface of the combined boilers, by closing the direct draft damper (see small drop handles, indicated by arrow heads in cut) belonging to the fire-box that is in use, leaving open the damper above the unused fire-box. In order to find an outlet the draft must, therefore, pass among the pipes and over the heating surface of the entire boiler.

Full particulars can be obtained in the new edition of "Warmth for Winter Homes," published by the Detroit Heating & Lighting Company, and can be obtained from the home office, Detroit, Mich., or from any of the branches at New York, Boston, Chicago, St. Louis, New Orleans and Dallas.

A Mammoth Plumbers' Supply House.

The Rundle & Spence Manufacturing Company, of Milwaukee, whose production of all kinds of brass, iron, copper and marble goods for the use of plumbers, gasfitters, and cabinet makers is so widely and favorably known, has just opened a headquarters at 193 Lake street, Chicago, where a full and complete supply of the company's specialties will always be found.

There is something interesting in the growth and status attained by this prominent company. It is comparatively but a few years ago when the seniors of the company, from whom it derives its name, were conducting an ordinary plumbing business that was in no way conspicuous above the thousands to be found anywhere, all over the union. But they were diligent, progressive, and aggressive, and soon their activity began to make its impression. The business began to enlarge year by year, until it had reached proportions in 1881 that resolved it into a wholesale jobbing business, when Mr. E. C. Smith was taken into the firm, and it was afterward known as Rundle, Spence & Co. Subsequently the spirit of enterprise that led them to success with others' wares inspired them to manufacture the goods they dealt in themselves, so that today the establishment embraces a large five-story wareroom on Second street, Milwaukee, and a large plant of shops and foundries on South Water street, supplied with latest improved machinery, and rail conveniences for shipping, leaving nothing to be desired in these respects. But it is no longer a firm. It is an incorporated company, with a paid-up capital of \$500,000, employing several hundred men. Mr. Joseph Rundle is president; Mr. Thomas Spence, vice-president; Mr. E. C. Smith, secretary; while the names of Alfred Fowle, Jr., as treasurer, and W. M. Webster as general manager, complete the complement of officers. It may be said of all of the officers, they are "self-made men." Of Messrs. Rundle & Spence it goes without questioning. Mr. Smith worked his way up from the bottom rung of the ladder, until he was in charge of the city and state departments of the Hoffmann & Billings Manufacturing Company, a place he gave up to associate himself with Messrs. Rundle & Spence, and to whose business ability no small credit is due for the successes won. Mr. Webster began his career by entering their employ as an office boy. By close application and industrious habits, together with his natural business tact, he won the confidence and esteem of his employers, who advanced him from office boy to helper, salesman, collector, bookkeeper, traveling salesman and confidential man. In 1884 he left the firm's service, and engaged with the Wolff Manufacturing Company, of Chicago, as traveling salesman, and

subsequently was assigned to the management of the company's Dearborn street exhibit room, which he filled to the credit of himself and satisfaction of his employers, winning the confidence and esteem of architects everywhere, until something over a year ago, when he resigned to take the management of the plumbing department of The J. L. Mott Iron Works. The first of the present month Mr. Webster resigned the position to become interested as general manager of the business he started in with as an office boy. Mr. Fowle began his service with the company as an ordinary clerk, something over ten years ago. From a clerk he won his way to that of confidential man, then bookkeeper, and has well earned his treasurership degree. Thus it will be seen all the officers are practical business men, and hard workers, and that they are looking for further victories may be taken for granted, as in their lexicon they have no such word as fail.

The Use of Vaseline Oil.

At the vaseline factories some years ago it was found that no dead rot appeared on the timber beneath the building where the vaseline oil had dripped or run through upon the timber, while within a few feet away the timber was in an advanced stage of decay where it had not come in contact with this vaseline oil. Dexter Brothers, in combining this oil with linseed oil in their English shingle stains, have discovered that vaseline oil preserves not only the shingles but the color of the stains. The use of these shingle stains has grown largely, and the architects are using them on the finest houses.

Protection Against Flies.

Do you want the best screen door in the world? If so buy the Lyle screen door. Patented in the United States, Canada, England and France. Agents wanted in every town, to change over old style doors, and manufacture Lyle's improved screen door. See cut of door on another page. Address W. R. LYLE, patentee, Ripon, Wisconsin.

Dissolution Notice.

Public notice is hereby given that the partnership heretofore existing between Philip H. Gunderman and John C. Gunderman, under the firm name of Gunderman Brothers, was dissolved June 1, 1891, by mutual consent Philip H. Gunderman retiring from said firm. The plumbing, sewerage and gas-fitting business heretofore carried on by said firm will be continued at 182 North avenue, Chicago, Illinois, by John C. Gunderman, who will collect all outstanding accounts and close up all other business affairs of said firm. Signed, Philip H. Gunderman, John C. Gunderman.

Fine Architectural Blacksmithing.

Architectural travelers are never tired of telling about the exquisitely designed and executed smithy work that adorns some of the most ancient minsters of the old world, reminiscences of the days when the smith was a coadjutor with the sculptor and painter in materializing the highest art conceptions of the architect. They print for us sketches of wonderfully made grilles, hinges, brackets, railings and gates, and are loud in their lamentations over "a lost art," with the inference that there is no hope of its ever being restored. With the rest of a credulous world we have taken all that has been said about it for granted, forgetful of the progressive spirit of the age which is pushing every tradesman to bring forth the very best of his calling. Fine blacksmithing—architectural blacksmithing—is not a lost art; on the contrary it is a living, energetic entity, and if not equal to the fine work of the tenth and twelfth centuries, certainly approaches it in a remarkable degree and surpasses it in variety of architectural application. If any one has any doubt of such being the case they have only to send to the Winslow

ADVERTISERS' TRADE DEPARTMENT—Continued.

Brothers Company of Chicago, for a copy of their special catalogue of artistic ironwork—catalogue No. 2,—and after they have perused its contents, studied the outlines of the many examples of beautiful entrance gates, grilles, hinges, railings, balconies, newels, etc., that are given in it, they will fail to see how anything more artistic could have been built with forge and hammer centuries ago, or that there can be any conceivable ornamental architectural ironwork beyond the capabilities of such an establishment. This special catalogue should be in the hands of every progressive architect. It will "born" him new ideas.

Trade Notes.

LOVELL H. CARR, formerly connected with J. B. King & Co., is now representing Mr. E. Thiele, of 78 Williams street, New York, who imports the famous Dyckerhoff, Heym Brothers and Hilton Portland cements.

THE Chicago office and store of A. A. Grifing Iron Company are removed into much large and more commodious quarters at 88 Lake street, which gives the company's genial western manager, Mr. F. W. Somers, much better facilities for catering to the large and increasing western demand for Bundy Radiators.

A LARGE manufacturer of steam, hydraulic, and hand elevators in Baltimore writes that they have been using Dixon's Graphite Grease on their elevators for about two years, and find it superior to any lubricant they have ever used. They also use it on their wire cables, to prevent rust, and for the guides of elevators. It is made by the Joseph Dixon Crucible Company, of Jersey City, New Jersey.

THE INLAND ARCHITECT presumes most architects and builders have recently been reminded by the well-known house of Merchant & Co., that the "Star Ventilator" still stands at the "head of the class," the same as the last report. At least that is the inference from a neat little illustrated and silver embossed monogram pamphlet that Mr. Wanamaker's peripatetic representative has brought and gently laid before us for admiration. To sum the visitor up in a few words, it may be called a symposium of all the virtues and excellencies of this admitted standard ventilator. Long may it—ventilate.

THE Stewart Ceramic Company, 312 Pearl street, New York, have complimented THE INLAND ARCHITECT with a copy of a finely drawn and printed colored plate giving fac simile representations of the company's earthenware laundry tubs, and pantry, kitchen and slop sinks, mounted on galvanized iron stands with hardwood facings and nickel trimmings. The center of the plate gives interior views of the home office and salesrooms, the whole, when framed, making a nice office ornament. The Company's western headquarters are located at Nos. 323, 325 Dearborn street, Chicago. We learn these tubs and sinks are growing in public favor, as they are said to have none of the objectionable features common to wood and metal.

THE notoriety for excellence that obtains for the Babcock & Wilcox Company steam boilers is world-wide, as they are marvels of strength and possess a tubular construction that permits steam-making on the most economical basis. Probably there are more of the company's steam generators in use by the leading factories and shops of this and other countries than of any other make, at any rate the numbers run up into the thousands. The great interest that is manifested, owing to the vital question of economizing space, in the subject of high steam-pressures, has induced the company to issue a chart locating a large number of this class wherein some very interesting statements are made in regard to their testing pressure, number of boilers in the battery, total horse-power and working pressure. Scarcely any in the list show a lower working pressure than 180 pounds to the square inch, while some of them are rated at over 200. An example is given of a battery built for the Wood Vulcanizing Company, of

New York City, which has been running at 235 pounds daily pressure for the past ten years. There are other equally notable examples given. Altogether the chart is of exceptional interest to every steam user.

OWING to the extraordinary increase of their business during the past three years, the Matthews Decorative Glass Company, 328 and 330 East Twenty-sixth street, New York, find themselves compelled to add two new stories to their already large factory. They intend, at the same time, putting in an entirely new steam plant, sand blast machines, elevators, electric motors, etc., embodying all the latest devices of the most approved pattern.

On completion of contemplated improvements, together with the addition of many new branches to their well known line of decorated glass, they will have one of the largest establishments of its kind in the world, and will be in a position to fill all orders, large or small, with unprecedented promptness and dispatch.

THE following are specimens of letters recently received by the Buffalo Forge Company:

CANTON, OHIO.

The Buffalo Forge Company, Buffalo, New York.
GENTLEMEN,—We are now using one of your No. 22 shaving exhaust fans, and find it very satisfactory indeed.

This fan took the place of another of the same size made by a prominent manufacturer of exhaust fans. The first one was not capable of doing the work; is not nearly so effective as the one we are now using, made by you.

Yours truly,

THE PRINCESS PLOW COMPANY,
W. E. SEFTON, SR.

LOUISVILLE, KENTUCKY.

The Buffalo Forge Company, Buffalo, New York.

GENTLEMEN,—Replying to your letter of December 8, we are pleased to report that we have used your double blower for three years. During all the time it has worked with entire satisfaction, and we cheerfully recommend it to any parties who desire to be exempt from the troubles usually experienced from the use of a bad blower.

Yours very truly,

LOUISVILLE COFFIN COMPANY,
Per W. H. MAY, Sec'y and Treas.

PITTSBURGH, PENNSYLVANIA.

Buffalo Forge Company, Buffalo, New York.

GENTLEMEN,—Having used your No. 17 shaving exhaust fan for three years, we can give it the very highest recommendation. It has been running steadily, and has never had any repairs.

Respectfully yours,

WYOMING VALLEY LUMBER COMPANY,
L. B. H., Pres.

It is a noticeable fact that the utilizing of tile for roofing purposes is growing in popularity and that such roofs in the coming years will be commonplace, particularly in the class of structures known as "fireproof" and "slow burning." In the old world such roofings have been an usage for centuries, and instances are known where they have stood intact while generations of men have been born and died under them without occasion for their restoration. That the tiling of roofs in this country has not been of common practice has no doubt grown out of the fact in the "good old Colonial days" all brick and tiles had to be brought from the old country, as well as the talent for setting them. Now, that in these later days, brick having become a common building staple of the country, and such progress made in building ceramics as to create new uses for the output of our kilns, it is not surprising that the minds of house designers have turned to the contemplation of the impregnable tile roof, and that manufacturers, like the Rapp Roofing Tile Company of New Philadelphia, Ohio, have sprung up to meet the consequent result. Certain it is not only are tile roofs being laid all over the country, but better ones than the old world ever had, because the tiles are molded of such forms they conform to any shaped roof and withal are as ornamental with their attendant finals, crestings and hiprolls, as they are useful.

Railroad Notes.

SAVE \$36.50 TO CALIFORNIA.—J. C. Judson & Co's personally conducted California excursions in broad gauge Pullman tourist sleeping cars, via Denver & Rio Grande Railroad, (the scenic line of the world) leave Chicago via Chicago & Alton Railroad, 12:00 noon Saturday of every week, each excursion in charge of an efficient and gentlemanly excursion manager. Pullman tourist sleeping cars through

from Boston and Chicago to San Francisco and Los Angeles. For rates, reservation of berths, etc., call on or address J. C. Judson & Co., 195 Clark street, Chicago.

PLAYING CARDS.—You can obtain a pack of best quality playing cards by sending 15 cents in postage to P. S. EUSTIS, General Passenger Agent, Chicago, Burlington & Quincy Railroad, Chicago, Illinois.

COMPLETED TO DEADWOOD.—The Burlington Route, Chicago, Burlington & Quincy Railroad, from Chicago, Peoria and St. Louis, is now completed, and daily passenger trains are running through Lincoln, Nebraska, and Custer, South Dakota, to Deadwood. Also to Newcastle, Wyoming. Sleepers to Deadwood.

ARTISTIC CALENDARS.—The Chicago & Grand Trunk railway's series of illustrated calendars for 1891, if possible, excel their issue of previous seasons, and which have become generally well known. Each calendar is a reproduction from nature in the highest quality of photogravure art. Many thousands have been mailed gratuitously to personal addresses. Additional copies of any of the set will be sent free on receipt of 10 cents each, in stamps, by addressing W. E. Davis, general passenger and ticket agent, Chicago & Grand Trunk railway, Chicago, Illinois.

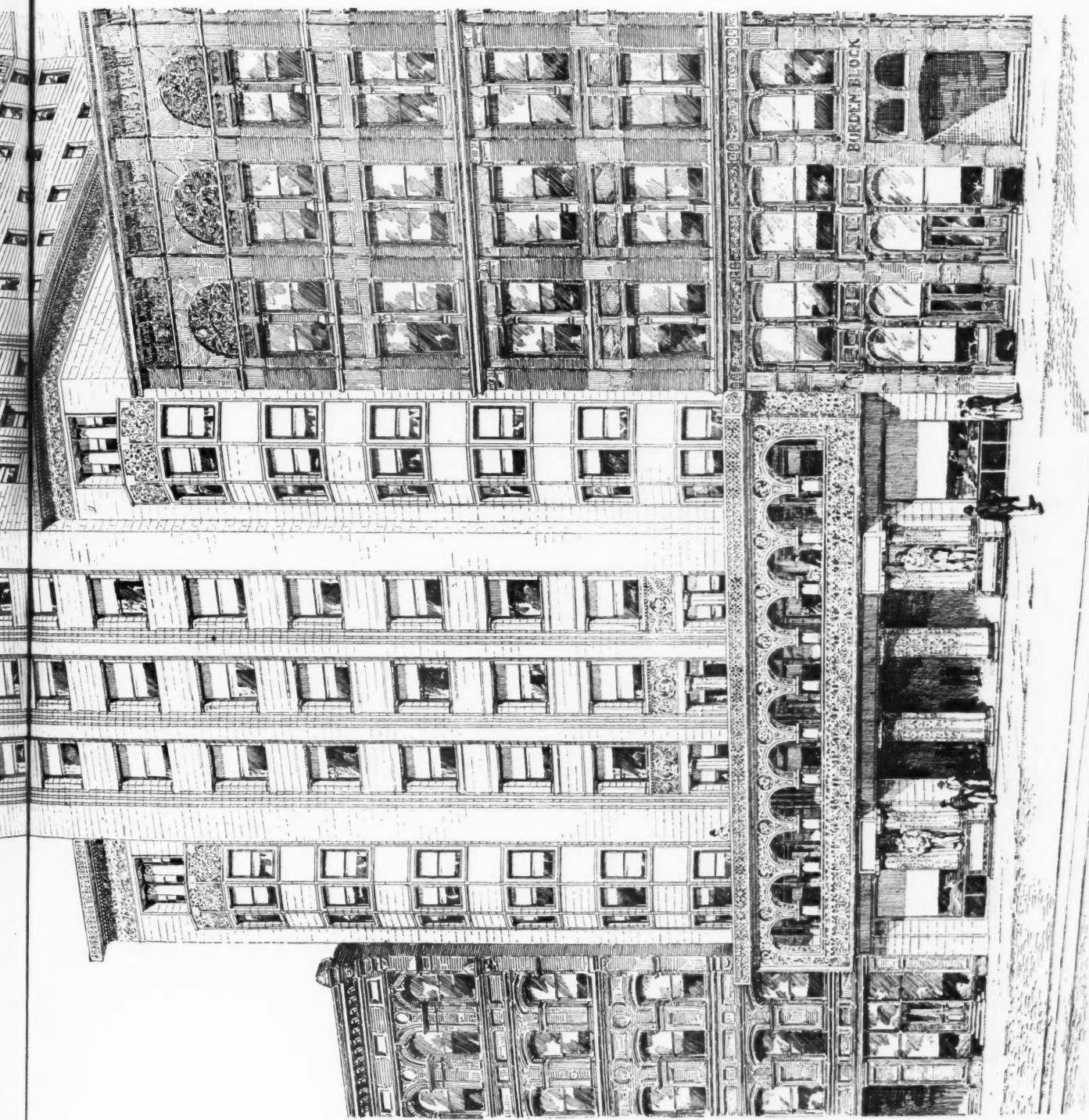
TRAVELERS and tourists contemplating a visit to the Pacific coast should bear in mind the Lake Superior, St. Paul & Union Pacific, a new passenger and freight line formed by the Chicago, St. Paul, Minneapolis & Omaha and Union Pacific railways. This line strikes about all the important far western towns and cities, i. e., of Nebraska, Montana, Idaho, Utah, Wyoming, Washington, Oregon and California, and reaches the coast several hours sooner than any other route. The accommodations are first-class in every respect and the fare as low as the lowest. Special excursion trains are run, leaving St. Paul and Minneapolis every Thursday morning. For fuller particulars address T. W. Teasdale, general passenger agent, St. Paul.

WILL you join the colony now organizing to locate in Maryland, between the cities of Baltimore and Washington? Here are fine farming lands, low in price, adapted to every branch in agriculture; an abundance of pure soft water; delightful and healthful climate; near to the best markets in the world; unsurpassed railroad facilities, with low freight and passenger rates, with quick time; educational advantages second to none; churches representing almost all denominations; refined and cultured society, etc. Only a few more wanted to complete the colony, and if you want to join in one of the best opportunities of a lifetime, now is the time; farmers, business men, mechanics and laborers—there is a chance for all. One hundred per cent profit easily assured in three years. Full information free of charge furnished by M. V. Richards, land and immigration agent, Baltimore & Ohio railroad, Baltimore, Maryland.

DISTANCES TO WASHINGTON.—From St. Louis to Washington the distance is 894 miles; from Cincinnati to Washington 553 miles; from Chicago to Washington 813 miles. This is via the bee line followed by the Baltimore & Ohio Railroad, the most picturesque as well as the most direct route from the Mississippi river to the Atlantic seaboard, stretching across level and fertile prairies, amid hills and valleys, over mountain crests, along banks of historic rivers, through teeming cities and bustling towns. The through Baltimore & Ohio trains, with full Pullman equipment of sleeping, parlor and buffet cars, run from St. Louis to Washington in 29 hours; from Cincinnati to Washington in 18 hours; from Chicago to Washington in 25 hours. Sleepers from all points run through to New York from the West without change. At Washington connection is made with the Baltimore & Ohio's matchless Royal Blue Line for Baltimore, Philadelphia and New York. These Royal Blue trains consist of the stanchest and finest coaches, parlor and sleeping cars ever built by the Pullman Company.

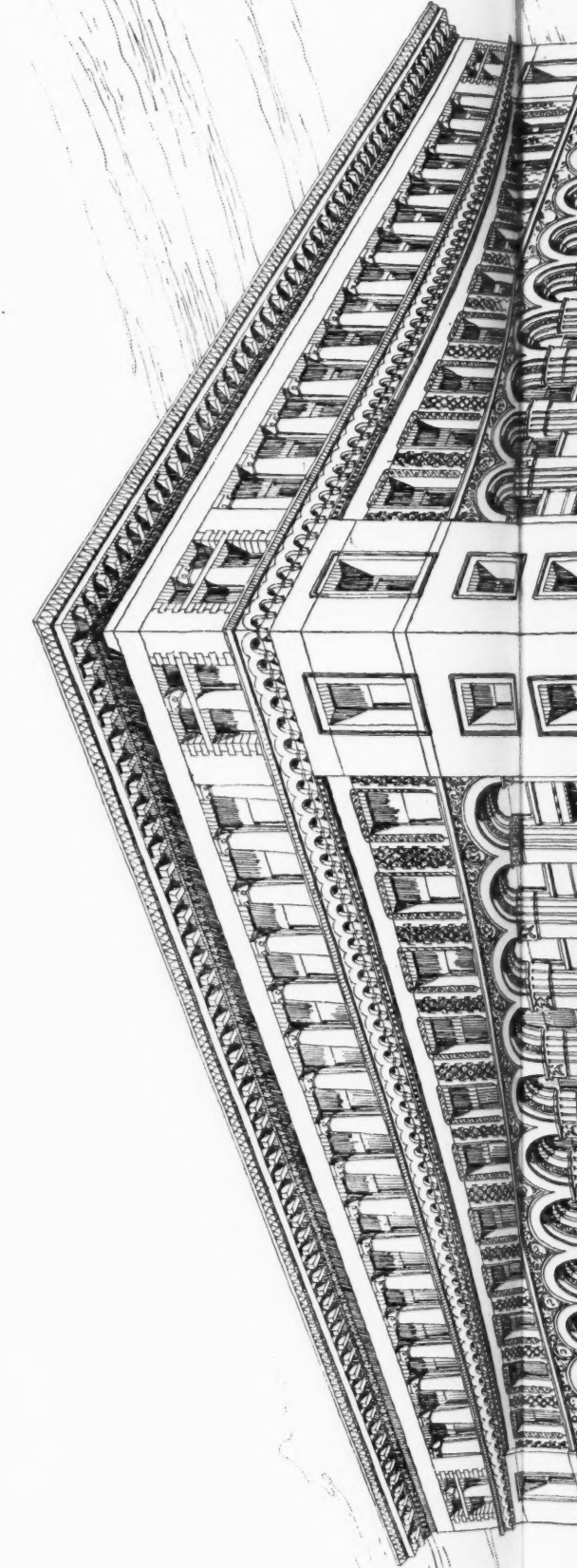
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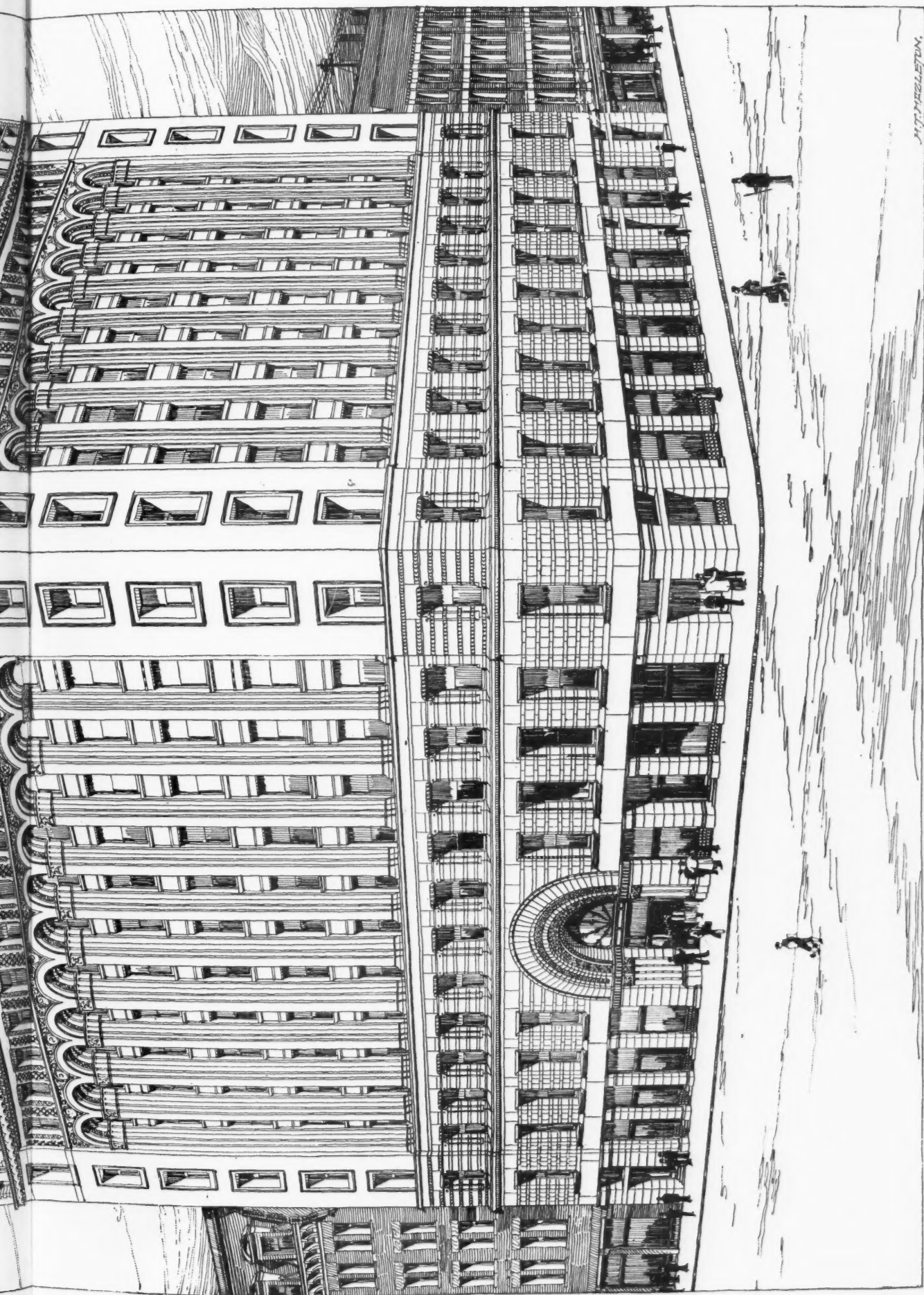




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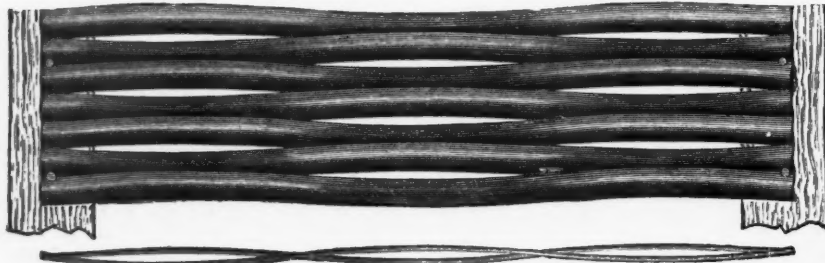
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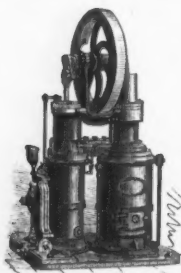


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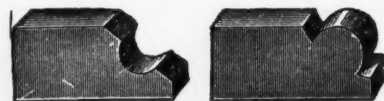
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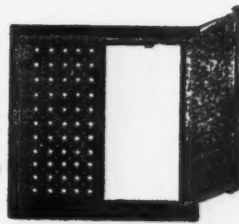


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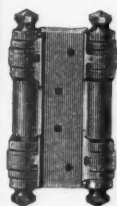
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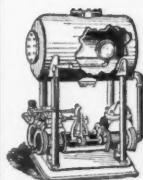
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7x2½	x 1¼ to 1¾	6 in.	66 1 40	86 3 80	3 75	6 75	5 75	10 25
8x2½	x 1¼ to 1¾	7 in.	67 1 75	87 3 50	4 50	8 25	7 00	13 25
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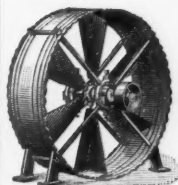
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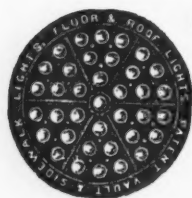


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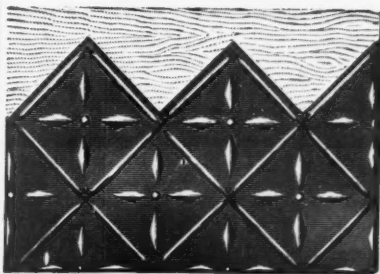
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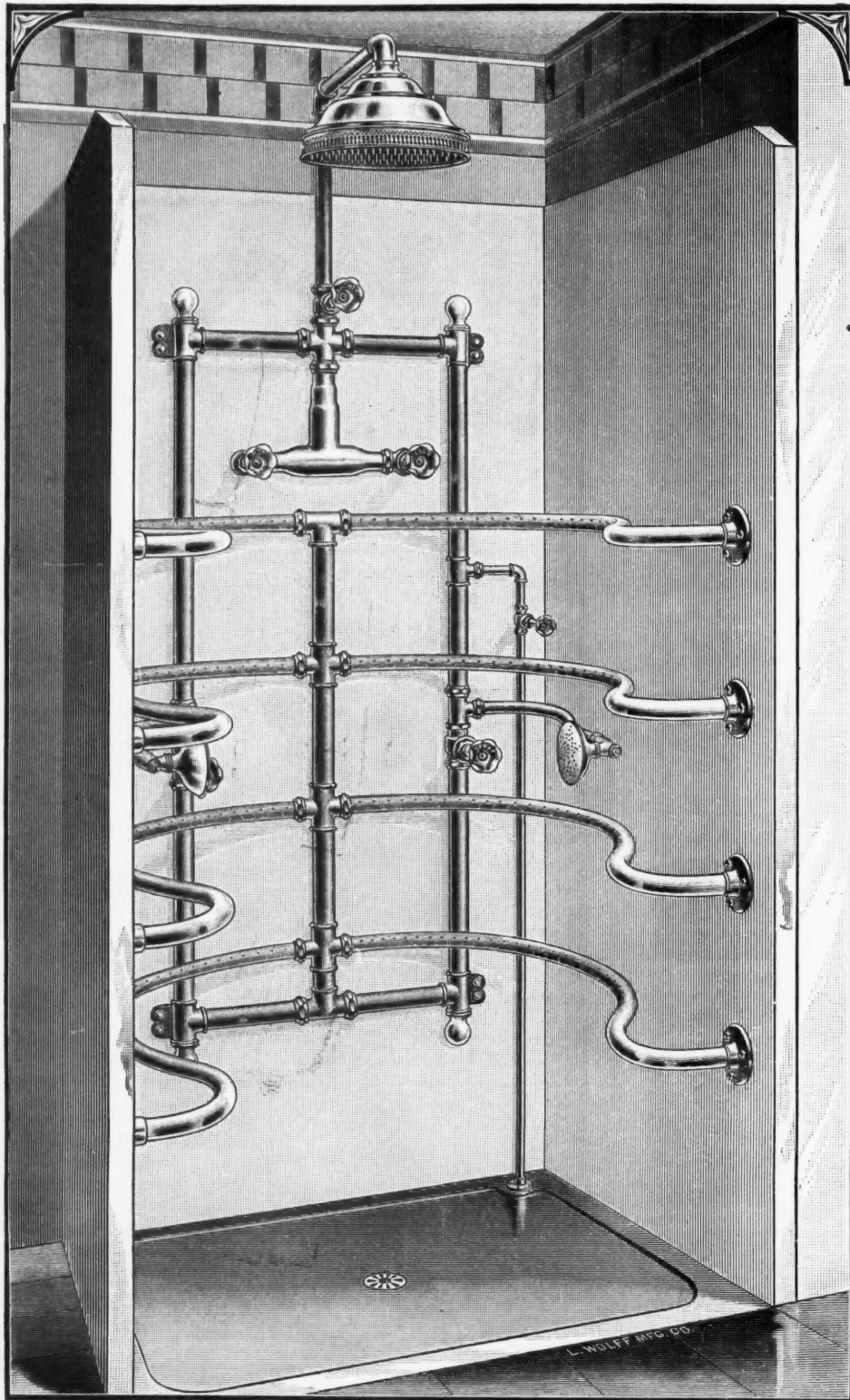
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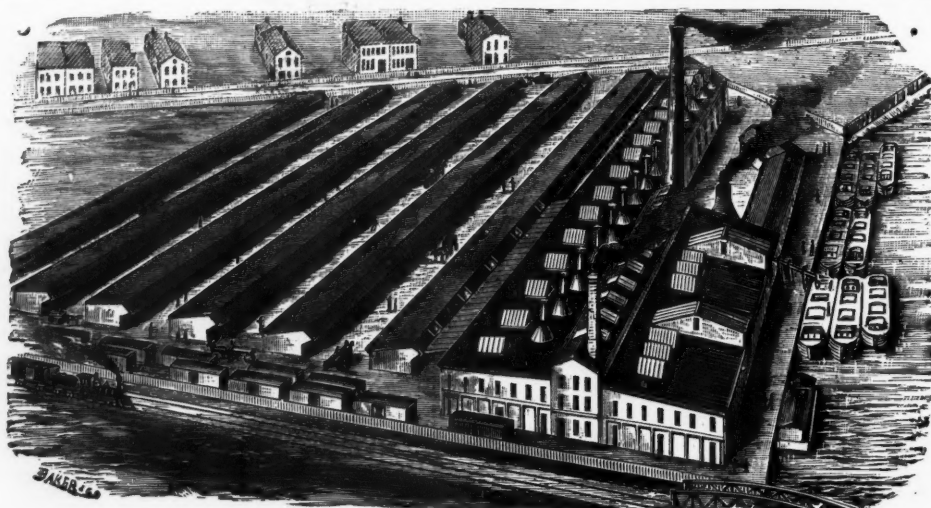
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JUNE, 1891.

No. 3

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Committee on Uniform Contract: O. P. Hatfield, chairman, New York, N. Y.; D. Adler, Chicago, Ill.; Alfred Stone, Providence, R. I.

Committee upon Conservation of Public Buildings: The presidents of Chapters.

Columbian
Exposition
Success and
Progress.

To us at the center of activity in the preparation for the World's Columbian Exposition to learn that a prominent railroad official in England writes to a friend in this country asking "if the fair will really be held, and when," seems almost impossible. If no information had gone abroad other than the President's proclamation, the universal enterprise of the citizens of the United States should be a guarantee that the project would be carried out. But a "prominent railroad official" in England, or in Patagonia, would be supposed to read the newspapers and journals of the day, and for a year the public has been kept informed of the progress of this great movement. It is true that the jealousy of some newspapers has led them to magnify difficulties and ignore advantageous facts, and these reports, coming from the city recognized in foreign countries as the metropolis of this, has influenced many foreign journals, and through them the people have been misled; but even this should show that something was being done, and those interested in the matter could easily obtain exact information from business men of their acquaintance in Chicago. The fact, certified to by the President's proclamation, that \$10,000,000 had been subscribed and guaranteed for the buildings, and additional funds since acquired in the shape of stocks, bonds, government appropriations, etc., to the total amount of \$14,645,000, should be some indication that a spoon of large dimensions was in the process of manufacture, or a most costly horn was being spoiled. Adding to this the amounts that in many states will be added to, and, in some cases, doubled by the next legislatures, and the amounts raised in states by private subscription, the total amount expended in buildings and general preparation will not be short of \$23,000,000. At present, out of some thirteen main buildings, costing from \$200,000 to \$1,000,000 each, contracts have been let for five, and the remainder will be let within the month, several of them to be finished by the first of next January. Since the different designs for these buildings were approved in February, a plot of ground, a mile and a half long by a mile wide, has been prepared for their reception. The construction department is in charge of a chief whose executive ability is recognized and relied upon, whose judgment is never questioned by his professional co-laborers, and he has surrounded himself with young men whose abilities in their several lines has been tested, and who bring an enthusiasm into the work. Under these conditions there is no room for doubt regarding the completion of the buildings in ample time for exhibits to be received and arranged before the date of opening, gigantic as the enterprise is beside all previous world's expositions. Paris, in 1889, spent \$8,600,000, and covered one hundred and seventy-three acres. Here a thousand acres will be occupied, and three times the amount of money expended. Even now many of the buildings are thought to be inadequate to contain the exhibits, and recently a strong effort was made by electricians to double the size of the electric building. Plans will not be changed, however, and the exhibitors in all lines will do well to make application for space as early as possible. The department of publicity comes next in importance to that of construction. Here the best linguists, the most able writers and statisticians are organized,

to keep the world informed upon every question relating to the fair, and no prominent official in England or bone carver in the South Seas need be ignorant if he has learned to read, or can address a communication to the department.

**Musical
Requirements
in English
Churches.**

A joint committee of organists and architects recently presented to the Council of the Royal Institute a report upon the musical requirements in churches, which may ultimately be issued by the Council, but possibly with amendments, the report being an ideal rather than a practical in all its recommendations. The organists upon the committee are all distinguished men of great practical experience in their profession, and especially qualified to deal with the subject. The report was submitted to the Council May 4, and ordered printed in the *R. I. B. A. Journal* prior to its consideration by them. The Council of the College of Organists were prompted to propose a joint committee through a paper read by Mr. John Belcher before the Royal Institute, upon musical requirements in church planning, and a strong committee was appointed in consequence. The committee consisted of four Fellows of the College of Organists: Dr. Martin, of St. Paul's Cathedral; Mr. Walter Parratt, of St. George's Chapel, Windsor; Mr. James Higgs and Dr. Turpin. That from the Institute consisted of five Fellows: Architects J. Belcher, R. H. Carpenter, J. D. Sedding, H. Stannus and H. H. Statham. The committee added to their number Mr. Somers Clarke, Dr. F. E. Gladstone and Rev. W. Russell, succentor of St. Paul's Cathedral, as authorities on many points of importance, and the committee also had the advantage of a conference with Mr. Micklethwaite and Mr. St. John Hope. The recommendations of the committee appended to the general report were as follows:

RECOMMENDATIONS.

1. That the organ and the choir be so placed in the church that they may most effectually assist in the services.
2. That it is essential to acoustic success that in the erection of new churches ample height should be provided for.
3. That in arranging any position for the organ, ample space should be allowed as regards area, "speaking-room," and height.
4. That no "open-flue" pipe should have less than its own speaking length (the speaking length of an "open-flue" pipe is the length from the slit or mouth above the conical foot up to the top of the pipe) above it.
5. That the organ should be concentrated, and not divided into two or more parts at a distance (excepting to place the choir organ in advance of the main instrument in the architectural design of the case).
6. That the ground space to be provided for an organ, exclusive of engines employed as blowing apparatus, should not be less than 600 superficial feet for an organ of 60 stops, of 310 superficial feet for an organ of 40 stops, and of 180 superficial feet for an organ of 20 stops.
7. That the organ should never be placed in a "chamber," but that the best position for an organ is that which has a sufficiency of open space above it and on three sides, and a solid, unpierced wall at the back.
8. That the term "organ place" be adopted, because it is more comprehensive (including gallery, etc.), and because the term "organ chamber" is misleading, inasmuch as a chamber (or enclosed place) has been determined to be not suitable for an organ.
9. That the internal surface of the roof above the organ should not be of wood, but of stone, plaster, or other non-absorbent material.
10. That in order to avoid noise and economize space the organ "feeders" should be placed at some convenient distance from the organ, and outside the main body of the building.
11. That the air supplied to the "feeders" must be derived directly from the church itself, in order to obtain the same temperature.
12. That the organ should be placed at a short distance from the choir, and that the best distance is about twenty feet.
13. That the organ should never be placed between the choir and congregation.
14. That the sound of the organ should not have to pass over one-half of the choir to reach the other.
15. That when possible the organ should be equidistant from both halves of the choir.
16. That the choir be placed on raised floors, or in low projecting galleries architecturally treated.
17. That the height of the platform, steps, or gallery on which the choir is placed should be regulated by the length of the church.
18. That provision should be made for the accommodation of large bodies of voices for special occasions to be seated in due musical relation to the choir and organ.

19. That it is desirable in churches of adequate size that provision should be made for an orchestra on special occasions.

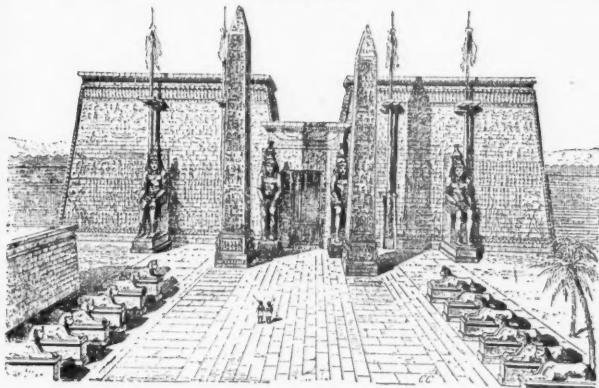
While the report deals entirely with English churches, the recommendations will apply to the construction and acoustics of all church and music hall edifices, and are valuable as the consensus of the experience of some of the best organists and architects in the world, and are equally applicable to American churches.

**Organized
Labor
and the
World's Fair.**

That un-American institution, the trades union, has developed its un-American principle of curtailing or abolishing the personal freedom of the individual in a new direction, that of seeking, as far as possible, to cripple the World's Fair, and that simply because the directors could not or would not make the construction of the buildings, as they term it, a union job. The representatives of the unions in the building trades first made an arbitrary demand upon the directors, seeking to obtain their guarantee that none but union men should be employed. The directors paying no attention to this, they sought and obtained recognition in the shape of an agreement that all disputes should be settled by arbitration; but when the establishment of a minimum rate of wages was insisted upon, the directors refused to concede. At this juncture a bill was placed before the Illinois state Legislature asking for \$1,000,000 appropriation for the state exhibit, and the unions sent delegates to the state capitol to endeavor to defeat the bill. In this they were partially successful, through the speaker of the house, who, seeing political capital in opposition, made every effort possible to defeat the measure, and succeeded in cutting down the appropriation by \$200,000. As most of the unions in this country are managed by men who, though American citizens by act of congress, are foreign born and educated, it is not surprising that the compulsory methods of the old world are thought by them to be necessary in the new; but that they should seek to defeat the greatest national enterprise of the century in the country of their adoption, simply because they cannot control it, would be called treason in countries less enlightened and more arbitrary than ours. It does not alter the status of the case that it would be better for both contractors and workmen, as well as the "owners," if a minimum rate of wages could be established, thereby giving each contractor a basis to figure upon and each workman the assurance that their competition with each other would be upon personal ability rather than upon required compensation. Injustice can never aid a good cause, and is always an adjunct of a bad one. It is probable that the directors would have been unable to dictate to contractors regarding the wages they should pay, even if disposed to do so; but it has not helped the cause of organized or disorganized labor to attempt to arbitrarily control their action. Of course, the next argument will be a strike; but no strike in the building trades will be effective during the next two years in Chicago, as the supply of workmen will be so much larger than the demand, former strikes having already so overstocked the market as to make it exceedingly difficult for a stranger to obtain work. This is especially true in the carpenter trade, by which most of the labor upon the fair buildings will be done. As upwards of ninety per cent of the entire money expended will be represented by labor in some shape, and not ten per cent of it has been subscribed by labor, the position taken by the trades unions and their claims in the premises does not call for any further comment.

Architecture and the Allied Arts.

BY BARR FERREE, LECTURER IN THE SCHOOL OF ARCHITECTURE, UNIVERSITY OF PENNSYLVANIA.



FAÇADE OF TEMPLE OF LUXOR.
Restored by C. Chipiez.

AN architectural style is the resultant of many causes; it is made up of numerous distinctive elements all of which are necessary to the whole, and scarcely one can be considered as more important than another. If any one part of the characteristics of a style is especially marked, it is clearly the ornament and decoration that forms a large portion of its individuality. Style in architecture does not consist in ornament alone, but of ornament in connection with construction, materials, the influence of manners, customs, environment, religion, culture, government and similar elements. It is, however, so readily distinguishable as a component part of style, and styles are to a certain extent so readily determined by special modes and methods of decoration, that a study of its influence upon the development of architecture apart from its historical connection is both legitimate and interesting.

It is proposed to trace the influence of the allied arts, of painting, sculpture, enameling, work in metal and other minor forms of art that have a decorative purpose, upon the development of architecture and the special manner in which they became characteristic portions of the more important historical styles. No effort is made to condense the characteristic systems of decoration, of proportion or of coloring, of methods or of historical sequence, but simply to note the part taken by the allied arts in architecture and their importance in the formation of styles. In its broadest sense such a programme would be little short of a summary of the whole history of art, for while these elements do not constitute architecture they form so large a portion of what it is popularly considered to be that it is difficult to tell their story properly and fully without reviewing architectural history in its entirety. Such a work would be quite beyond the limits of this series of papers, and it will, therefore, be limited to the special subject in hand, the relations of the varied arts to architecture.

Unless this limitation is fully understood at the outset this sketch must appear incomplete and distorted. The arts are viewed primarily from the standpoint of architecture and their progress and development noted from this basis. It is a remarkable fact that the part taken by any form of art in architecture is not most evident at the beginning of a style nor at its close. The earliest forms of any architecture, when the monuments permit us to study its beginnings, show but a limited use of ornament of any kind. Painting and sculpture, even if in the form of carving, is rude and undeveloped, and architecture alone—the building, the construction—seems to make progress. Both painting and sculpture have a tendency to progress in a more rapid ratio than architecture. Sometimes the increase in superior technique in all three is relatively the same. This was the case in Greek art, in the golden age of which architecture, painting and sculpture were of the highest degree of perfection, and when they declined all three disappeared at the same time. In the middle ages, when architecture again rose to a supreme height, the allied arts progressed in the same manner, though neither obtained the same relative rank that architecture did. While the decadence of Gothic architecture was accompanied by a similar decadence in painting and sculpture, in the Renaissance they easily surpassed architecture in point of merit, and have retained this supremacy to the present day.

Painting and sculpture both had their origin as adjuncts to architecture, and as they progressed they naturally departed further and further from it, lost their especial architectural characteristics and took more and more the form of individual arts. In noting their

influence upon the development of architecture a certain amount of unevenness becomes manifest, for in many periods as painting and sculpture progressed they became less and less essential parts of the architecture. The decline of the arts in architecture is, therefore, by no means synonymous with their individual decline, and the reader will do well to remember that as they gradually become independent their architectural value and interest diminishes.

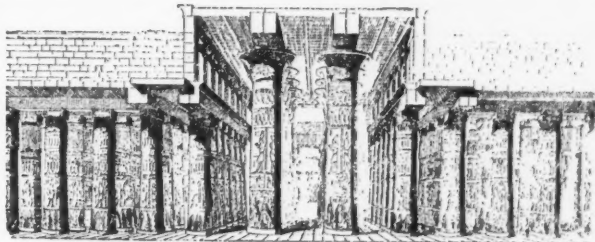
Without undertaking to chronicle the history of architecture, of sculpture or of painting, there still remain a body of facts relating to the joint history of these great arts and the minor ones developed in the history of culture. Though thus restricted to this border land that is difficult of precise definition, the field is a broad one, and a more extended treatment would doubtless bring together much more interesting data than can be found in the limits of these chapters.

PART I.

PRE-GRECIAN.

The history of architecture shows that those styles in which the union of architecture and the allied arts, painting, sculpture and various minor arts, is the most intimate, are the most successful and the most beautiful. Architecture is the oldest of the arts because it originated through the necessity of man for shelter; painting and sculpture, if the earliest rude carvings can be so designated, being first used as adjuncts to it, it is natural that the association of all forms of art should be noted from the earliest times. The broad line which has been drawn between the three great arts is of comparatively modern invention. In the golden ages of architecture, in the Egyptian, the Assyrian, the Greek, the Roman, the Gothic, all three arts were closely connected. Each had its subordinate part to play in the work, and the art of the structure consisted in the union of all. There was a balance and evenness between the parts that added much to the success of the edifice. It is this which makes the buildings of former times so generally successful, and a knowledge of the relations of painting and sculpture to architecture and the effect they had on its development is of great importance to the understanding of the true meaning of the art, and an appreciation of its greatest monuments.

The architecture of the east furnishes many splendid and rich examples of the union of the three great arts. The Orientals have an especial appreciation of the proper use of accessories, and they freely used them. Their buildings in both ancient and modern times are covered with glowing colors, and though sculpture is not highly developed it is more from a lack of technical knowledge than any disinclination for it. The further east we go the more noticeable this phenomenon becomes, the richer are the accessories, the more brilliant and vivid the colors, the more elaborate the designs. To the



INTERIOR OF HYPOSTYLE HALL, KARNAK.
After Chipiez.

western eye the superb decorative ornament of India, China and Japan is almost bewildering. It is an integral part of the architecture, and the actual effect of a Chinese or Japanese structure is quite unintelligible without it. The natural causes of this are not far to seek. The brilliant, cloudless atmosphere of the south deprives a building of neutral tint of much of the advantages of size and form. Color is needed to accentuate it and bring it out distinct from the landscape, and give it the definite character without which any building is intolerable. A recent writer has pointed out, with great truth, that as we find the colors of birds and flowers increase in brilliancy toward the tropics, so there is an increase in the warmth of the decoration of the architecture. It is not a matter of taste, but a physical fact operating under a physical law.

The application of color to the external ornamentation of a building is dependent, primarily, upon the climate. The warm, dry, even temperature of India, China and Japan permits the use of an elaborate polychromy, and it is carried to a high degree of perfection in these countries. The designs are sometimes fantastic, the tints harsh, the execution barbaric, but the results are always splendid, and under the brilliant sky of the south are thoroughly in keeping with the

environment. The architecture of these countries is light and graceful, almost flimsical at times, judged by European standards, and hence color is necessary in order to give the character it otherwise would not possess. A similar condition is found in all the leading



PAINTED COLUMN.
From Rhamession, Thebes.

styles, though each worked out its development in its own way. No one art was sacrificed to another. Surfaces were not prepared that they might be covered with paintings, nor were pedestals set up for no other purpose than that statues might be placed on them. On the contrary, the universal practice of good work in previous times has been to subordinate both painted and sculptured decoration to the architecture. The buildings of the Aztecs and ancient Peruvians are an exception, for their surfaces seem to have been especially designed to receive the elaborate carvings which were characteristic of these styles. They stand, however, entirely outside the limits of the progressive history of architecture and are of importance only as showing the unsatisfactory results of building for ornament, instead of ornamenting the building.

The Egyptians relied chiefly upon painting as an ornament for architecture. Every part of the building, the walls, both within and without, the ceilings, the columns, the capitals, the doorways, the openings, all portions, in fact, had their colored decoration. Every inch of the surface was covered with designs, figures, human and divine, representations of life in this world and the next, occupations, manufactures, arts, amusements, animals and plants and geometrical combinations. The whole story of Egyptian life, history, thought, belief was at one time or another displayed in the painted decoration of the walls. The designs were spread over the surface like great pieces of embroidery, without any attempt to accentuate the lines of the building, or to follow the forms of the architecture. Usually, instead of being painted, the picture was worked in very low relief and then colored. The general effect, however, did not differ essentially from paintings, and the Egyptian is, therefore, more than any other a painted architecture, though the art of the sculptor lay at the foundation of it all.

Doubtless the religious belief of the Egyptians was largely instrumental in determining their system of decoration. They believed in an animation of objects whereby the figured representation had a real and actual existence. In the tombs, which were as richly decorated as any structures intended for the living, the scenes on the walls had, for the spirit of the dead, as real and tangible existence as that of those who had executed them.

It is somewhat inconsistent with the general massiveness and stability of Egyptian architecture that the decorations should not have been made with the attention for eternity shown in the structure itself. The painted decoration was spread over a stuccoed surface which was liable to fall to pieces at any moment and seriously injure the whole design. Even when the figures were incised the color was laid over a plastered surface. Nor was this all, for as the decoration covered the entire surface of the walls without reference to construction, it was carried across cracks, joints and imperfections in the stone without regard to consequences. A new factor in disintegration was thus introduced which must have required constant care and considerable expense to counteract. In this way the architectural decoration of the Egyptians was, in a measure, independent of the structure on which it was placed. It was, however, never intended to be considered apart from it. So far as final effect was concerned the colored decoration of Egyptian buildings was quite as much an integral part of the whole as the stones of which they were built. No edifice was completed until it had been covered with ornament, and

it is impossible to obtain a correct conception of the grandeur of Egyptian architecture from the dismantled and denuded monuments on which we now depend for information. The rich ornamentation changed, to a very considerable degree, the general appearance of the architecture, which in its forms and outlines was massive and gloomy, and gave it life and vitality.

From a constructive standpoint Egyptian architecture did not lack variety of form, but the free use of painting and ornament gave it an added richness and variety of surface which could not have been obtained by the use of stone alone. Sculpture played rather a subordinate part in Egyptian architecture, though not in Egyptian art. Colossi were frequently used in conjunction with the temples, and figures were occasionally applied to the outer surface of a pilaster. A capital, bearing on its four sides the head of the goddess Hathor was sometimes used. The great rock-cut temples at Ipsamboul have their façades ornamented with life-size human figures cut from the living rock and are unique applications of sculpture to architecture. It is in such instances that the Egyptians made use of sculpture. Their architectural ideas did not require statues as distinguished from bas-reliefs and they were too sound artists to manufacture places for its display.



BAS-RELIEF, SARGON.

Both painting and sculpture had their own places, and though the former was more largely used, it must not be inferred that the latter was not appreciated. Its development was hindered by the fact that it was chiefly in the form of low reliefs, and, being colored with scarcely any projection, did not differ in visual effect from painting itself. Sculptured ornament, as it is found in later styles, is comparatively rare in Egypt, possibly because the stone used was hard. Its place was taken by painted ornament. The painted decorations of the Egyptians not only included pictorial scenes from life and history, but geometrical and other ornaments, which were used, both as surface decorations and on moldings, and similar places where in other styles carved decorations were employed. Some of the tombs contain examples of painted doors and walls that are of almost unsurpassed brilliancy and wonderful complexity of design, showing that this form of art was practiced and carried to a high degree of elaboration.

While sculpture in the form of statues was not much used by the Egyptians architecturally, it was a favorite form of art and was practiced from the earliest times. Every Pharaoh had his statue and

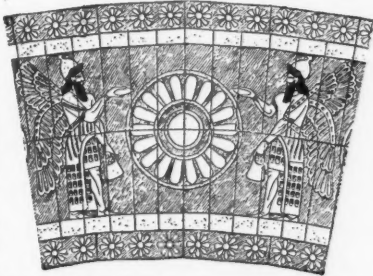


WINGED BULL.

every Egyptian who could afford it placed at least one image of himself in his tomb. In fact portrait sculpture is one of the most ancient of Egyptian arts and our museums are crowded with its remains. The phenomenal activity in this most difficult of arts—and the Egyptians exhibited a profound skill in it, producing portraits of intense individuality and frequently in the hardest stone—was due to the belief that a portrait statue would serve as an abiding place for the *double* of the soul on its return to this life. It is somewhat singular that a people who were thoroughly acquainted with the technique of statue-making did not employ it to a greater extent in architectural combinations. With the exception of the colossi and the avenues of sphinxes which formed the approach to every temple of importance it is almost wanting as an architectural adjunct, though abundantly used as statuary.

Chaldean and Assyrian architecture depended on the allied arts for complete effect to the same extent as did the Egyptian. The

methods and substances used were different, but like the older art it was never intended to be considered apart from the accessories. The chief of these was metal, and in this respect Chaldean and Assyrian art stands almost alone in relying more on these substances than any other form of architecture. This was due to the geological nature of the country. In Chaldea the almost total absence of any building stone, and the necessary reliance on brick and clay, necessitated the employment of a different decoration than was suitable where stone was plentiful, or could be had with small trouble. A very considerable quantity of precious metals could be transported with little labor, and they formed an effective decoration. The general conditions under which they were employed have been admirably epitomized by MM. Perrot and Chipiez:



PORTION OF ENAMELED ARCHIVOLT, KHORSABAD.

"They could be used at will in flexible threads or long, narrow bands, which could be nailed or riveted onto wood or brick. They may be beaten with the hammer, shaped by the chisel, or engraved by the burin; the variety of shades of which they are capable, and the brilliance of their reflections, are among the most valuable resources of the decorator, and the coloring principles they contain provide the painter and enameller with some of his richest and most solid tones. In Chaldea the architect was condemned by the *force majeure* of circumstances to employ little more than crude or burnt brick and bad timber; in Assyria he voluntarily condemned himself to the limitations they imposed. By the skillful and intelligent use of metals he managed to overcome the resulting disadvantages in some degree, and to mask under a sumptuous decoration of gold, silver and bronze the deficiencies inherent in the material of which his buildings were mainly composed."

The Chaldeans and Assyrians did not, however, rely solely upon metals as a means of decoration, but employed sculpture, painting and enamel as well. Their system of sculpture as an architectural accessory differed from that used by other peoples of antiquity, owing to the materials they employed in their buildings. The soft clay of which their structures were built did not permit of any general system of sculptured decoration as in the Egyptian. A scarcity of good stone was another element in determining their method. They were forced to content themselves with an economical use of such as they could obtain, and did not do more than face the lower portions of their walls with it. It is a singular fact that an examination of the remains of Assyrian buildings shows that no general system of bonding was employed to keep these stones in position. Dependence was placed on the adhesion of the stone to the surface of the clay walls. It is obvious, that with such an imperfect method of construction it would have been impossible to make use of more than one layer of the applied stone. This was carved in figures and groups, frequently life-size, the relief being higher than with the Egyptians, and placed on a direct line with the eye of the spectator instead of being spread all over the surface of the wall. The range of subjects was scarcely as varied as the Egyptian; and sacred figures only were carved on the exterior of buildings, while the interior decoration related to human affairs, and was concerned chiefly with the monarch and his glory. The winged bulls and lions, which guarded the more important entrances to all Assyrian structures, were monuments of great grandeur, and as guardians of the building fulfilled their object in a calm, dignified and imposing manner that has seldom been surpassed.

The walls above the sculptured base were decorated with enameled brick of various colors. Enamel had been used by the Egyptians, but not on the scale it was by the Assyrians, who, if they did not invent the art—and it is very likely they did—gave it a character and importance not found in other styles. Sometimes the walls were plain and in one tint; sometimes a variegated design was used, and sometimes the brick was ornamented with human figures or geometrical or conventional combinations. This formed a brilliant surface and aided largely in the diffusion of light in the dark apartments of an Assyrian building.

Assyrian architecture presents us with no well preserved ruins such as we have in Egyptian art, and we must depend upon scattered fragments in order to obtain an idea of their finished effect. Enough has, however, been preserved to make clear the extent to which the

allied arts were essential to its full understanding. The complete effect must have been of great brilliancy and designed to exhibit most advantageously the various decorative arts of which the Assyrians were masters. The lack of definite knowledge of the manner of roofing these structures necessarily prevents us from obtaining an accurate idea of the actual appearance of an interior, but whatever may have been the means employed it certainly was one that enabled the spectator to enjoy to the fullest the richness with which they were decorated.

One other characteristic Chaldean decoration may be mentioned, and that is the system of external decoration by grooves. This was a favorite form and gave a pleasing variety to the huge wall surfaces, which, owing to the material, they must otherwise have been without. Sometimes the wall was molded to resemble columns, at other times the grooves were straight and paneled.

The Assyrians were not satisfied with the results obtained from enameling surfaces alone, but adopted another process of enameling in relief. This was done by modeling the design on a large block of clay, which was cut up in pieces of the proper size for baking, and the design then built into position. While practiced to a considerable extent by the Assyrians, the best specimens of this decoration belong to Persian art. The finest example which has been recovered by modern research is the famous frieze of the archers which M. Dieulafoy resurrected from the façade of the *apadāna* of the palace of Artaxerxes Mnemen, at Susa, and which has been set up in the Louvre. It consists of a series of soldiers marching in profile. On the left shoulder is carried a bow, colored yellow, and a quiver, of reddish brown. Both hands grasp a pike that is tipped with a silver knob. The tunics, which are alternately of white and golden yellow, are narrow, and open at the sides, with broad sleeves. The material is spangled with green or blue daisies, or with lozenge-shaped designs, and there is an embroidered border. The turban is twisted into rolls, and is of a greenish color. The soldiers wear sky-blue leather boots, and are adorned with earrings and bracelets. The figures are exact duplicates of each other, though the colors vary. The tints are brilliant and strong and the enamel transparent and iridescent. No decoration of pottery or tiles ever approached these in superabundance of effect.

Hebrew art was not sufficiently developed to exercise any considerable influence on the general progress of architecture. It was probably closely allied to the Assyrian, and in some respects it was undoubtedly so. This was in the use of metals, of which scripture gives us elaborate accounts. The sacred vessels and furniture of the tabernacle were of wood, overlaid with pure gold. The ark of the covenant was of shittim wood, overlaid with gold, and "upon it a crown of gold round about." The mercy seat was

of pure gold, as were also the two cherubim of "beaten-work." The boards forming the walls of the tabernacle were overlaid with gold and coupled with bars, similarly covered, held by rings. These boards were fastened in sockets of silver. The curtains which covered the whole structure of the tabernacle were fastened with taches of metal.

The magnificence of this structure was far exceeded by the temple of Solomon. "So Solomon overlaid the house within with pure gold: and he made a partition by the chains of gold before the oracle; and he overlaid it with gold. And the whole house he overlaid with gold. . . . And the floor of the house he overlaid with gold, within and without." (1 Kings vi, 21, 22, 30.) The adjuncts to the tabernacle and the temple were all of metal.

(To be continued.)



ARCHER, SUSA.

Tall Buildings.

ARCHITECT DANKMAR ADLER, in a letter to the *Economist* regarding a movement to secure legislation pertaining to Chicago building, protests against the proposed law upon the ground that it is unnecessary and inoperative. Pointing to the approaching greater concentration of all lines of business in the centers of great cities, which will cause a demand for still higher structures, Mr. Adler gives the following thoughts and conclusions regarding the development of the tall buildings and the necessity for carrying them to the utmost possible height.

As a participant in and an interested observer of the development of the "tall building" so characteristic of Chicago, the discussion instituted by you has brought to my mind the following thoughts and conclusions which may interest you and your readers:

First, as to the tall building considered merely as a thing to be constructed, and ignoring for the present its foundations, and assuming that the riveted steel skeleton construction must be adopted to make it a possibility in its ultimate development, I start with the statement that, floor for floor, the height of the building has no bearing upon the difficulties of the construction. By this I mean that it takes no more strength of tile arch, of I-beam or of girder, nor does it take a greater number of rivets to fasten the beams to each other or to girders or posts, nor does it require a heavier bracket or lug to carry a given floor load at the twenty-fifth story than for the same load at the second. Nor is the metal area required for a pillar of given height any greater to carry this floor load on high than to sustain under the same conditions a similar load near the ground. Again, the concentrations of load upon riveted steel pillars in the lower stories of even the tallest buildings are so far within the capacity of our rolling mills and bridge shops, the transmissions of strains downward from story to story are ordinarily so direct and within the line of greatest resisting power of the pillars, and the attachment to the pillars by the usual means of the beams and girders carrying the successive floors forms so effective a system of lateral bracings for the pillars, and thus pillars, girders and beams are, in ordinary good practice, so effectively and efficiently knit together that, as regards safety in the mere downward transmission of loads to the foundation is concerned, the design of the tall building can hardly be called a very difficult problem.

To secure under prevailing conditions the proper degree of resistance to wind pressure is a most complex problem. Assuming the weight of structural parts and the base area of the building to be constant, the destructive effectiveness of wind pressure increases with the height of the walls. The most effective opposition to wind pressure is in mere weight of structure and in base area. The increase of the former is limited by the bearing capacity of foundations, the latter by the area of the building site. Either the mere dead weight of the structure or its base area, or both combined, can be made more effective as opponents to wind pressure by thorough internal bracing of the structure, and by the general use of good material and workmanship. In a general way, however, it may be assumed that buildings covering a large area, can be made higher than those of smaller dimensions; and it may be safely predicated from this that there will be a tendency toward the acquisition by single wealthy individuals or corporations of large blocks of realty in choice localities, with a view to their utilization as sites for unusually tall business buildings. Mere dead weight being then an important aid toward resistance to wind pressure, this weight will increase more rapidly than the height of the structure. Hence increase in bearing power of foundations must be a most essential factor in the design of the taller and the tallest buildings. But neither theory nor practice of foundation construction have as yet arrived at their ultimate development. In our practice, past and present, are germs for the development of a system of foundation construction that will be competent to serve the needs of the tallest building of the future.

Neither the timber and concrete foundations of the Board of Trade and the Pullman buildings, nor the rail and concrete foundations of the Rialto, Phenix and Rookery buildings, nor the timber, concrete, rail and I-beam foundations of the Auditorium, nor the concrete and I-beam foundations of the Tacoma and later buildings are the last word. They have all served their purpose with more or less efficiency and each is an honest and intelligent effort toward the final solution of a still unsolved problem. Each carries successfully under present conditions a tall building of today. None alone is competent to carry the taller buildings of tomorrow, and still less the tallest buildings necessary to fulfill the demands of the day after tomorrow.

All of these foundations are designed upon the hypothesis that our soil is compressible, and that equal loadings per unit of foundation area produce equal settlements, and that increase of load produces increase of settlement in ratio greater than this increase of load. Experience and practice have demonstrated the correctness of this theory.

All Chicagoans are familiar with the effect upon an existing structure of the erection of an adjacent heavy building. There is not as yet an example of the erection next to an existing "sky-scraper" of another structure of the same type. Assume, however, the case of such a one, the foundations of its party walls perhaps 20 feet or more wide. Most of these are loaded over 3,000 pounds per square foot of foundation area, some nearly if not quite 4,000 pounds, and one to my knowledge even more. Assume the load on a foundation 20 feet wide to be at the rate of say 3,500 pounds per square foot, a safe low average. Suppose that a building fifteen stories high — not an excessive height as buildings go — is to be erected on the adjacent property and assume that the nearest line of supports is 18 feet distant from the party wall. Suppose that the existing building is also fifteen stories high, and that both are office buildings. You will then have the most

favorable conditions. The construction of the adjacent building will increase the load per square foot of foundation area from 3,500 pounds to 4,220 pounds, sufficient to induce, as I have myself observed, an increase of settlement on the part of the already existing structure of from four to six inches. This would probably become somewhat greater at the front and rear walls where there would also be the additional load of the corner pier and half the fillings between the nearest openings.

It may be said that the old wall may be held on screws and new foundations inserted. But as the load to be held would begin with 35 tons per linear foot of wall and would end with 42 tons, and as the spread of bearing would have to be for nearest points only 24 feet, and the total width required for this operation would be almost 40 feet, of which 20 feet would have to be taken out of the completed building, this occupation of valuable space would alone constitute an almost insurmountable obstacle. And if one considers the character of a good concrete and I-beam or rail foundation, the desire for removing it to make way for another and larger one will be apt to disappear altogether.

It may be suggested that the additional load imposed by the new structure shall be carried not on the old foundations, but on cantilevers from an independent foundation within the limits of the new structure. A little reflection will show that this expedient is practicable only within rather narrow limits, far inside the requirements of the taller and the tallest buildings. Nor do I believe that Mr. Frederick Baumann's ingenious method for enlarging foundations of existing buildings can be applied under these conditions.

I know full well that in thus attacking existing methods of foundation construction I assail my own work, as well as that of my confrères. But as we are none of us perfect, so our work shares and exhibits our mental imperfections and limitations. Yet neither we nor our work should therefore be condemned. Each of us has contributed his share toward the solution of a difficult problem. Each has learned from the others and each has taught the others what to do and what to avoid, and together and all conscientiously working toward the same end we shall evolve before many years a system of foundation construction equal even on our soil to the bearing of structures perhaps thirty or forty stories in height.

Valuable contributions to the final result have been made by many, and some of these exist even in apparently unsuccessful work — work that was unsuccessful because the conditions were only partly understood. While admiring the brilliant exposition of the theory of isolated piers made twenty years ago by Frederick Baumann and since followed by all of us, we must not lose sight of the futile effort made by Mullett to produce a monolithic foundation for the United States government building, an effort which if made today with the means and knowledge now at our disposal would not have met with so ignominious a result. We should take into consideration the brilliant success of pile foundations as used under most trying conditions as supports for our grain elevators and as the substructure of the Northern Pacific Railway station. All these may be combined with each other and with other expedients not yet tried but quite applicable in Chicago soil.

Ecole des Beaux Arts.*

SINCE my first letter was written to this journal regarding the Ecole des Beaux Arts and the examinations which were in progress, these have been decided. These examinations extend over a period of about one month. As then stated, there were over two hundred applicants for admission to the school. Of these, thirteen were Americans, of whom three only were admitted, though out of one hundred and seventy Frenchmen only twenty were admitted. The remaining seven who were admitted, making in all thirty, were Spaniards, Portuguese, etc. Mr. Howard, from McKim, Mead & White's office, in New York, stood among those admitted. At one time he was a student in the Institute of Technology, in Boston, and, later, draftsman in Mr. Richardson's office. Mr. Stoughton, another American, stood sixth among those admitted. He is a graduate of the Architectural Department of Columbia College, and has been in Paris nearly a year preparing for the examinations. Mr. Wright, of Minneapolis, who was from the Institute of Technology, made special preparation for this examination in the atelier of M. Duray, of Paris.

Fourteen or fifteen Americans will try the next examinations, on the twelfth of June, and, possibly, quite as many Frenchmen as before. At the previous examination the number admitted was limited to thirty. This time there will be a change in the programme in this respect, there having been more or less discontent expressed in regard to the large proportion of foreigners admitted. There will now be forty Frenchmen admitted, and as many foreigners as stand in marks between the highest and lowest received by the Frenchmen admitted.

It may be of interest to draftsmen and others to indicate the admissible requirements of this school. As stated in the previous letter, the prime requirement is in architectural composition and rendering, which involves a good knowledge of the orders, a fair knowledge of their use in composition, and an ordinary facility in rendering. All solutions of the problems given are in the classic or renaissance styles. The detail from memory of the order used is required of each solution. Thus, if the Ionic order is used, a detail of the Ionic base, column, cap and tabature is required. While they are not generally rendered elaborately, frequently only in pencil, they are expected to indicate the student's knowledge of the detail of the order given. Nominally, twelve hours are required for the solution of the problem given and the detail of the order. In truth, ten hours is about all the time one can expect to use, as two hours are devoted to the formality

* Paris correspondence continued from Vol. xvii, No. 3, page 47.

of calling the names of applicants, signing documents, distribution of programmes and preparation for drawing. Furthermore, the work is done in a pandemonium of howling Frenchmen, who feel it incumbent upon them to make all the noise and disturbance possible on this occasion.

The highest possible mark in architectural composition is twenty. The highest mark given at the last examination was seventeen. Mr. Howard, who stood second in composition, received sixteen. His design was conceived in a scholarly spirit and rendered in a way to do credit to a water-color artist of great experience. All who received seven or more were admissible to the other examinations, though it is well to bear in mind that the mark in architecture is multiplied by twelve in making up the general average; that in mathematics is multiplied by five, the modeling and freehand drawing by two, and in history by one.

Following the examination in architectural composition come the following: Freehand drawing from a plaster cast, to be executed in eight hours; modeling in clay in bas-relief from a plaster cast, to be executed in eight hours; written examination in arithmetic, algebra and geometry; oral examination in arithmetic, algebra and geometry; oral examination in descriptive geometry; oral and written examination in history.

The freehand drawing is from decorated casts. Sometimes an urn is used, at other times a griffin, and again, a fragment of the upper part of a caryatid, and as it is generally known that it will be one of these three, there is special preparation with reference to it. Some of the Frenchmen have been known to take all three drawings of these subjects carefully rendered into the room with them and at the end of the time to pass in the cast selected. In the examination in geometry two or three questions only are asked, so it is necessary to be well up in the entire range of plane and solid geometry in order to feel reasonably certain of getting a good mark. The examination in history is usually a very simple matter, though it is well to bear in mind that this as well as all other examinations are conducted in the French language.

The difficulties of getting into the Ecole des Beaux Arts should not stand in the way of anyone in coming to Paris to study architecture, as the means of acquiring a good academic knowledge of architectural composition and rendering are numerous and of the highest character, being, for the most part, under the general patronage of the Ecole and management of French government architects. The museum and library of the Ecole des Beaux Arts is open to all. The work of this institution is all in the classic and renaissance styles, although at the Trocadero most of the space is given to Viollet le Duc restorations of the gothic monuments of France. This includes all of the prominent cathedrals, chateaus and other structures. There is a large amount of gothic and other architectural material in the museum of the Louvre and at Cluny, and, more than all this, the splendid architectural monuments of Paris and the near vicinity.

There are several Americans in Paris who are studying architecture without the desire or expectation of getting into the Ecole des Beaux Arts. In truth it is coming to be generally recognized, among those who stop to seriously consider this matter, that one cannot expect to get the best results by entering the school unless he has three or four years to spend therein. As it may take a year or more to secure entrance, such a programme would involve four or five years. One who studies here must expect to lay all of his American ideas of practicability, picturesqueness and convenience aside for the study of an architecture which is thoroughly academic or scholastic. This applies not only to the composition in a general sense, but the detail, decoration and rendering; for while the different ateliers have their peculiarities of method and drawing, all are controlled by the same general formulas, which are of a high scholarly character and fill that void so lamentably apparent in our American architecture, namely, the lack of knowledge of the foundation principles of good design. A schooling in the French academic work does not necessarily imply rigidity or lack of a picturesque quality. However, it does imply a knowledge of foundation principles and practice in their application, and in the end, admits of an intelligent departure from severe lines, and composition in picturesque structures.

I send herewith the design which won the American prize in a recent competition in the Beaux Arts. It will be remembered that a few years ago certain of the Americans, recognizing the obligation which the American architects were under to the French school, raised a fund of some fifteen thousand dollars, which was invested for the purpose of contributing funds for an annual cash prize for the French students of that institution. This year the prize was won by M. Chaussemiche. The work is characteristic of the French school and has the local interest of being the outgrowth of American interest in this institution. The subject of the problem was an archaeological museum, of which the following is an extract:

"This museum should be designed to receive all collections which would be of service in study of the history of ancient art. The monuments and objects of art of all kinds should be represented here by originals, castings, drawings and paintings.

"These collections should be divided in three divisions:

"In the first and most important should be placed antiquities: Egyptian, Greek, Etruscan and Roman.

"The second should contain antiquities of France from the Celtic epoch to the Renaissance.

"The third should contain objects of oriental art, Byzantine and Arabic, that of Media, Assyria, Persia, Babylonia, India, China and Japan.

"This division will be, as is readily seen, more geographic than chronological.

"Each of these salles should be so arranged with galleries of different dimensions, as to permit of the methodic exposition of the

various objects therein contained. Such objects as are too large for exposure in the rooms should be so placed in the courts as to reconstruct, partially or entirely, the historical connection.

"In proximity to these galleries there should be several rooms for study, a library containing 50,000 to 60,000 volumes, and rooms for the professors."

PARIS, May 28, 1891.

LOUIS H. GIBSON.

Notes from our French Exchanges.*

PROPOS of the recent death of Aimé Millet, *La Semaine des Constructeurs* says that he was one of those extremely rare persons, an "architect sculptor." Of all his works, the groups of Apollo, on the main gable of the grand opera house at Paris, was probably the most important, and M. Garnier, speaking of it, says: "The gable over the stage of the opera house is on the side of the main front, ornamented with three metal groups, the middle one having been executed by Millet. These three groups make, in fact, the silhouette of the building. Now it is no easy matter to compose a silhouette, and more than one sculptor of the greatest talent would have failed when an artist of less note but having the decorative feeling would succeed to perfection. I would not mean to say that Millet was a sculptor of the second class, for he has shown his right to a place in the highest ranks; I would only say that he had a veritable intuition of what decoration required, a sense so rare and valuable that for this piece of work I can almost call him a 'co-architect.'" "His studio," says M. Garnier, "was at the opera house, and I have seen him each day climb up the great ladders. It was truly a curious sight to watch this little man and true artist, by the side of the great statues, whose knees he could scarcely reach. The arms of Apollo were larger than



he himself, and I often wondered by what process of reasoning an artist could get the right proportions for the members and muscles of which he could only see a small portion at a time. However that may be, Millet accomplished his task with a most astonishing enthusiasm and courage; never rebuffed by any difficulty and recommencing without hesitation any part that seemed to him imperfect. He

*Translated and arranged by W. A. Otis, architect.

spared neither time nor pains in this great work, for which, like all artistic work, much less was paid than it was really worth. I learned during this long labor to sincerely esteem this artist of great worth, and when I think of those 'commercial' painters who only make of art a means of coining money, I am deeply touched by the loyalty and professional sincerity which animates the courageous sculptor. If the work had by chance proven bad I should certainly have even then respected the conscientious work of the artist; but being above criticism, to respect for work must be added the respect for genius."

The idea of the god holding the lyre above his head like the holy sacrament, as says Millet, is the idea of the sculptor and not of the architect, as M. Garnier confesses with his usual frankness. "In order that there may be no misunderstanding," he says, "and that honor may be given to whom honor is due, I openly declare that the idea of Apollo holding up the lyre belonged entirely to Millet. It is a very simple thing when once it has been found, but I consider it one of the spontaneous and original compositions which are not always found in works of art; and mark well that, as architect, I care less for the idea than for the outline; but the first led to the second, and I take great pleasure in acknowledging that sentimental art is also decorative art."

CATACOMBS OF THE PRIESTS OF AMMON.

The *Journal Officiel de Caire* publishes an account of the finding and exploration in Egypt of the catacombs of the priests of Ammon, which it considers one of the most important discoveries of recent years. On January 31, 1891, excavations were commenced at the east of the temple of queen Hatasou, and soon led to the discovery of a shaft about fifty feet deep, at the bottom of which appeared a door, closed by great stones placed against it. The door having been cleared, an entrance was effected into a first gallery, 215 feet long, at the end of which was a short flight of steps descending into a second and smaller gallery. These two galleries had a trend from north to south, and at the end were excavated two funeral chambers, one measuring 12 feet, and the other 6 feet. At the top of the flight of steps is a door into a second corridor, 165 feet long, running from east to west; the total extent of these catacombs being about 460 feet. They are filled with mummy cases, often piled one on top of the other. At the side of each sarcophagus were placed different objects, papyrus, baskets, boxes, statuettes, funeral offerings, flowers, etc. The disorder denoted that they had been hastily concealed there, in a manner similar to the royal mummies discovered ten years ago. Both places of concealment were evidently made under the same circumstances, and in both cases the most recent mummies belonged to the twenty-first dynasty.

The sarcophagi, numbering 163, of this new discovery are principally those of the priests and priestesses of Ammon, although there are some priests of other divinities, as Anubis, etc.

The greater portion of the mummies are inclosed in three cases. The outer ones, being the only ones yet examined, are magnificent, and exceptionally rich in decorations. Upon the coffins of the priests religious representations are executed with particular care, and it is expected that Egyptologists will find a mass of new and most interesting information in this new discovery.

It is scarcely necessary to point out what use the historian will make of the genealogies and titles of a series of priests, extending through several dynasties. What surprises some of these sarcophagi may reserve! Upon many of the coffins the place reserved for the name of the deceased is blank, showing that at the moment when the mummies were concealed work was done in great haste, and that small sarcophagi, or those whose outer case had been broken, were hastily placed in new large cases taken from the storehouses, and that there was not even the time to inscribe the name, so that it cannot be known until the inner cases are opened.

Each one of the priestly mummies should have at least one manuscript, but already there have been gathered up boxes in the shape of statuettes of Osiris, containing seventy-five beautiful manuscripts upon papyrus.

In comparison with these written records, but minor importance is attached to the antiquities of various sorts that are placed about the sarcophagi, notwithstanding many of them will soon occupy prominent places in the cases of the museum. What has first to be considered is the historical interest which this discovery presents. Since excavations have been undertaken in Egypt there has never been a similar group of objects found, which could not but furnish to students accurate and ample information upon a period of several centuries in duration. The doors of these chambers, closed for three thousand years, have been opened in the presence of the officials, an inventory taken, and the sarcophagi, together with all objects found, transported with care to two large barges.

Until their arrival at Ghizeh, more extended information cannot be expected, relative to this unexpected discovery, which will enrich the Egyptian museum with an incomparable collection.

ARTIFICIAL ASPHALT—REPAIRING TERRA COTTA.

A Danish engineer, M. J. Ersleu, has recently taken out a patent for a process for the manufacture of artificial asphalt, according to *La Semaine des Constructeurs*. He mixes eighty to ninety parts of carbonate of ammonia with ten to twelve parts of coal tar, and when thoroughly combined adds one hundred parts of fine sand or dry clay; the whole is stirred until sufficiently mixed, then run off into large cakes which are used the same as natural asphalt. This artificial asphalt resists changes of temperature and even hot water; its hardness is equal to that of the natural article and it adheres perfectly to anything for which it is used as a coating.

The molded portions of terra cotta are liable to chip off or break, but accidents of this kind may be repaired by means of a cement

described by *La Semaine des Constructeurs*. This is prepared by mixing twenty parts of sharp sand, one part of unslacked lime and two parts of litharge with linseed oil to a pasty thickness. The color is obtained by adding venetian red for red terra cotta, yellow ochre for the buff, or Spanish brown for the brown. After a short time this cement acquires the hardness of stone. The manner of its application will vary according to the shape of the pieces.

JEWISH ART AT THE CLUNY MUSEUM.

The Hotel Cluny has just been enriched by a new collection of nick-nacks classed in the catalogue under the title of "Hebrew Objects of Art." Madam Baron Nathaniel de Rothschild presented these jewels and pieces of furniture to the museum of French antiquities, having secured them from the curious collection of Mr. Isaac Strauss, who was better known to the Parisian public as the leader of the orchestra at the opera balls, than as a collector of works of art. A tablet commemorative of this gift of Madame de Rothschild has been placed in the room where this collection is exhibited. The public cannot but be obliged to the donor for seeking to make known what Jewish art was in the sixteenth to the seventeenth, and even in the fifteenth century, but what will be the results for us of this exhibition?

"The Jews," says Lebon in his *History of the Earliest Civilizations*, "possessed neither arts, sciences or trades or anything which really constitutes a civilization. They have never brought the smallest contribution to the building up of human knowledge; never have they passed beyond that state of semi-barbarism of the peoples who have no history. If they ended by finally possessing cities of their own, it is that the conditions of existence in the midst of neighbors, arrived at a higher degree of civilization than themselves, rendered such cities a necessity."

But their cities, their temples, their palaces the Jews themselves were totally incapable of building, and at the time of this greatest power and prosperity, during the reign of Solomon, they were obliged to hire foreigners as architects, workmen and artists, since none then existed in the bosom of Israel. Truly when one examines without prejudice this new exhibit at the Cluny, one is almost forced to agree with this writer.

In fact what is there to be seen here? Some small boxes covered with a series of little squares framed with gilded moldings, which contain sculpture more or less similar to the panels of the French flamboyant style. These boxes, we are told, are reproductions of the ark of the tabernacle. This is pretty hard for the ark, since the commonest of our packing boxes are scarcely less artistic! Near to the ark in the antique room, where used to be seen the exquisite fireplace with tiles colored by Bernard Palissy, is now placed a desk called the reading desk of the officiating priest. It is decidedly poor in workmanship and thoroughly Jewish. In the middle of the room is a nine-branched candlestick of a shape which is undoubtedly priestly but nevertheless decidedly disagreeable. It is said to be a reproduction of the famous golden candlestick of the temple of Jerusalem. Judging by this sample the cathedral of Solomon the Great must have been furnished in a style to suit the most plebeian taste. In like manner one might criticise the movable altars, the tables of the law, and some German napkins ornamented with figures, neither of man or beast; and behold that is all that this "glorious collection" of Jewish art contains. Certainly none of our designers or carvers will go there to seek models, at least such should be the wish of all who desire anything in the least degree artistic.

International Congress of Hygiene and Demography.

THE Seventh International Congress of Hygiene and Demography will meet this year at London, England, from August 10 to 17. The special subjects to be considered by Section VI of the congress—"Architecture in Relation to Hygiene," are as follows:

I.—LAYING OUT AND EXTENSION OF TOWNS.

A.—RESERVATION OF OPEN SPACE.—For purposes of light and air; for means of communication; for recreative and ornamental purposes.

B.—STREETS AND WAYS.—Alignment; width of roadways and footways; paving; boulevards; subways; business thoroughfares; shops; arcades; markets; mews; street refuges; public conveniences; line and height of building frontages; projections.

II.—BUILDINGS.

Site; aspect; curtilage; materials; exclusion of damp and ground air; basements and areas; roofing; collection and storage of rain water; water supply; sanitary appliances; drainage; external and internal surfaces; walls; floors; ceilings; partitions; lighting, natural and artificial; ventilation; heating by hot air, hot water and steam; open fireplaces; close stoves; consumption of smoke.

C.—PRIVATE DWELLINGS.—I, self-contained houses; II, residential flats.

D.—DWELLINGS PARTLY OR WHOLLY USED IN COMMON.—I, artisans' and laborers' dwellings. II, common lodging houses.

E.—TRADE PREMISES AND WORKSHOPS.—Restaurants; bakehouses; dairies and milk shops; cow sheds; stables and mews; laundries.

F.—PUBLIC BUILDINGS.—Hospitals; infirmaries; asylums; educational institutions; gymnasia; places of worship; theaters; public halls; hotels; courts of justice; prisons; police stations; coroners' courts; mortuaries; markets; abattoirs; baths; wash-houses.

All communications relative to this section should be addressed to Ernest Turner, Esq., 246 Regent street, W. Foreign correspondence to be addressed to Doctor Corfield, honorary foreign secretary, 20

Hanover square, W. In matter relating to the general business of the congress, letters should be addressed to Doctor Poore, the honorary secretary-general, 20 Hanover square, W.

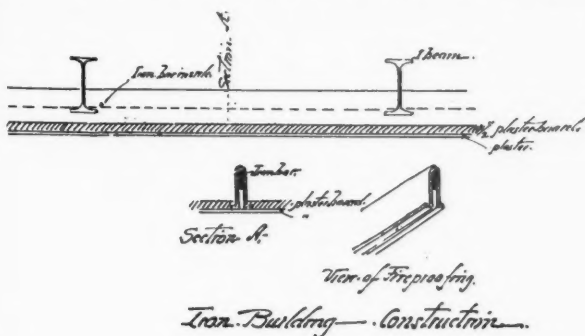
The meetings of Section VI will be held in Burlington house, Piccadilly, London, on Tuesday, Wednesday, Thursday and Friday, August 11, 12, 13 and 14. Abstracts of all papers to be read in the section must be furnished to the honorary secretaries not later than June 15, and the full text of the papers before June 30. Abstracts of papers should not exceed five hundred words, and should be type-written, to insure accuracy in printing and translation. Papers and abstracts may be written, and speeches in the meetings delivered in French, German or English. No paper will be received which has been previously published or communicated to any other society. A limit of fifteen minutes will be fixed for a paper or speech introducing a subject, and a limit of ten minutes for all subsequent speeches or papers on the same subject.

Fire Test of a New Fireproofing Material.

SOME five years ago attention was directed to a new method of finishing walls which had been in vogue in Germany for many years. The composition was plaster or gypsum combined with reeds, which gave the molded form stability and lightness. The method was brought to this country by Mr. Frederick Keppler, an architect of considerable local prominence and popularity, who finally abandoning the profession has since devoted himself to its manufacture and application. This was accomplished in the formation of the Mackolite Plaster Board Company. The first work placed was in the East, such architects as McKim, Mead & White, George B. Post and Peabody & Stearns using it extensively as a covering for walls and ceilings as a superior substitute for lath and plaster. The high fireproof quality of mackolite was soon recognized, and it soon became a competitor with the well-known forms of porous terra cotta, and has recently been adopted by architects from New York to San Francisco. It is in Chicago that its first application to the larger class of steel structures was made. In the Monadnock, an eighteen-story office building now under construction, all the partitions are of mackolite porous terra cotta, it having been previously used in the Illinois Bank building. It should be a material much sought for on account of lightness for partitions in fireproof buildings, as the heights to which they are now built make the weight of material an important factor.

To demonstrate its efficiency in cases of fire and its ready application not only to iron and steel structures, but to the various common forms of balloon and frame wood construction, at low cost, a test was made by the Mackolite Company of Chicago, on June 4, and deemed of sufficient importance to be recorded in detail for the benefit of those who make use of this material.

There was erected upon the lake shore, at the foot of Ohio street, two small structures, one entirely of iron frame, and one of ordinary



wood "balloon" frame, such as is commonly used in the West in the building of frame dwellings. Each structure was eight feet square and ten feet high, with a sloping roof.

The iron building was constructed without a floor. The walls were of mackolite hollow tile, four inches thick, attached to the iron studding; and covered with a suspended ceiling of mackolite one and one-half inches thick, upon which the ordinary plaster course was laid, thus protecting the iron frame in every part.

The frame building had a floor composed of ordinary flooring, deadened by one and one-half inch plaster boards laid upon 2 by 10 joists, and the ceiling had three inches of plaster board above the joists, one inch plaster board below laid upon 2 by 6 joists. Upon the south side of the frame structure a double course of three-fourths inch plaster boards was laid upon 2 by 4 studding on the inside only, while on the east and west sides the studding was protected upon the inside by a double course of inch plaster boards and on the outside by a single course of inch plaster board. The north side was built of three-inch mackolite hollow tile in sections eighteen inches by three feet.

These houses were built about the middle of May and were thoroughly weather-dry at the time of the test.

The houses were designed as they were to show the effect of fire in a single room, as most fires start in this manner, the application of the mackolite in each structure was in every way similar to its application in the building, and though small, were in every way suitable to the purpose.

On the date mentioned, Mr. R. N. Trimmingham, Secretary of the Chicago Fire Underwriter's Association, and a committee of his

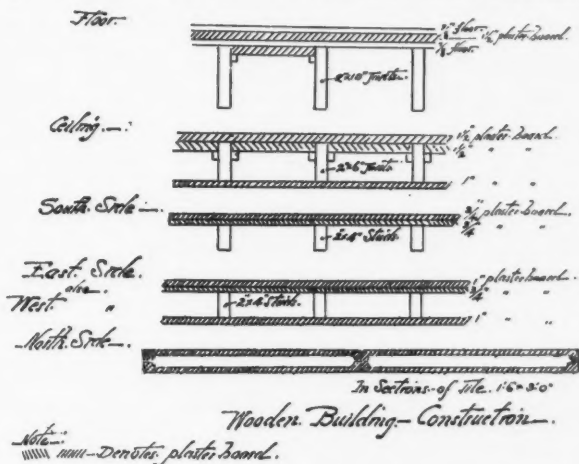
association, a representative of the fire department detailed by Chief Swenie, and a large number of architects and others interested in the development of methods of fireproofing, met and were escorted to the scene of the test.

When all was ready about a quarter of a cord of dry, hard beech wood, which had been stacked in the inside of each house and saturated with coal oil, was fired. An intense fire was raging in each structure in a few minutes, and was maintained with unabated intensity by the addition of fresh wood for two hours.

Each interior had been covered with a quarter-inch coat of brown plaster which peeled off and dropped away a few moments after the starting of the fires, leaving the mackolite immediately exposed to the full fury of the flames.

So far as the iron structure was concerned, no effect was produced in any way on any of the ironwork, either in the sides or the suspended ceiling. Nor were the three-inch mackolite tile forming the four walls of the structure destroyed or thrown out of position.

By reference to accompanying sketches, it will be observed that the 2 by 4 studding forming the frame of the wood structure were simply protected on sides and ceiling by single or double layers of mackolite boards, nailed onto the wood in the usual manner of placing this material. Unusual interest was manifested in this structure,



and predictions were freely ventured by the spectators that it could withstand the fierce flames but a few minutes. The accompanying photogravures—one showing a view of both structures taken before the fire, and the other after it had been burning in each with uninterrupted fury for one hour and fifty minutes—show how much at variance this judgment was with accomplished results. These results would seem to indicate the possibility of building wooden houses in which, at a cost little, if any, in excess of prices for current methods of construction, a fire would surely be confined to the place of its origin. There would not probably ever be found in an ordinary room an amount of combustible material equal to half of the beech wood burned to ashes in this eight-feet-square room. No attempt was made at any time to quench the fire or abate its fury; on the contrary, both fires were fed from time to time with fresh fuel to continue their intensity. This ability to confine a fire to the room of its origin is the aim of all fire-proof construction, and if it is now placed within the reach of the home builder at moderate cost, a boon is indeed conferred upon him.

Foundations From Side of Wall Line.

FREDERICK BAUMANN, architect, of Chicago, to whom architects are much indebted for valuable hints and data upon foundation construction, has recently planned a new and simple method of providing old foundations, as they are, with broad bases in order to fit them for tall buildings. In a circular accompanied with an attached diagram, Mr. Baumann explains his method as follows:

The erection of a modern tall building alongside or between walls of old buildings, is oftentimes met with serious difficulties, the neighbor being unable or unwilling to vacate the adjoining cellar for the purpose of tearing out and reconstructing the foundation.

Such cases, in particular, come under my method, which is illustrated on the adjoining sheet. Operations are had on one side only, and no disturbance of any kind is caused to the neighbor. A place along the wall is excavated, about five feet long, and eighteen inches—or thereabouts—below its base. A layer of dry concrete is spread, and four 15-inch I-beams, fitted with bottom plates, are set in position and carefully pushed, by means of two horizontal hydraulic jacks, under the base-stone, to lastly reach four feet beyond the opposite edge of the stone. The spaces between beams are made solid with proper concrete. The process is then proceeded with at both sides of the first spot, and so on, till the ends of the wall have been reached, which ends may be especially fortified in various ways. On this new iron base the additional thickness of the wall can be started and continued up as indicated, with material and with care suitable for the occasion.

The sketch on the adjoining sheet shows the case of a party wall. The construction does not materially differ in case of an independent wall. A height of about 175 feet from the base is assumed. Less or more height, of course, requires a narrower or broader base, as the case may be. Beams 12, 20 or even 24 inches deep may come in demand.

The process does not weaken the ground below the base of old foundation, on the contrary, it slightly compresses it. Proper concrete between the beams, at their other end, ought to make this part of the new base absolutely solid and efficient for carrying the load to be put on.

The method has been sufficiently tried on a smaller scale to assure success in every case. It is covered by letters patent.

Mr. Baumann exhibited his method at a recent meeting of the Chicago chapter of the American Institute of Architects.

Our Illustrations.

The new German Theater, Chicago; Adler & Sullivan, architects.
Public Library for Kalamazoo, Michigan; Patton & Fisher, architects, Chicago.

Examples of artistic wrought-iron work executed by the Winslow Brothers Company, Chicago.

Office Building, D. O. Mills, of New York, at San Francisco, California; Burnham & Root, architects, Chicago.

Perspective view of Transportation Building, World's Columbian Exposition, Chicago; Adler & Sullivan, architects.

Detail of exterior and interior of main entrance to Horticultural Building; W. L. B. Jenney and W. B. Mundie, architects.

Perspective view of Horticultural Building, World's Columbian Exposition, Chicago; W. L. B. Jenney and W. B. Mundie, architects.

Two views of demonstration before Chicago Board of Underwriters of fireproof value of Mackolite plaster boards and hollow tile.

End elevations and main façade of Horticultural Building, World's Columbian Exposition, Chicago; W. L. B. Jenney and W. B. Mundie, architects.

PHOTOGRAPHURE PLATES.

(Issued only to subscribers for the Photographure edition.)

The Kirkland school building, Chicago; J. L. Silsbee, architect.
Residence of Wirt Dexter, Chicago; Arthur Little, architect, Boston.

Houses for John Norcott, Jr., Chicago; Frederick W. Perkins, architect.

University School building, Cleveland, Ohio; C. F. Schweinfurth, architect.

Residence of James P. Gardner, Kenwood, Chicago; Thomas Hawks, architect.

Block of houses, for Mrs. F. M. Dow, Chicago; F. Baumann & J. K. Cady, architects.

Building for the Young Men's Christian Association, Cleveland, Ohio; C. F. Schweinfurth, architect.

Association Notes.

COLORADO ASSOCIATION OF ARCHITECTS.

The first annual meeting of the Colorado Association of Architects was held at the Colorado Club, Denver, May 4, and the following officers elected for the ensuing year:

President, F. H. Jackson; vice-president, John W. Roberts; secretary, E. R. Rice; treasurer, James Murdoch; directors—F. E. Edbrooke, chairman, R. S. Roeschlaub, R. G. Balcom, A. M. Stuckert, J. J. Humphreys.

The meeting was followed by a banquet, at which Mr. Sterner, of Varian & Sterner, presided. Other architects present were: F. H. Jackson, J. W. Roberts, E. R. Rice, James Murdoch, F. E. Edbrooke, Robert S. Roeschlaub, Henry Dozier, W. A. Mareau, H. W. Kirchner, E. J. Hodgson, E. J. Carr, R. G. Balcomb, F. Goodno, R. Pugh, C. S. Thompson, William Long, J. J. Huddart, J. B. Dorman, T. J. Boal, John J. Humphreys, V. E. Baerresen, H. W. Baerresen, E. B. Gregory, E. P. Varian and A. M. Stuckert.

A unique feature of the banquet was hand-painted menu cards designed by members of the Denver Architectural Sketch Club, which were auctioned off by the chairman to the amusement of the guests and profit of the club, to which the proceeds were given.

EDINBURGH ARCHITECTURAL ASSOCIATION.

About fifty members of the Edinburgh Architectural Association visited Newhall House, Brunstane Castle, and Penicuik House, on May 9, under the leadership of Architect Hippolyte J. Blanc.

The party drove from Penicuik to Newhall House, where they were cordially received by Mr. John Blair, W. S., and his family, who are the present tenants. It was explained that the present house was begun early in the eighteenth century by Sir David Forbes, the then proprietor of the estate, and that it had by a series of subsequent additions and alterations become expanded to its present commodious residential dimensions. Mr. Blanc explained further that the site had been occupied by a monastery, and afterward by one of the feudal castles of the Crichton family, but no traces of either of these establishments now exist. The appearance of the house as erected by Sir David Forbes and his son was shown by illustrations, and the progressive stages of building to the present time explained. Reference was made to the interest attaching to the house from its having been the rendezvous of the distinguished patrons of Allan Ramsay, who assembled to hear that author's recitation of his charming pastoral poem. Mr. Blair kindly conducted the party over the house, interest in the interior of which centers in the collection of portraits of Ramsay and his patrons, chiefly by Aikman.

Proceeding to Brunstane Castle, a ruined edifice of the sixteenth century, Mr. Blanc noted that from a very early period it also belonged to the Crichton family. The arrangements of the several apartments were traced, and the special architectural features explained. The party next visited Penicuik House, permission having been previously obtained from Dowager Lady Clerk.

Mr. Blanc in his paper traced the successive owners of the Penicuik estate down to the distinguished family whose descendants now occupy it. He further explained that the house was built in 1761 by Sir James Clerk, the third baronet, who, it is said, also designed it. There are, however, strong traces of the hand of Robert Adam, architect, who was related by marriage to the proprietor. After explaining the plan and general features of the house, Mr. Blanc conducted the party to the interior, where they viewed the very interesting collection of portraits by Aikman and others. Some interesting

relics were also seen, among them a fine cabinet of Roman antiquities. The visitors next assembled in the drawing-room, where much interest was felt in examining the splendid decorations upon the ceiling, the work of Alexander Runciman. The subjects depicted are from scenes in Ossian's poems, this circumstance obtaining for the apartment the name of Ossian's Hall.

A vote of thanks was accorded to Mr. Blanc for his papers, as also to the various proprietors, to whom the association were indebted.

The annual meeting of the association was held May 28, in the Architectural Hall, Mr. John Kinross, president, in the chair. The annual report stated there were 289 members on the roll, and that there was a balance in the treasury of £185. It was moved, seconded and adopted.

That the Edinburgh Architectural Association, while it greatly deprecates the need for considering the question of surrendering any further portion of the Princess Street Gardens, hereby expresses its agreement with the compromise indicated in the letter of the Town Council to the North British Railway Company, of May 21, and respectfully urges on the Lord Provost, Magistrates and Council to adhere to the declarations therein contained.

After delivering his valedictory address, the chairman read a paper on "Modern Church Architecture."

New Publications.

SELECTED DETAILS OF INTERIOR AND EXTERIOR FINISH, for Architects, Carpenters and Builders. Thirty-two plates. New York: William T. Comstock, 1890. Price \$5; sent by mail, free of postage, to any part of the world.

This 14 by 18 book, comprising over thirty pages, brings together various details that have previously appeared in the different publications of Mr. Comstock. Many of them are given a larger scale than before printed, and the collection covers a very considerable variety of useful subjects—interior residence finish, and mantels, predominating. Unfortunately, several of the plates are either considerably out of date, or else by persons not generally familiar to the architectural profession. But the great majority of the work is by men of such distinguished ability as Bruce Price, Rossiter & Wright, Schweinfurth, etc., so that it is, upon the whole, a collection unusually worthy of study by draftsmen and designers seeking after really good and refined examples. Usually the size of the plates is such as to clearly bring out the finer moldings, but if not, a larger detail of such portions is ordinarily given.

PANTOBIBLION, a monthly bibliographical journal; St. Petersburg, Russia; A. Kersha, C. E., editor. D. Appleton & Co., New York.

There has reached the table of THE INLAND ARCHITECT the first number of a monthly magazine published at St. Petersburg, Russia, bearing the comprehensive title of *Pantobiblion*, A. Kersha, C. E., editor. The publication of such a journal indicates a spirit of enterprise that is truly refreshing in its originality and unlooked for from that quarter of the globe. Indeed it smacks of Yankee smartness, and only differs from it in the degree that the publishers have been quicker to discern an open and untouched field in magazine literature than their proverbially cute brothers. The character of the periodical and its object will be understood when it is stated its contents are and will be an international bibliographical review of the world's scientific literature, with the text matter printed in all of the modern living languages. The initial number contains critical reviews of the leading articles in the chief scientific periodicals; short notices of interesting current scientific facts; twelve hundred titles of publications, besides an index of two hundred and seventy periodicals devoted to the applied sciences and technical specialties, not to mention other kindred matter. Branch offices have been established at London, Paris, Leipzig, Bologna and New York. The New York office is with D. Appleton & Co., the well known American publishers. It would seem that the *Pantobiblion* must receive a liberal patronage from those whose life duties make such information as it affords invaluable, and who must have felt a thousand times the need of just such a helper. The yearly subscription is named, 24s, post free.

Personal.

ARCHITECTS PARK & FULLER (Horatio T. Park and Alexander Fuller) have established offices at 119 Dearborn street, Chicago.

MR. WILLIAM MORGAN PETERS, known to the profession as one of the most tasteful and practical designers of interiors in the country, has consolidated his furnishing and decorating business with that of the Carsley & East Manufacturing Company, of Chicago, becoming a director of the company, and giving to that already strong combination of furnishing and decorative ability an added strength that will be appreciated by architects in the execution of the interiors of residences, or other buildings, to their complete furnishing.

Legal Notes.

MECHANIC'S LIEN—AGENCY OF HUSBAND.

Where a husband constructs a house upon land owned by his wife, of which fact she has full knowledge, the agency of the husband will be presumed and the property will be subject to a mechanic's lien. *Bradford vs. Peterson*, Supreme Court of Nebraska, 46 N. W. Rep., 220.

EXTRA WORK UNDER BUILDING CONTRACT.

A contractor entered into a contract with a church corporation to erect a church edifice. The contract provided that no extra work should be paid for except upon a certificate of the superintendent and building committee. A sub-contractor did some extra work under the oral direction of a portion of the building committee, for which he seeks to recover. The sub-contractor was chargeable with notice

of the provision of the contract and cannot recover in the absence of the certificate it called for. *Shaw vs. First Baptist Church of Winona*, Supreme Court of Minnesota, 46 N. W. Rep., 146.

GUARANTY IN OBTAINING CREDIT.

Certain contractors threatened to give up a contract on account of inability to obtain supplies, the superintendent gave them a letter to plaintiff who furnished the supplies, charging to defendant and informed the superintendent that he was furnishing them solely on defendant's credit. Afterward, when the job was completed, the defendant's superintendent claimed the goods still on hand. The defendant's promise to pay was not that of a mere grantor and not within the statute of frauds. *Hagadom vs. Stronach Lumber Company*, Supreme Court of Michigan, 45 N. W. Rep., 650.

JOINT BUILDING CONTRACT.

When one contracted with an architect to furnish plans for a building, and told him that he and his father-in-law were building it together, and the architect so entered it in his books, the contract is a joint one and the defendant is not liable on a several recovery. *Van Leyen vs. Wieford*, Supreme Court of Michigan, 45 N. W. Rep., 1116.

TIME FOR FILING MECHANIC'S LIEN.

Under that provision of the mechanic's lien statute which limits the time for filing a lien to a specified time after the completion of the work, the limitation commences to run when the work is actually completed, and the fact that part of it is to be done over, does not extend the commencement of the limitation to the time when such work is done to replace defective work, but the limitation commences at the time the work was first completed. *Harrison vs. Women's Homeopathic Hospital Association*, Supreme Court of Pennsylvania, 19 At. Rep., 604.

SERVING NOTICE OF MECHANIC'S LIEN.

When one claims a mechanic's lien, and it appears that the materials furnished were used in the erection of the building on which a lien is claimed, unless it is shown that they were intended for another purpose, it will be presumed that they had been contracted for to be used in the building. The Kansas statute giving sixty days to file claim for lien and give notice of same to owner, does not require the notice to be given within the sixty days, but only that the lien shall be filed within that time and the notice given within a reasonable time after such filing. *Deatherage vs. Henderson*, Supreme Court of Kansas, 23 Pac. Rep., 1052.

MECHANIC'S LIEN AS AFFECTED BY ASSIGNMENT OF PROFITS.

Where one enters into a contract for the erection of a building, and assigns to a bank a certain portion of the money which should be due after payment of the lien upon the check, and afterward assigned another portion of the moneys due under the contract to another party subject to a prior transfer at the bank, the second party also having a right to a mechanic's lien as a sub-contractor. The assignment of the moneys due did not wipe out the right of lien, but the party cannot claim by both. *Moran vs. Murray Hill Bank*, Superior Court of New York City, 9 N. Y. S., 715.

CONSTRUCTION OF PARTY WALL CONTRACT.

Where a contract for the erection of a party wall provides that a person on whose land it is to be partly built shall not have the right to obstruct the light from any window which the other party shall build into said wall, such other party has by implication the right to build windows in such wall. Where by mistake such party wall is built entirely upon the land adjoining that of the builder, a promise by the owner of the land upon which it is built to pay one half the cost thereof is a good consideration for a new contract as he is under no legal obligation to pay for it. *Grimley vs. Davidson*, Supreme Court of Illinois, 24 N. E. Rep., 439.

Synopsis of Building News.

Buffalo, N. Y.—Architect W. H. Archer: For the Young Men's Christian Association at Tonawanda; a brick and stone building, all modern improvements; to cost \$40,000.

Chicago, Ill.—Architects Thomas & Rapp have closed contracts for a high school to be erected at the corner of East avenue and Lake street, Oak Park, for the board of education of school district No. 1, Cicero. It will be a three-story and attic, the first story being of cut stone and superstructure of buff pressed brick, with trimmings of Bedford stone. The design is an unusually handsome one, with gables, dormers, etc.; the cost will be \$50,000. For George Enger, of Cincinnati, they are preparing plans for two four-story factories, 80 by 100 feet each; to cost \$50,000. They will be erected on Shields avenue, near Twenty-seventh street. For H. B. Smith, on the southeast corner of Vincennes avenue and Fortieth street, a four-story apartment house of pressed brick, terra cotta and brownstone, steam heat, etc.; to cost \$45,000. For Mrs. Cook, on Ellis avenue, near Thirty-eighth street, three three-story residences of pressed brick and stone fronts. For G. D. Holton, on Drexel boulevard, north of Forty-third street, a residence of buff Roman brick with stone trimmings; cost \$35,000.

Architect W. G. Barfield: For Dr. F. D. Clark, at 333 and 334 Michigan avenue, a handsome ten-story apartment building; to cost \$150,000. The first two stories will be of granite, and above this will be of buff Bedford stone. It will be of steel construction and entirely fireproof, with tile ceilings, walls, iron stairways, steam heat, electric light, elevators, etc. He is now working on plans. For Love & Ayer on Forty-fourth street and Lake avenue, he planned six residences; to cost \$38,000. They will have stone fronts, hardwood interiors, hot-water heating, etc. For Zemasky Brothers, on Cottage Grove avenue, near Thirty-first street, a four-story store and flat, to have stone front, copper bays, etc.; cost \$12,000. For C. Chamberlain, on Washington boulevard, near Francisco street, a residence; to cost \$10,000. Stone front, hot-water heating; making plans.

Architect William Strippelman: For John M. Smyth, on Madison street, near Halsted, an eight-story store, 205 by 180 feet; to cost \$250,000; steam heat, six elevators, electric light plant, etc.; the mason work will be done by A. Collender; carpenter work by William Goldie & Son; plumber, Thomas Conlon.

Architects Flanders & Zimmerman: For Coope, Riddle & Co., at Aurora, a four-story store and office building of cut stone, terra cotta and plate-glass front, steam heat, electric wiring, hardwood finish, marble and tile work; cost \$50,000. A three-story school, 75 by 150 feet; of pressed brick, stone and terra cotta front, steam heat, slate roof; to cost \$45,000; to be built corner of Fifty-seventh and

School streets. A three-story and basement school, 50 by 125 feet; to cost \$35,000, on the northeast corner of St. Lawrence avenue and Forty-fifth street; pressed brick, stone and terra cotta, steam heat, etc. For W. Foster, at Glencoe, a residence; to cost \$11,000. For J. B. Mallers, corner of Market and Quincy streets, a ten-story warehouse, 42 by 114 feet; to cost \$150,000; making plans; steam heat, elevators, etc. For J. Schnewind, at La Porte, Ind., a residence; to cost \$7,000. For J. N. Borden, corner Market and Harrison, a four-story flat building; to cost \$40,000; pressed brick and terra cotta front. For the same owner, a seven-story warehouse, 30 by 125 feet; to cost \$50,000; Jefferson street, near Van Buren; pressed brick and stone, steam heat, elevators, etc.; making plans.

Architect Henry Ives Cobb has completed plans and is now taking bids for the sixteen-story office building to be erected at 98 Washington street for the Cook County Abstract Company; the first four stories will be of Bedford stone and above of terra cotta or pressed brick; steam heat, electric light, seven elevators, etc.; size 60 by 182 feet; cost about \$600,000.

Architects Edbrooke & Burnham: For W. B. White, northeast corner Grand boulevard and Boulevard place, a three-story residence of buff stone and brick, with tile roof; cost \$30,000. For G. F. Gosman, at Kenilworth, a three-story frame residence.

Architect R. G. Pentecost: For Ed. Mandel, four three-story stone front residences; to cost \$60,000.

Architect Clinton J. Warren: For Joseph Dee, at 60 South Fulton street, a three-story office building. For Louis Wolf, on Dearborn street, next door south of the Chemical Bank, remodeling five-story building into a first-class, modern eight-story office building; new front of buff brick, with terra cotta of the same color, electric light, steam heat, elevators, marble and mosaic work; cost about \$150,000. Also just broke ground for the Lexington Hotel, northeast corner of Michigan avenue and Twenty-second street; two fronts of Roman brick and terra cotta.

Architect W. H. Drake: For George C. Hutchinson, at 456 Milwaukee avenue, a four-story store and flats, of Vert Island red sandstone front, red slate turrets, etc.; to cost \$35,000. For Mrs. D. Ratté, at 1518 Wabash avenue, a four-story store and flats; to cost \$30,000; Bedford stone front, steam heat, gas ranges, etc. For F. G. Walker, southeast corner of Wabash avenue and Congress street, a four-story carriage warehouse, 80 by 165 feet; to cost \$55,000. For W. S. Payne, at 2409 Wabash avenue, a four-story laundry, and at 2411 a four-story flat building for Hon. H. F. Waite.

Architects J. M. Van Osdel & Co.: For L. C. P. Freer, northeast corner of Fifth avenue and Randolph street, remodeling and adding one and a half stories and converting present building into a first-class, modern office building; pressed brick, terra cotta, copper bronze, four elevators, steam heat, electric light, etc. Making plans for James Casey, northwest corner of Madison and Union streets, a six-story hotel; to cost \$40,000; pressed brick and terra cotta, elevators, steam heat, marble and mosaic work. For H. N. Hobart, on Wrightwood avenue and Hampden Court, a two-story residence; to cost \$40,000; cut-stone front, hardwood finish, hot-water heating, marble work, etc.

Architect S. S. Beman: For the trustees of St. Luke's Hospital, a six-story apartment house, of light-colored pressed brick and terra cotta, hardwood interior, elevators, electric light; size 100 by 120 feet; cost \$125,000; making plans. Also preparing plans for three-story residence on Michigan avenue, near Eighteenth street; blue Bedford stone front, hot-water heating, slate roof, etc.; cost \$35,000. Also preparing drawings for the Pullman repair shops, to be built at St. Louis; there will be seven buildings; pressed brick and stone fronts, steam heat, electric light, iron roofs, etc.; cost \$200,000.

Architects Holabird & Roche: For Chicago Real Estate Trustees, a thirteen-story office building, 50 by 110 feet, to cost \$350,000, on the site occupied by the Vienna bakery on Washington street; the front will be of St. Louis granite brick, with terra cotta trimmings and high roof of red tile. The design shows a handsome building in the François premier style of architecture. The interior will be finished in red oak, marble wainscoting, mosaic floors, have electric light, steam heat, four elevators, prismatic sidewalks; a novel feature will be stairway rails, screens and elevator cabs, all to be made of aluminium. The first story will be 15 feet high, second 12 and the others 11½ feet. Work has already commenced, and the building will be completed by April 1, 1892. The name of the building has not been decided on yet.

Architects Treat & Foltz are preparing plans for the new Wesleyan hospital to be erected on the northeast corner of Dearborn and Twenty-fifth streets. There will be four distinct buildings connected by corridors—the style of architecture being in the early French renaissance—showing handsome four-story structures in pressed brick with stone and terra cotta trimmings; the cost will be about \$225,000. A fuller description with perspective will be published in a future number of THE INLAND ARCHITECT.

Architect Oliver W. Marble: For George C. Watts, on Forty-sixth street and Ellis avenue; three two-story residences, to have stone fronts, hardwood finish, furnaces, etc.; cost \$30,000. For Messrs. Taylor, Allen & Co., on Washington avenue and Fifty-first street; seven three-story stone front residences; electric light, gas fixtures, furnaces, tile vestibules, stained, plate and beveled glass, etc.; cost \$70,000.

Architect J. A. Miller: For Richard Peck, twenty residences of Bloomington stone fronts at Eggleston; cost about \$7,000 each. Will also begin plans at once for twenty more.

Architect Francis J. Norton: For H. B. Orchard, corner Dearborn avenue and Division street, a five-story apartment house, 33 by 125 feet; to cost \$100,000. Bedford stone front; steam heat, elevators, copper bays, electric light, gas fixtures, gas ranges, steam engine, dynamo, marble wainscoting, etc.

Architect Charles S. Frost: For the Chicago and North-Western Railway Company at Fond du Lac, a handsome suburban station; of pressed brick and stone, with slate roof and copper trimmings and pretty tower; inside finished in oak and all improvements; cost \$14,000. For the same company at De Kalb, Illinois, a similar station; to cost \$14,000. For the Chicago, St. Paul, Minneapolis & Omaha Railway Company at West Superior, a neatly designed station of brown sandstone; to cost \$10,000. For the Lake Shore Company, at Grand Rapids, Michigan, a handsome building for station and office purposes, to be of pressed brick and stone; copper trimmings, slate roof, steam heat, all conveniences; cost \$18,000. For the Chicago & North-Western Railway Company at Glencoe, a station; of pressed brick and stone; cost \$10,000. For William G. Hibbard, on Calumet avenue and Eighteenth street, a handsome residence; stone basement, pressed brick and terra cotta front; cost \$18,000. At Rockford, Illinois, a six-story store and office building; exterior of brown pressed brick, brownstone, terra cotta, copper cornice; interior to have hardwood finish, steam heat, elevators, electric light, etc.; to be erected corner of Main and Chestnut streets.

Architects Park & Fuller: For C. J. Harmon and L. Stover, a two-story flat building of 100 feet frontage on Howard street; to cost \$15,000. St. Louis pressed brick and stone, pine finish, furnaces, etc. For J. W. Rowley, at 1279 Adams street, two-story flats; to cost \$9,500. For W. H. Bussey, at Irving Park, frame flats; cost \$9,500.

Architect George Beaumont: For Jarvis & Conklin, on the southwest corner of Wellington avenue and Halsted street, six two-story residences, to have stone fronts, hardwood finish, furnaces, electric work, etc.; to cost \$30,000.

Architect J. E. Scheller: For Mrs. L. La Berge, at 153 W. Madison street, a five-story apartment house; cost \$25,000. Granite, with copper bays, hardwood finish, steam heat, marble and mosaic work; making plans. For Joannes Brothers, at Green Bay, Wisconsin, a four-story building; to cost \$30,000; granite front, hardwood finish, steam heat, elevator, etc.; letting contracts. For the Joliet Opera House Company, a four-story store, office and theater building; to cost \$60,000; pressed brick, stone and copper front; steam heat, electric light, marble and tile work, etc. This was a competition, and Mr. Scheller's plans were adopted as being the most suitable.

Architects Patton & Fisher: Preparing plans for the Armour Industrial School, to be erected on Armour avenue and Thirty-fourth street; it will be five-story and basement, 66 by 225 feet in size and cost \$150,000; brownstone, pressed brick, terra cotta, slate roof, etc. It will be a very handsome structure, a full description and perspective of which will appear in a later number of this journal.

Architect Julius Speyer: For Ed. White & Co., on Michigan avenue, near Fourteenth street, a five-story apartment house, 75 by 171 feet; to cost \$100,000; the front to be of buff Roman brick and stone, hardwood interior, steam heat, marble and mosaic work, etc.; making plans. For C. J. Herbert, at 220 Laflin street, remodeling; to cost \$15,000. For E. Parker, on Fifty-seventh and Indiana avenue, a two-story residence; stone front, hardwood finish, furnace, etc.; to cost

\$10,000. For John McNally, at 2643 Portland avenue, three-story flats of Bedford stone front; to cost \$7,000.

Architects Huehl & Schmid: For Prof. Louis Kretlow, at 401 Webster avenue, a three-story dancing academy, 48 by 100 feet; to cost \$22,000; hydraulic pressed brick and Bedford stone front, hardwood finish, steam heat, electric light, tin shingles, etc. For Mrs. Gills, corner of Oakley avenue and Jackson street, a three-story residence of Bedford stone front; to cost \$10,000.

Architect Perley Hale: For J. & J. C. Beifeld, five three-story residences, to have stone fronts and cost \$40,000; to be built on Calumet avenue, south of Fortieth street; making plans. For Allan McCollough, on State, south of Eighteenth street, five-story store and flats; to cost \$50,000; stone front, hardwood finish, steam heat, etc.

Architect C. C. Miller: For Mr. Winters, on State street, corner of Fifty-seventh street and Court place, four-story store and flats, 152 feet front; to cost \$60,000; making plans. For Wm. J. Wilson, on Canal street, between Adams and Jackson, a five-story warehouse, 146 by 101 feet, to cost \$60,000; steam heat, two elevators, etc. Also just sent out plans for First Presbyterian Church, 100 by 150 feet; to cost \$60,000; to be built at Helena, Montana; rock-faced stone front and tower, steam heat, hardwood finish, stained glass windows, bell, organ, etc.; secretary, N. J. McCowell.

Architect L. G. Hallberg: For Dr. C. S. Smith, on Oakland Crescent, four Bedford stone front residences; to cost \$25,000. For George S. Seaverns, on Wabash avenue, near Fiftieth street, six Bedford stone front residences; to cost \$35,000.

Architect Frederick Ahlschlager: For Fred S. Espert, at 231 East Kinzie street, a four-story warehouse; to cost \$15,000. For T. L. Sommer, on School street, near Fifty-eighth, a frame residence; cost \$6,000. For Frank Kittler, two frame houses; to cost \$7,500.

Architect John T. Long: For Chicago, Rock Island & Pacific Railroad, station at Morgan Park, of red brick, terra cotta and stone; cost \$16,000. Central Park Presbyterian Church; to cost \$30,000; Bedford stone, steam heat, slate roof, oak finish, etc. Methodist Episcopal church at Fort Atkinson, Wisconsin; to cost \$15,000; pastor J. I. Hartley. Methodist Episcopal frame church at Merrill, Wisconsin; to cost \$10,000; W. H. Flett, chairman of committee. For J. W. Tubbs, on Twenty-second street and Wentworth avenue, three-story flats and stores, to cost \$25,000; making plans.

Architect J. A. Thain: For Dr. E. G. Hirsch, at 3612 Grand boulevard, a Bedford stone front residence, to cost \$22,000. For Adolph Loeb, at 3622 Grand boulevard, a three-story stone front residence; to cost \$20,000. For Louis Morris, corner of Polk street and Ashland avenue, a three-story, semi-detached residence of blue Bedford stone front and side; to cost \$40,000. Also making plans for three-story residence, to have hot-water heating, slate roof, brownstone and pressed brick; cost \$25,000; on Greenwood avenue, near Forty-fifth street; and on Greenwood avenue, near Forty-sixth street, a frame residence; to cost \$20,000.

Architect A. W. Cole: For Grenada, Mississippi, a three-story school of pressed brick and stone, yellow pine, slate roof, etc.

Architect W. L. Carroll: For Mrs. Alice M. Kirby, four-story flats, on Superior street, of St. Lawrence marble front; to cost \$30,000.

Architect E. R. Krause: For Henry Schoellkopf, on Clark street, near Chicago avenue, a four-story store and flats; to cost \$25,000.

Architects I. K. and A. B. Pond: For H. E. C. Daniels, at Evanston, a frame residence. For H. C. Porter, at Rockford, Illinois, a pretty frame residence; stone basement, hardwood interior, furnace, etc.

Architect C. M. Vail: For R. J. Bennet, at Ravenswood, a two-story Young Men's Christian Association building, 97 by 80 feet; of St. Louis brick, Bedford stone and terra cotta coping, yellow pine finish, steam heat; will put in bowling alley, gymnasium, etc.

Architect Thomas Wing: For Mrs. William J. Knight, a four-story store and flats, on southeast corner State and Forty-fourth streets; stone front; cost \$26,000. For Mrs. Mary C. Page, next door to above, a four-story double store and flats of stone, Roman pressed brick and terra cotta.

Architect E. M. Newman: For N. D. Little, a four-story apartment building, on Sixty-first street and Madison avenue; Tiffany pressed brick, with rock-faced brick trimmings, steam heat and all improvements; cost \$60,000.

Architect W. T. Leshner: For Williams & Co., corner Goethe street and Dearborn avenue, a four-story apartment house of St. Louis pressed brick and granite trimmings, steam heat, etc.; cost \$60,000. For B. Mercil, on Madison street, west of Oakley avenue, a four-story flat of St. Louis brick and Connecticut brownstone, yellow pine finish, etc.; cost \$30,000.

Architect J. N. Tilton: For J. B. Waller, on Bellevue Place and Rush street, a four-story store and flat building of Bedford stone, first story, and above of pressed brick and stone, with copper bays; cost \$16,000; making plans. For William D. C. Street, on Schiller street, near Astor, a three-story residence; to cost \$8,000. For R. A. Waller, at Buena Park, two frame residences; to cost \$8,500.

Architect August Maritzen: For the Citizens Brewing Company, corner of Archer avenue and Main street, a brewery; to cost \$250,000; it will be of pressed brick and stone front, of fireproof construction, of handsome design, with a tower 130 feet high, and have a capacity of 100,000 barrels. For Messrs. Glueck & Son, at Minneapolis, Minnesota, new brewhouse, stockhouse, etc.; to cost \$75,000. For the City Brewery, at Eau Claire, Wisconsin, a stockhouse, kiln and malt-house. For Price & Wimmer, at St. Cloud, Minnesota, a new stockhouse. For Winter Bros., at Pittsburg, Pennsylvania, a stockhouse, brewhouse with two kettles of 350 barrels capacity, etc.; cost \$150,000. For the American Brewing Company of Chicago, a new beer depot at Crown Point, Indiana. For Fred Sehring, at Joliet, a two-story brick and stone icehouse. For Glab Bros., at Dubuque, Iowa, new stockhouse, ice machine and washhouse; cost \$40,000.

Cincinnati, Ohio.—Reported by Lawrence Mendenhall: The season's work is progressing satisfactorily, I think, alike to both owner and builder. There are no strikes, and the time of the mechanic is well occupied, and no doubt many a humble home is made bright by the earnings of the father. Right here allow me to express the wish that there were more public reading-rooms and libraries and fewer saloons, which would change and ameliorate the condition of labor, as well as enlighten and broaden ideas. It has been justly said that "education is the keystone of the arch of political economy of nations." Why can't our philanthropic capitalists look carefully at this matter and act, and by their acts of philanthropy build a monument for themselves to be seen by all men?

Architect H. E. Siter reports: For Charles G. Merrill, a residence; materials, frame, shingles, shingle roof, hardwood finish, furnaces, wood mantels, stained glass, gas fixtures, plumbing, etc.; cost \$5,000. For William Beck & Son, a store building (remodeling); materials, pressed and common brick, blinds, gas, plumbing, tin roof, furnace, mantels, etc.; cost \$4,000. For the Fifth Presbyterian Church: A church edifice; materials, stone, brick, slate roof, hardwood pews, furnaces, stained glass, etc.; cost \$20,000.

Architects S. Hannaford & Sons report: For Lewis Seasongood, a residence; materials, brick, plaster, gables, slate roof, hardwood finish, gas, plumbing, furnace, mantels; cost \$20,000.

Architects Crapsey & Brown report: For Robert Peebles, Ashland, Kentucky, a residence; materials, frame, slate roof, pine finish, blinds, mantels, laundry fixtures, plumbing, gas, stained glass, etc.; cost \$4,500. For the Methodist Episcopal Church (South), Marysville, Kentucky, a church edifice; materials, pressed brick, stone, slate roof, stained glass, hardwood finish, organ, furnace, mantels; cost \$20,000.

Architect James W. McLaughlin reports: For Pickering Hardware Company, an addition to their store building of two stories; materials, pressed brick, iron, tin roof, hydraulic elevators, plumbing, gas, etc.; cost \$20,000. For Home of the Friendless, an addition of four stories in rear of present building; materials, brick, stone, tin roof, pine finish, furnace, etc.; cost \$10,000.

Architect M. Rumbaugh reports: For the Methodist Episcopal Church (South), Ashland, Kentucky, a church edifice; materials, brick, slate roof, hardwood finish, organ, pews or chairs, furnace, stained glass, etc.; cost \$20,000.

Architect S. S. Godley reports: A church parsonage for the Glendale, Ohio, Presbyterian Church; materials, frame, slate roof, blinds, furnace, grates, mantels, etc.; cost \$4,500.

Architect A. O. Elzner reports: For Mrs. L. B. Gibson, a warehouse; materials, common and pressed brick, asphalt roof, freight elevator, etc.; cost \$20,000. For J. A. Gray, Covington, Kentucky, a store and flat building; materials, pressed brick, stone, tin roof, blinds, gas, plumbing, wood mantels, grates, etc.;

cost \$7,000. For a Mrs. Miller, a residence; materials, pressed brick, tin roof, blinds, gas, plumbing, stained glass, hardwood, laundry fixtures, etc.; cost \$15,000.

Architect G. W. Drach reports: For Mrs. H. Drehme, a residence; materials, stone, terra cotta, slate roof, gas, plumbing, stained glass, wood mantels, furnace, laundry fixtures, etc.; cost \$15,000. Also for the same party, a residence; materials, pressed brick, plaster, slate roof, gas, plumbing, furnace, stained glass, etc.; cost \$8,000.

Architect John H. Boll reports: For Jacob Krummel, a residence; materials, pressed brick, tin roof, furnace, pine finish, stained glass, etc.; cost \$3,500.

Architect Theo. Richter, Jr., reports: For Frank Kirchner, a residence; materials, pressed brick, cement gables, slate roof, hardwood finish, stained glass, laundry fixtures, gas, plumbing, etc.; cost \$6,000.

Architects Des Jardins & Hayward: Two residences for Leopold Burckhardt; materials, pressed brick, frame, stone, terra cotta, gas, plumbing, grates, mantels, furnaces, etc.; cost \$14,000.

Architect Lucian F. Plympton reports: For E. J. Murdock, a residence; materials, frame, slate roof, blinds, grates, wood mantels, plumbing, etc.; cost \$4,500.

Denver, Colo.—Architects Baerresaa Brothers: For G. C. Corning, a three-story hotel building, brick with stone front.

Architects F. E. Edbrooke & Co.: For Davis & Cresnell, a two-story brick foundry; cost \$10,000.

Architect J. J. Huddart: For Mrs. Cleveland, a two-story brick dwelling; to cost \$15,000.

Detroit, Mich.—Architect Leon Coquard: For Sts. Peter and Paul's Cathedral on Adelaide street, a three-story schoolhouse; size 110 by 96 feet; brick and cut stone trimmings, twelve class-rooms and hall, to seat 1,200 people; cost \$40,000.

Architect Peter Dederichs: For John Mark, a block of stores on the corner of Russell and Kiopelle streets; pressed brick, stone trimmings; cost \$25,000. Also for M. Beyer, a two-story, pressed-brick dwelling, on Chestnut street; cost \$7,000.

Architects E. A. Walshe & Son: For Dr. D. McLeod, a two-story brick residence and office on the corner of Aubin avenue and Maple street; cost \$5,000. For E. R. Wills, South Bend, Indiana, a two-story residence; brick and stone; cost \$6,500. For Dr. J. Black, a two-story residence on Russell and Kirby avenues; brick and frame; cost \$6,000.

Architect George E. Depew: For William M. Heazlett, a two-story brick residence and barn on Warren avenue, near Hastings street; cost \$14,000.

Architects Mason & Rice: For the Newberry estate, a five-story double-brick store on Jefferson avenue and Randolph street; cost \$40,000. For Mrs. Nancy C. Avery, a two-story brick residence on Eliot street, near John R. street; cost \$30,000. For Lewis H. Jones, a two-story residence on Warren avenue, near John R. street; brick, with cut stone trimmings and slate roof; cost \$7,000. Also they are preparing plans for alterations and additions to the residence of James E. Scripps on Trumbull avenue, near Grand River avenue.

Architects Spier & Rohn: For Charles Knorr, a block of three-story brick stores, corner of Gratiot and Meldrome avenues; cost \$12,000. For the Bethel German Church, a brick church, size 45 by 100 feet, on Medbury and Gratiot avenues; cost \$7,000. For Mrs. Charles H. Smith, a three-story brick residence on Frederick and Brush streets; cost \$7,000.

Architect Gordon W. Lloyd: For St. Mary's hospital, an addition to building; size 160 by 40 feet; cost \$50,000.

Architect Albert E. French: For the First Presbyterian Church Society, Kingsville, Ontario, a brick church to replace one recently destroyed by fire; cost \$6,000.

Architects A. C. Varney & Co.: For Mrs. Alice M. Petette, a two-story brick residence on Congress, near Aubin street; cost \$8,000. For William E. Moss, a two and a half story residence on Alexandria avenue and Third streets; cost \$9,000.

Architects Van Leyen & Hackett: For W. H. Beamer, a two-story frame residence on Piquette avenue, near John R. street; cost \$5,500. For the Detroit Baseball Club, a grandstand; cost \$5,000. For Matthew Slush, at Mount Clemens, Michigan, a three-story frame residence; cost \$8,000. For Frederick W. Kellogg, a two-story residence on Kirby avenue, near Woodward; pressed brick; cost \$9,000.

Architect Mortimer L. Smith: For Stephen Baldwin, six two-story residences on Adams avenue, corner Brush; cost \$12,000.

Architects Gearing & Stratton: For Levi Barbour, remodeling residence on west side of Woodward avenue; cost \$8,500. For William H. Reid, a two-story brick residence on Park street, near Sibley; cost \$5,500.

Architects Donaldson & Meier: For the Brush estate, a four-story building on Monroe avenue and Brush street; size 46 by 106 feet; brick; cost \$28,000. For Anthony P. Petz, a two-story brick flat building on corner of Gratiot and Elmwood avenues; cost \$12,000. For John P. Huckestein a two-story brick residence on Congress street, between Dubois and Aubin avenues; cost \$6,000.

Architect A. B. Cram: For the St. John Episcopal Church, plans for improvements on building, which is to be enlarged and redecored at a cost of \$40,000.

Lima, Ohio.—Architect Charles D. Leech: For Mr. W. Stahl, a two-story frame dwelling, slate roof, furnace; size 38 by 50 feet; cost \$5,000. For Mrs. Eliza Satherwaite, a two-story brick dwelling; size 34 by 36 feet; cost \$3,700.

Milwaukee, Wis.—Architect Charles Kirchoff, Jr.: For the Miller Brewing Company, an eight-story storage house; to cost \$150,000. Also has prepared plans for a three-story hotel for the J. Schlitz Brewing Company, the building to be of brick, and cost \$22,000.

Architects Van Ryn, Andree & Lesser: For Pritzlaff Brothers, an office building; size 50 by 100 feet; brick, stone trimmings; cost \$16,000.

Architects Ferry & Clas: For Matthews Brothers, a six-story brick store and office building; size 100 by 110 feet; brown stone front; cost \$140,000.

Architects Siebold & Wiskocil: For the West Bend Brewing Company, an office building, to be of brick with stone trimmings.

Minneapolis, Minn.—The following buildings are reported: The St. Joseph Catholic Church, additions and alterations; to cost \$9,000.

D. P. Jones, a frame dwelling; \$7,500. For L. Robins, a flat and store building; cost \$15,000. D. Bassett, a two-story brick building addition; cost \$9,000.

Architect A. Maritzen, Chicago: For M. Glick & Sons, a four-story brewery; brick and stone; to cost \$75,000.

Omaha, Neb.—Architects Findlay & Shields: For W. R. Homan, a two-story apartment house; size 44 by 150 feet; brick and stone; cost \$20,000.

Architect F. M. Ellis: For C. E. Bates, a two-story residence; size 38 by 56 feet; brick and frame; cost \$10,000.

Architects Voss & Latenser: For A. Hospe, Jr., a four-story warehouse; size 44 by 732 feet; brick; cost \$15,000.

Paris, Ill.—Commissioners of Edgar County want plans for court house, to be submitted by June 29. Address F. M. Patteson, Paris, Illinois.

Pittsburgh, Pa.—Architect Maritzen, Chicago: For M. Winter & Bros., a three-story manufacturing building; cost \$100,000.

St. Paul, Minn.—Architect C. A. Reid is preparing plans for a large arcade building, three stories high, to be erected on Wabash near Sixth street; cost to be about \$2,000,000.

Messrs. Deffel & Zimmerman will erect a two-story brick double residence; cost \$10,000.

St. Louis, Mo.—Architect A. Maritzen, Chicago: For Griesedick Brothers, A four-story brewery, size 309 by 275 feet, brick and stone; cost, \$300,000.

Architect A. N. Baker: For the Vermont Marble Company, a one-story warehouse, brick with stone trimmings, size, 197 by 150 feet; cost \$55,000; also, for the Town School Committee, a three-story public school, size 100 by 92 feet; cost \$50,000.

Architect F. W. Folk: For B. Crean, a two-story residence, size 22 by 64 feet; cost \$5,000.

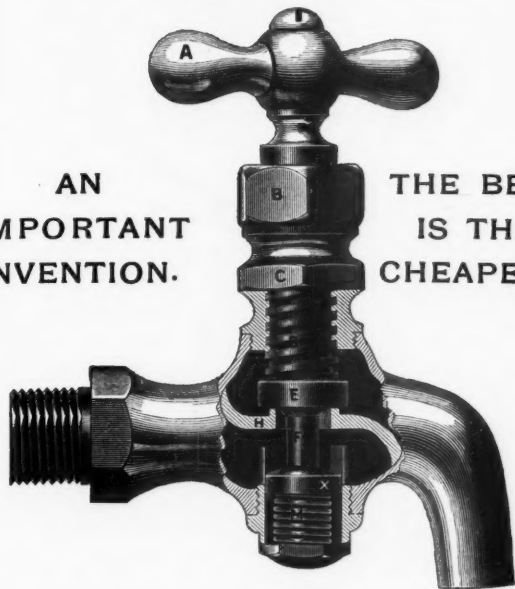
Architect B. Redington: For A. L. Gohen, a hotel and office building; cost \$5,000.

Architects' names not reported: For G. Guffreman, a three-story store and apartment building; cost \$7,500. For E. Dunning, a two-story dwelling; cost \$5,000. For A. DeWolf, a two-story brick dwelling; cost \$11,000.

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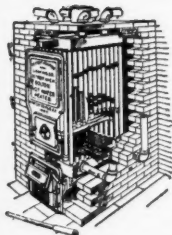
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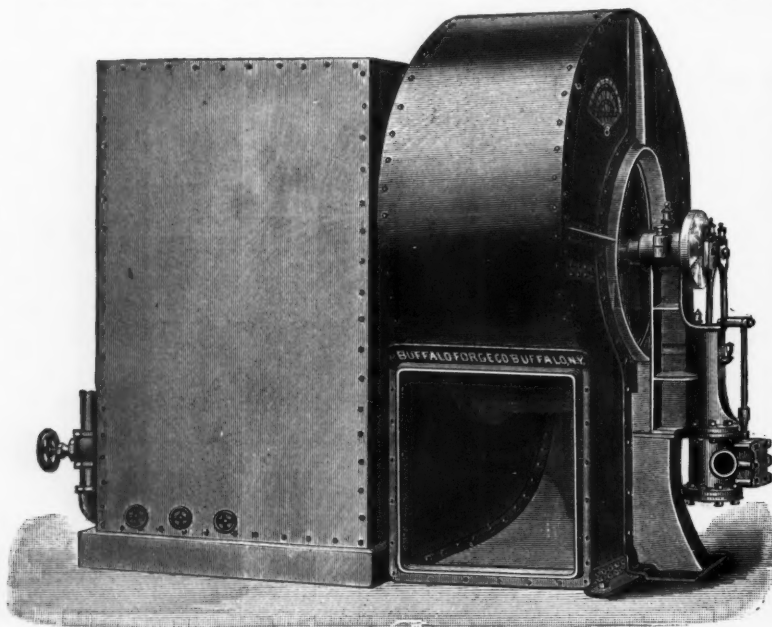
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GENTLEMEN,—After a careful study of the qualities of your Sash Pulley and Steel Ribbon, and comparing the same with other methods of hanging sash, preference was given to your pulley and ribbon for the sash of the Leiter Building, State, Van Buren and Congress Streets. This building is over 400 feet long, eight stories high, and being designed for a retail store or stores, the windows are exceedingly large, mostly from 6 to 8 feet wide, and those of the second story some 12 feet high. The sash for such openings require the very best cord and pulleys. Good pulleys can be obtained by paying for them, but I was unable to find as good a pulley as yours at the price you charged us. The question of cord, chain or ribbon is a serious one where windows are as heavy as those in the Leiter Building, and it was only after the most thorough examination, with the assistance of an expert to visit the place where the ribbon was in use, that the question was decided and the contract was awarded to you.

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THE INLAND ARCHITECT AND NEWS RECORD.

Vol. XVII.

ADVERTISERS' TRADE DEPARTMENT.

No. 3

Inspecting and Testing Structural Material.

The readers of THE INLAND ARCHITECT will notice in this number the advertisement of the firm of Messrs. G. W. G. Ferris & Co., of Pittsburgh and Chicago. This firm are the pioneers in the inspection and testing of structural material for building purposes, and have been the means of rendering to the various architects, whom they have represented, a great service in the matter of delivering to them steel structural material from the various mills and shops throughout the country, in a finished condition, ready for erection upon receipt of same at the building site.

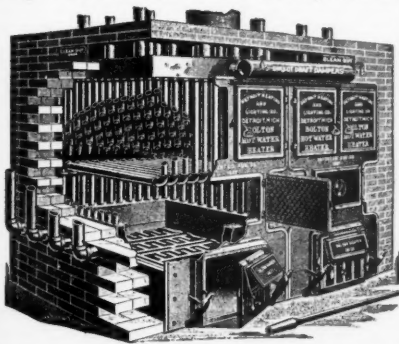
The gentlemen connected with this firm have made a specialty for many years of the inspection of this grade of material, both for railroads and municipalities and architectural work, and can refer to some of the largest buildings in the United States, with which they have been connected, and also to the architects of same.

They have done a large amount of this work in Chicago, and the results have greatly proven the wisdom of their employment. Special reference might be made to such buildings as the Auditorium building, the Leiter building, Pontiac, Kearsarge, Monadnock, Home Insurance, Denver Equitable and other large structures throughout the country.

Messrs. Ferris & Co. will be pleased to correspond with the readers of THE INLAND ARCHITECT, and for the benefit of the trade generally, have compiled a specification for steel and iron to be used in structural building work, which can be obtained upon application to them, either at their Pittsburgh, Chicago, or Philadelphia offices.

The New Bolton Heater.

Not many years ago hot water heating in this country was used only in the largest buildings. When smaller heaters adapted to the warming of residences were afterward introduced, the present "hot water boom" was inaugurated. These heaters were designed for comparatively small work, and have only lately been applied to buildings of large size. By their construction some of them are poorly adapted for such work, and can only be made



to meet the requirements by a multiplication of heaters, which is both expensive and inconvenient. Many, also, are really steam boilers pressed into service as makeshift hot water boilers. The Detroit Heating and Lighting Company, feeling the necessity for a modification of their celebrated Bolton hot water heater that would adapt it to large work, and having on hand several contracts for heating large buildings, have produced what they call their No. 20 series, an example of which (their No. 25, we illustrate. As will be seen, it retains the special features of the regular Bolton heater—the top and bottom casting connected by a row of wrought iron pipes, the intervening space above the fire-pot being occupied by pendent pipes, extending just over the fire. Its manufacturers assert that the Bolton contains less water, in proportion to its fire surface, than any other boiler on the market. They also claim a better proportion of fire surface to the grate surface. The first of the new

series, the No. 20, has a capacity for supplying 2,300 square feet of radiation surface. The No. 25, which is the one shown in our illustration, consists of the two 20's united so as to form practically a double fire-pot boiler, with a capacity of 4,500 square feet. The No. 30 consists of three No. 20's, similarly combined, and has a capacity of 6,500 square feet of radiation.

An advantage claimed for this construction over the ordinary "twinning" cast-iron boilers is that when only one fire-pot is in use the heat may be made to pass all over the heating surface of the combined boilers, by closing the direct draft damper (see small drop handles, indicated by arrow heads in cut) belonging to the fire-box that is in use, leaving open the damper above the unused fire-box. In order to find an outlet the draft must, therefore, pass among the pipes and over the heating surface of the entire boiler.

Full particulars can be obtained in the new edition of "Warmth for Winter Homes," published by the Detroit Heating & Lighting Company, and can be obtained from the home office, Detroit, Mich., or from any of the branches at New York, Boston, Chicago, St. Louis, New Orleans and Dallas.

A Mammoth Plumbers' Supply House.

The Rundle & Spence Manufacturing Company, of Milwaukee, whose production of all kinds of brass, iron, copper and marble goods for the use of plumbers, gasfitters, and cabinet makers is so widely and favorably known, has just opened a headquarters at 193 Lake street, Chicago, where a full and complete supply of the company's specialties will always be found.

There is something interesting in the growth and status attained by this prominent company. It is comparatively but a few years ago when the seniors of the company, from whom it derives its name, were conducting an ordinary plumbing business that was in no way conspicuous above the thousands to be found anywhere, all over the union. But they were diligent, progressive, and aggressive, and soon their activity began to make its impression. The business began to enlarge year by year, until it had reached proportions in 1881 that resolved it into a wholesale jobbing business, when Mr. E. C. Smith was taken into the firm, and it was afterward known as Rundle, Spence & Co. Subsequently the spirit of enterprise that led them to success with others' wares inspired them to manufacture the goods they dealt in themselves, so that today the establishment embraces a large five-story warehouse on Second street, Milwaukee, and a large plant of shops and foundries on South Water street, supplied with latest improved machinery, and rail conveniences for shipping, leaving nothing to be desired in these respects. But it is no longer a firm. It is an incorporated company, with a paid-up capital of \$500,000, employing several hundred men. Mr. Joseph Rundle is president; Mr. Thomas Spence, vice-president; Mr. E. C. Smith, secretary; while the names of Alfred Fowle, Jr., as treasurer, and W. M. Webster as general manager, complete the complement of officers. It may be said of all of the officers, they are "self-made men." Of Messrs. Rundle & Spence it goes without questioning. Mr. Smith worked his way up from the bottom rung of the ladder, until he was in charge of the city and state departments of the Hoffmann & Billings Manufacturing Company, a place he gave up to associate himself with Messrs. Rundle & Spence, and to whose business ability no small credit is due for the successes won. Mr. Webster began his career by entering their employ as an office boy. By close application and industrious habits, together with his natural business tact, he won the confidence and esteem of his employers, who advanced him from office boy to helper, salesman, collector, bookkeeper, traveling salesman and confidential man. In 1884 he left the firm's service, and engaged with the Wolff Manufacturing Company, of Chicago, as traveling salesman, and

subsequently was assigned to the management of the company's Dearborn street exhibit room, which he filled to the credit of himself and satisfaction of his employers, winning the confidence and esteem of architects everywhere, until something over a year ago, when he resigned to take the management of the plumbing department of The J. L. Mott Iron Works. The first of the present month Mr. Webster resigned the position to become interested as general manager of the business he started in with as an office boy. Mr. Fowle began his service with the company as an ordinary clerk, something over ten years ago. From a clerk he won his way to that of confidential man, then bookkeeper, and has well earned his treasurership degree. Thus it will be seen all the officers are practical business men, and hard workers, and that they are looking for further victories may be taken for granted, as in their lexicon they have no such word as fail.

The Use of Vaseline Oil.

At the vaseline factories some years ago it was found that no dead rot appeared on the timber beneath the building where the vaseline oil had dripped or run through upon the timber, while within a few feet away the timber was in an advanced stage of decay where it had not come in contact with this vaseline oil. Dexter Brothers, in combining this oil with linseed oil in their English shingle stains, have discovered that vaseline oil preserves not only the shingles but the color of the stains. The use of these shingle stains has grown largely, and the architects are using them on the finest houses.

Protection Against Flies.

Do you want the best screen door in the world? If so buy the Lyle screen door. Patented in the United States, Canada, England and France. Agents wanted in every town, to change over old style doors, and manufacture Lyle's improved screen door. See cut of door on another page. Address W. R. LYLE, patentee, Ripon, Wisconsin.

Dissolution Notice.

Public notice is hereby given that the co-partnership heretofore existing between Philip H. Gunderman and John C. Gunderman, under the firm name of Gunderman Brothers, was dissolved June 1, 1891, by mutual consent Philip H. Gunderman retiring from said firm. The plumbing, sewerage and gas-fitting business heretofore carried on by said firm will be continued at 182 North avenue, Chicago, Illinois, by John C. Gunderman, who will collect all outstanding accounts and close up all other business affairs of said firm. Signed, Philip H. Gunderman, John C. Gunderman.

Fine Architectural Blacksmithing.

Architectural travelers are never tired of telling about the exquisitely designed and executed smithy work that adorns some of the most ancient minsters of the old world, reminiscences of the days when the smith was a coadjutor with the sculptor and painter in materializing the highest art conceptions of the architect. They print for us sketches of wonderfully made grilles, hinges, brackets, railings and gates, and are loud in their lamentations over "a lost art," with the inference that there is no hope of its ever being restored. With the rest of a credulous world we have taken all that has been said about it for granted, forgetful of the progressive spirit of the age which is pushing every tradesman to bring forth the very best of his calling. Fine blacksmithing—architectural blacksmithing—is not a lost art; on the contrary it is a living, energetic entity, and if not equal to the fine work of the tenth and twelfth centuries, certainly approaches it in a remarkable degree and surpasses it in variety of architectural application. If any one has any doubt of such being the case they have only to send to the Winslow

ADVERTISERS' TRADE DEPARTMENT—Continued.

Brothers Company of Chicago, for a copy of their special catalogue of artistic ironwork—catalogue No. 2,—and after they have perused its contents, studied the outlines of the many examples of beautiful entrance gates, grilles, hinges, railings, balconies, newels, etc., that are given in it, they will fail to see how anything more artistic could have been built with forge and hammer centuries ago, or that there can be any conceivable ornamental architectural ironwork beyond the capabilities of such an establishment. This special catalogue should be in the hands of every progressive architect. It will "born" him new ideas.

Trade Notes.

LOVELL H. CARR, formerly connected with J. B. King & Co., is now representing Mr. E. Thiele, of 78 Williams street, New York, who imports the famous Dyckerhoff, Heym Brothers and Hilton Portland cements.

THE Chicago office and store of A. A. Grifing Iron Company are removed into much large and more commodious quarters at 88 Lake street, which gives the company's genial western manager, Mr. F. W. Somers, much better facilities for catering to the large and increasing western demand for Bundy Radiators.

A LARGE manufacturer of steam, hydraulic, and hand elevators in Baltimore writes that they have been using Dixon's Graphite Grease on their elevators for about two years, and find it superior to any lubricant they have ever used. They also use it on their wire cables, to prevent rust, and for the guides of elevators. It is made by the Joseph Dixon Crucible Company, of Jersey City, New Jersey.

THE INLAND ARCHITECT presumes most architects and builders have recently been reminded by the well-known house of Merchant & Co., that the "Star Ventilator" still stands at the "head of the class," the same as the last report. At least that is the inference from a neat little illustrated and silver embossed monogram pamphlet that Mr. Wanamaker's peripatetic representative has brought and gently laid before us for admiration. To sum the visitor up in a few words, it may be called a symposium of all the virtues and excellencies of this admitted standard ventilator. Long may it—ventilate.

THE Stewart Ceramic Company, 312 Pearl street, New York, have complimented THE INLAND ARCHITECT with a copy of a finely drawn and printed colored plate giving facsimile representations of the company's earthenware laundry tubs, and pantry, kitchen and slop sinks, mounted on galvanized iron stands with hardwood facings and nickel trimmings. The center of the plate gives interior views of the home office and salesrooms, the whole, when framed, making a nice office ornament. The Company's western headquarters are located at Nos. 323, 325 Dearborn street, Chicago. We learn these tubs and sinks are growing in public favor, as they are said to have none of the objectionable features common to wood and metal.

THE notoriety for excellence that obtains for the Babcock & Wilcox Company steam boilers is world-wide, as they are marvels of strength and possess a tubular construction that permits steam-making on the most economical basis. Probably there are more of the company's steam generators in use by the leading factories and shops of this and other countries than of any other make, at any rate the numbers run up into the thousands. The great interest that is manifested, owing to the vital question of economizing space, in the subject of high steam-pressures, has induced the company to issue a chart locating a large number of this class wherein some very interesting statements are made in regard to their testing pressure, number of boilers in the battery, total horse-power and working pressure. Scarcely any in the list show a lower working pressure than 180 pounds to the square inch, while some of them are rated at over 200. An example is given of a battery built for the Wood Vulcanizing Company, of

New York City, which has been running at 235 pounds daily pressure for the past ten years. There are other equally notable examples given. Altogether the chart is of exceptional interest to every steam user.

OWING to the extraordinary increase of their business during the past three years, the Matthews Decorative Glass Company, 328 and 330 East Twenty-sixth street, New York, find themselves compelled to add two new stories to their already large factory. They intend, at the same time, putting in an entirely new steam plant, sand blast machines, elevators, electric motors, etc., embodying all the latest devices of the most approved pattern.

On completion of contemplated improvements, together with the addition of many new branches to their well known line of decorated glass, they will have one of the largest establishments of its kind in the world, and will be in a position to fill all orders, large or small, with unprecedented promptness and dispatch.

THE following are specimens of letters recently received by the Buffalo Forge Company:

CANTON, OHIO.
The Buffalo Forge Company, Buffalo, New York.
GENTLEMEN,—We are now using one of your No. 22 shaving exhaust fans, and find it very satisfactory indeed.

This fan took the place of another of the same size made by a prominent manufacturer of exhaust fans. The first one was not capable of doing the work; is not nearly so effective as the one we are now using, made by you.

Yours truly,
THE PRINCESS PLOW COMPANY,
W. E. SEFTON, SR.

LOUISVILLE, KENTUCKY.
The Buffalo Forge Company, Buffalo, New York.

GENTLEMEN,—Replying to your letter of December 8, we are pleased to report that we have used your double blower for three years. During all the time it has worked with entire satisfaction, and we cheerfully recommend it to any parties who desire to be exempt from the troubles usually experienced from the use of a bad blower.

Yours very truly,
LOUISVILLE COFFIN COMPANY,
P. L. W. H. MAY, Sec'y and Treas.

PITTSBURGH, PENNSYLVANIA.
The Buffalo Forge Company, Buffalo, New York.

GENTLEMEN,—Having used your No. 17 shaving exhaust fan for three years, we can give it the very highest recommendation. It has been running steadily, and has never had any repairs.

Respectfully yours,
WYOMING VALLEY LUMBER COMPANY,
L. B. H., Pres.

It is a noticeable fact that the utilizing of tile for roofing purposes is growing in popularity and that such roofs in the coming years will be commonplace, particularly in the class of structures known as "fireproof" and "slow burning." In the old world such roofings have been an usage for centuries, and instances are known where they have stood intact while generations of men have been born and died under them without occasion for their restoration. That the tiling of roofs in this country has not been of common practice has no doubt grown out of the fact in the "good old Colonial days" all brick and tiles had to be brought from the old country, as well as the talent for setting them. Now, that in these later days, brick having become a common building staple of the country, and such progress made in building ceramics as to create new uses for the output of our kilns, it is not surprising that the minds of house designers have turned to the contemplation of the impregnable tile roof, and that manufacturers, like the Rapp Roofing Tile Company of New Philadelphia, Ohio, have sprung up to meet the consequent result. Certain it is not only are tile roofs being laid all over the country, but better ones than the old world ever had, because the tiles are molded of such forms they conform to any shaped roof and withal are as ornamental with their attendant finals, crestsings and hiprolls, as they are useful.

Railroad Notes.

SAVE \$36.50 TO CALIFORNIA.—J. C. Judson & Co's personally conducted California excursions in broad gauge Pullman tourist sleeping cars, via Denver & Rio Grande Railroad, (the scenic line of the world) leave Chicago via Chicago & Alton Railroad, 12:00 noon Saturday of every week, each excursion in charge of an efficient and gentlemanly excursion manager. Pullman tourist sleeping cars through

from Boston and Chicago to San Francisco and Los Angeles. For rates, reservation of berths, etc., call on or address J. C. Judson & Co., 195 Clark street, Chicago.

PLAYING CARDS.—You can obtain a pack of best quality playing cards by sending 15 cents in postage to P. S. EUSTIS, General Passenger Agent, Chicago, Burlington & Quincy Railroad, Chicago, Illinois.

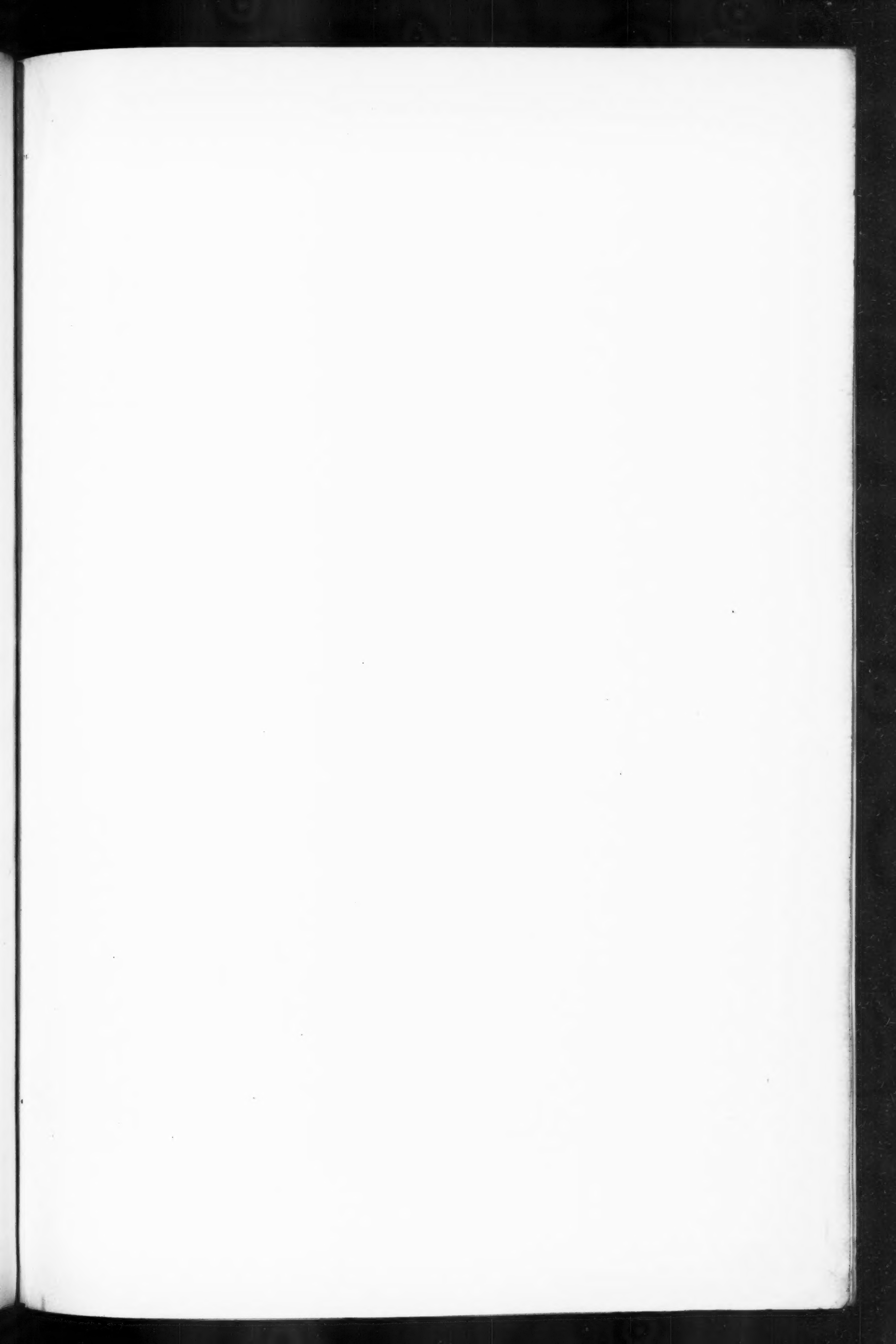
COMPLETED TO DEADWOOD.—The Burlington Route, Chicago, Burlington & Quincy Railroad, from Chicago, Peoria and St. Louis, is now completed, and daily passenger trains are running through Lincoln, Nebraska, and Custer, South Dakota, to Deadwood. Also to Newcastle, Wyoming. Sleepers to Deadwood.

ARTISTIC CALENDARS.—The Chicago & Grand Trunk railway's series of illustrated calendars for 1891, if possible, excel their issue of previous seasons, and which have become generally well known. Each calendar is a reproduction from nature in the highest quality of photogravure art. Many thousands have been mailed gratuitously to personal addresses. Additional copies of any of the set will be sent free on receipt of 10 cents each, in stamps, by addressing W. E. Davis, general passenger and ticket agent, Chicago & Grand Trunk railway, Chicago, Illinois.

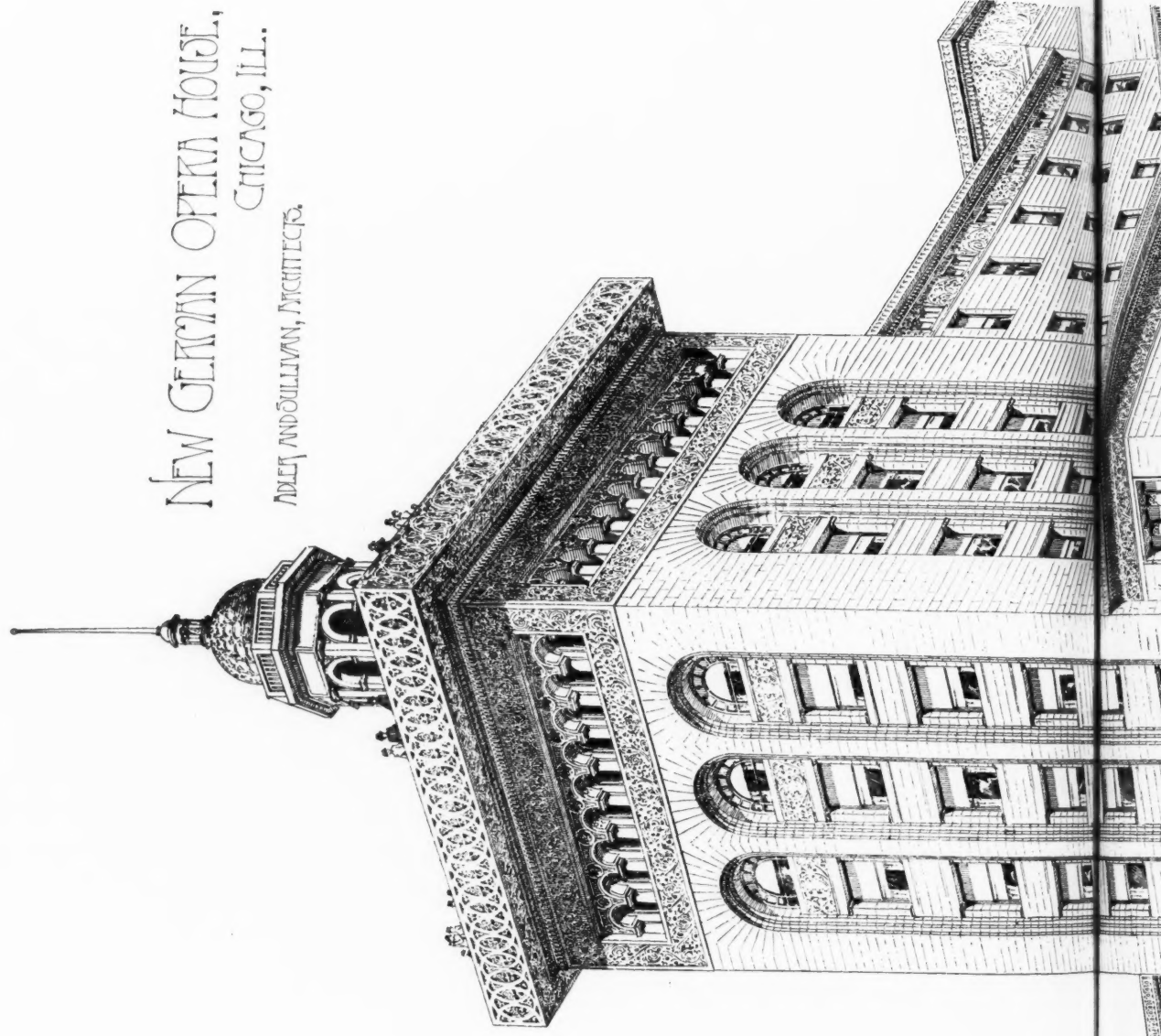
TRAVELERS and tourists contemplating a visit to the Pacific coast should bear in mind the Lake Superior, St. Paul & Union Pacific, a new passenger and freight line formed by the Chicago, St. Paul, Minneapolis & Omaha and Union Pacific railways. This line strikes about all the important far western towns and cities, i. e., of Nebraska, Montana, Idaho, Utah, Wyoming, Washington, Oregon and California, and reaches the coast several hours sooner than any other route. The accommodations are first-class in every respect and the fare as low as the lowest. Special excursion trains are run, leaving St. Paul and Minneapolis every Thursday morning. For fuller particulars address T. W. Teasdale, general passenger agent, St. Paul.

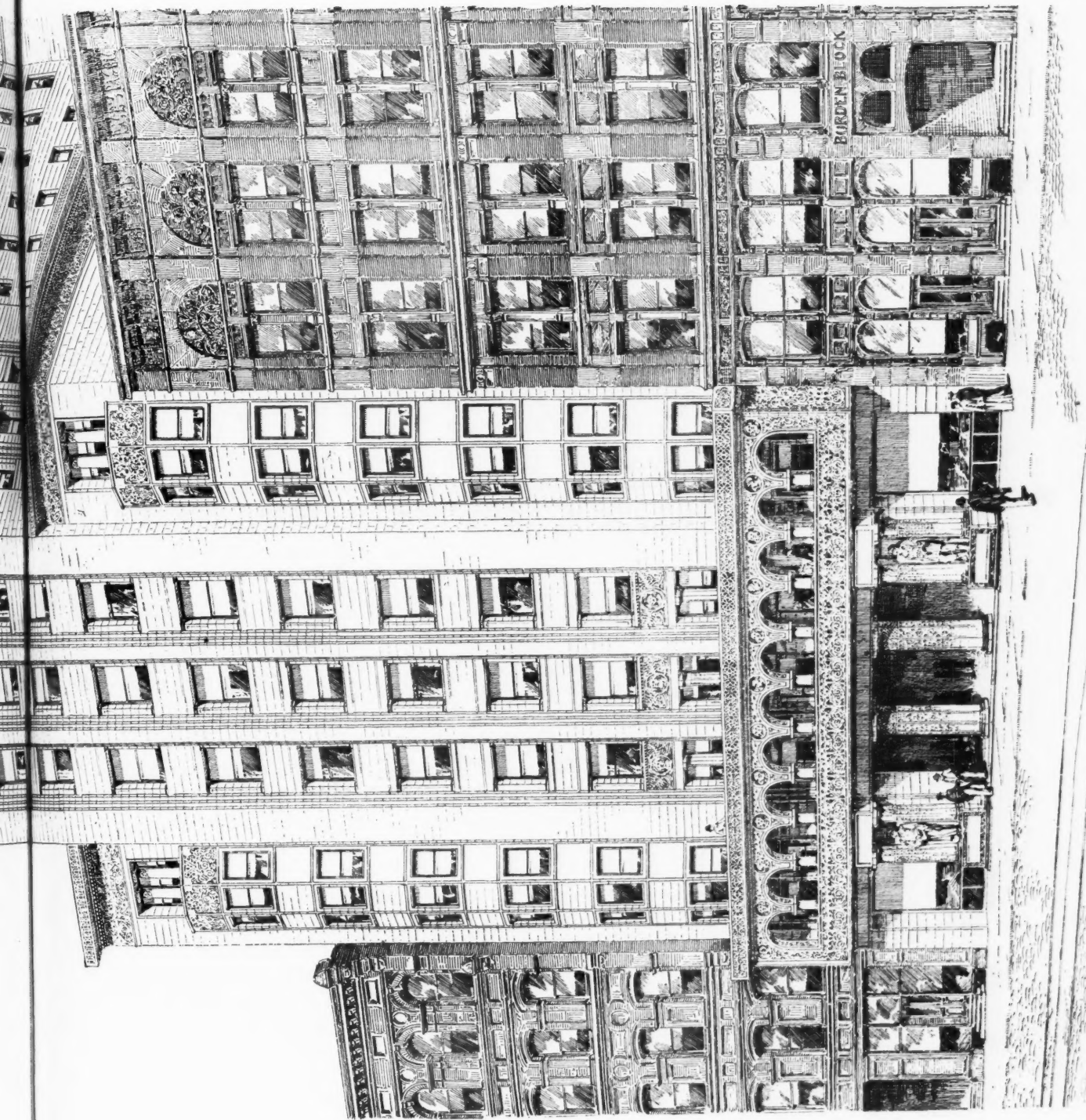
WILL you join the colony now organizing to locate in Maryland, between the cities of Baltimore and Washington? Here are fine farming lands, low in price, adapted to every branch in agriculture; an abundance of pure soft water; delightful and healthful climate; near to the best markets in the world; unsurpassed railroad facilities, with low freight and passenger rates, with quick time; educational advantages second to none; churches representing almost all denominations; refined and cultured society, etc. Only a few more wanted to complete the colony, and if you want to join in one of the best opportunities of a lifetime, now is the time; farmers, business men, mechanics and laborers—there is a chance for all. One hundred per cent profit easily assured in three years. Full information free of charge furnished by M. V. Richards, land and immigration agent, Baltimore & Ohio railroad, Baltimore, Maryland.

DISTANCES TO WASHINGTON.—From St. Louis to Washington the distance is 894 miles; from Cincinnati to Washington 553 miles; from Chicago to Washington 813 miles. This is via the bee line followed by the Baltimore & Ohio Railroad, the most picturesque as well as the most direct route from the Mississippi river to the Atlantic seaboard, stretching across level and fertile prairies, amid hills and valleys, over mountain crests, along banks of historic rivers, through teeming cities and bustling towns. The through Baltimore & Ohio trains, with full Pullman equipment of sleeping, parlor and buffet cars, run from St. Louis to Washington in 29 hours; from Cincinnati to Washington in 18 hours; from Chicago to Washington in 25 hours. Sleepers from all points run through to New York from the West without change. At Washington connection is made with the Baltimore & Ohio's matchless Royal Blue Line for Baltimore, Philadelphia and New York. These Royal Blue trains consist of the stanchest and finest coaches, parlor and sleeping cars ever built by the Pullman Company.

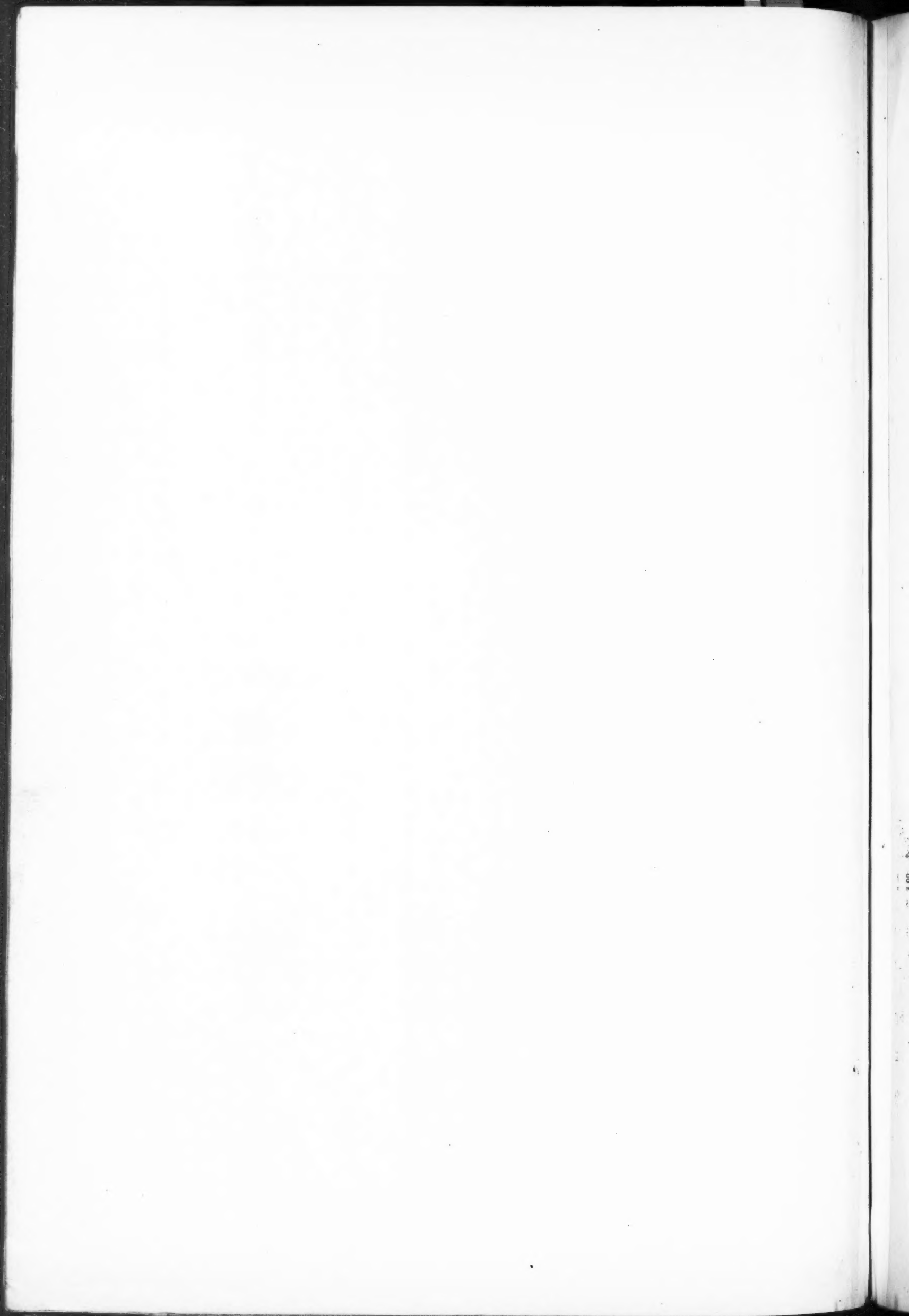


NEW GERMAN OPERA HOUSE,
CHICAGO, ILL.
ADLEY AND O'BRIEN, ARCHITECTS.



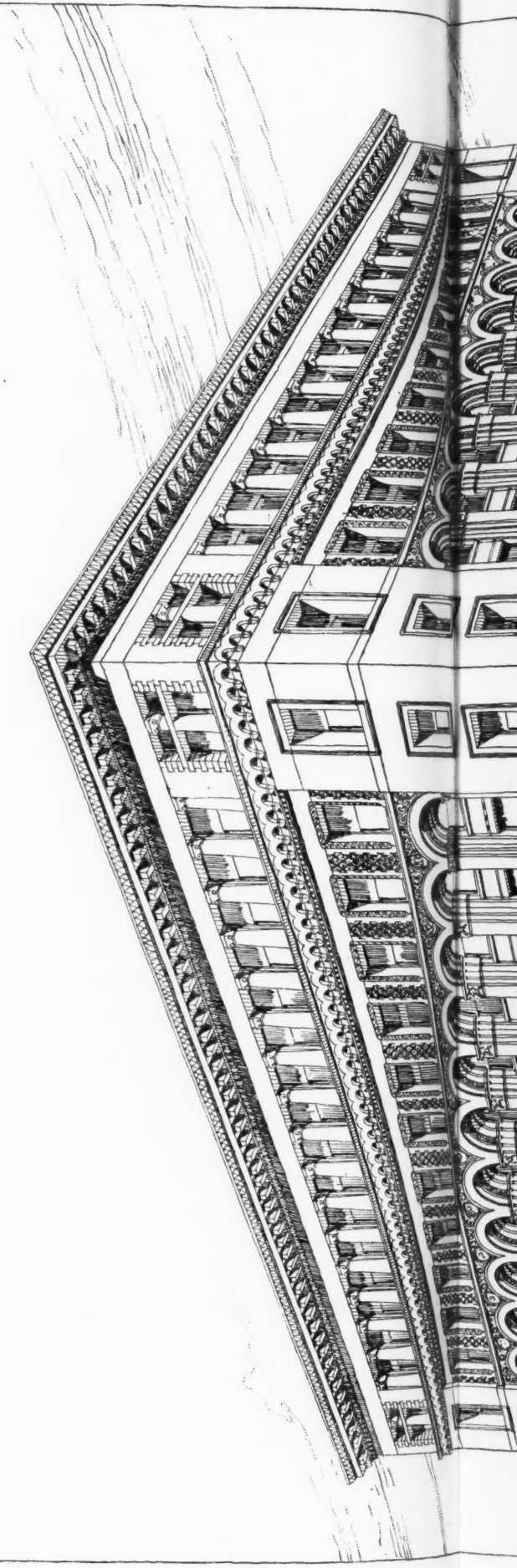


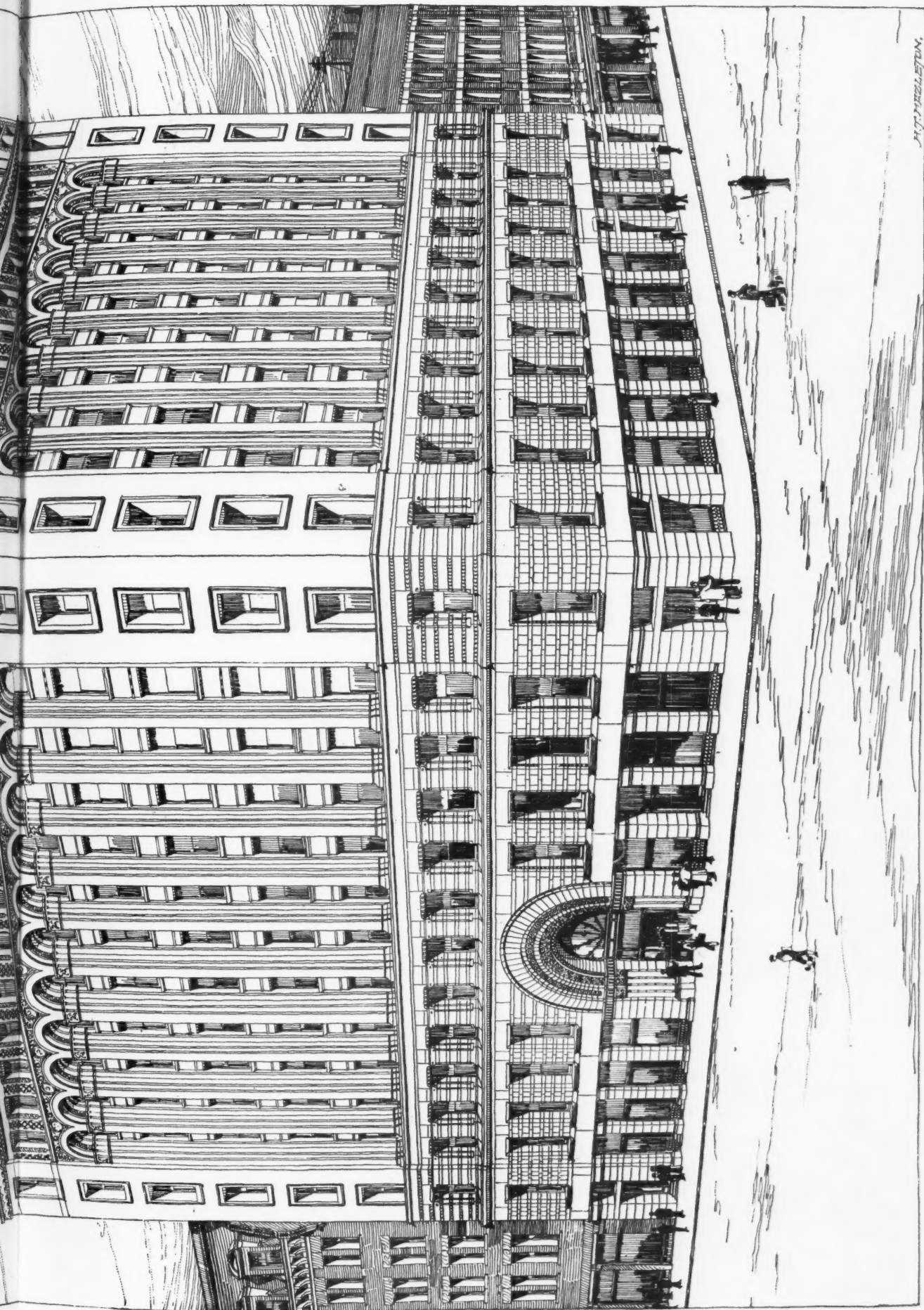
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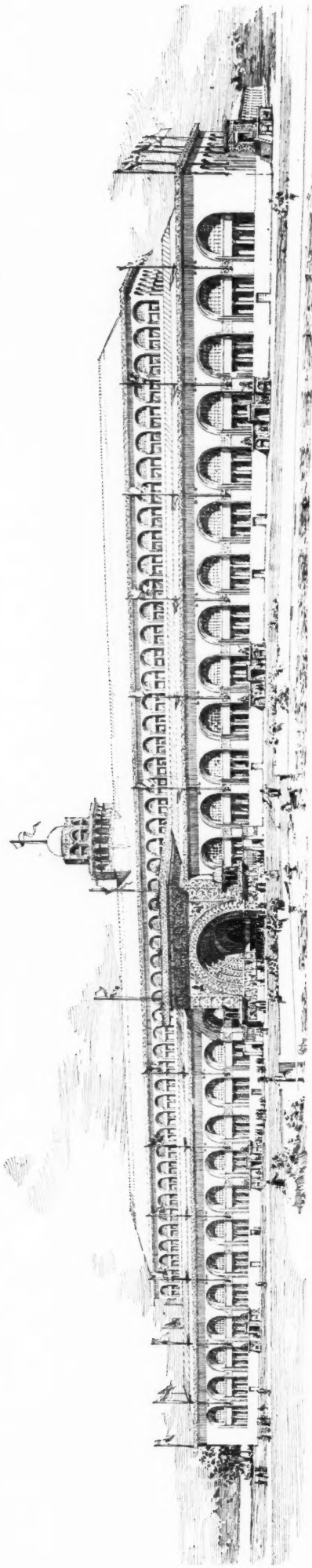
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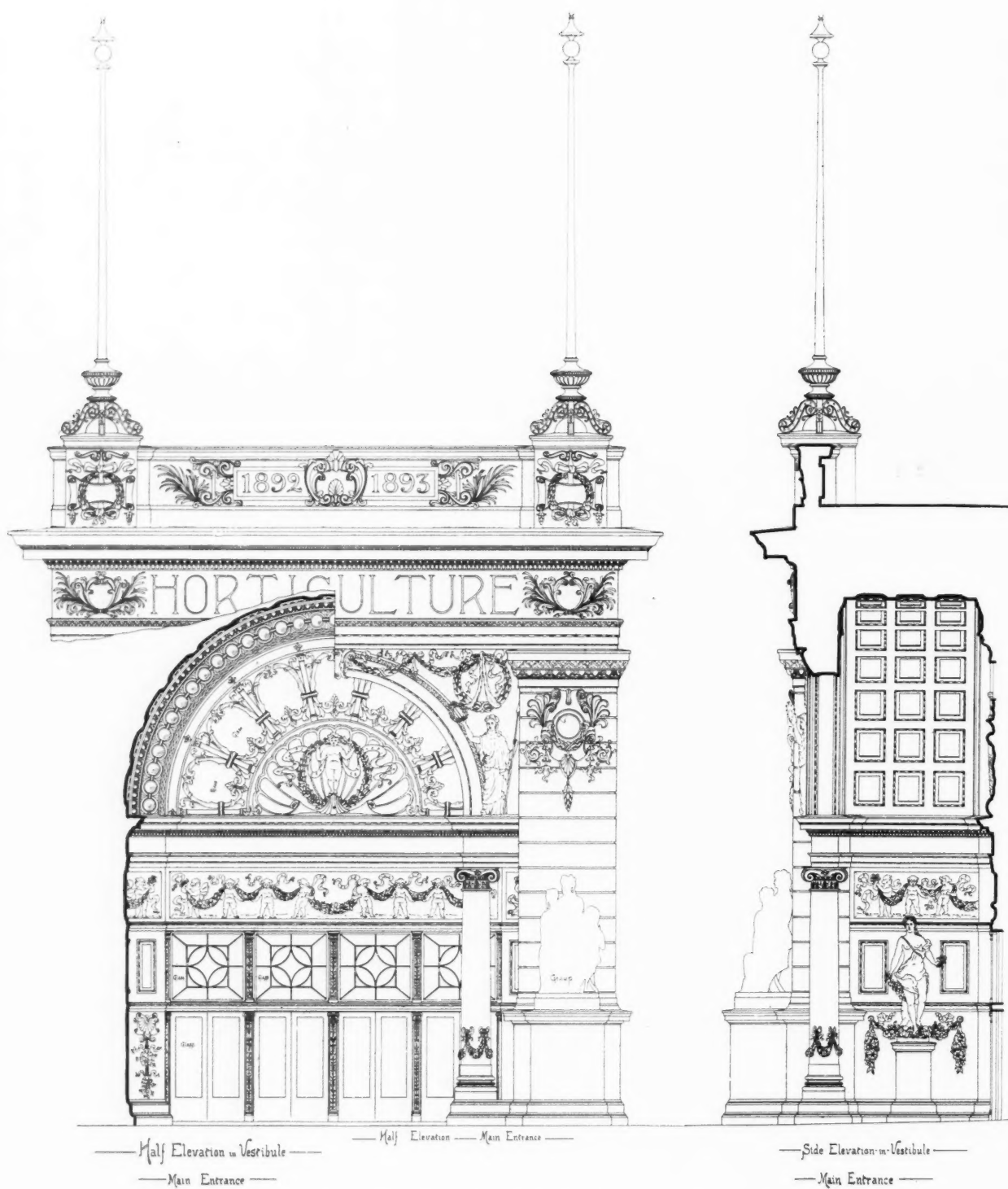
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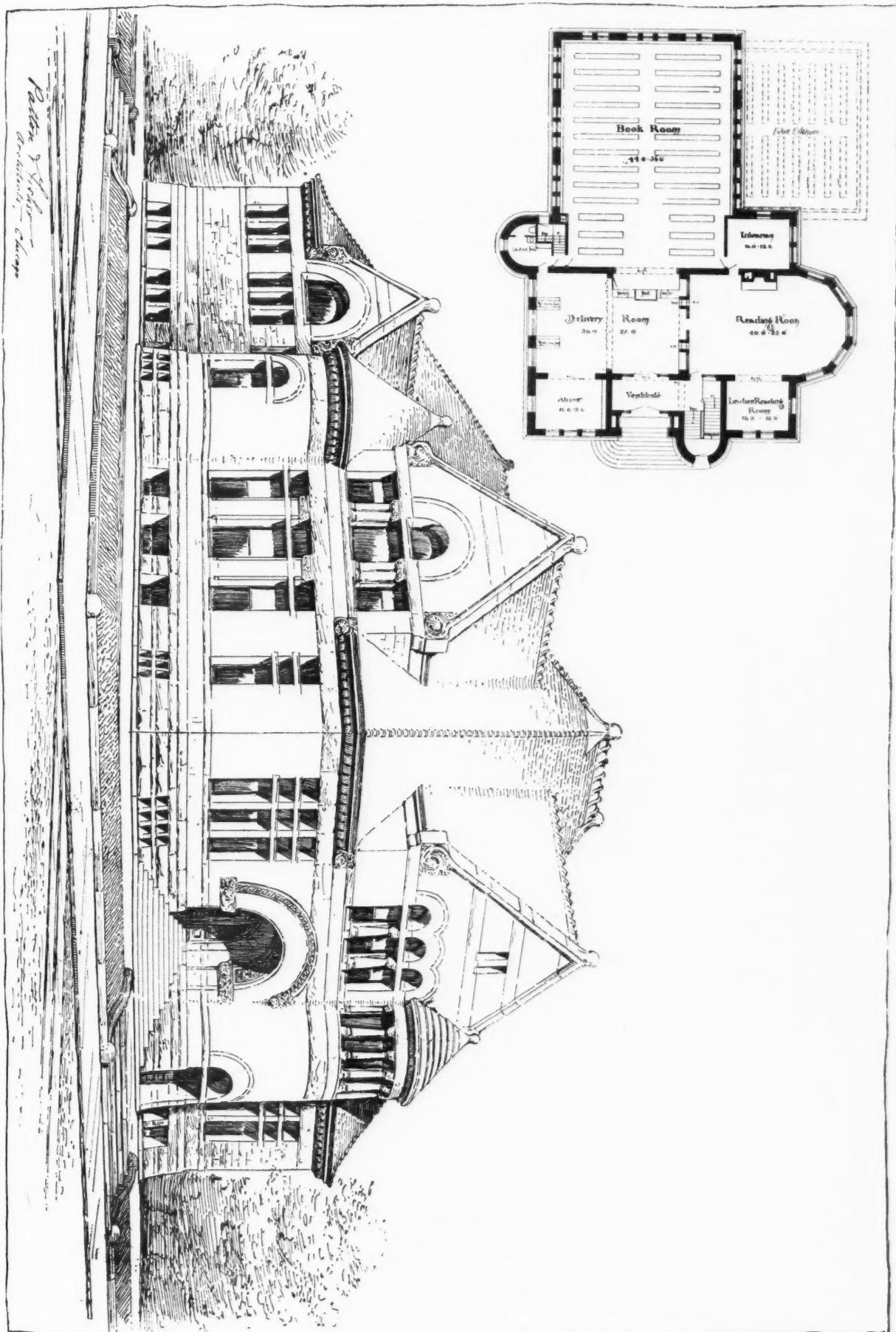
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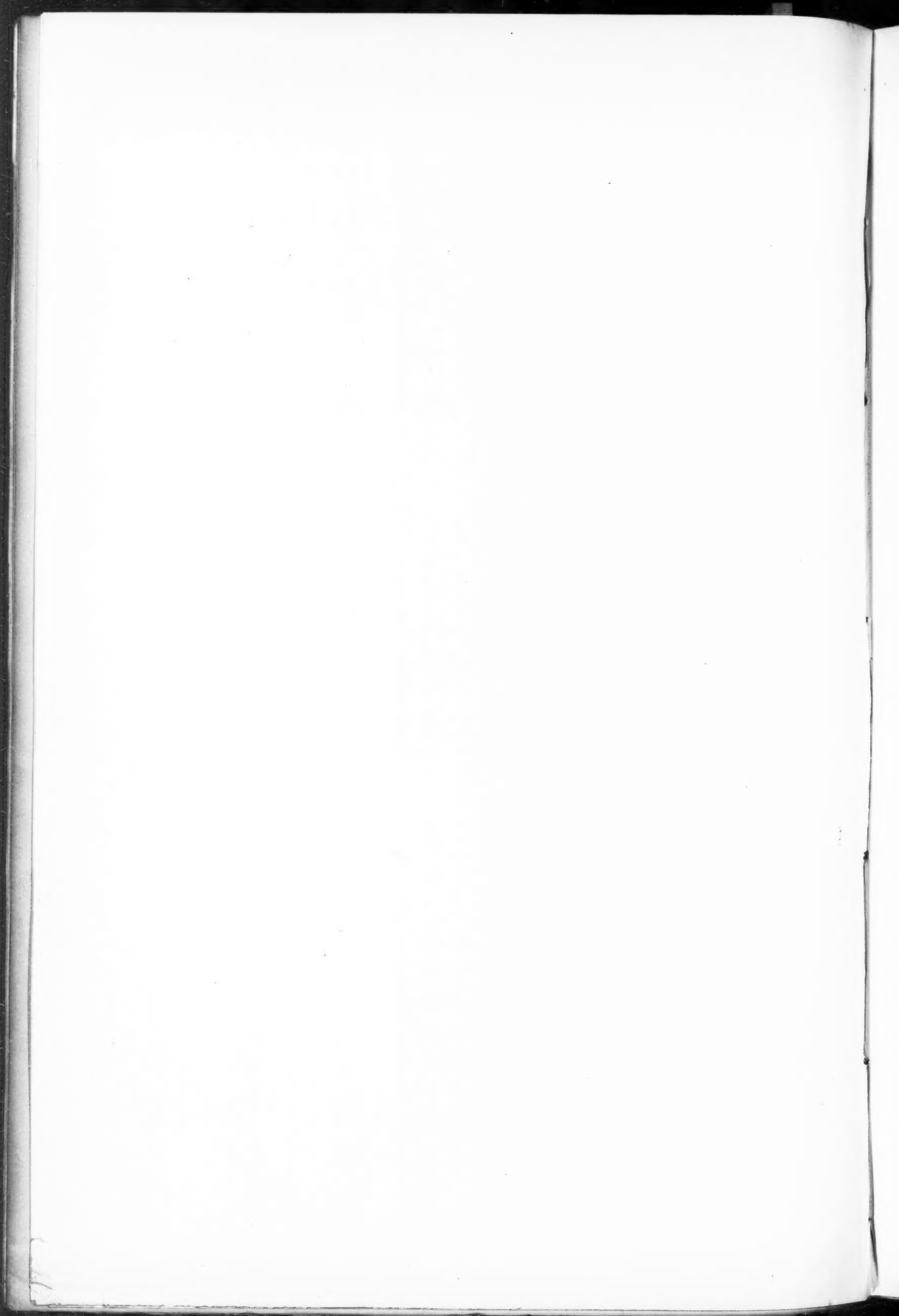
DETAIL OF ENTRANCE TO HORTICULTURAL BUILDING.

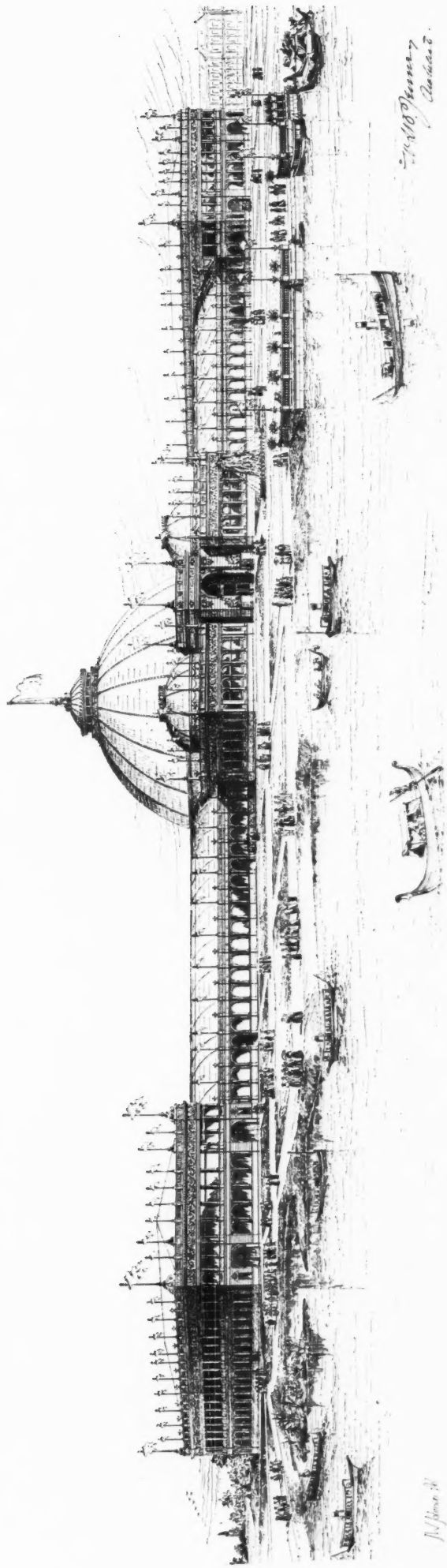
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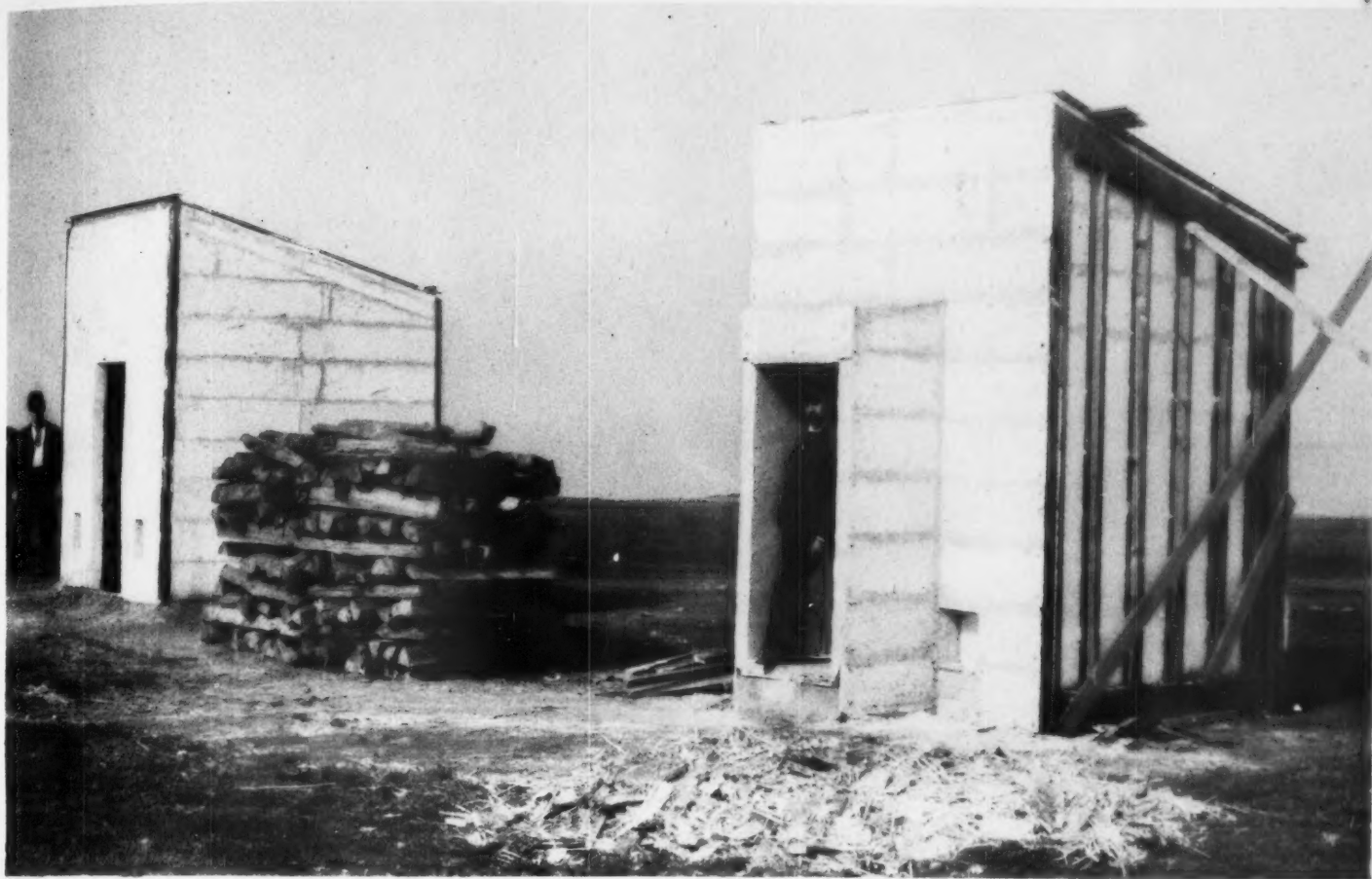




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BEFORE FIRE.



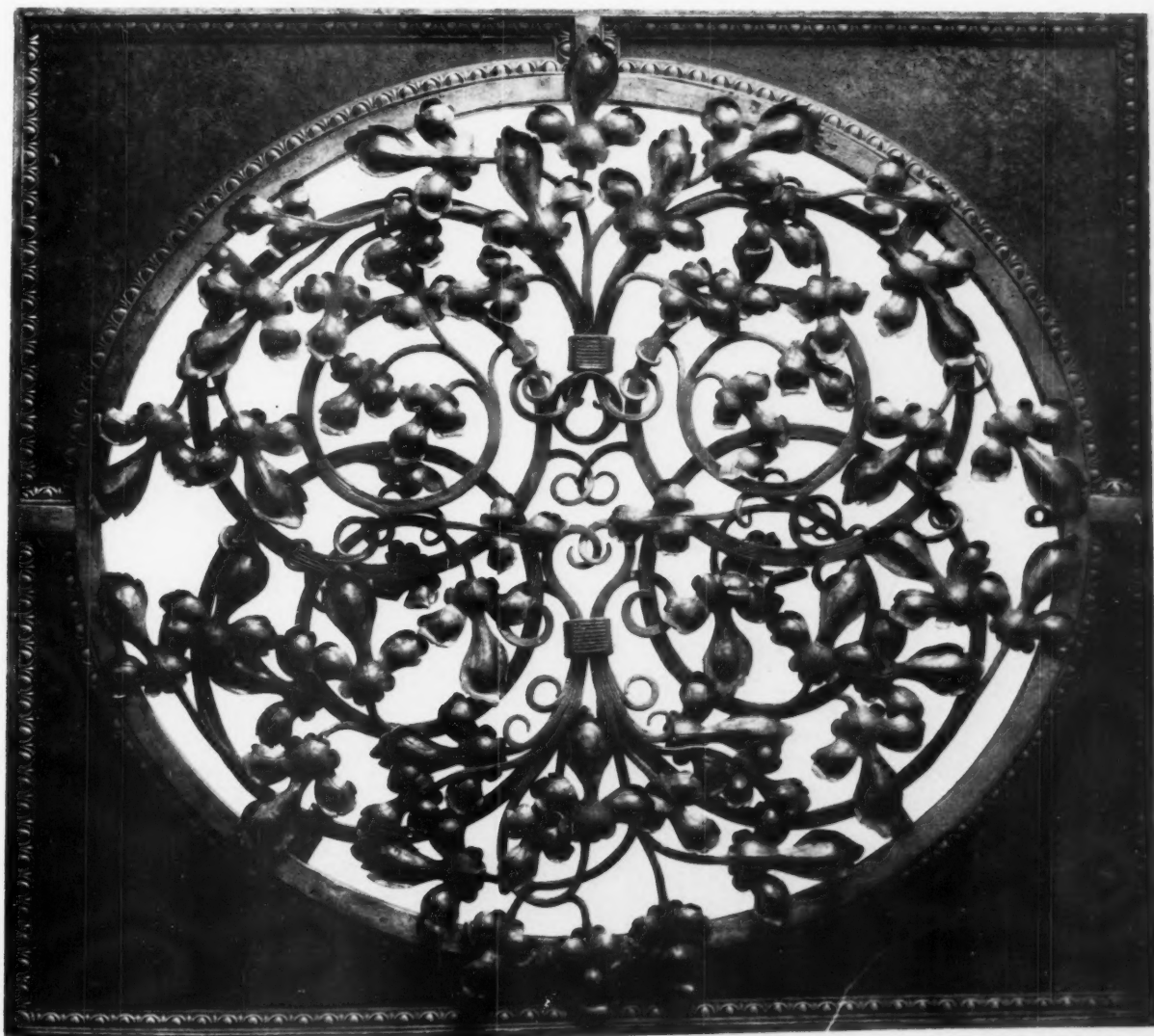
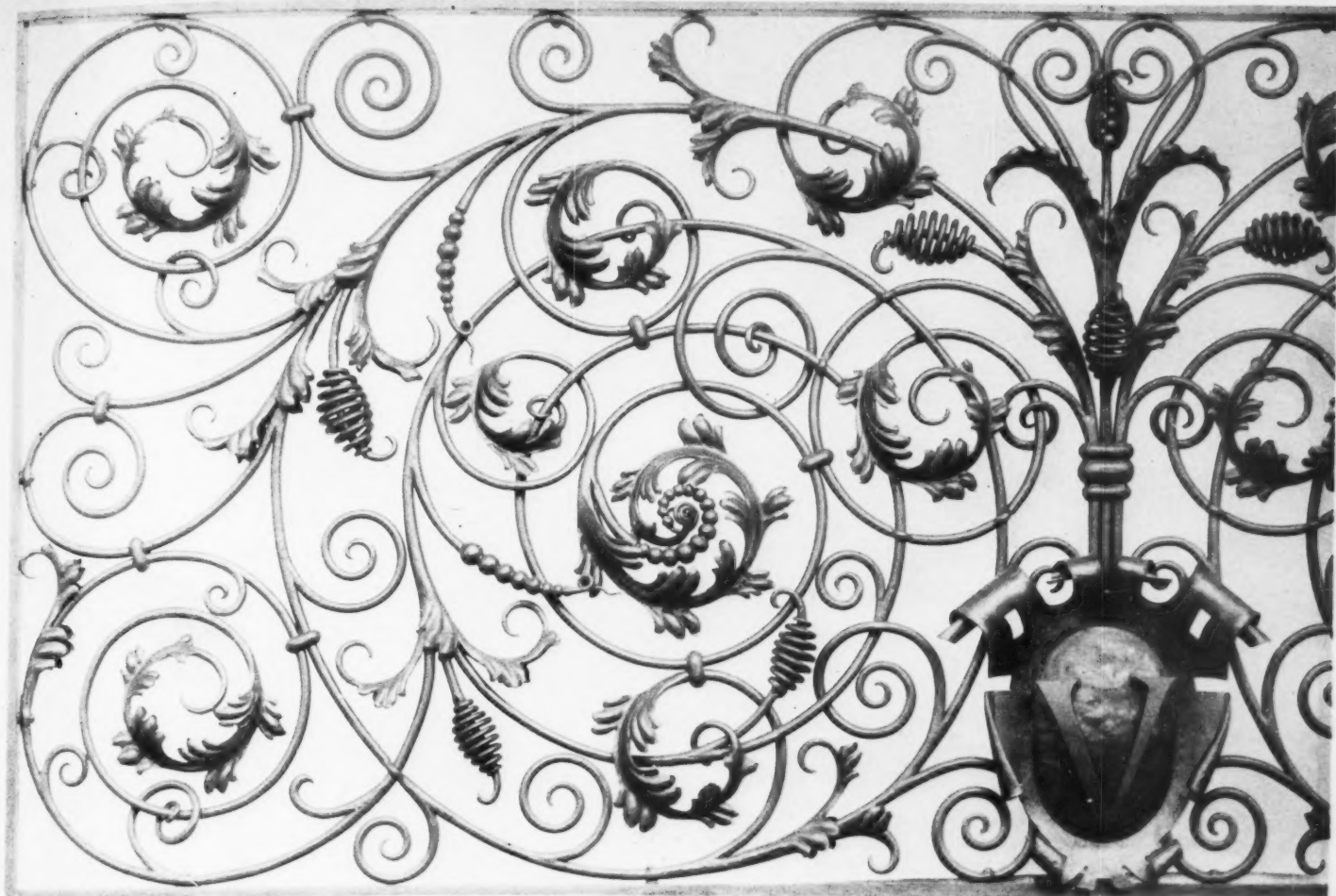
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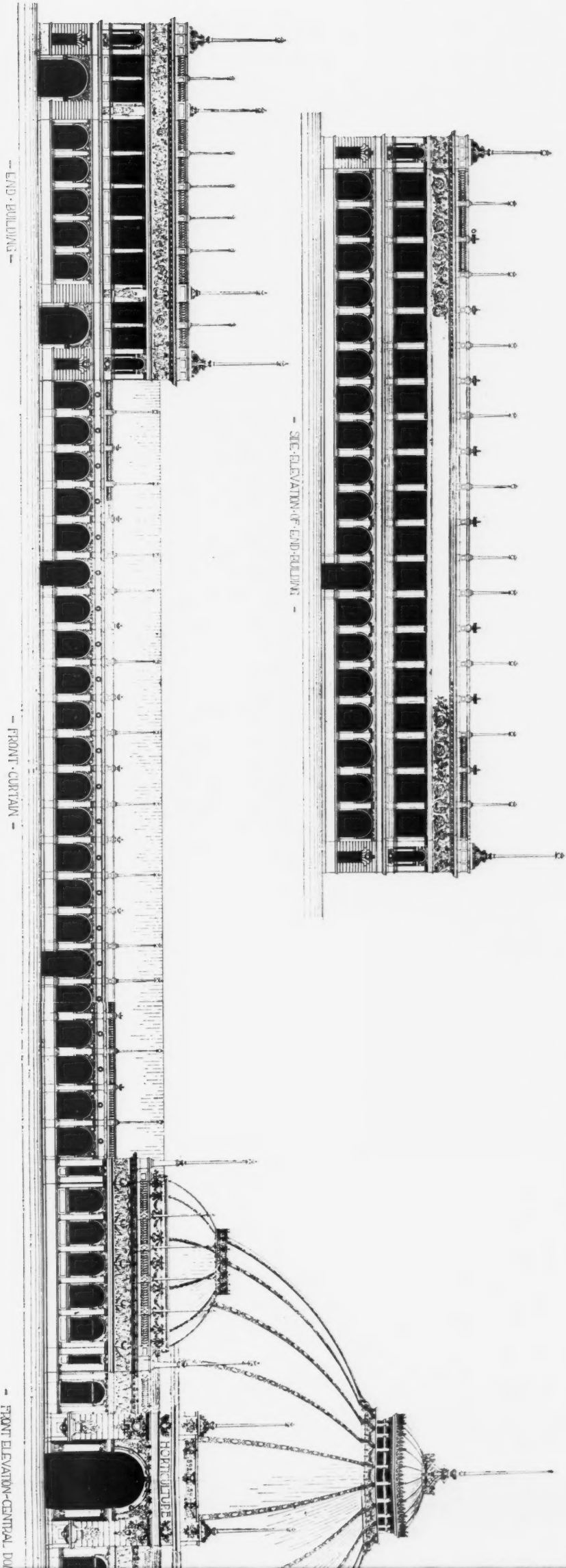




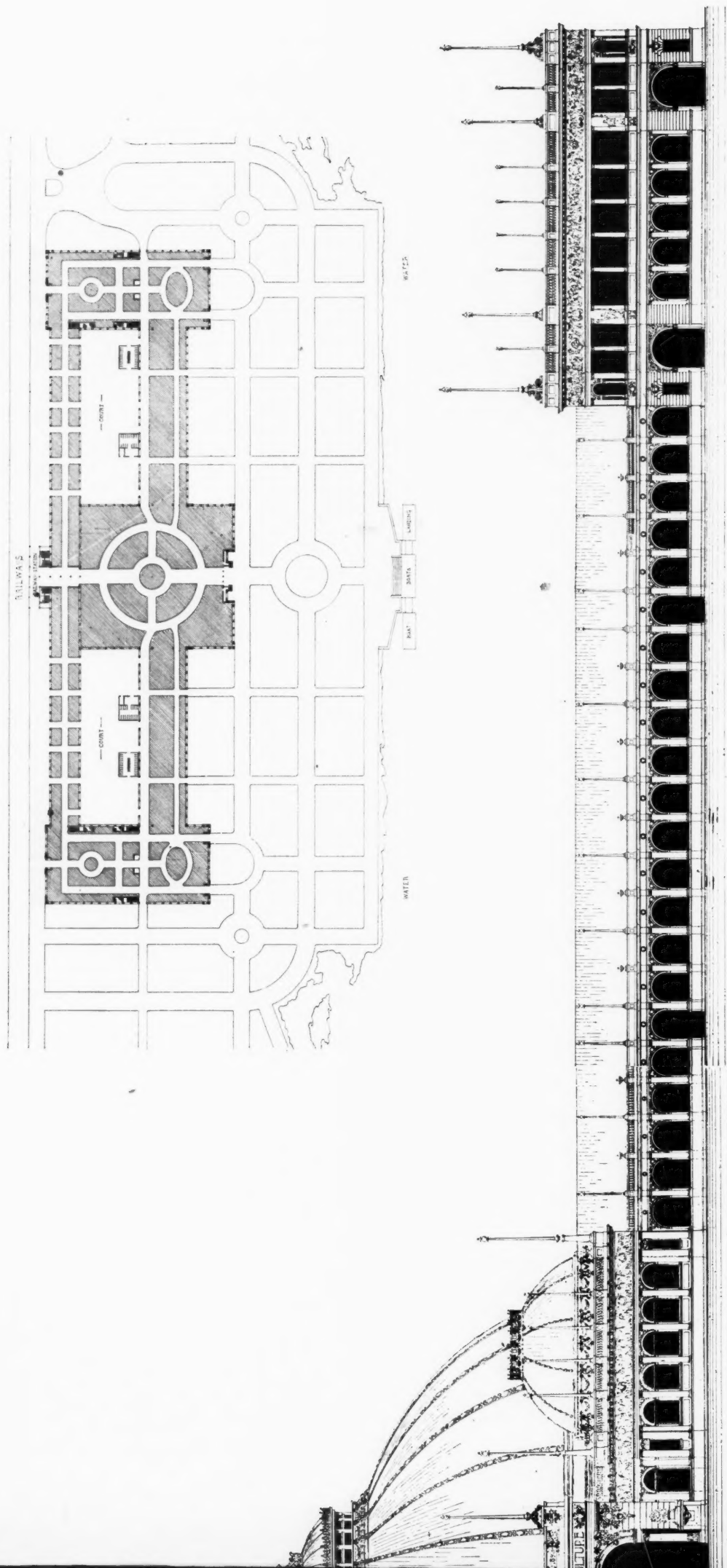
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