

THE INLAND ARCHITECT AND NEWS RECORD

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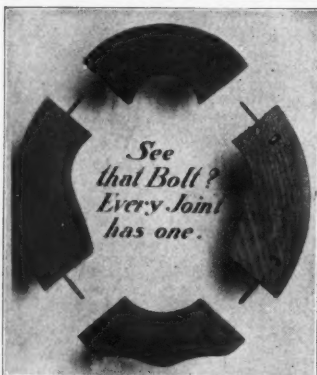
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NEXT CONVENTION AT DETROIT, MICH.

Architecture, Jamestown Exposition.

The magnitude of the building involved in the ambitious plans for the Jamestown Exposition afforded valid excuse for the unfinished condition of nearly all the chief buildings on the opening day. To give the architecture a distinctive character from the previous expositions, a style peculiarly appropriate, as well as attractive, was chosen. The dominating style is a free adaptation of the English renaissance from which the colonial or Georgian is derived. The employment of brick for the exterior walls of several of the large structures adds much to the effect of the style adopted. Much architectural interest attaches to the organization responsible for the designing of the buildings and grounds. Unlike the procedure at the previous expositions that maintained an architectural and engineering staff to carry out the plans of advisory boards, at Jamestown a contract was made with an organization known as the Associated Architects and Engineers. Members of this board were Architect John Kevan Peebles of Norfolk, Architect Douglas H. Thomas, Jr., of Baltimore, and J. Woodward Manning, landscape designer, Boston. This association agreed to furnish the architectural, engineering and landscape data necessary, and to recommend a prominent architect with exposition experience for the position of advisory and consulting architect. For this office, Architect Robert S. Peabody of Boston was chosen. Mr. Peabody was connected officially with the Columbian and the Pan-American expositions as a member of the Board of Design. His firm designed the machinery hall at the Chicago exposition and the horticultural hall at Buffalo. Mr. Peabody graduated from Harvard University, and was a student at the Ecole des Beaux-Arts. He is president of the Boston Society of Architects. Since the early days, the organization has been termed, The Board of Design. In the landscape work, Warren H. Manning succeeded his brother who resigned. A provision of the contract required that the drawings be made in Norfolk, and for this purpose an office was established in charge of James H. Ritchie of Boston as chief of design, and Otto Faeltton, assistant. As finally constituted the Board of Design was composed of Robert S. Peabody, Warren H. Manning, Douglas H. Thomas, Jr., J. Harlston Parker, John Kevan Peebles and James H. Ritchie. The government pier is the monumental feature of the exposition and for this, also, the drawings were made by the Board of Design. The buildings while less monumental in style than those of preceding expositions promise, on completion, to be very interesting, appropriate and effective. The city of Norfolk itself is an interesting exhi-

bition of modern architecture. Within a few years the character of the business portion has entirely changed, due to the erection of a large number of important buildings which are strongly reminiscent of the French renaissance in design.

**Instruction at
The University
of Illinois.**

The College of Engineering of the University of Illinois has an established reputation for successful innovations in courses of instruction. It was the first to establish a course in architectural engineering for especial instruction in problems of building construction not adequately provided by either the architectural course, or that in civil engineering. Recently there has been added a course in architectural decoration, a division of architecture that it is thought desirable to specialize. The indications point to the probability that many women as well as men students will pursue this course. Announcement is made by the College of Engineering of several very liberal and advantageous research fellowships in the Engineering Experiment Station. To influence desirable men to continue for graduate work, ten research fellowships have been established at an annual stipend of \$500 each. Those receiving them are to remain two years to secure their second degree. The desire is to secure students possessed of the spirit of investigation who will promote the aims of the Station and become an efficient body of experts. The broadness of scope of these fellowships is shown by the fact that graduates of approved technical schools and universities, American or foreign, are eligible to nomination. The other requirements for nomination are worthiness of character, attainments in scholarship and indications of success in the study or research undertaken by the candidate. Though established but a few years, the work of the Engineering Experiment Station has attracted wide attention. This is especially the case with regard to the tests of concrete, and of reinforced concrete beams and columns conducted by Prof. Arthur N. Talbot during the past four years. His bulletins contribute valuable data on the behavior of these materials under varying conditions.

**The
Destruction
of The Forests.**

A pamphlet issued recently by the Forest Service of the U. S. Department of Agriculture contains the most accurate data obtainable concerning the forest supply of the United States. The statistics clearly show how swiftly, to paraphrase a popular expression, Westward the star of Timber Empire takes its way. Since 1870 when this star was in the ascendant over the northeastern states, the transit has been to the lake states by a detour over southern territory; and its supremacy in the far west is but a question of a few years. The effect of this forest exhaustion is foreshadowed in, "The Passing of the Forest," by Alexander Blair Thaw in the *June Century*. To quote from the poem:

"Yea, the hour of destruction shall come
To the children of men in that day
When the forest shall pass away;
When the low woodland voices are dumb;
And death's devastation and dearth
Shall be spread o'er the face of the earth."

When the timber supply of the Pacific states is exhausted there will be no other virgin territory to furnish the rapidly increasing amount consumed. The supply of

Canada is not likely to be available, as that country will need all its forest resources for its own use. A conservative estimate of the present annual output of lumber, firewood and other forest products places the value at \$1,075,000,000. The annihilation of this wealth to the country cannot but be regarded with great concern.

**Conservation
of The Forests.**

The quantity of timber now standing in the United States, and the question of how long it will last at the present rate of consumption cannot, of course, be readily determined.

While on these points authorities differ, there is no question as to the fact that in a comparatively few years the supply of virgin forest will be practically exhausted. In sections where timber is becoming scarce sizes are now being cut that before were rejected, as in New England six inch timber is now being used while eighteen inches is the minimum in more plentiful sections. Taking the highest estimates of the amount of timber standing, the time of exhaustion is postponed only a few years longer than by the less favorable calculations. In view of these conditions, it is wise to study the adaptability of other materials to the uses for which wood is now employed. There is great reason, for instance, for encouraging the utmost investigation and use of so promising a material as cement with its possible combinations. Individual owners of timber lands, who practically control four-fifths of the forest area, should be given every practicable inducement, even to the extent of government subsidy, to engage in forestry. It is regarded as entirely feasible to raise the annual increment of the forest lands to the 30 cubic feet per acre that would be needed to provide the present annual cut. The possibilities of forest culture are demonstrated in Germany where some one hundred and fifty years ago the situation was menacing, and in the first of the nineteenth century the timber famine was acute. Soon was undertaken the active promotion of large forest reserves and a rigid course of forest management, based on the cutting of the increment alone. This has resulted very favorably. The cultivated forest lands there, good and bad together, represent a capital of \$50 for each acre, on the basis of earnings at 5 per cent. The conditions for at least as good returns exist in America. The effort alone is needed.

**Competition
Designs for
Concrete Houses.**

The recent competition promoted by the Association of American Portland Cement Manufacturers developed some curious facts. The competition was divided into six classes which included single and double houses, ranging in cost from \$2,000 to 4,500. The total number of designs submitted was 208. Over three-fourths of these were in the classes for single houses, and eighty-five designs were for single houses of the highest cost, \$4,500. The leisure that has prevailed in the offices of the East compared with those of the West was apparently reflected in the competition. Of the twenty-four awards given, twenty-two went to the East. The designs show an appreciation of the value of simplicity in houses of low cost. The architectural effects were sought mainly by good proportion, and the use of pilasters, panels and such simple means to which the material readily lends itself. The surface treatment, so important in building work of concrete, does not appear to have had full consideration. Many of the designs show a lack of familiarity with the possibilities of concrete in this regard.

THE MODERN SMALL LIBRARY

BY EDWARD L. TILTON, ARCHITECT—Continued from April

THE floor area of the reading rooms should allow at least twenty square feet per reader. The ceilings should be from fifteen to twenty feet high and the windows ample, with tops near the ceiling and sills seven feet six inches from the floor if wall shelving be required beneath them, although it is well for some of the windows to have low sills in order to give a more attractive aspect to the room. Open fireplaces in the reading rooms are desirable for appearance and when expense precludes forced ventilation are almost necessary as ventilators.

The stack room area may be computed on a maximum basis of twenty-five volumes per square foot for each tier of seven shelves although twenty volumes is better for

wood is generally preferable. If more than one tier is required metal uprights are desirable to support the superimposed tier and flooring; the latter may be of ground glass in metal frames kept a few inches away from the face of the stacks as originally done in the Bibliothèque Nationale Paris with a catch net in the opening. The floors so arranged offer the least obstruction to the light.

Books are variously housed although broadly speaking there are but two arrangements known as the "stack" just described and the "open shelf." The "Poole" is a variant which classifies books in separate rooms under departmental heads a unique example of which is the Newberry library at Chicago. Large libraries usually combine the open shelf and the stack systems since the former is inapplicable for the entire collection owing to the necessity of a close storage of the books, but certain rooms for reference and study are arranged on the open shelf plan. The general tendency is to permit and encourage readers to select books from the shelves instead of interjecting catalogues and librarians, a freedom whose disadvantage

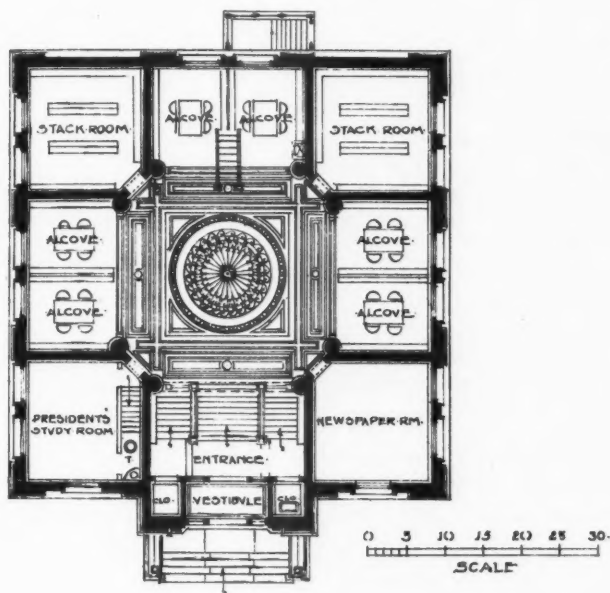


FIG. 1.

ordinary computation, e. g., on the latter basis a stack room with a floor area of one thousand square feet can readily accommodate twenty thousand volumes in a tier of seven shelves and in each additional tier twenty thousand more.

The individual shelves will take from seven to ten volumes per running foot, the latter being "full capacity" and the former a proper allowance for reference books, encyclopedias and to give some vacant shelf room for accessions. The bottom shelf should be about eight inches above the floor and ten inches average height allowed between shelves (which however should be adjustable) or a total height from floor to top of capping of from seven to seven and one-half feet. The length of shelves between supports should not exceed three feet and the ordinary width eight inches increased, however, for reference books to ten or twelve inches. The electric light wires may be run back of the capping with outlets at the center of each three foot section. It is sometimes desirable to project the base to form a step and in this a register face can be set in connection with the heating as hereafter explained. In the children's room the height should be limited to five shelves.

As regards the material for stacks there are several good varieties made of metal, but for the shelves proper,

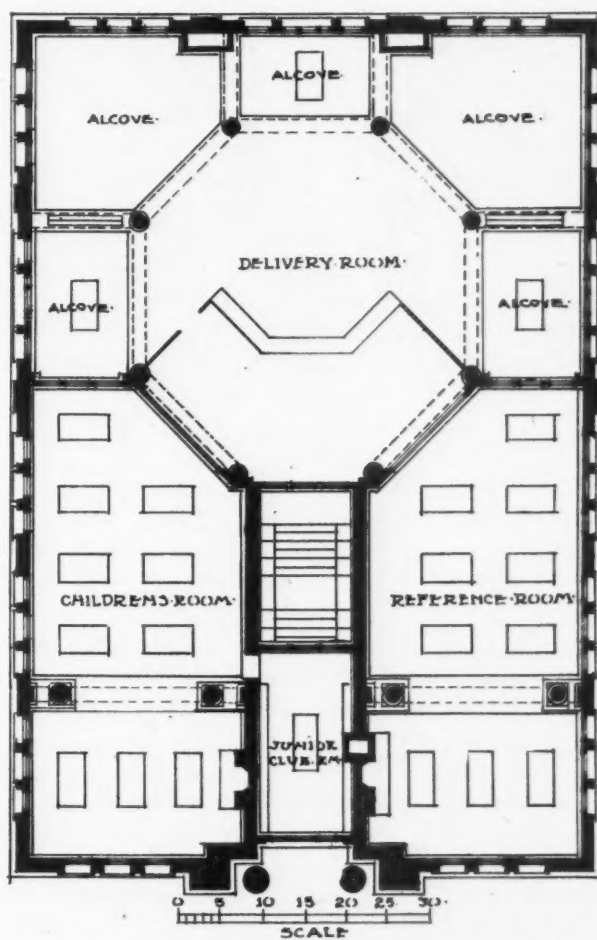


FIG. 2.

is outweighed by the general gain in minimizing service and making readers feel more welcome and at home, a sentiment not to be ignored. In a word the stack system brings a book to the reader, the open shelf a reader to the book.

The old conventional plan of library is still represented at Cincinnati, Detroit, and by the Astor Library, New York, and elsewhere. It consists of a large central reading room with top light surrounded by several tiers of

stacks and is a weak echo of some of the beautiful old libraries of Europe. A modification of this arrangement consisting of alcoves at the side of the main reading room is used advantageously in club or society and collegiate libraries, examples of the latter being found at the University of Pennsylvania, Cornell, the Avery library of Columbia University and on a smaller scale in Figs. 1 and 2.

Each alcove has its own class of books and the reader can browse *ad libitum*. The alcove system is found at Merton College (the oldest library in England), in the Bodleian library at Oxford, in the Parliamentary library at Ottawa, Canada, at Durham Cathedral, England, and at Trinity College, Dublin, in which the alcoves are combined with galleries. (To be continued.)

MECHANICAL HEATING AND VENTILATION

BY WILLIAM G. SNOW.



MECHANICAL heating and ventilation has been discussed so widely and applied so generally in the past few years, that architects have become familiar with the general practice in this class of work.

Nevertheless, much that has been published in the way of tables of air deliveries and horse-powers of fans apply to conditions more favorable than are, as a rule, found in actual practice.

What the average architect desires, it seems to the

speeds corresponding to $\frac{1}{2}$ to $\frac{3}{4}$ ounce pressure, preferably the former, where the ducts are short.

The peripheral speed of fan wheels corresponding to the pressures stated are 3654, 4473 and 5162 feet per minute for $\frac{1}{2}$, $\frac{3}{4}$ and 1 ounce respectively.

Fans with curved floats are commonly used in public buildings on account of their smoothness of operation and the practical elimination of noise.

Where quiet operation is essential, the fans should be mounted on compressed cork $1\frac{1}{2}$ inches to 2 inches thick and canvas sleeves to prevent the transmission of vibration, should be used to connect the fan outlets with the air ducts.

As to the air delivery and horse-power of fans under practical working conditions, the writer has tested a number installed in different buildings and working under a variety of conditions, and has found that the air deliveries stated in Table I represent easily attainable volumes for fans discharging through a system of distributing ducts and flues.

The air delivery and horse-power of cone fans illustrated in Fig. 3 is given in Table II, these figures being intended for use under practical working conditions with the fan delivering freely into a chamber with which ducts are connected.

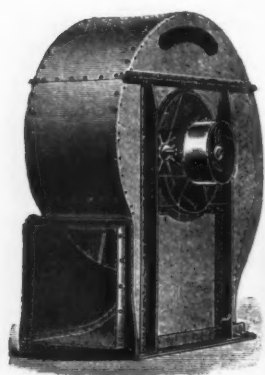


FIG. 1.



FIG. 2.

writer, are tables giving conservative figures that represent attainable fan capacities and approximate horsepowers under actual working conditions. Such tables will be presented.

Taking up first a discussion of various types of centrifugal fans, those illustrated by Fig. 1 are most commonly employed in the heating and ventilating of factories, public buildings and office buildings.

When underground ducts are used it is convenient to have the steel plate casing built as shown by Fig. 2, the sides and scroll being continued below the floor level in brick or concrete. This pattern is known as the "three-quarter housing."

In the case of theaters where the fan discharges into the space below the auditorium and in other classes of buildings where the air is discharged to a large chamber a cone fan of the type shown by Fig. 3 may be used to advantage.

Such fans deliver an unusually large volume of air for a given diameter and width of wheel in comparison to those encased in steel plate.

Centrifugal fans are adapted to work against considerable resistance due to long ducts or relatively high velocities. Steel plate fans in factories are run at speeds corresponding to pressures ranging, as a rule, from $\frac{3}{4}$ to 1 ounce, those in public buildings, schools and the like at

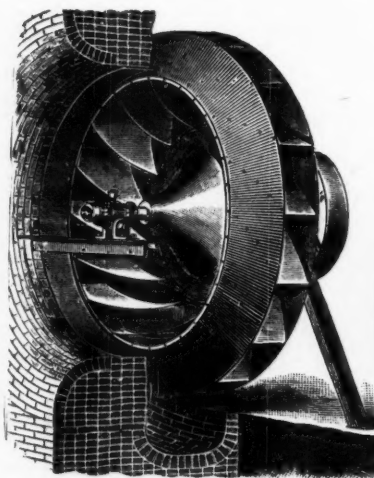


FIG. 3.



FIG. 4.

Direct connected electric fans of the propeller pattern illustrated by Fig. 4 are a very convenient type for handling a large volume of air against slight resistance, that is, where no extensive system of ducts is connected with them. The smaller sizes are very convenient for use in halls and churches in connection with an indirect system of heating, securing a more positive and constant supply of air than would be possible in different kinds of weather with a simple "gravity" system, so-called.

With fans of this type it is of the utmost importance that the resistance to the passage of air to and from them be slight, otherwise some of the air discharged from near the rim of the fan will be drawn back through the center.

So much depends on the resistance interposed that it is more difficult to determine in advance what the delivery and horse-power will be than in the case of centrifugal fans. (To be continued.)

REINFORCED CONCRETE WORK

BY F. D. WARREN, ARCHITECT—Continued



IN planning this class of buildings, the designer must have in mind the amount of work that can be accomplished in one operation. Having satisfied himself in this regard, his next duty is to lay out the reinforcement to suit the sections. By so doing each section with its reinforcement is independent of all others, and is separated from the surrounding sections by joints.

During the setting stage, shrinkage of the mass takes place, the result being that the surrounding joint opens. A raise in temperature causes expansion in the mass and the joint closes; thus, concrete placed in cold weather has closed joints in warm weather, and conversely, work erected in warm weather will have excessively large joints in cold weather. In the former instance, a compressive substance such as felt or tarred paper should be built into the joints when forming to prevent evil results that might occur where there is not ample space in the joints caused by the shrinkage during set. When it is desired to have very close joints, the designer should figure upon placing the work in an atmosphere somewhat colder than the temperature of the surrounding rooms when completed.

SWAY AND WIND BRACING.—Like designing with other materials, such requirements as sway and wind bracing should not be overlooked. All outside piers as well as inside columns should have reinforced concrete beams, serving as struts, moulded between each other, lengthwise as well as crosswise. These struts should be placed for sway bracing at every story or two in height.

At all corners some effective means must be provided for wind bracing. This may be accomplished by moulding in diagonal beams across the corners or by thickening the corner slabs. Usually the latter method is more effective in that it allows an opportunity to insert reinforcement to care for the resultant temperature stresses at that part. A rise in temperature at the end of the building causes expansion in planes at right angles, namely: toward the sides and toward the ends. The resultant, in case of square bays, is the diagonal from the corner piers to the first interior columns. Unless reinforcement is placed at an angle to the diagonal, in order to overcome the excessive tension along the line, a crack results.

To care for wind pressure and to shorten the spans of the main beams, webs between the beams and the columns or piers may be moulded with economy.

COLUMN STRESSES.—To overcome excentricity of loading, columns should be so reinforced as to resist any tensile stress resulting from a tendency to buckle in any direction. This provision is usually made by the use of four or more vertical rods placed around the periphery of the section. Likewise to prevent bulging at any sec-

tion, because of excessive compression, these vertical bars should be tied across by diagonal S-bars, by loops or a lattice of spirally wound wire.

UNEQUAL SETTLEMENT.—While all buildings, and especially reinforced concrete ones, should be so designed by careful proportioning of the footings as to guarantee equal settlement, it often happens that ledge is encountered in some parts and not in others, with the result that unequal settlement is liable to occur. To guard against injury from such a source, a particular duty involves the designer: that is, to incorporate a sufficient amount of steel, properly located and connecting the affected parts, to care for the additional stresses and to prevent cracking.

In the foregoing, only the primary stresses, resulting from the loading and outside physical causes that are encountered in a reinforced concrete frame are noted. Secondary stresses, such as diagonal tension resulting from shear and longitudinal shearing caused by vertical shear, as well as other minor stresses, have not been analyzed in detail for the reason that it is merely intended to emphasize the responsibility imposed upon a careful designer and the obligation the position places him to the public in general in carrying out a successful project where insurance of life and property is at issue. Suffice it to say that because of these responsibilities in the light of past disasters, standardization in designing should be sought, careful check methods adopted and the profession enlightened in every way possible by the successes and by the failures that the past may disclose.

The architectural treatment of reinforced concrete structures affords unlimited possibilities to the designer who has championed its cause on the face of its practical utility and justly recognizes the fact that a pleasing design depends upon a unique adaptation of the many characteristics peculiar to concrete and not upon the lines usually applied to other constructions. To realize the extent of the possibilities afforded, not only are the principles of applied design relative to harmony of proportions, etc., necessary, but it is essential for the designer to make a study of the practical working of the material before he can select the particular application to meet the proposed case. In other words, he must know what part should be formed in place and what part should be molded outside; he must be able to distinguish the features best realized by machine molding from those by wooden and sand molding. Then again, it is not only necessary to be familiar with all the different textures of surfaces possible to attain, but it is extremely important to know how these may be produced without sacrificing the strength and the durability to resist the elements of weather.

(To be continued.)

PARISIAN APARTMENT HOUSES

BY T. M. CLARK, ARCHITECT—Continued from April

FOR the entrance halls plenty of light is given, and they are decorated more richly, in many cases, than the parlors (Fig. 8). This change in the system of planning is, undoubtedly, the result of good financial judgment, for not only is the "galerie," as the new style of entrance hall is often called, admirably adapted for producing a pleasant impression on prospective tenants, but, for tenants in possession, it is very useful, answering, on many occasions, as an additional room, and thereby increasing in a considerable degree the accommodation of the apartment, although the spaciousness of the "galerie" is, to some extent, secured at the expense of the parlors. It is hardly necessary to say that the problem of making a handsome, symmetrical and well lighted entrance-hall out of what remains after all the other rooms of an apartment have been nicely disposed is by no means an easy one, but the modern Parisian architects usually solve it with great success.

Besides the "galerie," in which within the last few years, space has generally been contrived for an "ascenseur," or elevator, another innovation has recently come into fashion, which has exercised the minds of the conscientious and thoughtful French to a considerable extent. Land, it should be observed, is very expensive in the best residence quarters of Paris. A lot almost anywhere in the "English quarter," which extends indefinitely around the Arc de Triomphe, would cost from ten to twenty dollars or more a square foot, and apartments on such land must bring high rents, in order to pay interest on the investment. Five thousand dollars a year is not an unusual rent for an apartment in a house of no very great pretensions in the Plaine Monceau, and the landlords who have to demand such rents, and the tenants who are obliged to pay them, look with equal disfavor upon every inch of space which does not contribute directly to the income of the one, or the comfort of the other. A part of this space, unfortunately, usually appears to be that devoted to servants' bedrooms.

Formerly, the house-servants of each family slept in the apartment, but it occurred to some one that the garrets, in the seventh or eighth story, instead of being let to poor students, as was once common, might be divided into rooms for the servants of the families occupying the apartments below; and these families would thus not only pay as much for garret rooms for their servants as the students of earlier times did, but the space formerly occupied by servants in the apartments in the better part of the house would be available for new groups of masters' rooms, to be let at first-class prices, to the landlord's advantage, while

a certain amount of rent would be saved to the tenants. This financial argument soon proved irresistible, both to landlords and tenants, and nearly all the new apartment-houses in the fashionable quarters of Paris have the upper story, and often both the roof stories, divided up into small rooms for the servants of the families occupying the more desirable floors below. As rich Parisians have a good many servants, and, excepting an occasional lady's maid or nurse, all the servants of the tenants of the lower six floors are accommodated in the two roof stories, these are

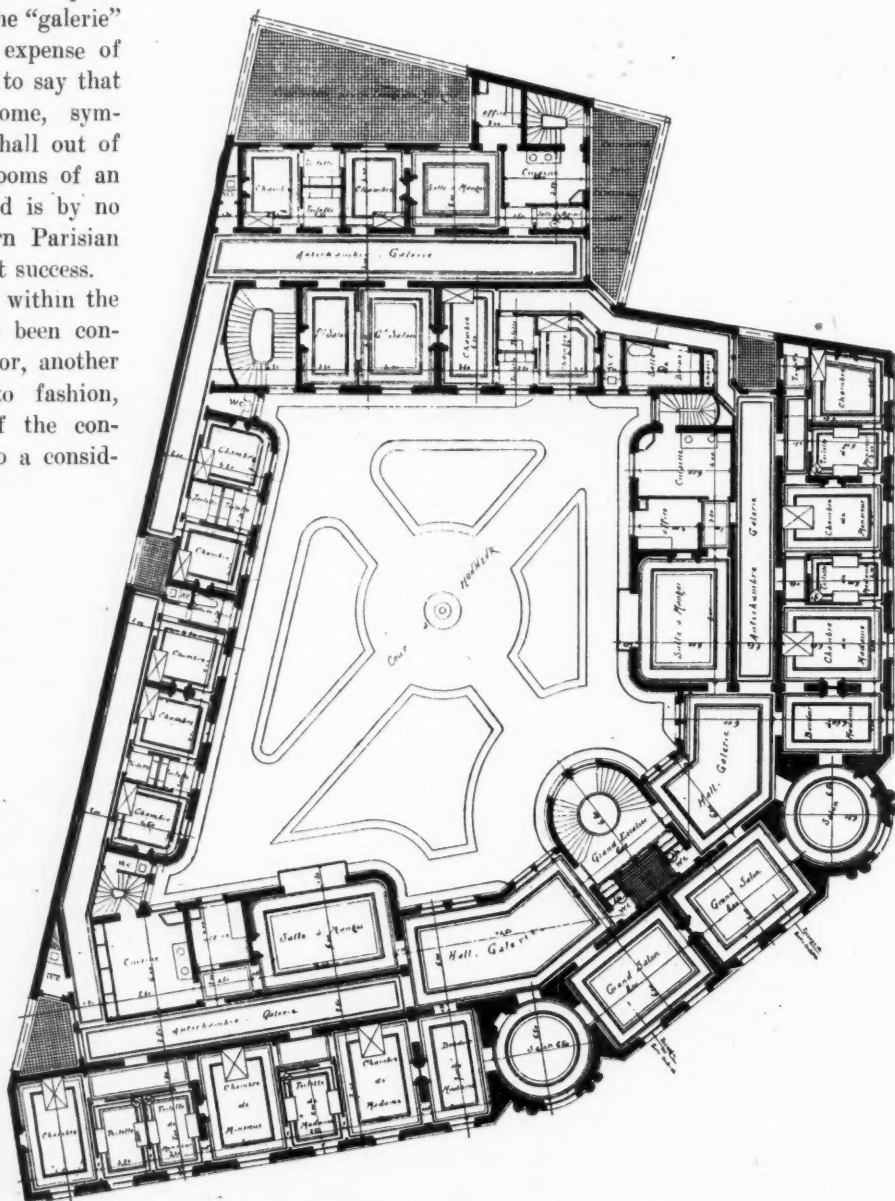


FIG. 8.—APARTMENT HOUSE WITH "GALLERIES."

very much overcrowded. It is usual in France to give each servant a separate bedroom, but the garret rooms in some of the modern apartment-houses are barely five feet wide; and, where men or women occupy them, the conditions are by no means favorable, either to the health or the morals of the little community. Within a short time the promiscuous planning of servants' rooms has been modified, and men are sometimes put in one roof story, and women in the other; and, in some of the very latest houses, all the servants' rooms are placed with the apartments to which they belong. (To be continued.)



SUCCESSFUL COMPETITION DESIGN FOR STATE EDUCATIONAL BUILDING, ALBANY, N. Y.

PALMER & HORNBOSTEL, ARCHITECTS

ARCHITECTURAL AND STRUCTURAL ENGINEERING

BY MAURICE M. SLOAN, ARCHITECTURAL ENGINEER—Continued



ATCH for unusual conditions existing in the foundation soils, for one serious failure has been caused by an important column footing being built over an unused and long-forgotten cistern, the presence of which was undetermined at the footing level.

Another peculiar cause of foundation failure, which may not be familiar to some in the profession, is due to the building of important footings over subterranean streams which have tunnelled their course over a rocky or shaly strata some feet below the surface, leaving a bridge of earth incapable of supporting a heavy load from an important building wall or pier footing. Such a condition has come under the attention of the writer in the hard coal regions, where the entire end of a building was dropped several feet due to the fact that the course of a stream had been filled in with many feet of earth, and when the heavy foundation, with its super-imposed wall was in place, the arch of earth formed by the stream working its way under the sub-stratum, fell, and damaged a portion of the building to such an extent as to require its re-building. It was found that the stream flowed along the hard stratum down through fissures and holes in the top of an abandoned mine gallery, and its course was consequently unknown until the accident developed its presence.

There is such an opportunity for the saving of useless expenditure of money in foundation construction, that where a poor soil exists it is always well to make alternate designs, and comparative estimates of the several schemes which seem practicable for the solution of the problem. Where the soil is of unstable character, such as a soft mud, the question frequently arises as to whether footings shall be carried down to a firm stratum, or whether they should be spread over a large area in order to reduce the unit bearing stress upon the soil to an amount that would be entirely safe for the material of the soft stratum. It is usually found that, where the spread footings can be nicely proportioned for the load, this method is cheaper than an attempt to run down walls or piers through a considerable depth of soft material in order to reach a hard stratum.

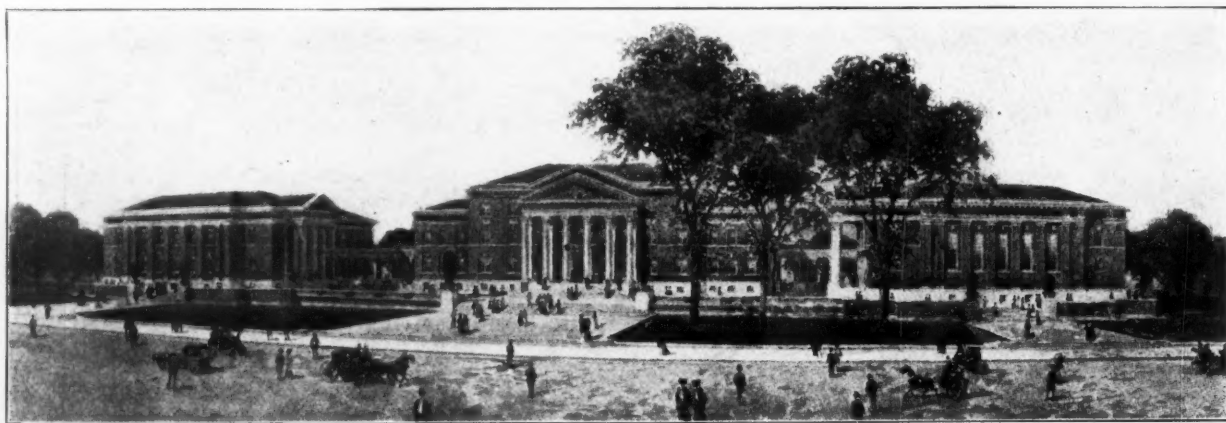
With the advent of concrete piles another permanent alternate in the design of foundations in unstable soils is

available, and, while the price of concrete piling is high, yet a carefully devised piling plan will sometimes show a saving by this method of construction over either the spread footing or pier plan.

It is surprising how few architects or engineers take the trouble to test the bearing capacity of the soil, especially as such testing involves a very small expense, and while the results obtained are not exact, they certainly give data which will preclude the possibility of a failure in the foundations, if the footings are designed accordingly. Where the soil is of an unusual nature, and many such soils exist, it is a comparatively small matter to erect a test piece of timber on end, with a platform and necessary guides, and to test the same by loading the platform, and noting with the transit the settling from hour to hour, or from day to day. In considering the results of such a test it must be borne in mind that the square area of the end of the timber testing piece upon the soil would have more settlement than a continuous wall footing, from the fact that the test piece has four cutting edges, while the wall footing would not settle as rapidly with the same unit load because of its continuity, and from the fact that there are only two edges cutting into the soil.

The primary principle of good foundation design, as is well known, is to observe that the center of pressure, or a line which coincides with the center of gravity of the weight should be axial with the center of pressure from the soil on the area of the footing; but in determining the position of this line the re-actions from the floor beams should be considered. If these two lines of force do not coincide, there is a rotary tendency, and consequently the condition of unstable equilibrium created. This condition may be serious or not, depending upon the structure of the building, the vibrations to which it is subjected, and its amount.

Much use has been made lately of reinforced concrete footings, and in many instances the foundation walls have been made of concrete strongly reinforced so as to secure continuity. Such foundations as these are excellent in resisting unequal pressures along the foundation soil, as the concrete walls and footings, with their imbedded rods, furnish sufficient strength to transmit the load from above over soft places in the bearing soil due to unequal fill, or



APPROVED DESIGN. STATE NORMAL COLLEGE BUILDINGS. ALBANY, N. Y.

ALBERT R. ROSS, ARCHITECT.

some other cause. Where such footings as these support at intervals steel or reinforced concrete columns, care should be exercised in the placing of the reinforcing rods in such a wall, and for the small cost of the additional material required it is advisable to reinforce the wall, both at the top and bottom, so that if the stresses in the wall and footings are reversed the beam will have equal strength in resisting tension on the top or bottom.

It is not unusual to find that the architect's drawings

are indefinite and inadequate with regard to the foundation construction. This is not due to a lack of appreciation of the importance of having the sub-structure properly designed, but is more frequently due to a failure to obtain all of the data and conditions of soil on the site when the general drawings are being prepared for estimates. The footings are shown to extend to a depth at which it is presumed a sufficient foundation is obtainable.

(To be continued.)

MUNICIPAL IMPROVEMENT—HIGHWAYS

BY ALBERT KELSEY, ARCHITECT—Continued from March



F the main avenue, the length is interrupted by five circles or gloriets, as they are called in the vivid language of the Mexican. These were allotted to monuments of great national heroes and on the pedestals already referred to there are still mostly urns filled with blooming flowers. These pedestals have, however, all been allotted to the different states of the Confederation of Mexico, according to population, and from time to time, as they develop great men, the urns are taken down to be placed with heroes' statues.

Here a word may appropriately be said against the scattering of statuary and other monuments indiscriminately about a city, without choosing suitable and sympathetic surroundings.

The terrace of the Louisiana States at the St. Louis Fair suggested a scheme of grouping in which, by association, each monument echoed and re-echoed the whole purpose of the Fair. Or again, a suggestion was made a few years ago by Mr. William Loring Andrews to divide all historical subjects in New York into six groups; it being proposed to locate and relocate them in the quarters of the city formerly occupied or most associated with the population of each period; such as the Dutch, the English, the Revolutionary and other periods. This was good as far as it went, but unfortunately the plan of New York during no period has ever been arranged for the consecutive display of statuary, and it might therefore have been the means of hiding some really good monuments to place them as suggested, unless, of course, sites could be especially made for them. But the idea is taking root;—co-related and symmetrical schemes of municipal art from the Avenue of Sphinxes at Luxor to the Via Appia and the Via Sacra of ancient Rome (both lined with

statues of Senators, Consuls, Dictators and others who had rendered signal service to the State) have marked the efforts of the most highly cultivated people, and if for no other reason than to record our history in the open air as they did, is sufficient justification for all the so-called municipal art agitations now sweeping the country.

As a modern example in the silent pageant of the Sieges-Alle in Berlin, we have something similarly successful. There, supported by thirty-two exedra, as many periods in Hohenzolern history are interestingly unfolded. The student may rest, as it were, in the atmosphere of any one of these epochs and there gaze upon the faces of three or more of the most dominant personalities of the day, and so on from one to another down through the centuries. In the words of the Kaiser, "It produces a stupendous impression on foreigners." But fine and comprehensive as it is in conception, it lacks finality (but perhaps the Kaiser himself will supply this defect). The groups are too near together, and there is in consequence a monotony of grandeur, and a cemetery whiteness about the vista which is unpleasant. Then there is no scale, no contrast, no pronounced beginning and ending of the reverie. But the individual units are fine, and made up in historical interest and allusions for any faults of composition. Lastly, they are bold and varied and unquestionably German in character. It would be a highway of considerable distinction if only for its special and typically Germanic character, architecturally, sculpturally and horticulturally.

In these descriptions sight must not be lost of the many unfinished avenues which have been more seriously and intelligently treated, simply because they were designed to carry a message which for one cause or another was never executed. Nor must we forget examples of the commercialization of this idea which have sprung up in Cologne and



PURE FOOD BUILDING, JAMESTOWN EXPOSITION.

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at Lille which are full of interest. There the small pedestals of the *Passeo de la Reforma* are replaced by a new type of lighting fixture on which there are double-faced bulletin boards—municipal monopolies leased by the year for advertising purposes. As the announcements are set in colored mosaic, the effect is quite attractive. It should be explained that this treatment is confined to commercial or wide shopping streets, adding considerably to their brilliancy by day and night. They are mentioned to show the possibility of artistic coherence even in advertising. By a stretch of the imagination, think what would happen if each generation in a city should make it its business to put at least one of its streets or parkways on a footing in conformity with its high industrial position. Think what a transformation a hundred years would make in Pittsburg, for example!

Each generation has an identity peculiar to its time, and no city could find a mightier theme than the one that could be evolved from "The Steel Trust Age" in Pittsburg!

Moreover, a charming and restful theme for a park,

a classic theme for a university town, an industrial theme for a manufacturing center, or a philosophical theme for a cemetery, each treated soberly or with an exuberance of fancy, as the subject demands, might reasonably be expected to develop a new social life in the community. Amid such surroundings even the buildings would wear a new aspect, and the balance and rhythm of it would be bound to get into the life of the people, refreshing, delighting and educating all alike.

Too much zeal in modernizing has robbed many a mediaeval city of the condensed and accumulated imagery which for centuries worked a wonder spell on their inhabitants, and in its place has given them a new horizon, hygiene and a spurious Parisian air which cannot be too greatly deplored.

The American genius for organization is apt, when a real love for municipal order and art asserts itself, to lead us into like mistakes. And in our desire to improve there is danger of a commonplace sameness of development.

(To be continued.)

THE SECESSIONISTS' MOVEMENT IN GERMANY*



T Munich, as throughout most German cities, the secessionists have founded their own special gallery. While these galleries do not possess, when compared with the old ones, much of a very high standard, yet the work done is admirable. It has taken centuries to gather the older collections, and can it be expected that a new set of artists, striking out on new lines, could in a few years gather pictures to compare with collections, the choice of all the best for hundreds of years? True it is that many of their works are decidedly bad, and often deserve the extravagant criticisms that they receive. It is sometimes hard to understand how such art absurdities, both of composition and execution, are allowed to be hung; but, with the mass of mediocrity, there stands out an occasional jewel that is worth the whole secessionist movement's efforts. I was much charmed with the excellent taste displayed in small pieces of furniture and ornament, and as the galleries are not intended for their reception, so much as for the pictures, only good examples are exhibited, sometimes not more than one or two in a room of thirty pictures.

The whole secessionist movement is a striving to get away from the bonds of tradition, and many patrons are

willing to sanction modern notions in place of mere copying of old and famous styles of painting and architecture. This new art is no longer on its trial, but, in my opinion, it has come to stay, and perhaps to lay the foundation of a new and living style.

The great German exhibits at the World's Fair in this style were never extravagant or devoid of reason, but proportion and utility were hand-in-hand, producing a harmonious whole, a delight to the eyes, full of luxury, and having the very essence of beauty.

It may be that the life of this movement depends upon a few great men; but it is sincerely to be hoped that what happened in America, after H. H. Richardson's death, will not be repeated in German-speaking cities.

Had America followed up the great Richardson's lead, there would doubtless have developed a style well worthy of the nineteenth century; but, alas! they lacked the ability or the inclination to follow, and the States only possess a few beautiful American Romanesque buildings, and the style is looked upon as out of date, and Renaissance methods are generally adopted. The hope is that the German movement, being general, may prove its saving.

We are now in the Empire of William II, whose personality is extraordinary, and whose untiring energy and genius are pushing a once second-rate power into the forefront of the nations. As a boy his motto was, "If I

*Excerpt from a lecture by Beverley Ussher delivered before the R. V. I. A.



LIBERAL ARTS BUILDING, JAMESTOWN EXPOSITION.

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rest I rust," and now new inventions and discoveries in medicine, in telegraphy, in electrotechnics, in postal service, and in naval architecture all receive his appreciation, and he spares neither time, pains nor influence to use them for this nation whose head he is. In art, and particularly in this secessionist movement, the Emperor has shown the same vigor and used his influence. It is strange that for the exteriors of buildings he has done his utmost to crush it, yet for internal work he has been a patron.

The forty furnished rooms at the St. Louis Fair were said to have been personally supervised by him. The great feature of these was a thorough blending of color with neutral or half-tints predominating, sinuous, graceful lines in ornament and hangings, the lines following the fancy of the craftsman, with no attempt to copy nature, or even suggest objects from nature. Every piece of furniture was fully suited and shaped entirely for its place. It was craftsmanship at its best, and the whole seemed the result of a master mind.

Thus Germany is slowly but surely creating a distinctive art of her own. The scum is still on the surface; but soon the world will awake to see an art, new, vigorous and full of beauty and delight. The taste of the people themselves is on a high standard; at any rate, judging by the paperhangings exhibited in the shop windows, which are, by the bye, a fair indication of the common taste. In England and America the majority of wall papers are not well designed. In Germany even papers of 3d and 4d a roll are fit for first-class work as to style, drawing and color.

Fergusson praised German classic homes, but predicted a great downfall in their architecture, which prophecy became only too true for those who neither followed the classic lines nor the secessionist breaking away, have developed (particularly in the capital) a base, fantastic, distasteful style, without sign of education or original genius, filling street after street with otherwise grand and costly mansions.

Munich perhaps of all cities needed a breaking away the most, for seldom do you find such examples of copyism as here; almost, one might say, it is a museum of examples of buildings of note, reproduced copies of the Pitti palace at Florence, the well-known Loggia in the same place, and even the Parthenon at Athens are here, and some of them

in stucco. No wonder that there has been a recoil of thought. The Germans have copied everything, no matter how unsuitable to their uses; the secessionists aim at copying nothing. I do not wish to be misunderstood. If you travel this country through you will see few good examples of this new work without searching, and it must not be forgotten that the secessionists' work has been carried out best in interiors and there are few exteriors worth looking at, and many examples are full of extravagant absurdities, and without other merit than originality.

OUR ILLUSTRATIONS.

Hershey Arms Hotel, Los Angeles, Cal. Austin & Brown, architects.

Mining building, Hearst University, Berkeley, Cal. John Galen Howard, architect.

Residence of Frank E. Rutan, architect, Pittsburg, Pa. Three views are shown.

State Normal College buildings, Albany, N. Y. Albert R. Ross, architect, New York.

Detail view of upper stories, Commercial National Bank building, Chicago. D. H. Burnham & Co., architects.

Corn Exchange National Bank building, Chicago. Shepley, Rutan & Coolidge, architects. Photograph from model.

Residence for Mr. Walker, Los Angeles, Cal. Charles F. Whittlesey, architect. Several exterior and interior views are given.

The Mentor office building, Chicago. Howard Van Doren Shaw, architect. A general view and detail of upper stories are shown.

Accepted competition design for the State Educational building, Albany, N. Y. Palmer & Hornbostel, architects.

Jamestown Exposition buildings. Liberal Arts—Palace of Manufacturers—Auditorium—Pure Food—Life Saving Naval Station—Officers' Club—Pennsylvania State building—New York State—Massachusetts State—Connecticut State.

Remodeled State House, Richmond, Va. The building is an effective crown to a terraced slope in an extensive park. The architects for the remodeling, as mentioned in the bill which passed the legislature for that purpose, were as stated therein, John Kevan Peebles, Norfolk, Va., Fry & Chestermann, Lynchburg, Va., and Noland & Baskerville, Richmond, Va. The original capitol which is the central part of the composition was built from data gathered by Thomas Jefferson while American minister to France, and in particular from a model of the Maison

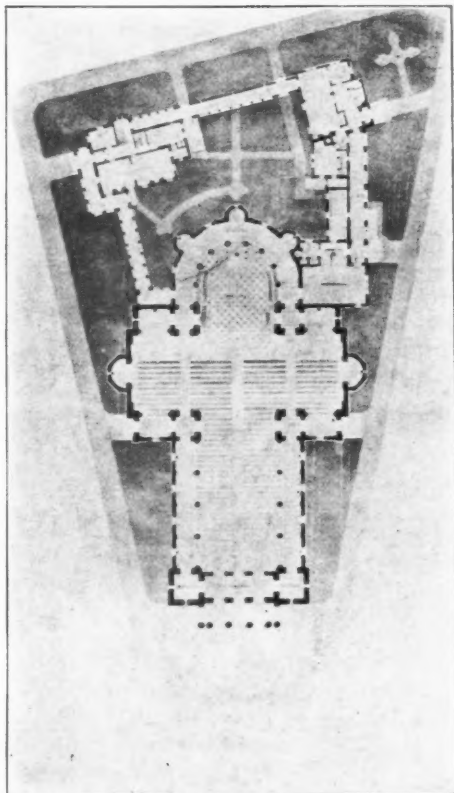


OFFICERS' CLUB, JAMESTOWN EXPOSITION

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Carree of Niems. The plaster model obtained by Mr. Jefferson is now on exhibition in the state museum. When the building committee began its final work, in order to provide two halls on the first floor, the entrances were made in the sides of the building, the colonnades put at the end, but the steps omitted. This architectural scheme obtained up to the time of the present remodeling, and this design put the steps back on the portico, where they were originally shown. By providing wings for the two legislative bodies it became possible to do away with the necessity for the two large rooms at either end of the main building.

The Cathedral of the Sacred Heart, Richmond, Va. Joseph H. McGuire, architect, New York. The cathedral, with its accessories, occupies an entire square, fronting on Monroe Park.



PLAN OF CATHEDRAL OF THE SACRED HEART, RICHMOND, VA.

The plot is irregular, about 65 feet on Monroe Park, 320 feet on Floyd avenue, 400 feet on Park avenue, and 223 feet at the rear on Cherry street. The diocesan houses are built on the rear end of the plot. The cathedral is a domed and porticoed structure in the Italian renaissance style. The basement is Virginia granite, the superstructure of Indiana limestone, with the roof of copper and unglazed green tile. The exterior dimensions are as follows: Extreme length, 206 feet; extreme width,

114 feet; height to ridge of main roof, 71 feet; height of towers, 112 feet; height to top of cross on dome, 144 feet from ground. In plan the church is in the form of a Latin cross. Passing up the exterior ramps and steps and through the portico, whose Corinthian columns are 32 feet high, the vestibule or Narthex is entered. On either side of the narthex are the baptistery and the stair-tower. Crossing the narthex, the church is entered. This consists of nave, aisles, transepts and apse. Over the crossing of nave and transepts is placed the dome. The aisles are carried around the sanctuary to form an ambulatory, a feature not uncommon in some of the churches of Europe, but very rare in America. The sanctuary is separated from the ambulatory by elaborate wrought iron grill work. At the ends of the transepts are semi-octagonal chapels, and additional chapels open off the aisles and the ambulatory. The sanctuary itself is one of the largest in America (40x50 feet), and being raised four steps above the body of the auditorium of the cathedral, will afford ample space for the imposing ceremonial of the Catholic church in full view of the congregation.

The clerestory arches are carried upon monolithic marble columns 18 feet high, set upon a 4-foot marble base. The walls are wainscoted in marble and the floors are mosaic and terrazzo. The ceiling is vaulted and deeply paneled and at the intersection of nave and transepts rises into the dome, giving a clear height of 96 feet. Under the apse, the entrance being by means of a monumental stairway off the ambulatory, is placed the crypt with some fifty catacombs, niches for altars, etc. The boiler rooms are under the morning chapel, which is entered from the ambulatory and also directly from the street. The sacristies adjoin the morning chapel. The organ loft is very spacious and is placed over the entrance vestibule. The episcopal residence and the rectory, as well as these buildings and the church, are connected by cloisters, thus inclosing a large garden. The building is heated by indirect radiation, and is lighted by gas as well as by electricity, and many novel lighting effects are introduced. Seating capacity is provided for 1,150 people, but upon special occasions the church will easily accommodate twice this number. All the furniture of the church, which was the personal gift of Mrs. Ryan, consisting of altars, pews, stalls, pulpit, organ, bronzes, lighting fixtures, etc., are specially made for this building from the architect's designs.

NEW PUBLICATIONS.

SOME ETCHERS OF ARCHITECTURE. By Lena M. McCauley. Published by Albert Roullier's Art Rooms, Chicago.

This attractive little volume contains some twenty-five reproductions of etchings of architectural subjects by such masters as Meryon, Pennell and Cameron. Of course, in half-tone reproductions the spirit of the etchings is largely lost. There is compensation, however, in the luminous appreciation of the work of these artists which the volume contains in the form of criticisms by Miss McCauley.

ASSOCIATION NOTES.

ARCHITECTURAL LEAGUE OF AMERICA.

At the meeting of the Toronto Architectural Eighteen Club held on May 9 last the following executive board were selected for the Architectural League of America for 1907-8: President, J. P. Hynes; vice-president, J. M. Lyle; corresponding secretary, A. H. Chapman; recording secretary, H. Eden Smith; treasurer, C. D. Lennox; Eden Smith, J. C. B. Horwood. The corresponding secretary's address is the Toronto General Trusts Corporation building, Toronto.

THE GARGOYLES OF NEW YORK.

This society, in its second year, is composed of those who are or have been directly engaged in the practice of architecture or the allied arts. The program provides for meetings for every month of the year. Those for June, July and August consist of outing and sketching trips. Several competitions are planned for the year. The executive committee for 1907 consists of Henry C. Van Cleef, president; Edwin H. Rosengarten, vice-president; Walter F. Anderson, corresponding secretary; Alfred M. Hedley, recording secretary; William J. Blackburn, treasurer; William T. L. Armstrong, Edwin L. Howell, Charles F. Winkelman.

CHICAGO ARCHITECTS' BUSINESS ASSOCIATION.

In the absence of the president, the meeting of May 28 at the Art Institute was ruled by Arthur F. Woltersdorf. A communication was read from D. E. Waid of the New York Chapter, A. I. A., asking information concerning the experience of Illinois architects with the architects' license law. A committee composed of Secretary Hall and P. B. Wight are to frame an answer and report to the June meeting of the Business Association. The majority of the association favor the licensing of architects; an exception is Irving K. Pond, who believes it inexpedient. A movement is in progress to unite all the building associations and material men of Chicago in an organization the object of which is to present a solid front on questions affecting the building interests. A possibility of such an association is the erection of a building for its headquarters.

ILLINOIS CHAPTER, A. I. A.

The monthly meeting was held at the Art Institute May 13. There were about twice the usual number present. A letter was read from Glenn Brown, secretary of the Institute, requesting suggestions from the chapter as to the most favorable time to hold the Institute convention in Chicago; also as to the nature of program thought advisable. Mr. Wight, secretary of the Chapter, stated that he had answered Mr. Brown's letter and suggested that the meeting be held the last of October or the first of November, as that was likely to be a pleasant season in Chicago. He further stated that a business program was favored, and that a suitable hall for the convention had been offered at the Art Institute. The Chapter indorsed the suggestions forwarded by Secretary Wight to the secretary of the Institute.

Correspondence was presented from Edgar V. Seeler, chairman of the Institute committee on schedule of charges, in which were formulated numerous questions as to the most desirable basis for charges; commission, lump sum, or commission and honorarium. Should a uniform commission be charged on all classes of buildings, and the same rate on the building and decoration? Should expert charges be extra, etc? Mr. Seeler requested that a committee of three members of the Chapter be appointed to consider the question of charges. It was so voted. I. K. Pond announced that he would propose a change of the by-laws at the next meeting by which no new business should be taken up without at least a week's notice be previously given.

Dr. N. Clifford Ricker, F. A. I. A., professor of architecture of the University of Illinois, was the guest of the evening. He spoke of the courses in architecture at the university and stated that not more than 10 per cent of the students gave promise of excelling in design. This necessitated careful consideration as to the relative proportion of design and construction that should be taught. The Chapter adjourned at 8:30 to attend a lecture in Fullerton hall, on "The Recent Architectural Movement in Germany," delivered by Dr. Ricker. The lecture was illustrated by lantern slides showing examples of representative

buildings in the established styles, and characteristic exteriors and interiors in the art nouveau. The lecturer was very appreciative of the effort to break away from the imitation of old forms, and looked for considerable good to come from the new movement.

DECISION AGAINST SUBSTITUTION.

In a suit brought by a contractor and defended on the ground of failure to obey the specifications, the Supreme Court of the State of New York ruled as follows:

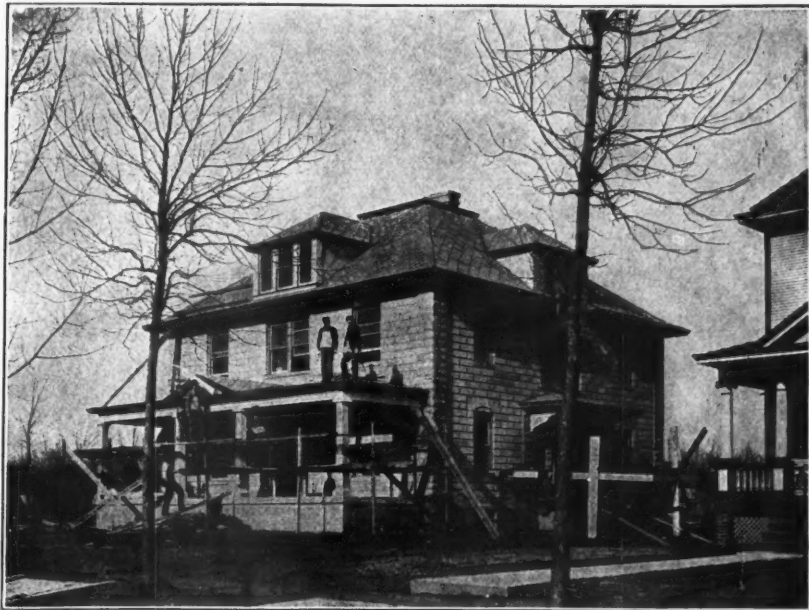
"We have set forth some specimens out of more than twenty admitted failures to comply with the specifications and at the same time have given in substance the reasons of the contractor for the omissions. The contract was not substantially performed in all respects and there is no evidence to support the finding of the trial court that it was. There is no substantial performance when no attempt is made to comply with certain express requirements of the specifications and no excuse or explanation is given for the failure. A contract is not substantially performed by substituting for that which is expressly required, materials or methods of workmanship which, in the opinion of the contractor and his experts, are "just as good," unless the substitution relates to a matter of minor importance, is made in good faith and for sufficient reasons, and there is an adequate allowance for the difference. The owner has a right to what the contractor agreed to give him, and unless he has it or when the failure is neither willful nor substantial, is fully compensated for the omission, there is no substantial performance and there can be no recovery. It is not sufficient for the contractor to build a house, but he must build the house contracted for and substantially comply with the specifications as to the method of construction, materials and workmanship before he is entitled to payment. In the case last cited, we said: "The contractor may not deliberately violate his contract by the use of earthen construction instead of iron and small pipes instead of large ones, and yet claim that he has done as he agreed, because the result is just as good. Unless the owner had the right to contract for what he wanted and to get what he contracted for, there was no use in making the contract. A building contract, like any other, is to fairly perform according to its terms, and any substantial change, unless authorized by the owner or architect, is made at the risk of the contractor. In order to avoid injustice, the law tolerates unsubstantial deviations made in good faith, but it exacts full compensation therefore and permits a recovery on the theory of substantial performance only after the proper deductions have been made. The contractor had no right to substitute his own judgment for the stipulations of the contract, or to recover on the basis of complete performance, when * * * he willfully and intentionally used inferior and less expensive materials in the place of those agreed upon." One of the items to which objection was made was to substitution of another cord for the Samson Spot Sash Cord specified.

As the old lady said, "Education is a wonderful thing." It breaks out queerly at times, however, as in the case of a book agent. He wanted it distinctly understood that he was not a solicitor; he was, he said, western manager of the encyclopedia that he represented. In telling his tale of the contents of the work he came to Ruskin. "Of course," said he, "you know of Ruskin and of his friend Mural, painter, that he wrote so much about."

Wanted—Assistant engineer, to specify and superintend plumbing, heating and electrical work. State experience and what salary required. Green & Wicks, architects, 110 Franklin street, Buffalo, N. Y.

Partnership Offered—Architect having an established and lucrative practice in a prosperous and growing city where work varies from small houses to large office buildings, has room for a partner who can handle the draughting room end of the business. Capable and properly trained man required, preferably Beaux-Arts training. Architect is energetic and hard worker, and partner must be able in design and rendering and not afraid of work. Fine opportunity to right man as satisfactory arrangements will be made with right man on paying basis. Address "Opportunity," care Inland Architect, Chicago.

A Lifetime Without Repairs



Illustrating a Concrete Block House of Dr. H. C. Howard, Champaign, Illinois
Prof. F. M. White, Architect, roofed with Asbestos "Century" Shingles, laid French Method.

ASBESTOS "CENTURY" SHINGLES

will outlive the building without either Paint or Repairs

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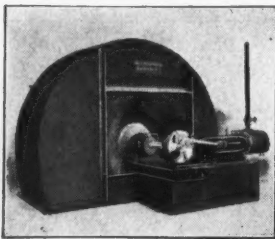
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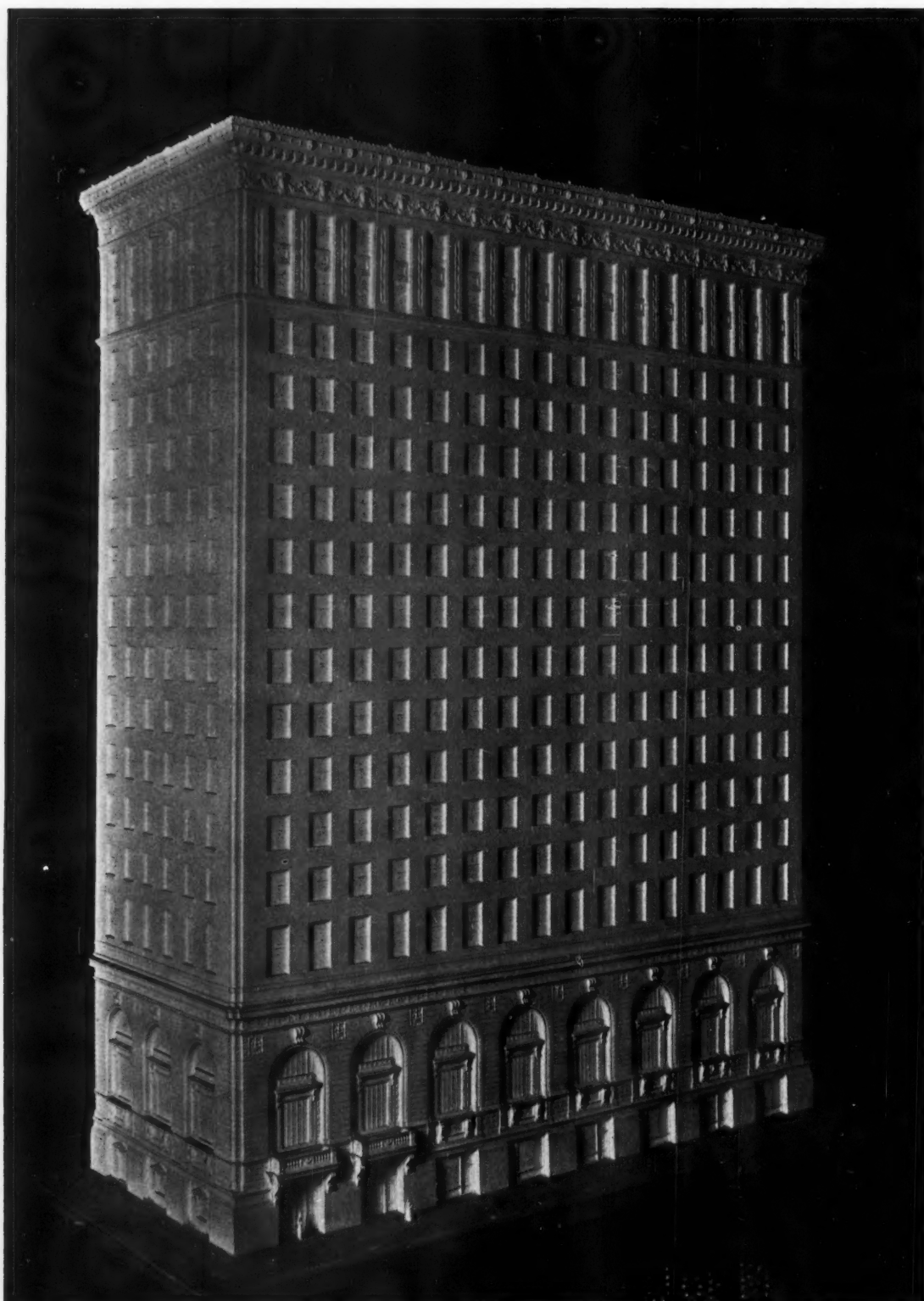
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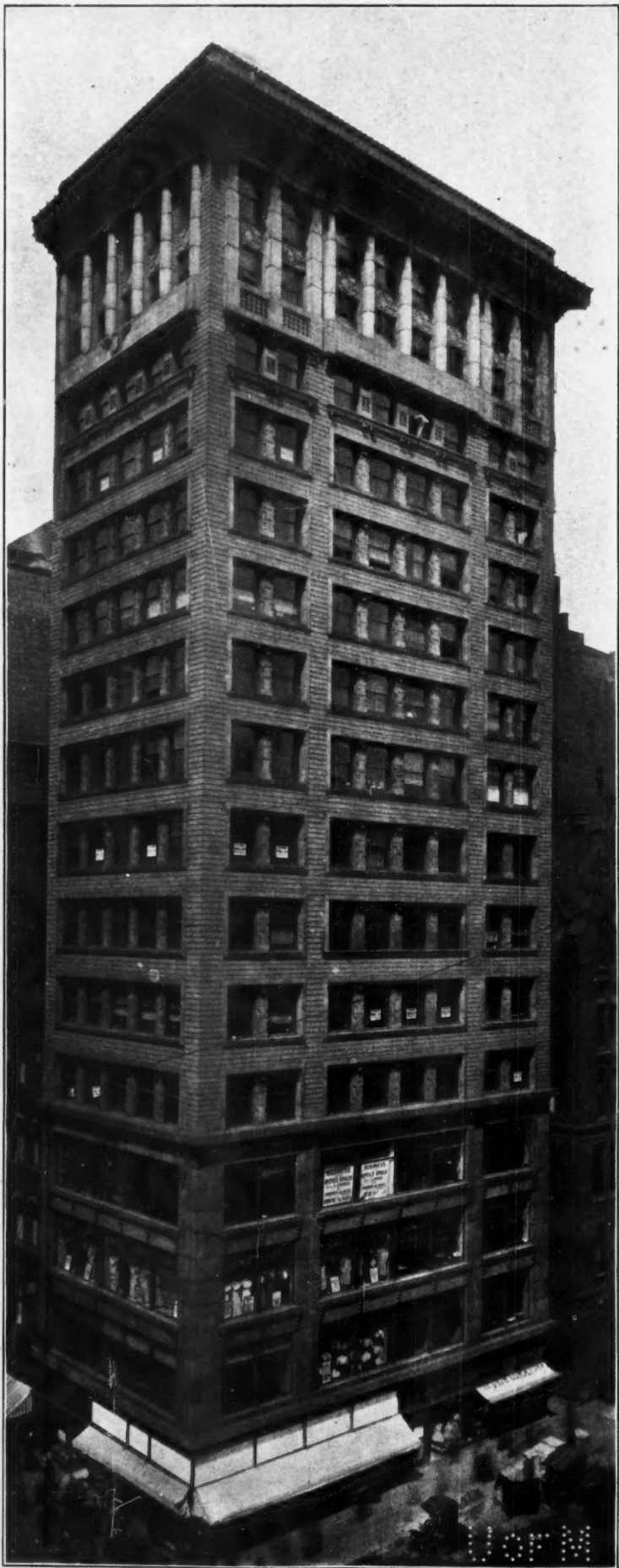


CORN EXCHANGE NATIONAL BANK BUILDING, CHICAGO

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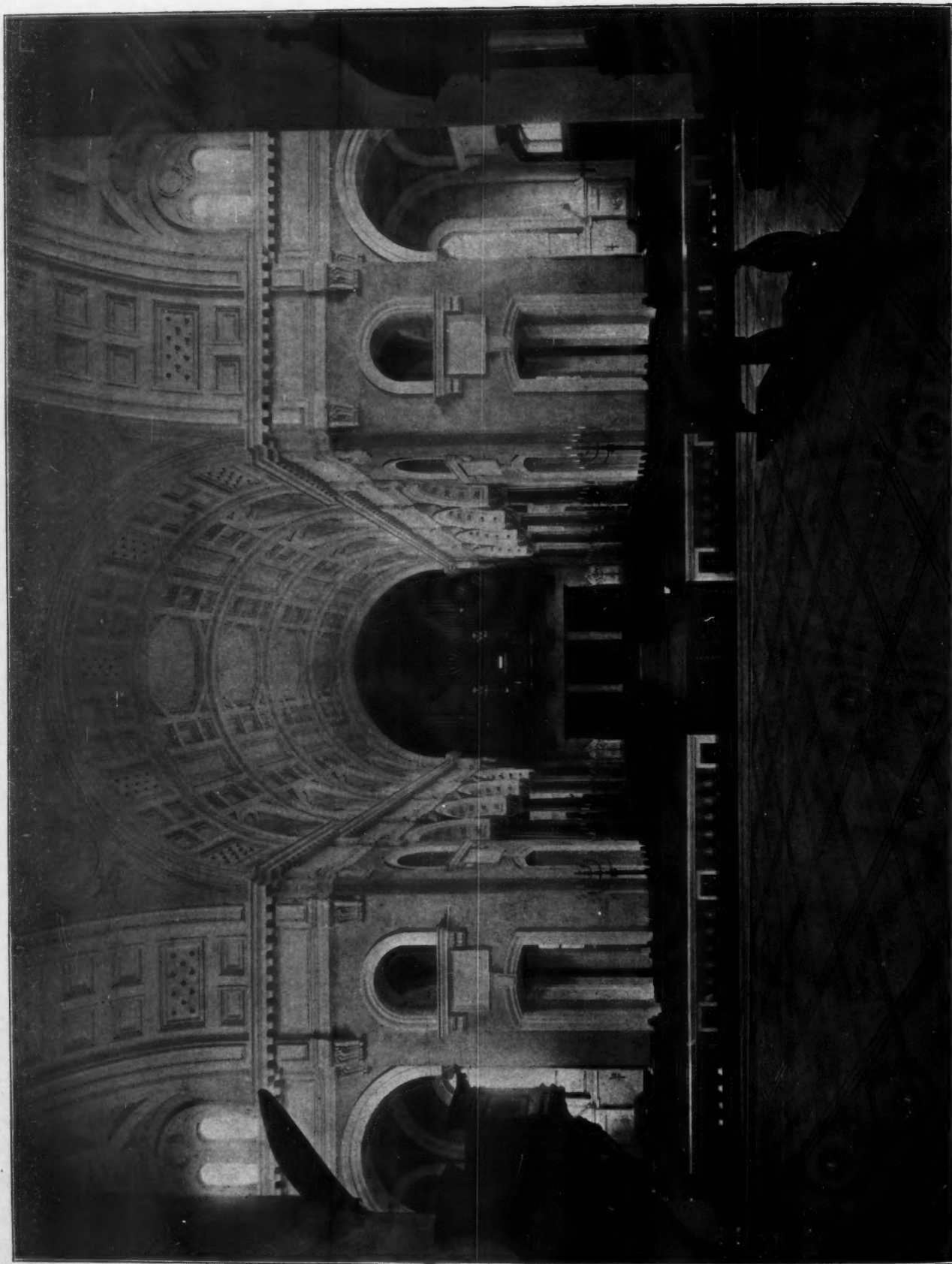
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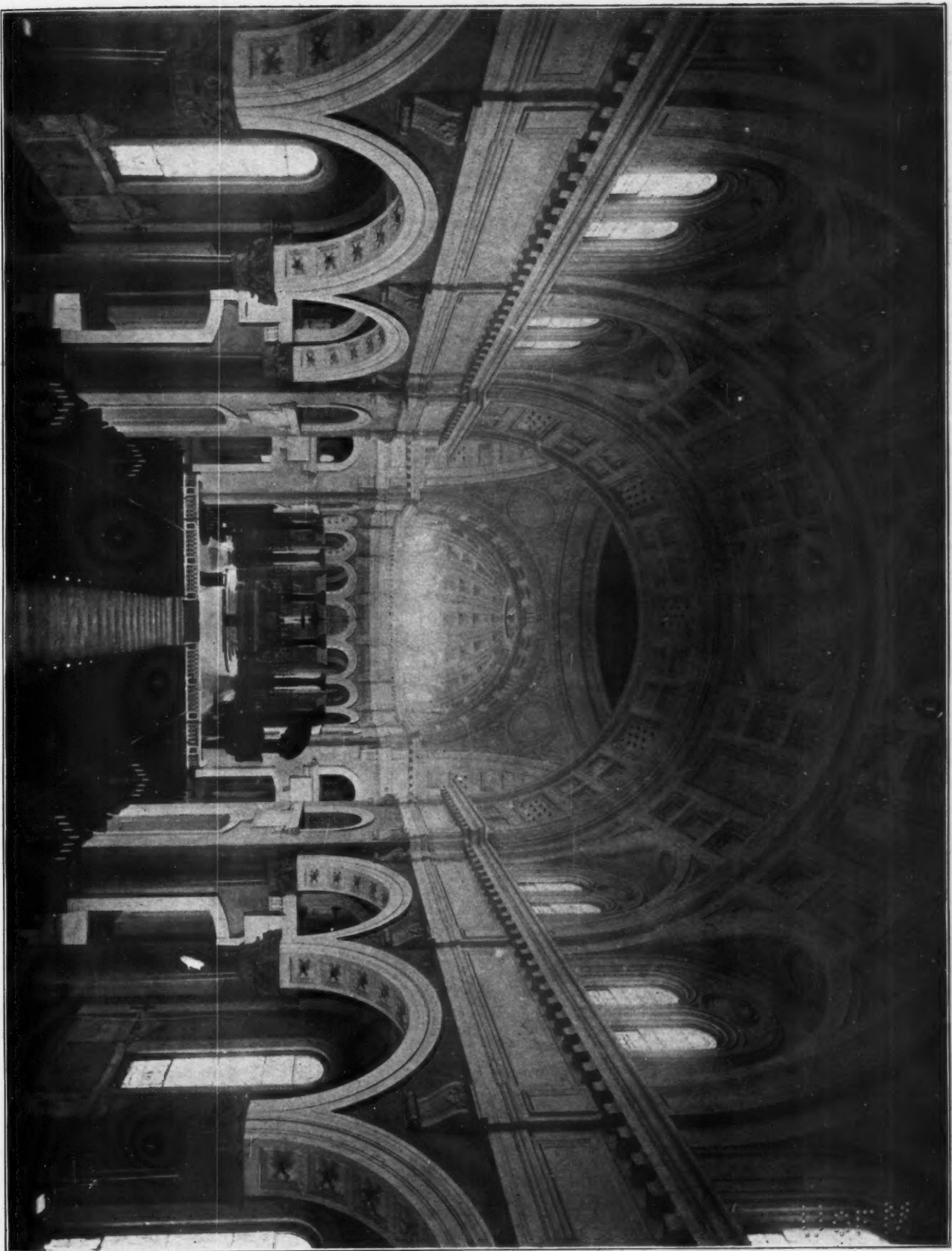


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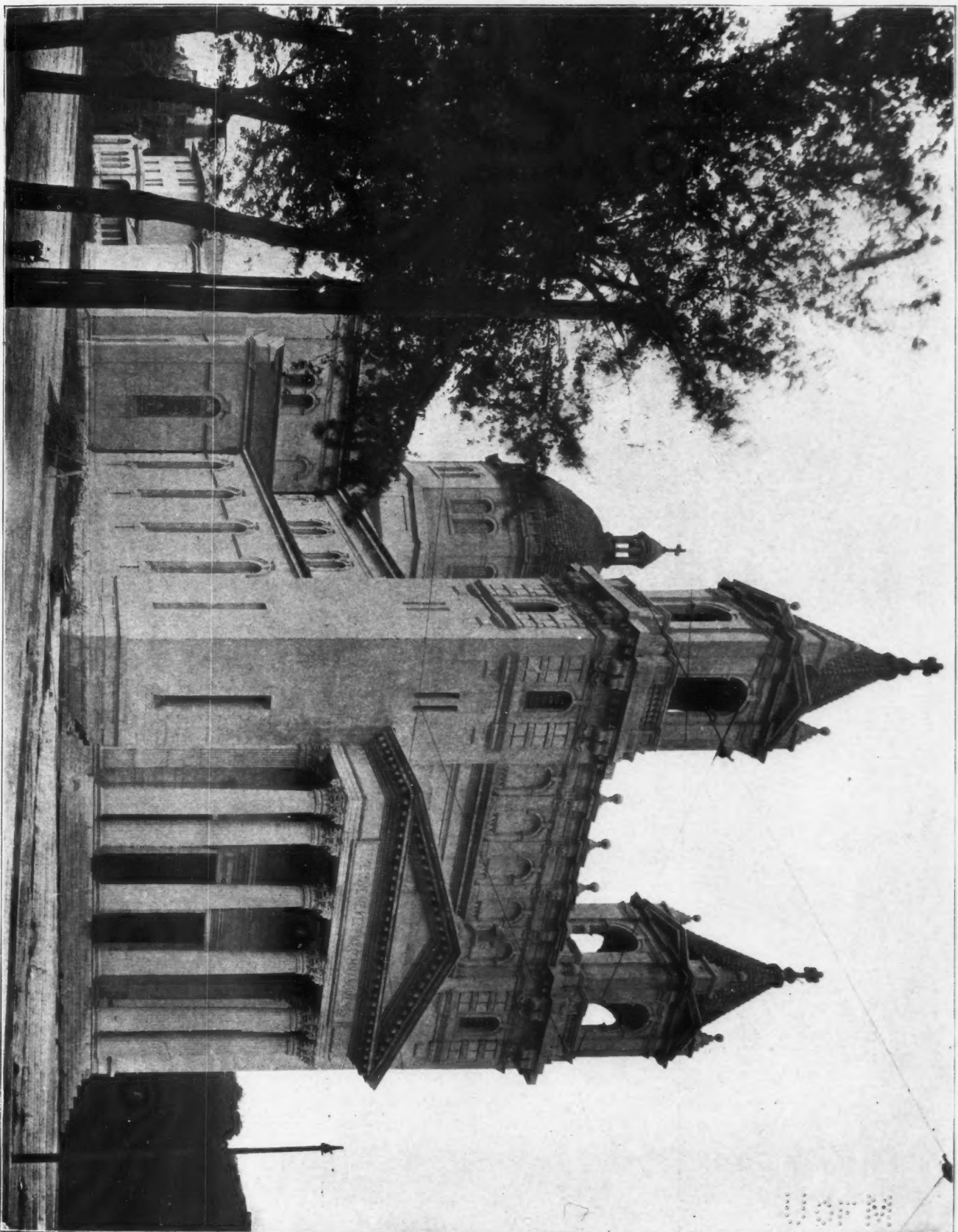


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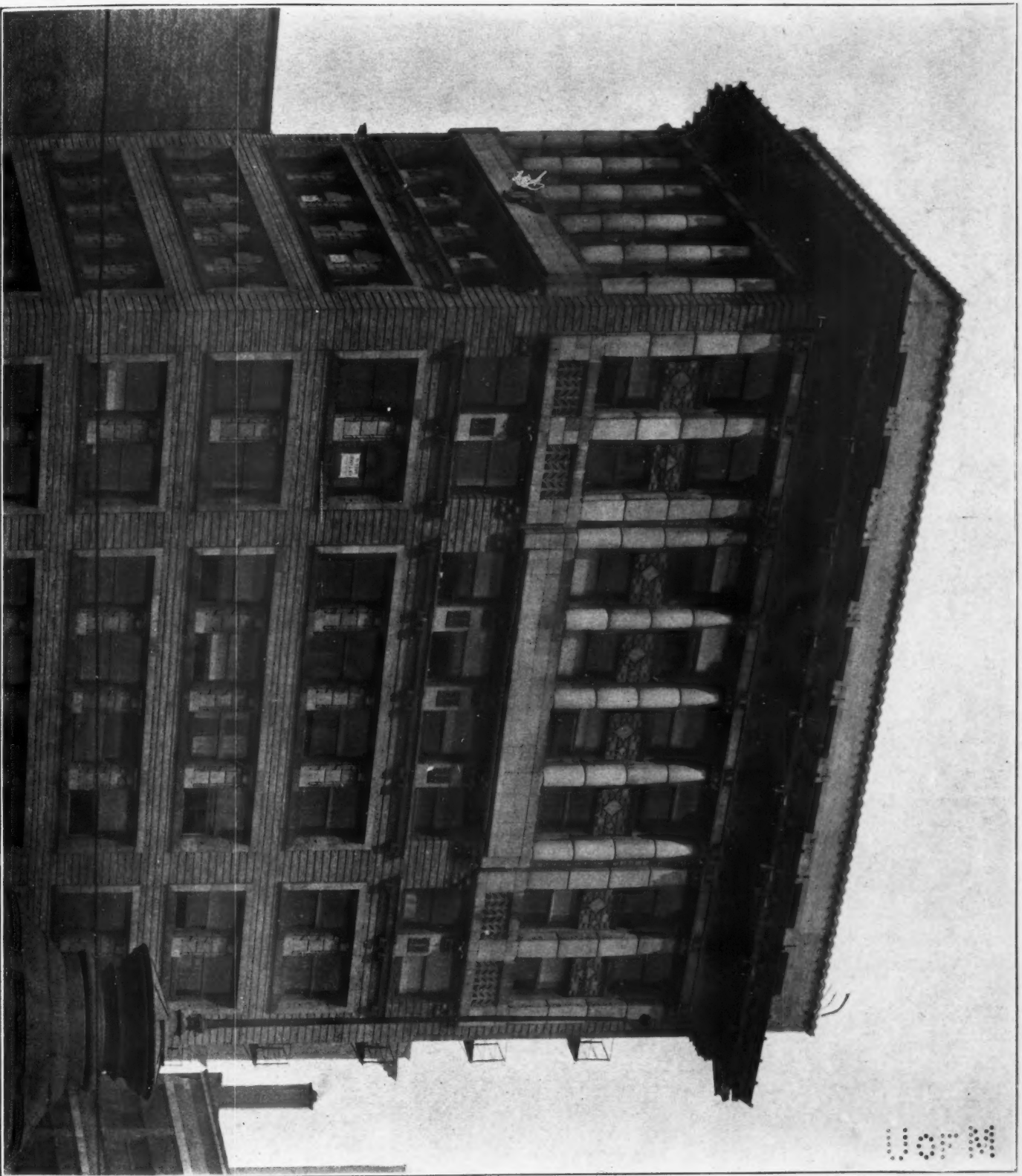
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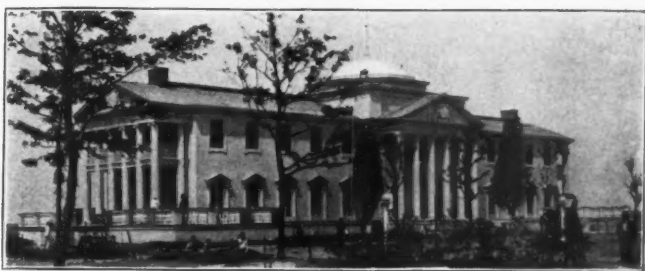
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Massachusetts Building



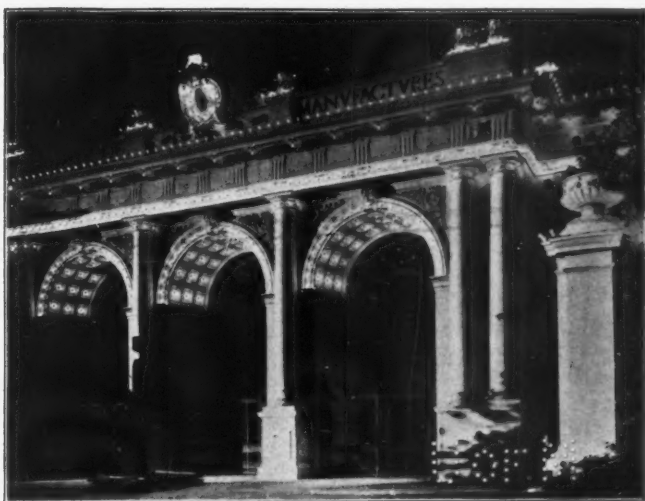
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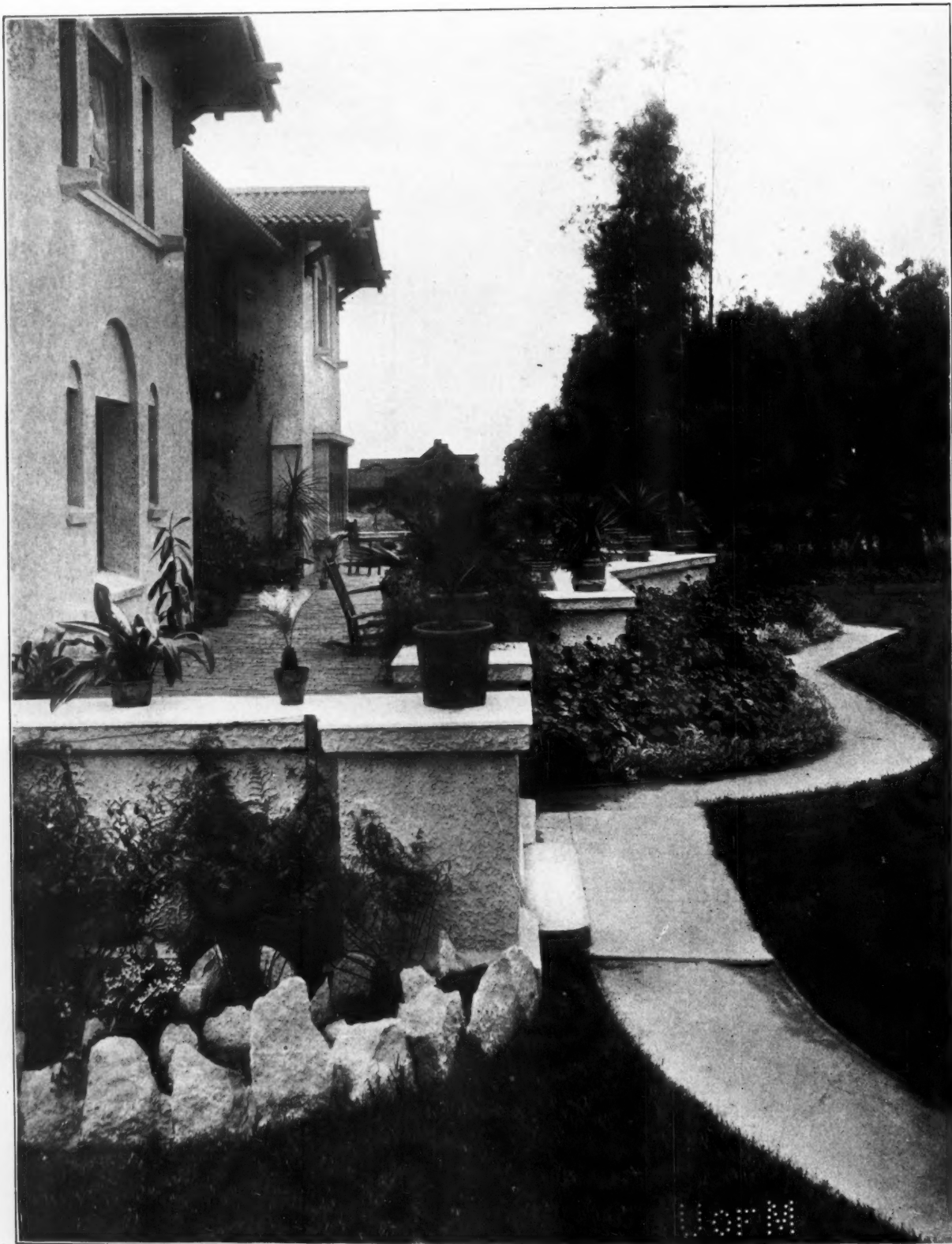


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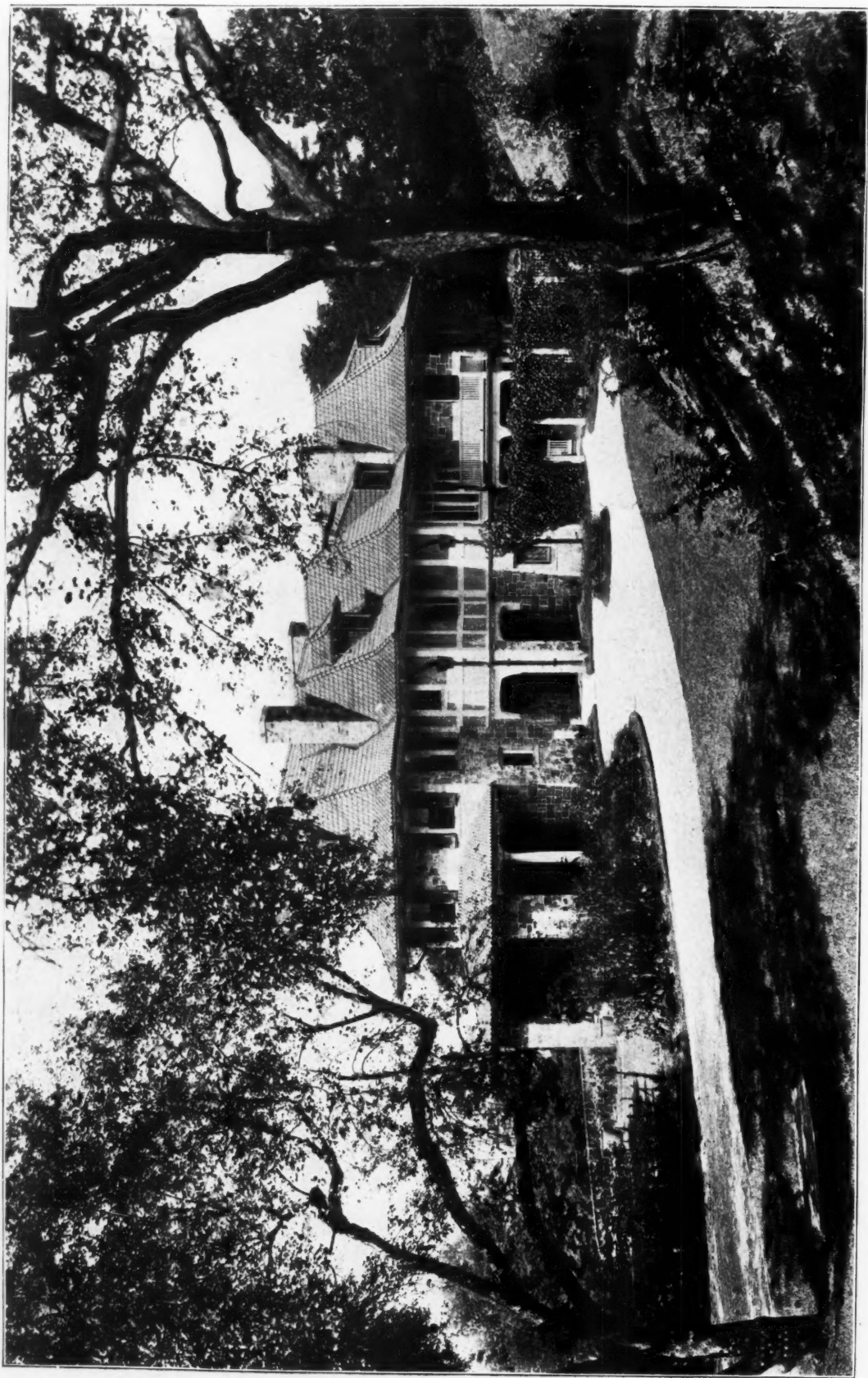
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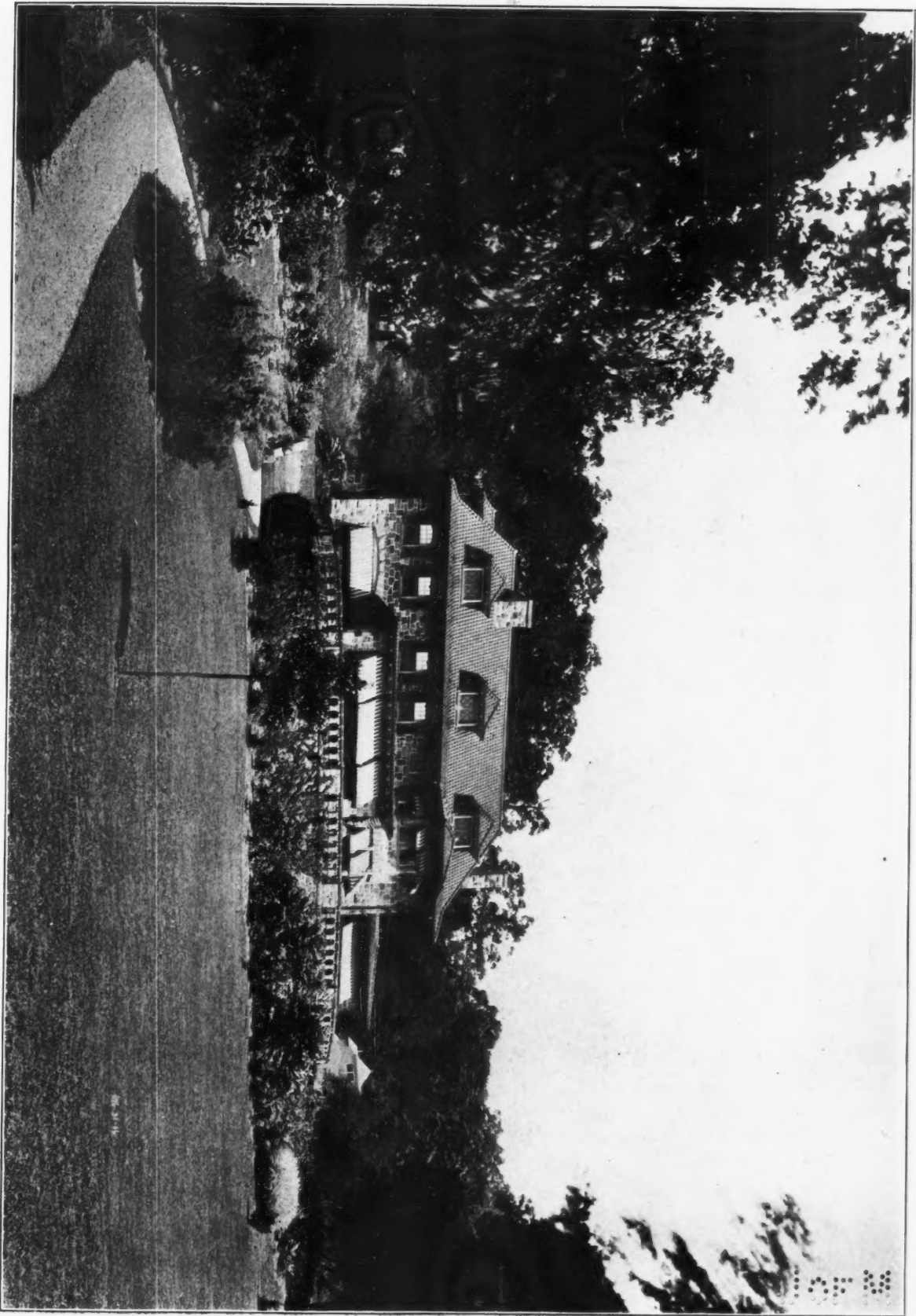
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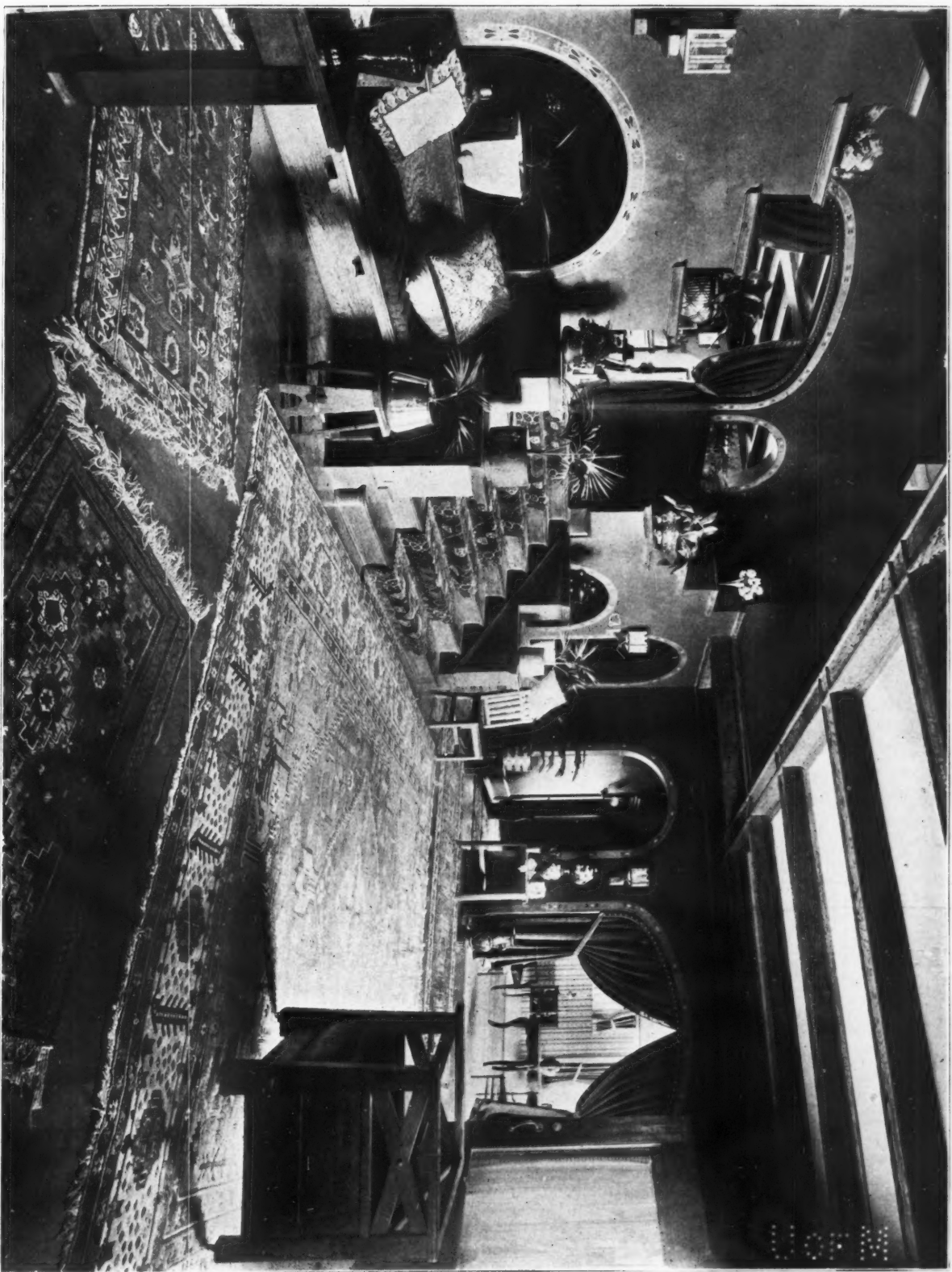
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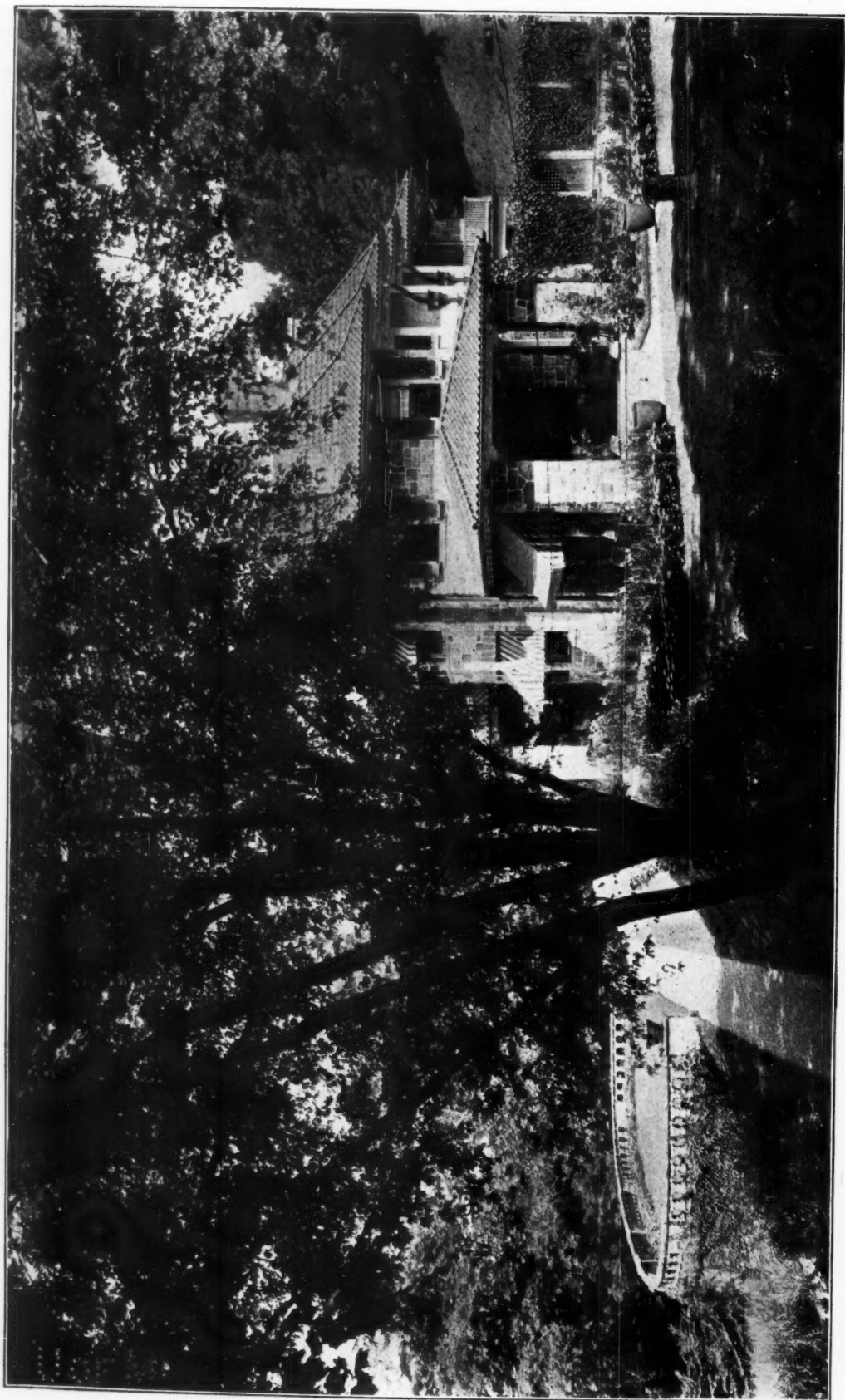
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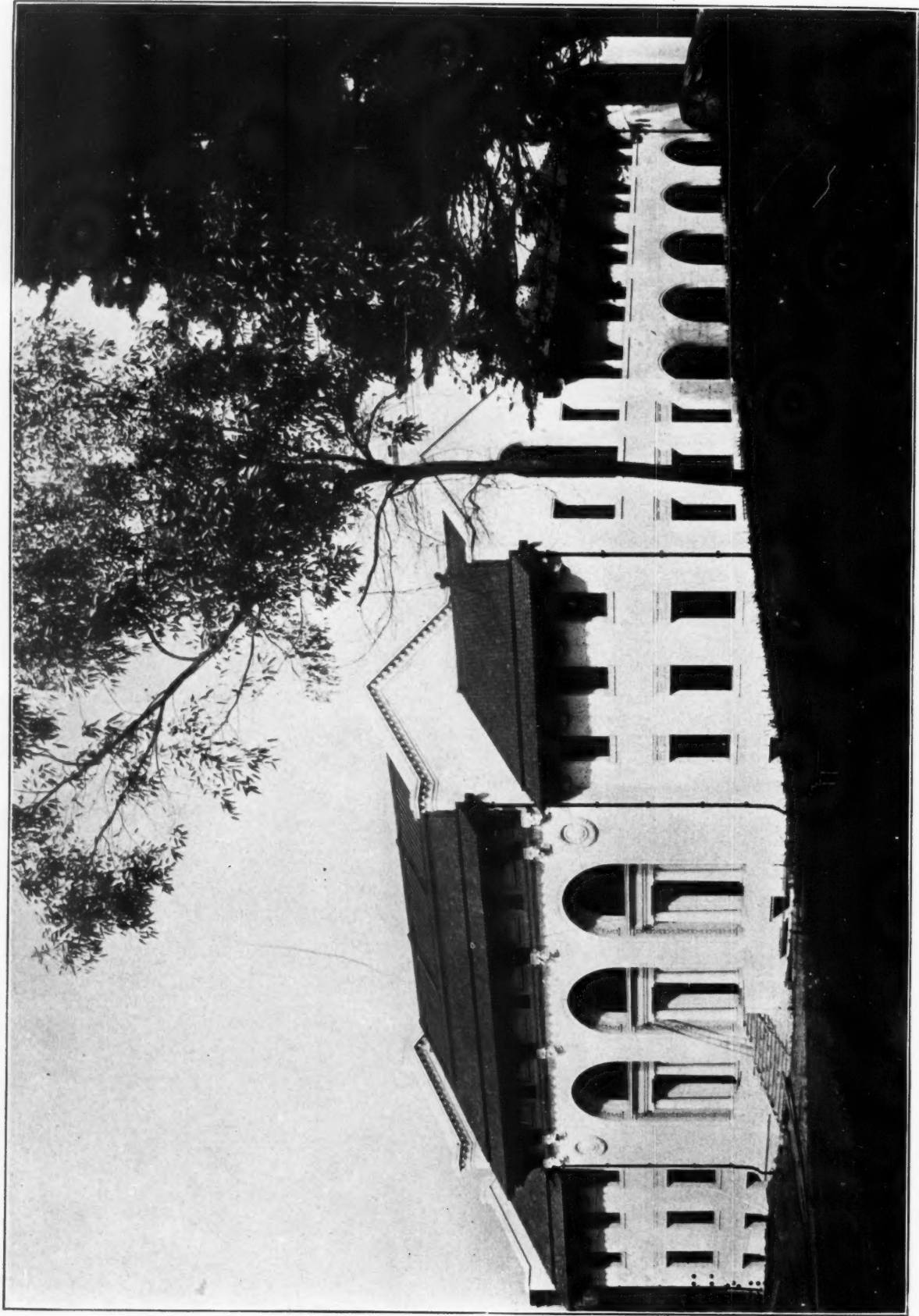
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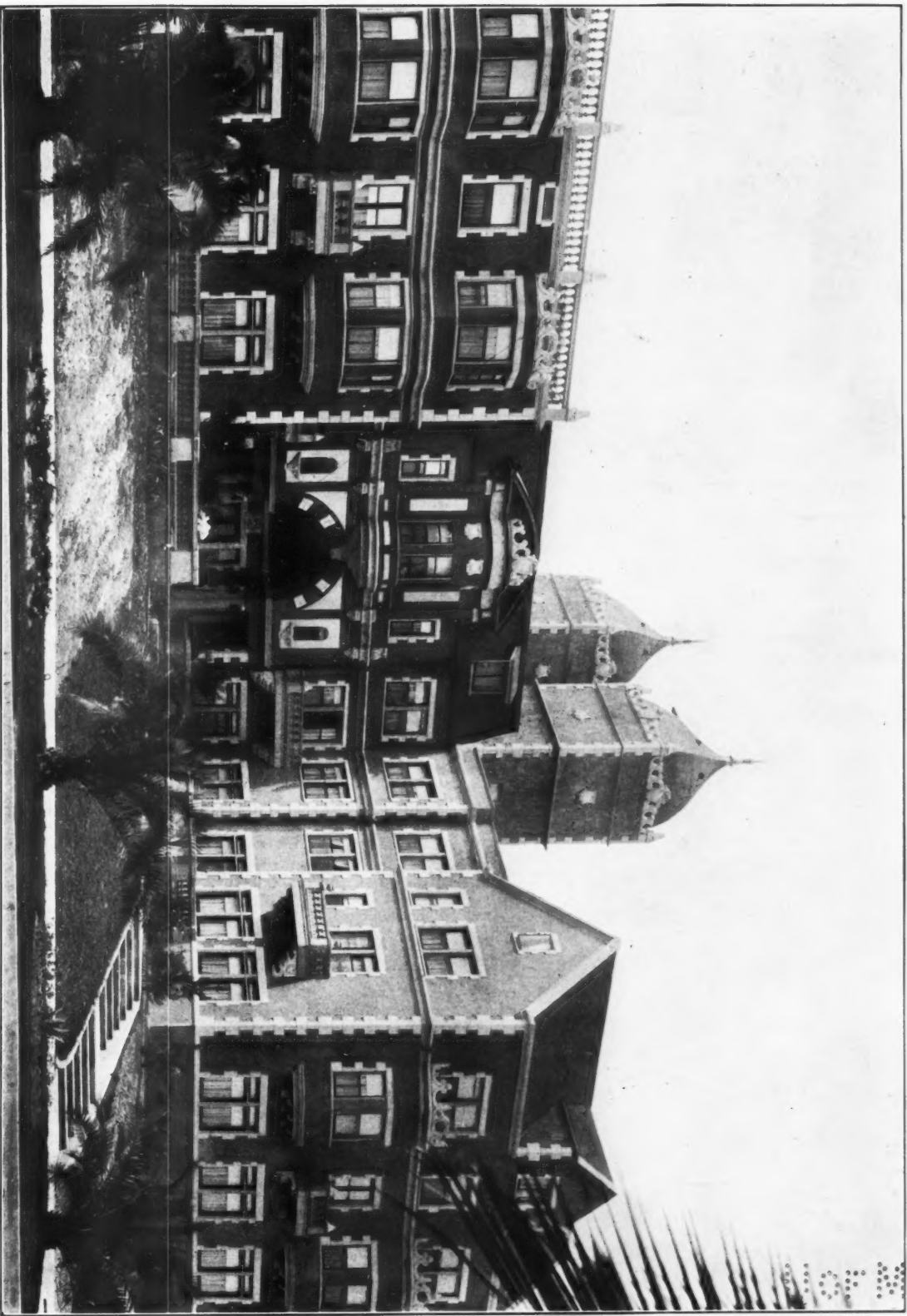
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