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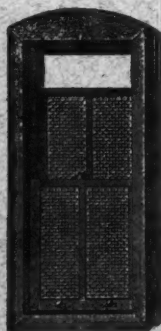
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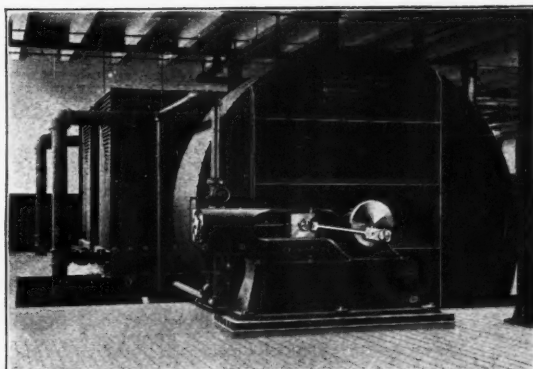
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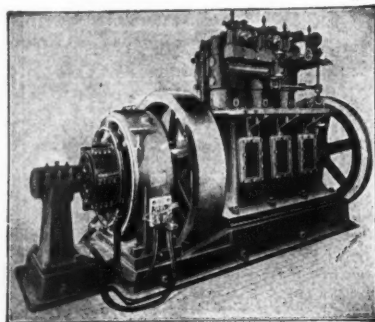
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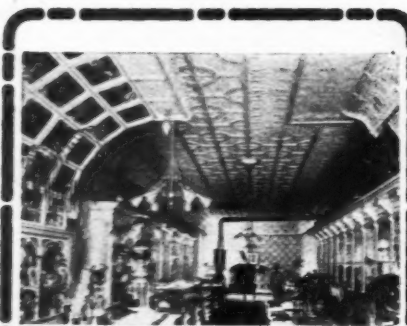
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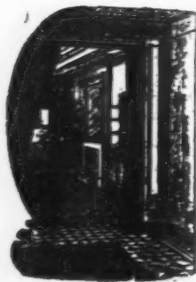
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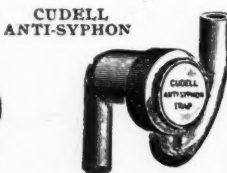


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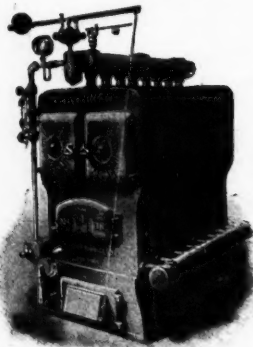
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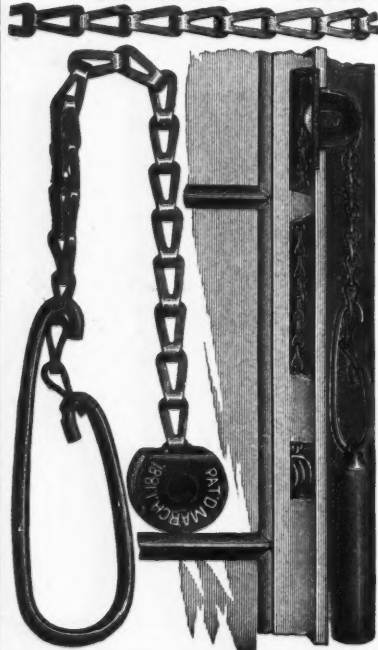
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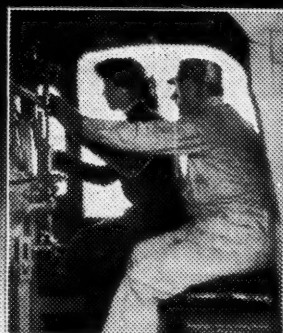
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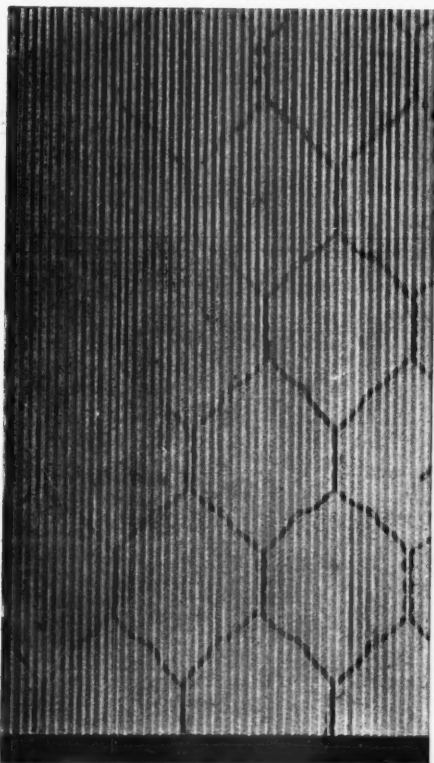
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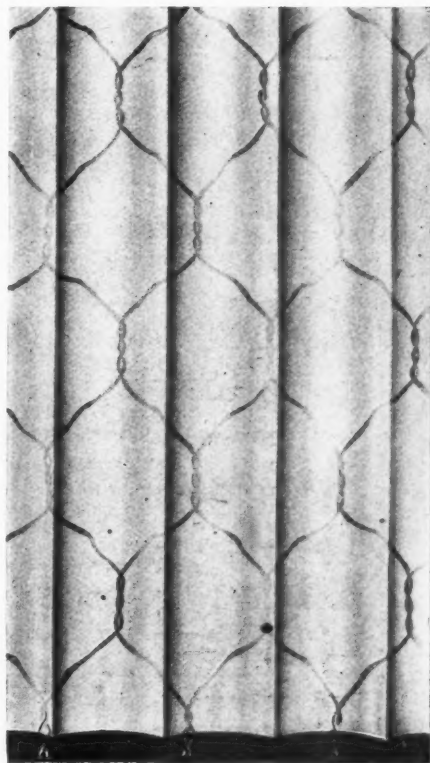
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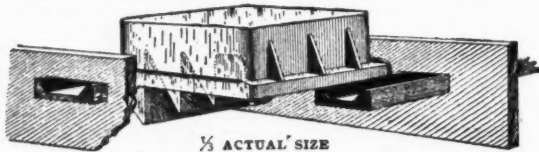
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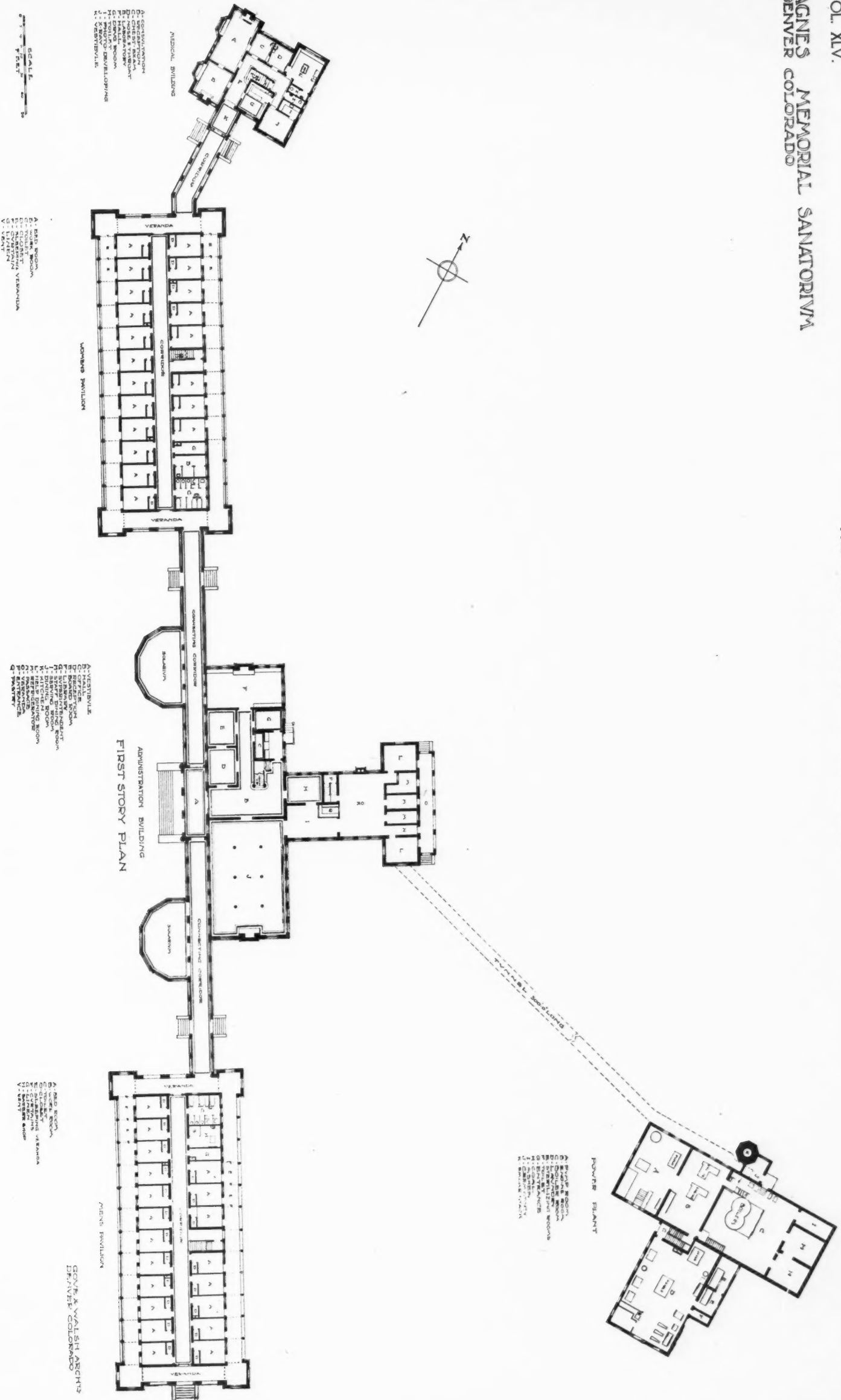
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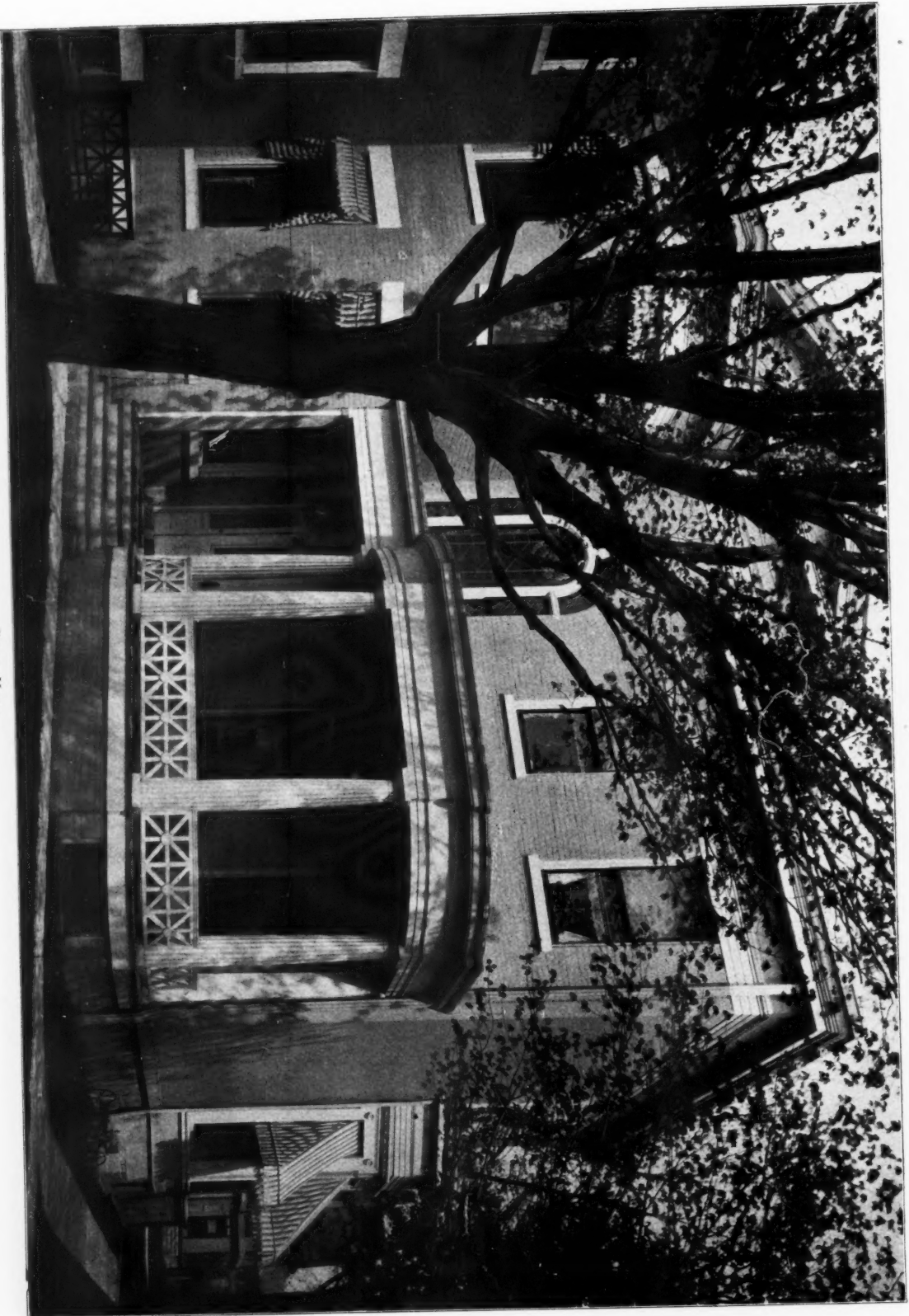
Necessity for Fireproofing Schools and Residences While the building laws of most cities in the United States have, through the activity of the National Board of Fire Underwriters, vastly improved in the stringency of requirements for the fireproofing of buildings there is a strange similarity in the rules that compel the fireproofing of a ten-story office building or warehouse that is used for business or filled with goods and a laxity in regard to the regulations governing the erection of three and four-story apartment houses or residences in which people live and can be attacked by fire when they are most helpless. Schoolhouses come within the same category, for the children are always helpless or would be were it not for the excellent system of "fire drill" which the teachers have generally adopted to offset the known combustible nature of the average school building. In Chicago the school board has requested the passage of an ordinance requiring the fireproofing of some school buildings, but they place the limit on the number of pupils occupying them. This is placed at six hundred. The buildings designed for a less number according to this ordinance are to be "slow-burning." It is difficult to see the logic in this, as it makes it dangerous for a pupil to attend a school where he has less than six hundred companions, for if he has not more he and his parents can contemplate his chances of "slow burning" every time there is an alarm of fire. It is time that the fireproofing of all structures where loss of life by fire is possible be made part of every building ordinance and particularly in the line of residences and school buildings, for there the greatest danger lies. In other words, lives should be of more account than the property risk placed by an insurance company. Even if this were not the consideration the growing cheapness of steel and hollow tile, and the increasing cost of lumber should make, with the reduced insurance rate, the fireproof residence or schoolhouse a paying investment.

Inadequacy of Chicago's Efforts Toward Improvement It is interesting to note that the building of a city hall commensurate with the needs of the city is being again discussed in Chicago. That the block which now contains the county as well as the city offices is not too large for either one gives rise to many suggestions. The most natural place for a new city hall is on the lake front. A correspondent suggested this to the *Chicago Tribune*, and the editor of that great daily demurred because "the Michigan Boulevard of the future must not be marred by a Chicago city hall." Does not that journal see that the boulevard of the future will be a quarter of a mile east of the street he names, and that the contemplated broad boulevard constructed by the widening of that thoroughfare and the bridging of the river will become necessary for commercial purposes and be abandoned in consequence as a boulevard even before a new city hall can be built and occupied, and that when Chicago gets through talking of half-mile subways and a bridge or two over the river and other temporary relief measures, that some man great enough to realize the problem and the opportunity will appear, and a modern city will be built from the now inadequate and costly beginnings which constitute its greatness. These projects under discussion at present are trivial. What Chicago needs is a complete building built from one plan. These contemplate a structure, built one room at a time. Chicago is too great to make such a mistake, when she has the opportunity to develop into the most beautiful commercial city in the country.



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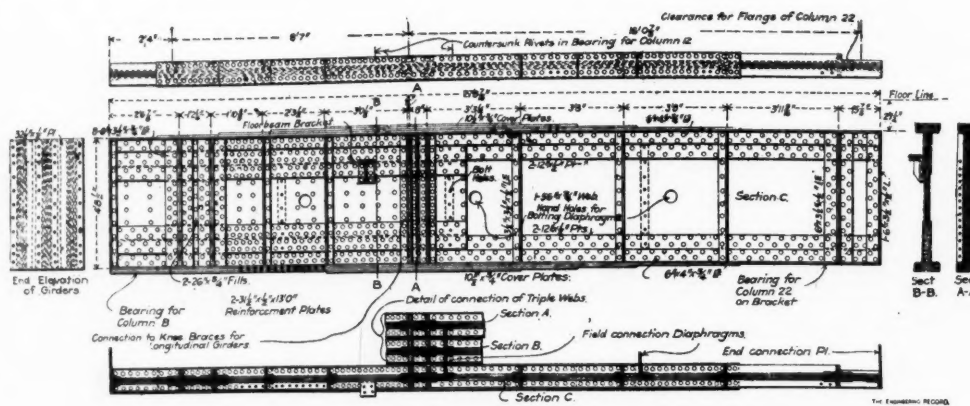




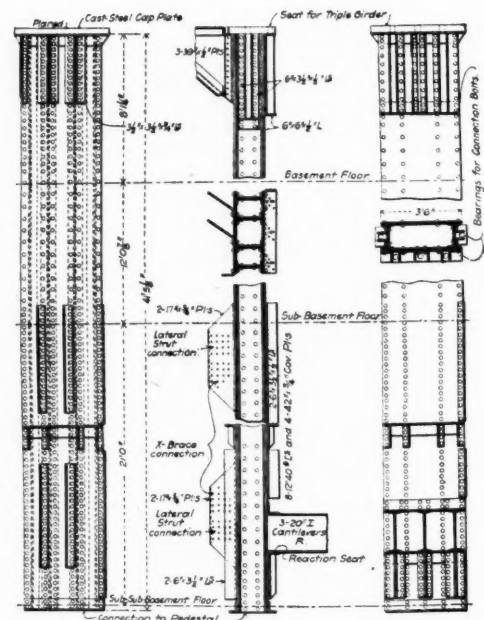
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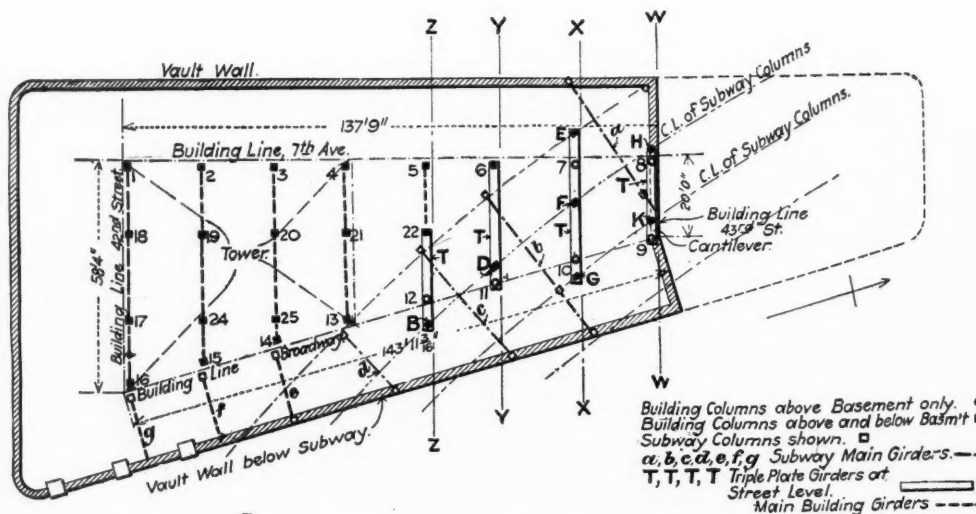
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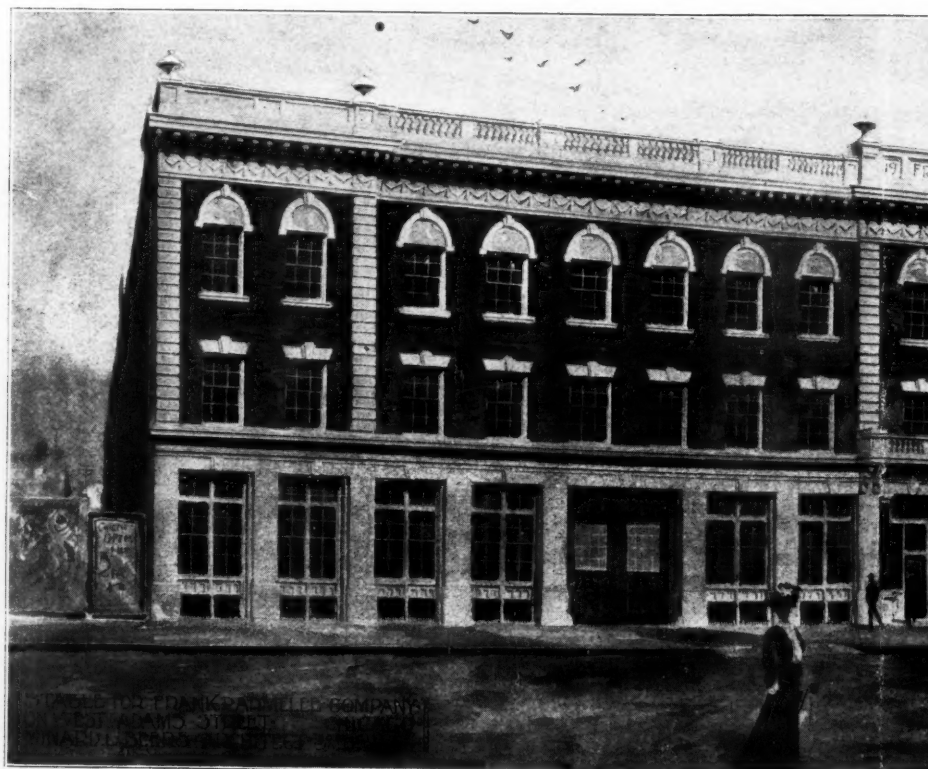
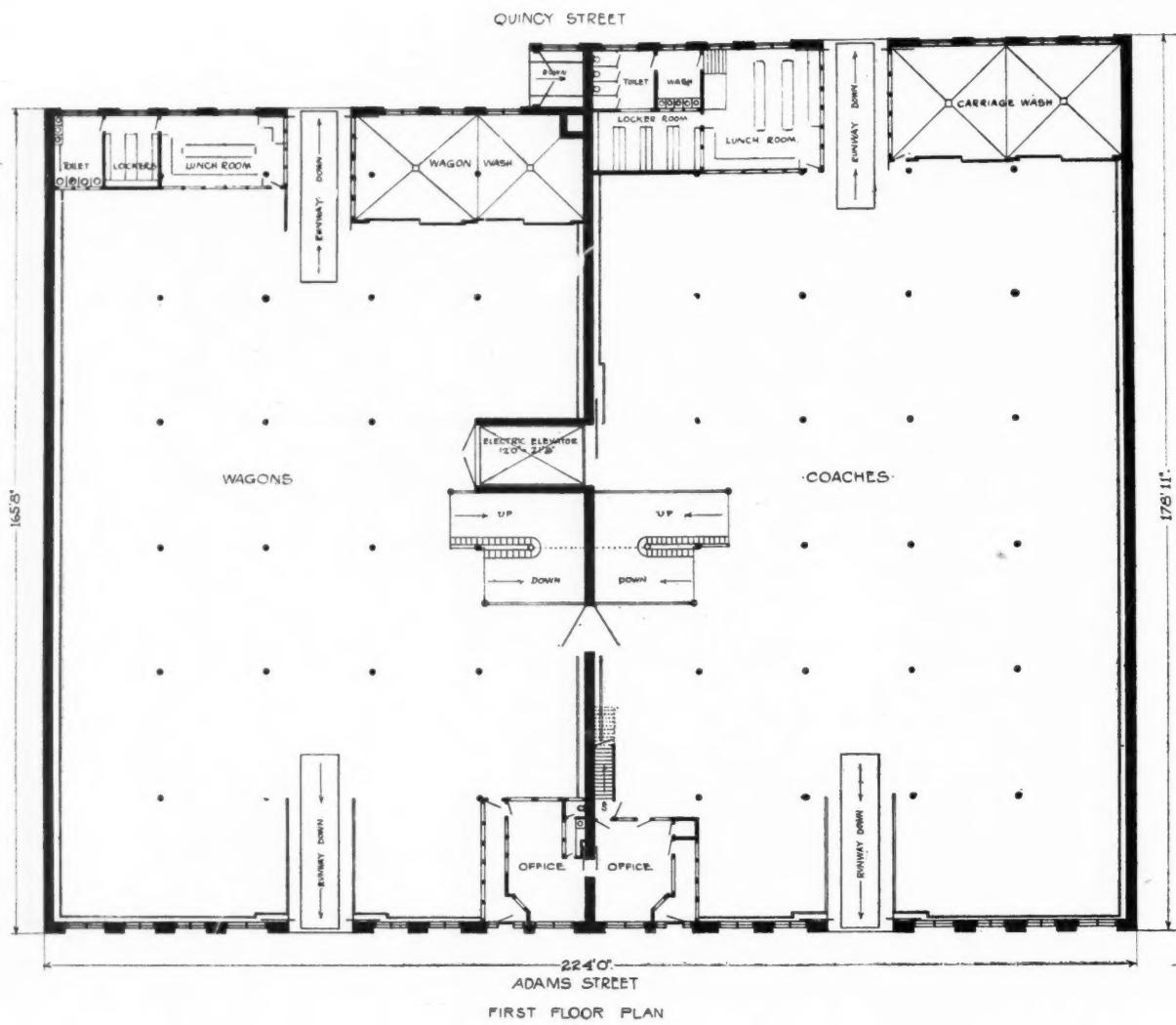
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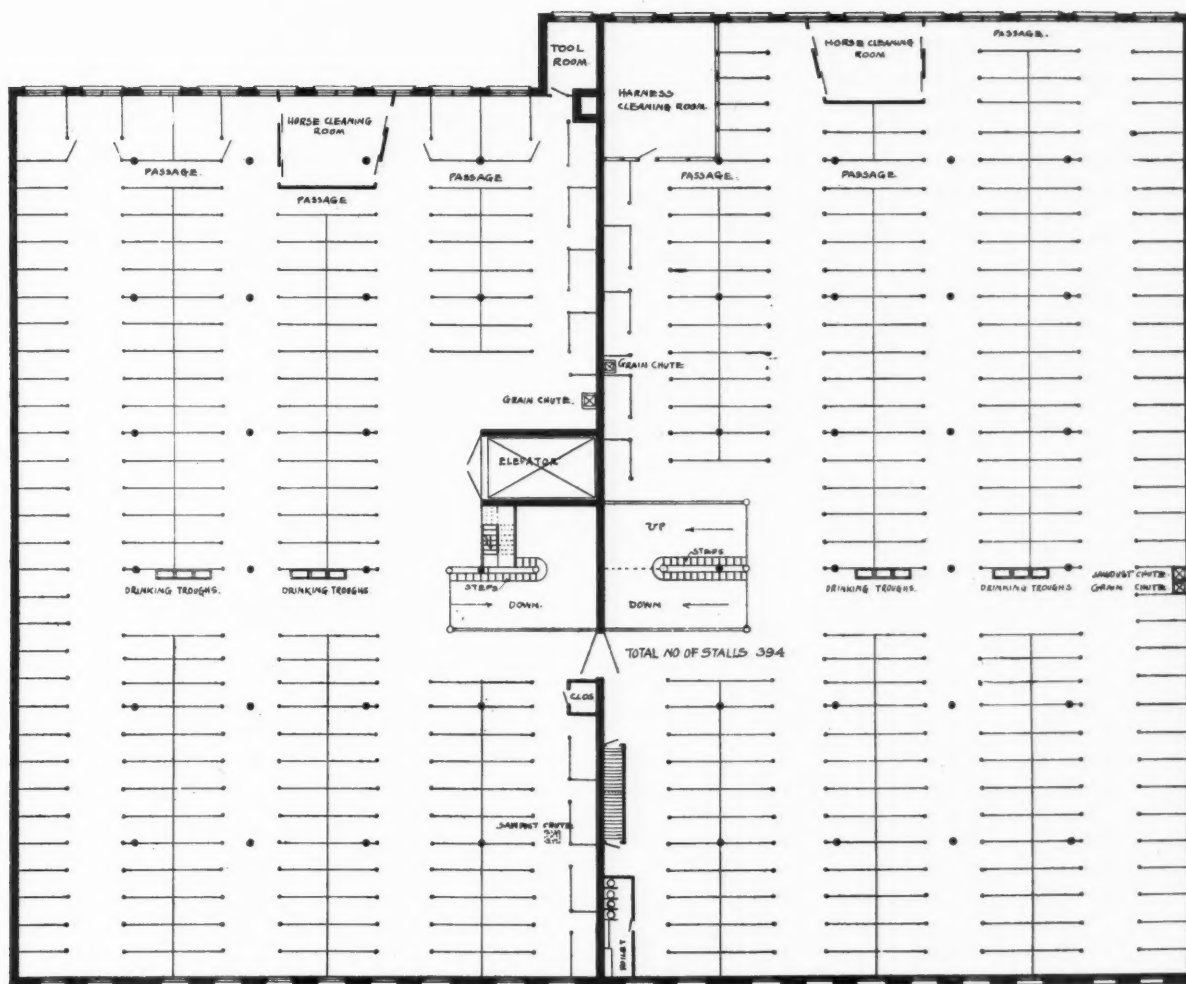


PLAN OF SUB-STRUCTURE COLUMNS AND GIRDERS

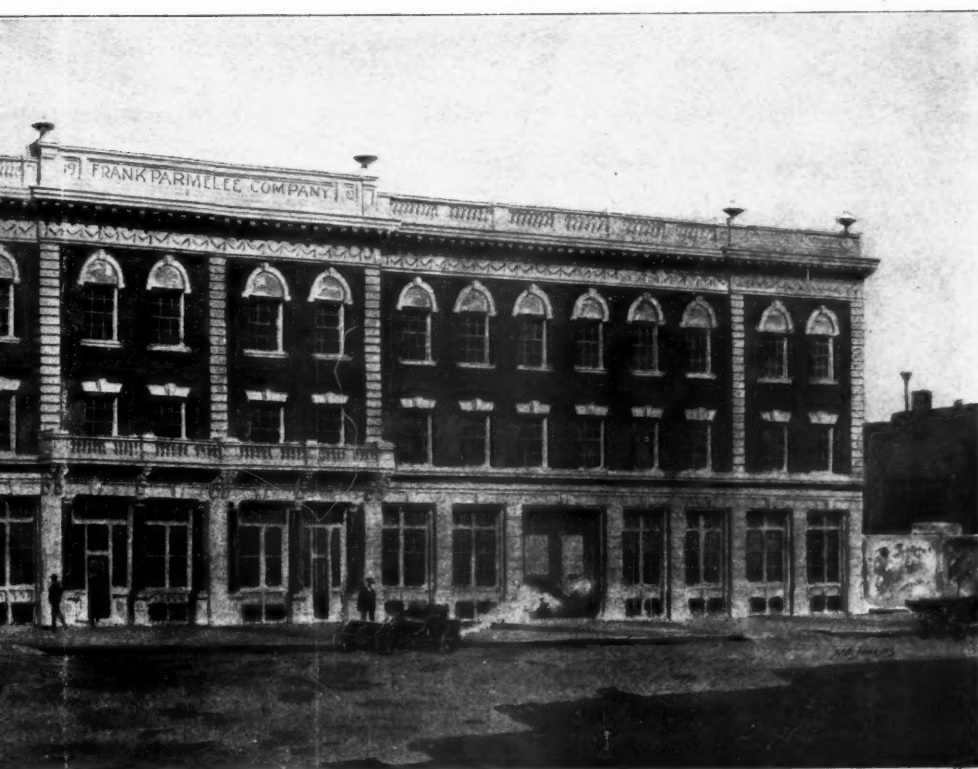
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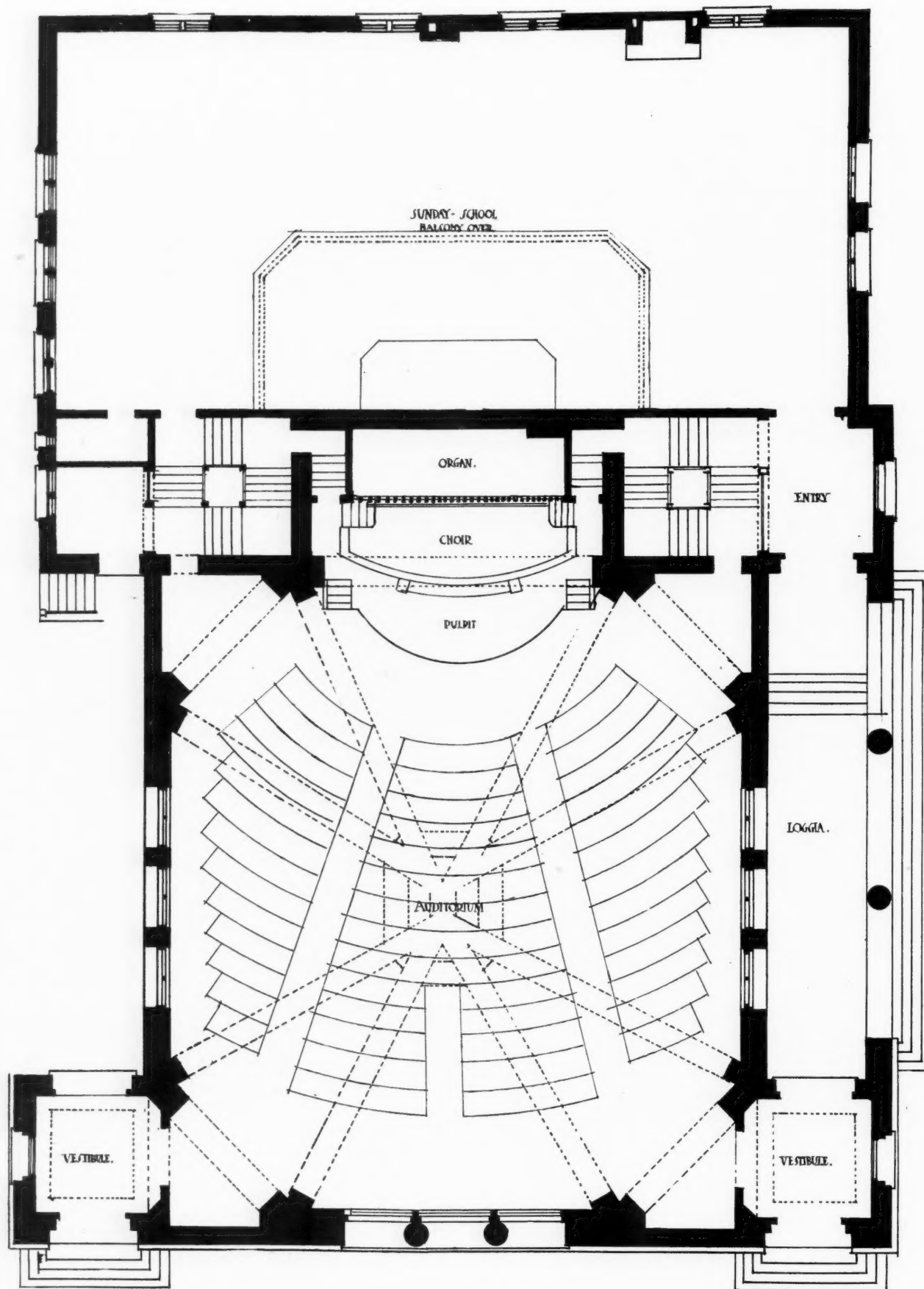






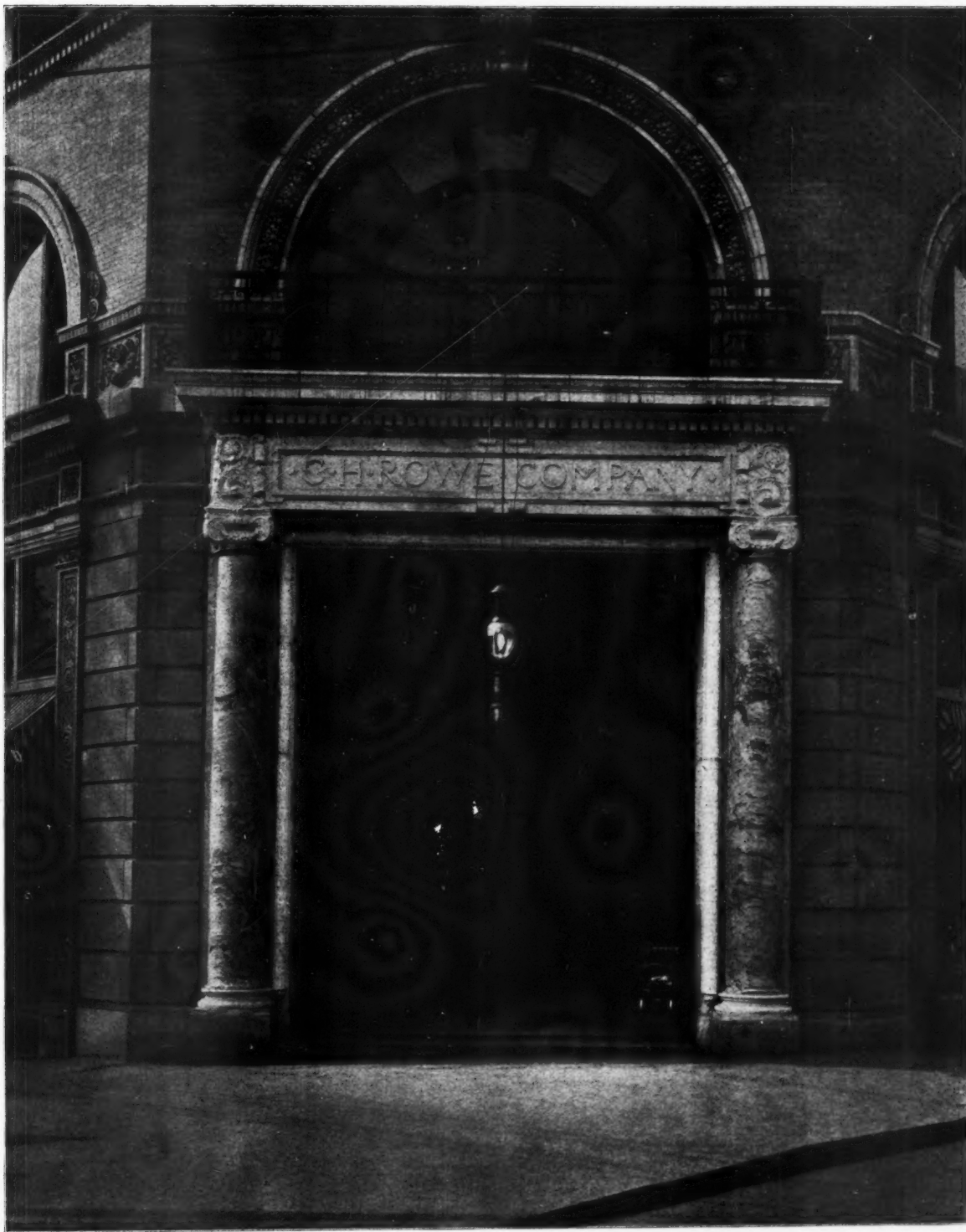
SECOND FLOOR PLAN



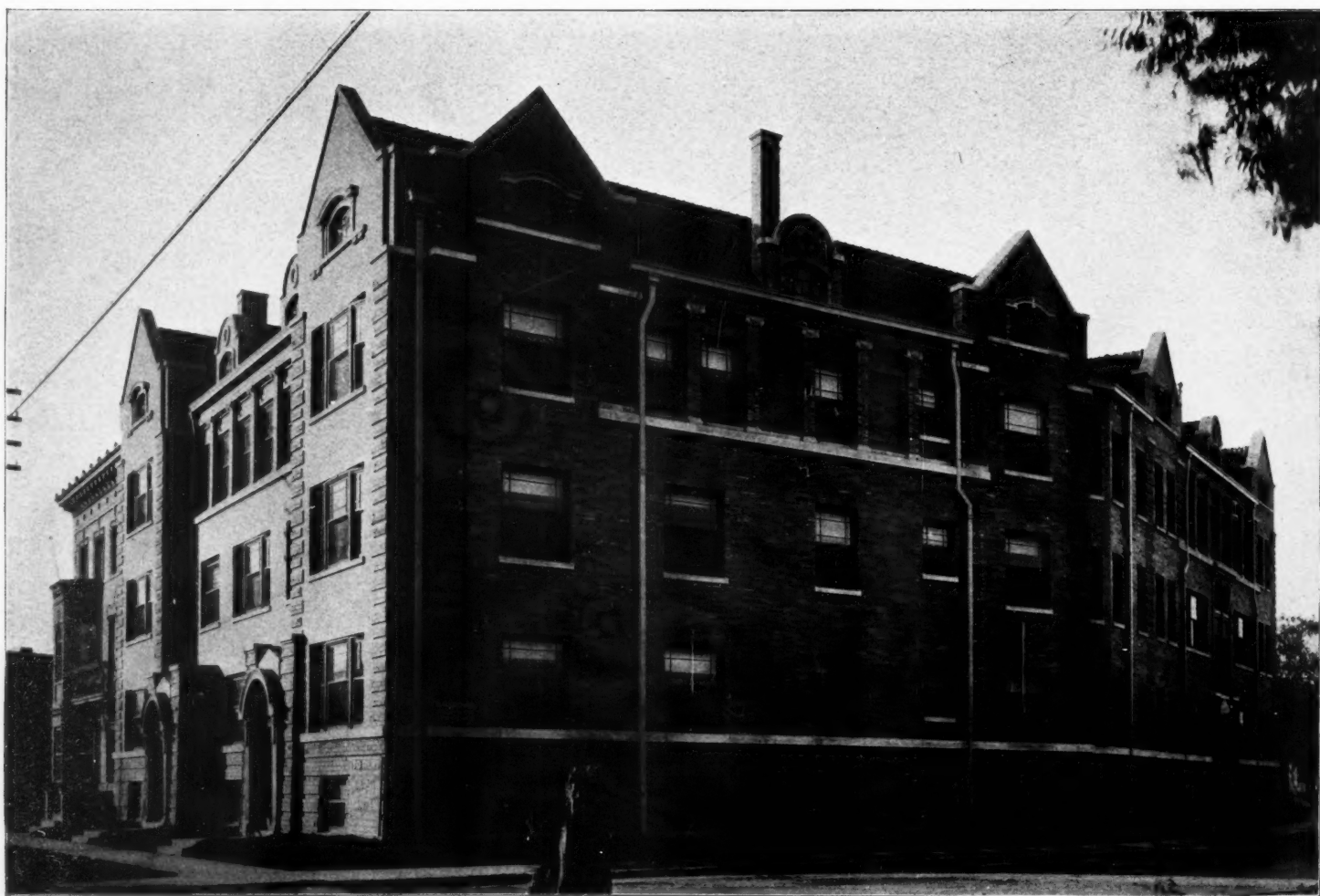
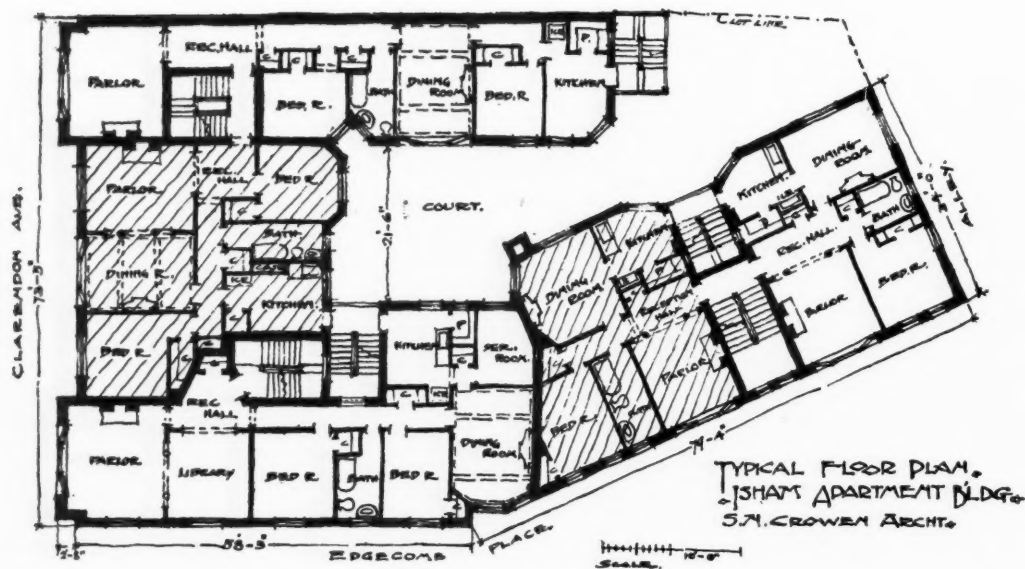


FLOOR PLAN, EDGEWATER PRESBYTERIAN CHURCH, CHICAGO

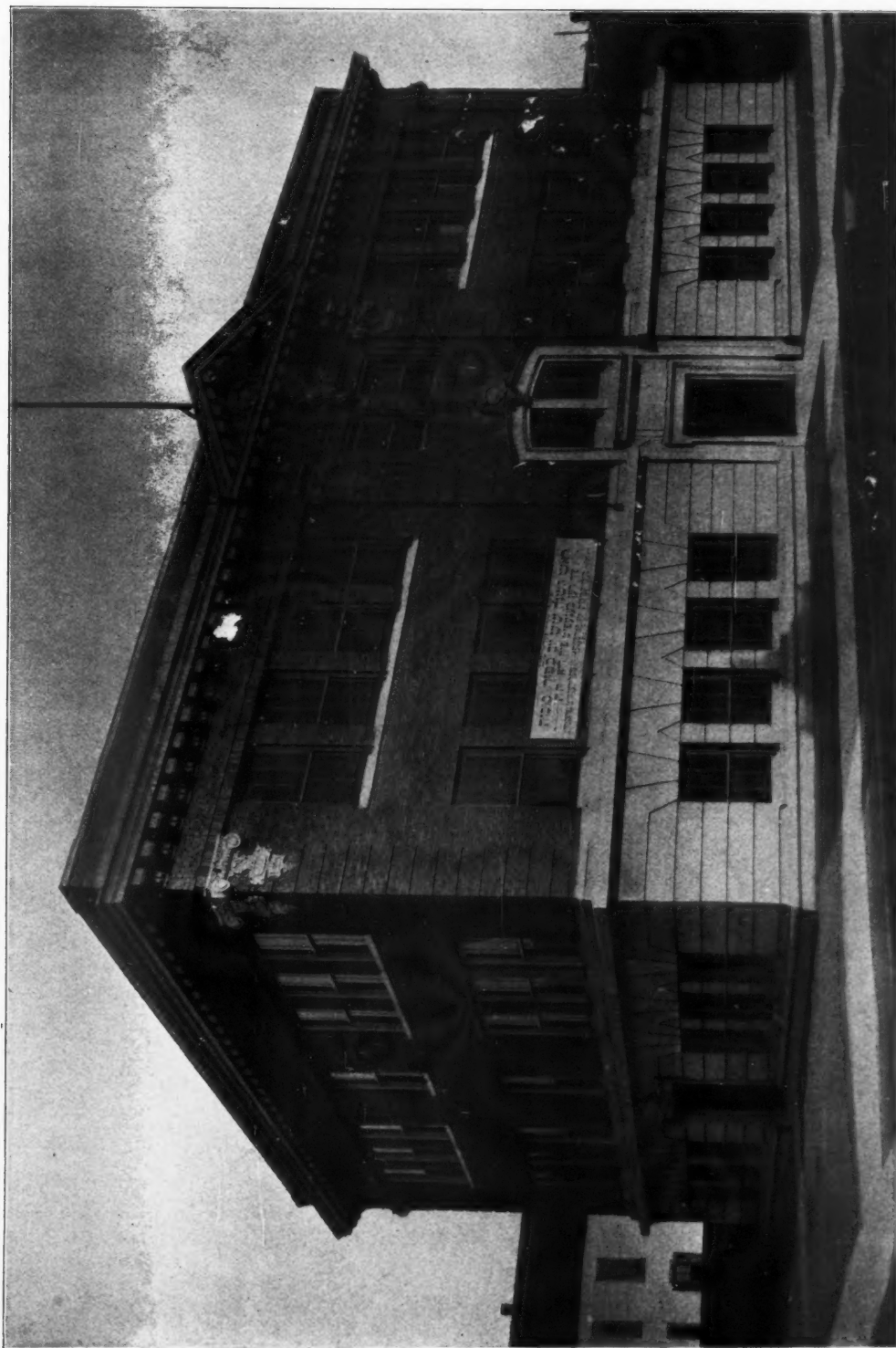
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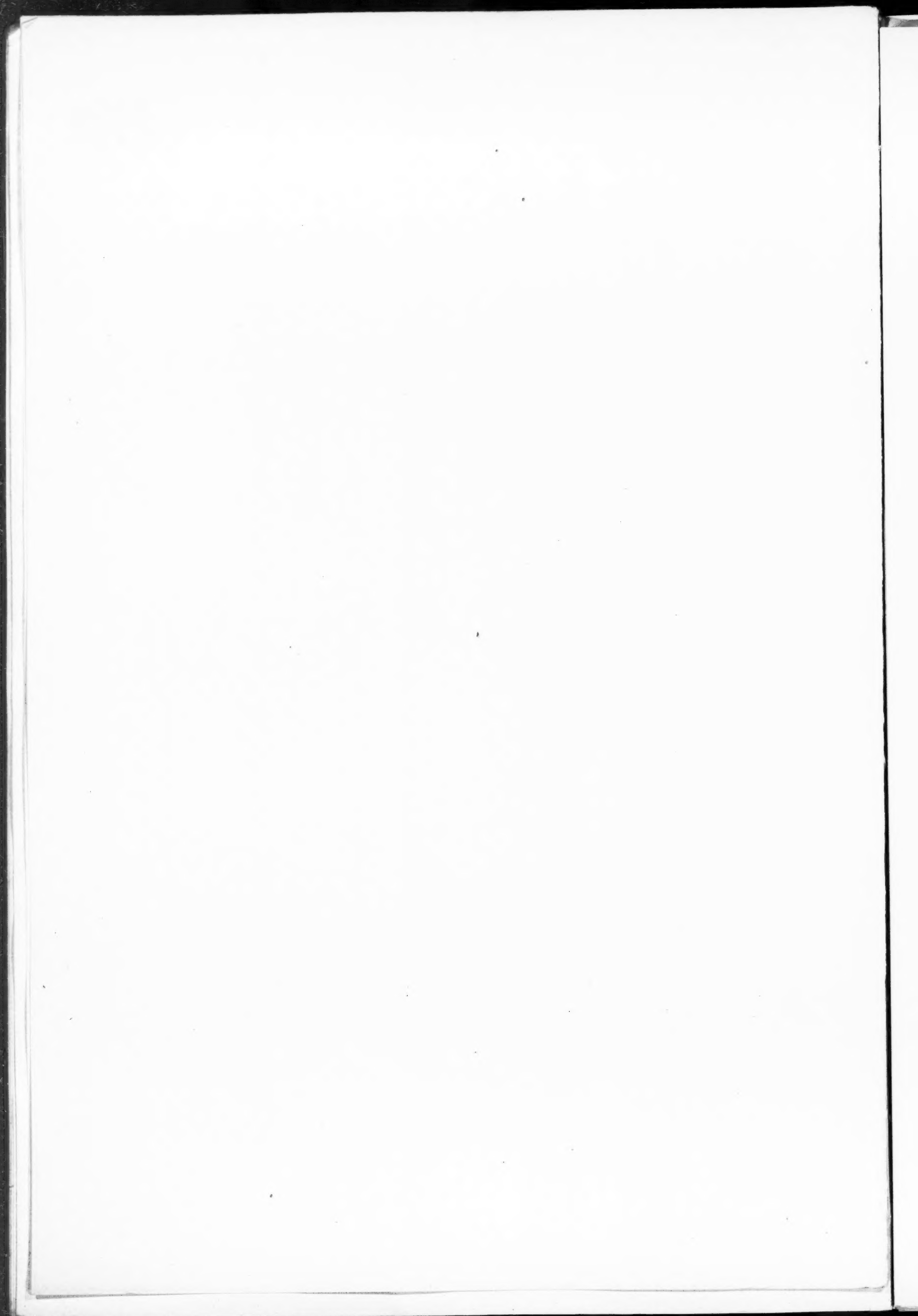


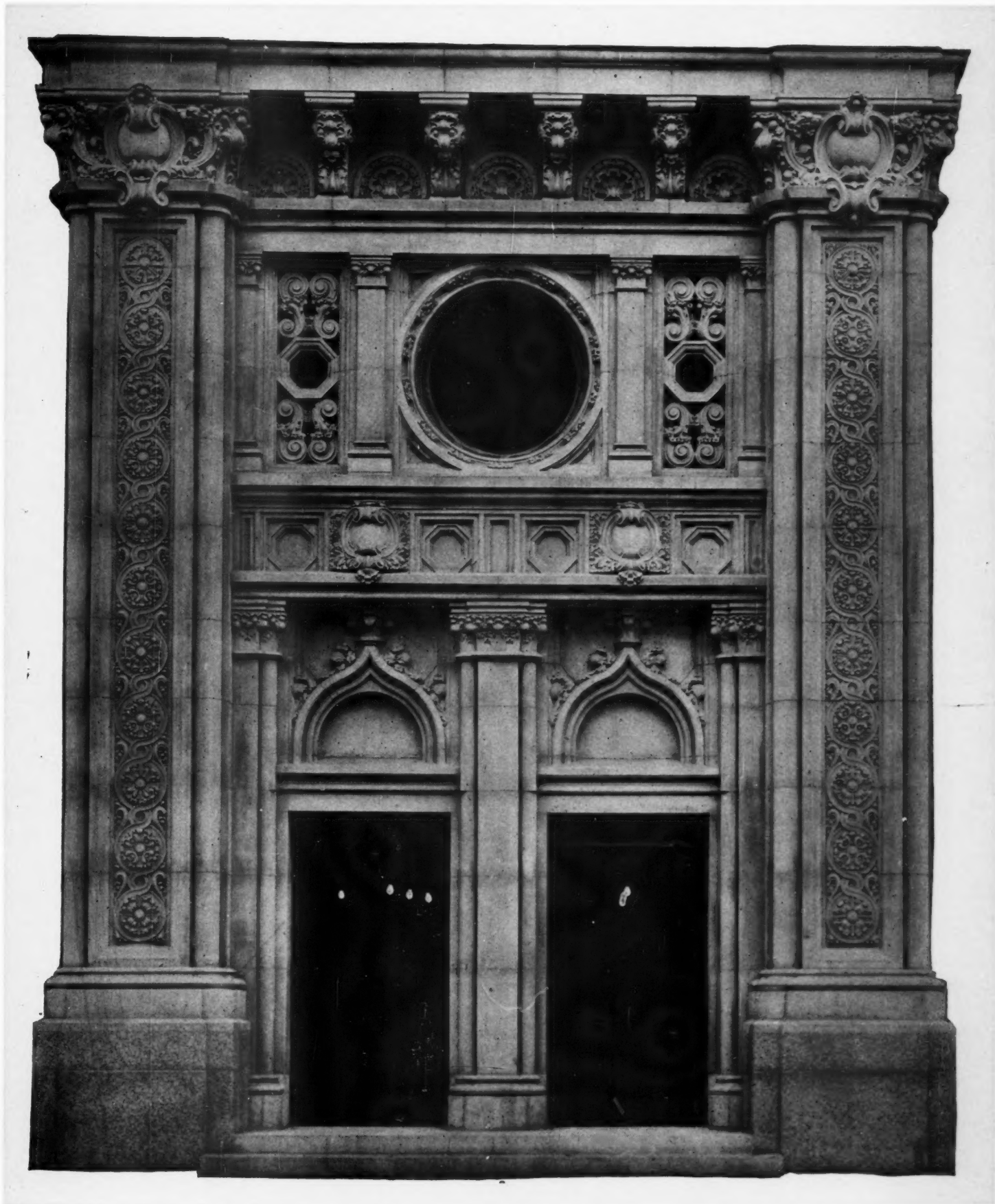
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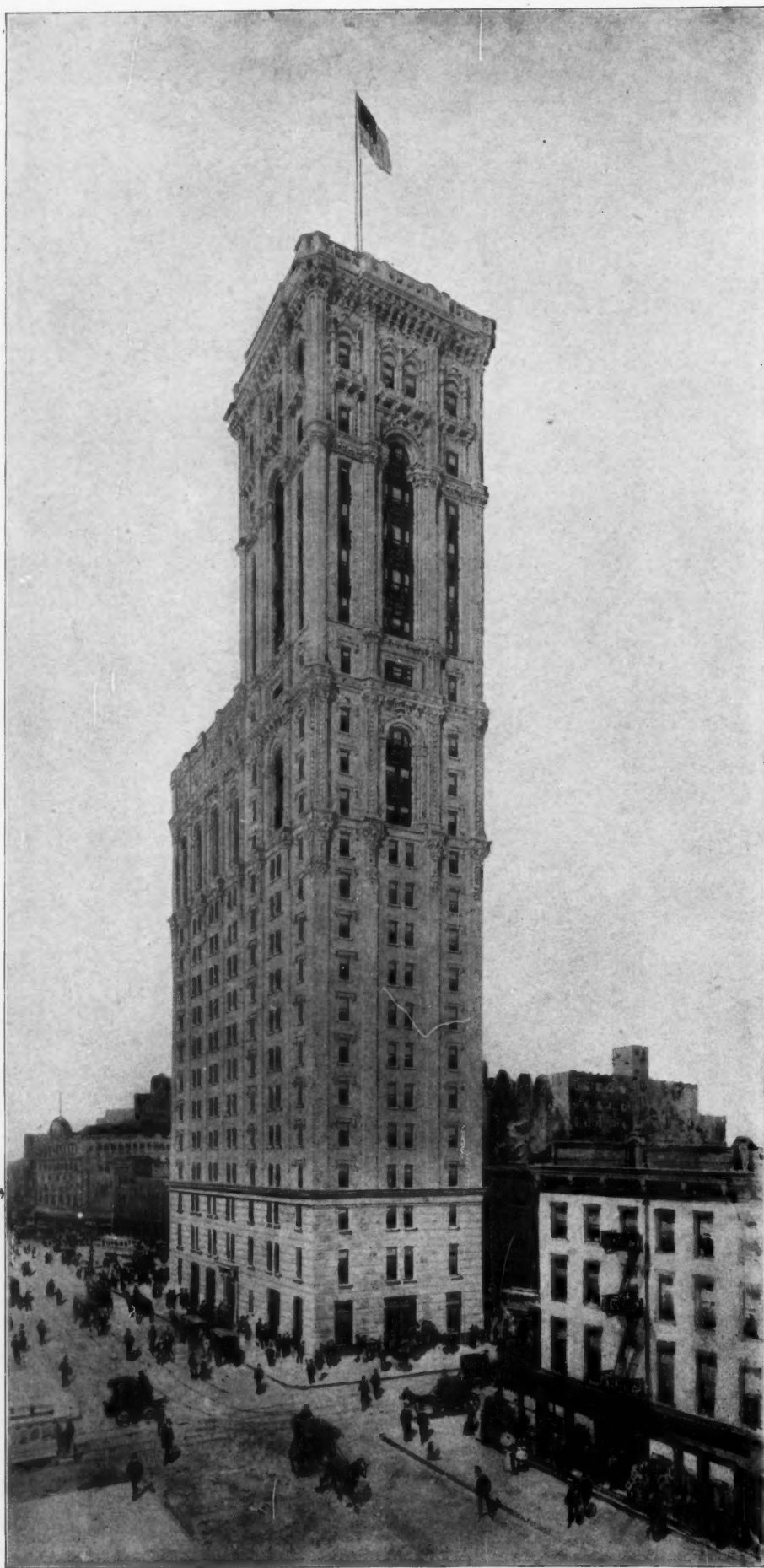
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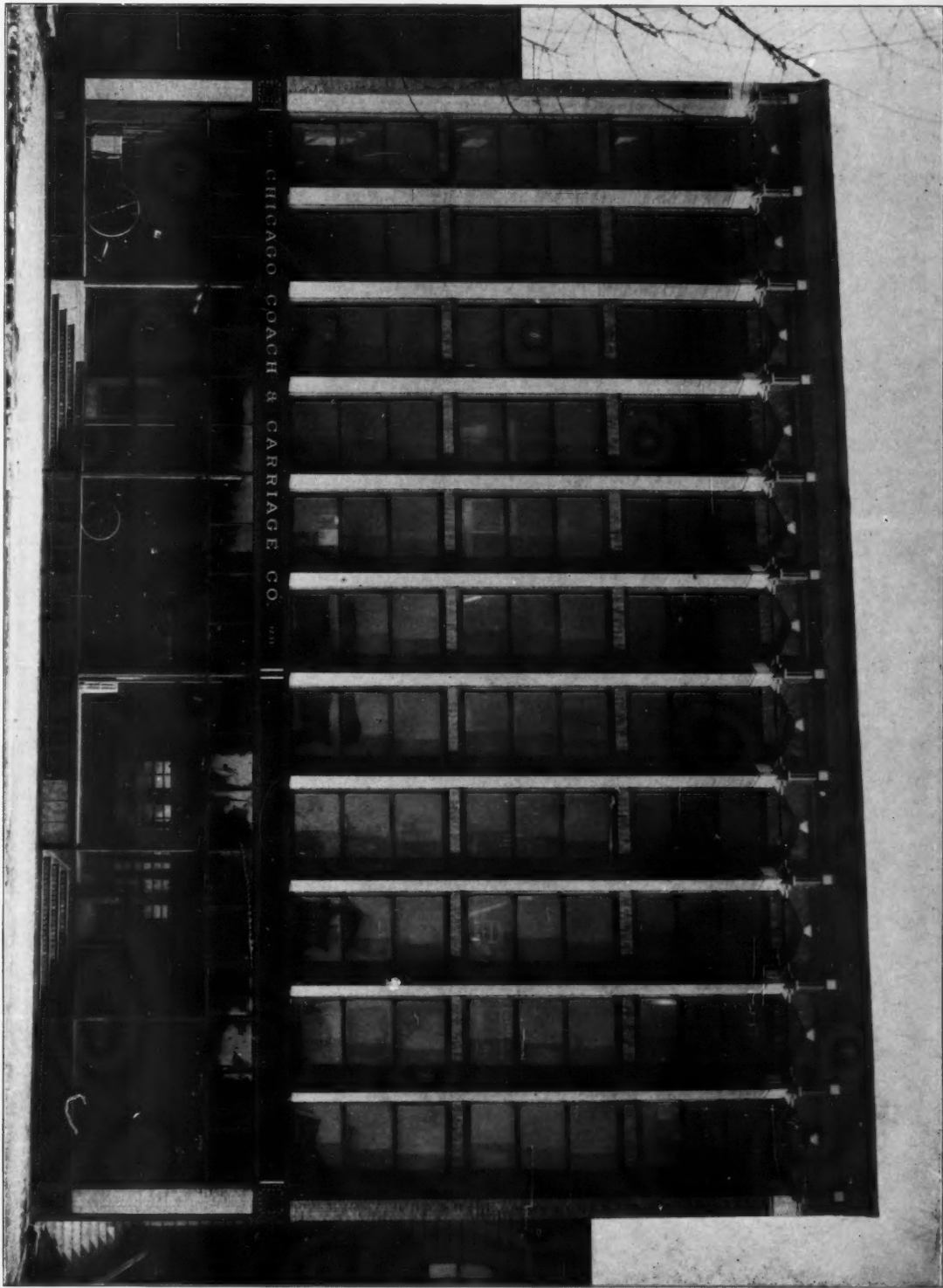


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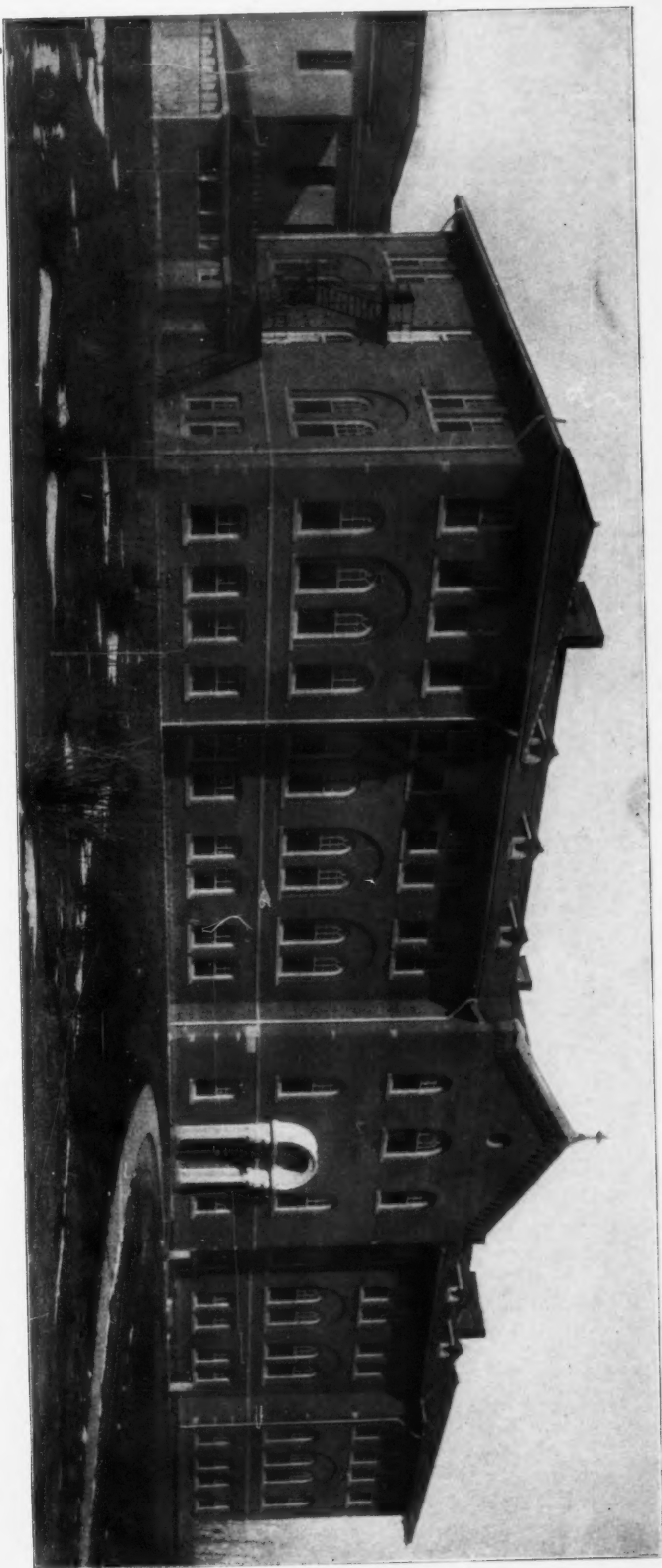
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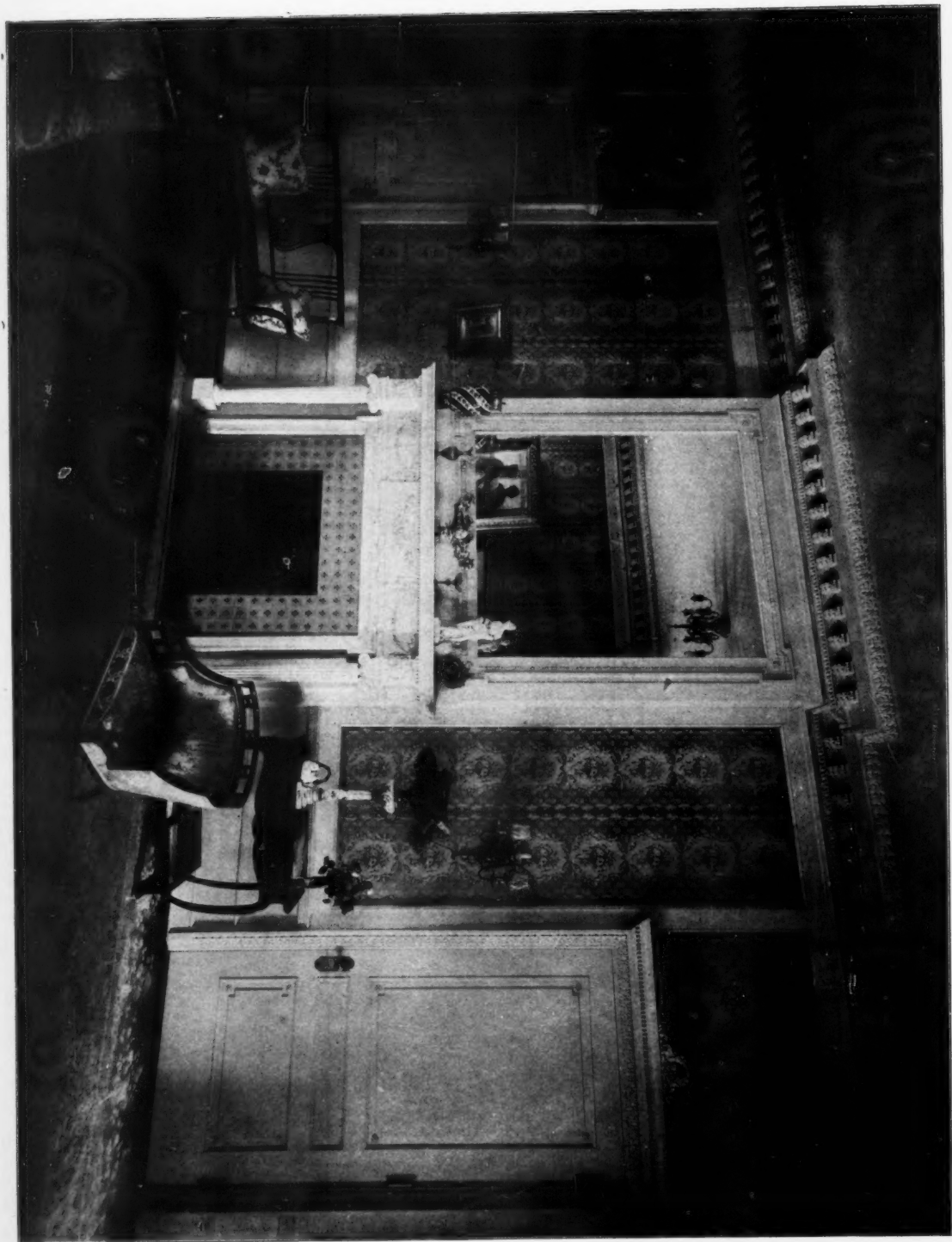


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THE LANDSCAPE ARCHITECT AND HIS WORK.*

By HOWARD EVARTS WEED, LANDSCAPE ARCHITECT.

LANDSCAPE gardening is a comparatively new profession which may be said to have had its birth in America with the formation of Central Park in New York City. In the growth of the metropolis a large tract of land situated in what was then the upper portion of the city was given for the formation of a public park largely owing to the fact that the land was so rocky that building operations were considered too costly. No one unfamiliar with the detailed history of this now world famous park can realize the enormity of the task so successfully carried out by the late Frederick Law Olmstead. This park is the pleasure resort of thousands annually and with many of these persons it is the only touch of nature which they ever see. The Centennial Exposition in Philadelphia marked a step forward in the development of landscaping and it was here for the first time that the public saw what results could be obtained when flowers, shrubs and trees are blended in harmony.

In the years following the Centennial considerable interest was taken in gardening in the Eastern States, more especially in the vicinity of Boston where a series of public parks was established. But it remained for the World's Fair of 1893 to awaken the people of the West to the fact that there existed such a thing as outdoor art. What visitor does not remember with pleasure the delights of the gracefully curved walks and drives of the White City, the touch of wildness of the wooded island, or the blending of the formal exposition buildings with their surroundings. These features of the Exposition remain in memory long after the exhibits have been forgotten.

We thus see that it is only in the past few years that much general interest has been taken in landscape gardening. Now, however, the public are taking more interest in things of beauty and works of art. Examples of good landscape art have called attention to the artistic effects which may be produced by the flowering shrubs. But the present interest has only begun. As the country becomes older greater wealth enables the establishment of country estates developed by special artists who devote their lives to the study of flowers, shrubs and trees and how they can best be placed in their relations to each other and their surroundings to make an harmonious and effective landscape.

The beauty and attractiveness of a home lies not alone in the house, for however beautiful or costly this feature may be, it cannot be considered alone but as a part of its surroundings. A framework of flowers, shrubs and trees is needed in order to blend the whole in harmony. It will pay anyone contemplating the planting of even a few trees and shrubs to employ a landscape architect for this work. He will then be reasonably sure of a good job well done and as the landscape architect obtains wholesale rates on the purchase of nursery stock, this saving alone will generally more than pay for his services. At the present time no one thinks of building a house without engaging an architect to draw a plan of the building and supervise its construction. Yet it is only in recent years that this has been done. But in the future the importance of a planting plan of the surrounding grounds will be recognized just as surely as the importance of a building plan is recognized today.

At first thought it may seem an easy matter to plant out the grounds surrounding a building to trees and shrubs. And so it is. A child can place the roots of a flower or shrub in the ground and have it grow. In the same manner it is an easy matter to hang works of art upon the walls of an exhibit room. The paintings being at hand with the proper number of hooks in the wall, all that is needed is a step ladder and a helper to hand up the works of art and the job is soon over. I have never seen an art exhibit arranged in this way, so do not know how it would look. But I notice that at every art exhibit a committee of connoisseurs is appointed to properly arrange the exhibit. It seems that some paintings show up best with a certain amount of light, others with the light coming from a certain direction, and so on. Upon this account the hanging committee will spend days and even weeks in considering the proper placing upon the wall of a few paintings.

If all this trouble is important in the placing of a few landscape pictures in order to please the eye for the passing moment, how much more important is the placing of the individual specimens of nature in the making of landscape. Here we deal with the real things, the creation and representation of God, and not simply with a few colors put upon a canvas by man in imitation of nature. We are also making an arrangement, not for the passing moment, but practically for all time. Some flowers and shrubs do their best in shady and others in sunny places; some will not grow at all in a sandy soil; while others will succeed only with wet feet. A knowledge and appreciation of all these facts is necessary for the successful arrangement of the details of outdoor art. As the public comes to know these facts, there is an increasing demand for the services of the landscape architect.

The work of the landscape architect is very complex. To make it a success one must first love outdoor work. He must have an eye for the artistic in nature, for landscape gardening consists in the making of new scenery along natural and artistic lines. Nature is the great example from which we copy. He should have a scientific education wherein general agriculture, horticulture, entomology and soil physics are the leading subjects. In his college course he should also receive particular instruction in surveying, mechanical and free-hand drawing. After completing a college course of this character, the future landscape architect should spend one or two years at some large nursery where ornamentals are made a specialty in order that he may become familiar with the leading flowers and shrubs used in the landscape work. He should then spend a full year as an undergardener upon a country estate or at a botanic garden. Here he will receive practical training in the care and management of such places, in pruning, spraying, the management of greenhouses, the care of potted plants, and the thousand and one other lessons in this line which only experience can teach. Then after two years' association with a good landscape architect, where experience may be had in the making of the planting plans and the planting out from his own plans, the young landscape architect may fairly hope to make a success of his chosen profession.

One engaged in this work, however, must not lag. Each new job is a new problem unlike any he has ever had before. There can be no duplication. The planting arrangement which will make one place beautiful will produce anything but a pleasing effect upon another. The circumstances of soil, climatic conditions and surroundings all require study in order to obtain best results. New varieties of plants are being constantly introduced and one must know these thoroughly in order to make use of any which prove hardy and acceptable.

There is a general lack of knowledge as to what constitutes the work of a landscape architect. In order to more fully illustrate just what this work is let us take an actual case now in hand and trace the various steps in the development of a country estate.

Some days ago I received a call from a gentleman who stated that he had heard of me through a friend. He stated that he had eighty acres of land twenty miles west of Chicago which he desires to make into a farm with a ten-acre apple orchard and upon which he expected to live himself for nine months of the year. He inquired as to my methods of business and terms, past work and experience, and engaged me to make the plans and develop his estate. With his client, I visited the place and selected the proper location for the house, the farm cottage, barn, garden, and orchard. Upon one side and near the front of the farm occurs a low marshy place and here I advised the formation of an artificial lake. From a topographical survey I have now prepared a planting plan of the whole place showing the location of the building, walks and drives, orchard, kitchen, garden, lake, trees and shrubbery. The apple orchard, trees, evergreens and most of the shrubs will be planted out in the next few weeks. During the coming summer the walks and drives will be laid out, the artificial lake formed, and the house and other buildings erected. Next fall the planting around the buildings and the lake will be put out, so that when the house is occupied a year hence, the trees and shrubs will have been planted long enough to give the whole a reasonably home-like appearance.

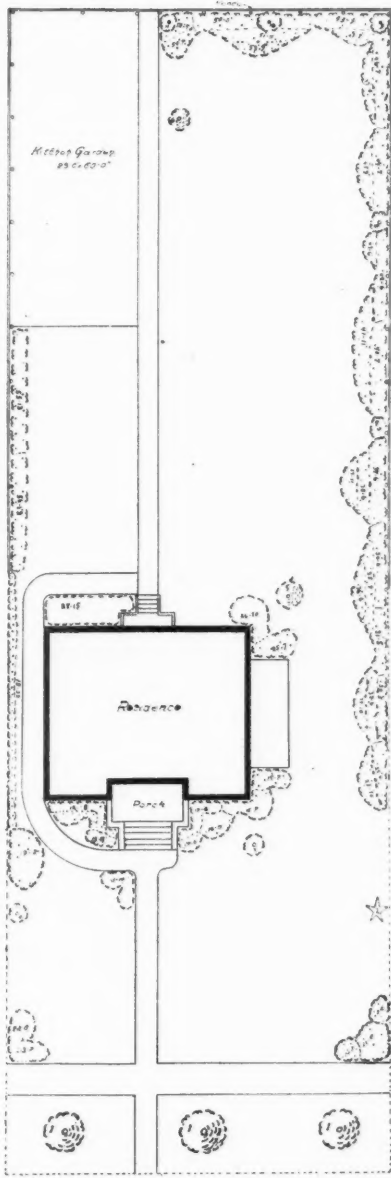
* Paper read before the Chicago Architectural Club, October, 1904, and revised by the author for publication in the *Inland Architect*

Landscape architects differ so widely in the charge made for their services that only a general statement on this subject can be made. Some work on a percentage and others on a per diam basis. The charge, however, will vary according to the amount of study necessary in the development of each place. The charge for the planting plan is usually a stated sum, depending upon the amount of field work necessary in the location of the existing trees and shrubbery. The charge for the plan, however, is often at a given amount per acre.

Occasionally the work of the landscape architect may end with the making of the planting plan, but in most cases he also supervises the planting out of the nursery stock and this work

PLANTING LIST AND KEY FOR A CITY LOT, 75 FT. BY 200 FT.

Serial No.	No. of Plants.
1. American Elm...	3
2. Colorado Blue Spruce	1
3. Cut-leaved Weeping Birch.....	1
4. American Judas Tree	1
5. Mountain Ash.....	1
6. Schwedler's Norway Maple.....	1
7. Double Flowering Cherry.....	1
8. American White Thorn	1
9. Tree of Heaven.....	1
10. Acanthopanax ricinifolium	1
11. Hercules Club.....	1
12. Spiraea Van Houttei	14
13. Anthony Waterer.....	17
14. Lonicera Marrowii	7
15. Colutea arboreseens	7
16. Spiraea sorbifolia	8
17. Lonicera Albertii.....	6
18. Berberis Thunbergii	32
19. Hydrangea paniculata grandiflora.....	12
20. Japan Quince.....	7
21. Cornus elegantisima variegata.....	6
22. Diervilla gracilis.....	6
23. Forsythia suspensa.....	7
24. Spiraea arguta.....	8
25. Clethra alnifolia.....	7
26. Rosa rugosa.....	10
27. Roses in variety.....	15
28. Viburnum plicatum	6
29. Tamarix Africana.....	10
30. Viburnum dentatum	5
31. Viburnum lentago.....	5
32. Symphoricarpos racemosus	6
33. Paeonies	10
34. Syringa Chas. X.....	6
35. Symphoricarpos vulgaris	6
36. Delphinium formosum	6
37. Syringa Persica.....	6
38. Potentilla fruticosa	6
39. Philox.....	11
40. Philadelphus grandiflorus.....	7
41. Gaillardia aristata.....	11
42. Philadelphus coronarius	6
43. Hemerocallis flava.....	6
44. Cornus Sibirica.....	6
45. German Iris.....	6
46. Cornus alternifolia	7
47. Siberian Iris.....	8
48. Rhus copallina.....	7
49. Ribes aureum.....	7
50. Euonymus atropureus	6
51. Diervilla.....	8
52. Diervilla rosea.....	5
53. Scabiosa Caucasica.....	0
54. Tritoma pitzleri.....	7
55. Rudbeckia Golden Glow.....	13
56. Hollyhocks	13



is generally undertaken on a per diam basis. Each landscape architect has a number of competent foremen who do the planting out. As the season for this work lasts only for six weeks in the fall and eight weeks in the spring, it cannot be expected that the landscape architect will personally supervise the planting out. As he will have many jobs on hand at different places, he will do well if he gets around to see every job two or three times a week during the planting out of the nursery stock.

It is unfortunate that there are at the present time so many men engaged in the work of planting trees and shrubs who are

entirely without training and whose knowledge of nursery stock is limited to the names of a few flowers. These gardeners can necessarily see no professional side to their work. Lacking any artistic training or appreciation of the beautiful, they look upon their work simply as a business proposition. Too often this may be said of nurserymen who attempt to do landscape work. The time is coming when a discriminating public will be very careful into whose hands they place the making of their surrounding landscape. The average estate owner knows practically nothing about trees and shrubs and has no means of knowing whether his landscape architect is giving him his money's worth or holding him up. The landscape architect should thus be selected with considerable care and one should be confident not only of his ability but of his business integrity. Personally, I always talk over the full situation with my clients and where they are not limited as to means I like for them to say "develop my place as you think best," or where they feel that they can afford to spend only a certain amount I like for them to tell me to "do what you can for this sum." I then feel that it is up to me to do my best, well knowing that a pleased client is my best advertisement. One job well done, involving only a reasonable expenditure, has often led to a dozen others.

A planting plan consists of a map drawn to a scale showing the location thereon of just what trees, shrubs and flowers are to be planted. The plan may have thereon the names of the trees and groups of shrubbery, or it may contain numbers which refer to a planting list giving a key to these numbers. In this way we are able to tell somewhat as to how a place will look when planted out. We also have a list of the nursery stock to be used in the planting and we can thus know what the whole will cost. We thus see why even a small place should be planted from a planting plan. We then know before the work is begun what is to be done and its cost.

The nursery stock is ordered by the landscape architect, generally from various nurseries, depending upon where the best stock of the different varieties can be obtained for the money. The landscape architect should make it his business to keep in touch with the stock of all the nurseries, paying each an annual visit. In this way he is able to save his clients considerable in the purchase of the nursery stock and especially to guard against the shipment of small or poorly grown stock.

There are many objects to be considered in landscape work. Except in what is known as formal gardening we aim to imitate nature as far as possible, the object being to produce a pleasing natural scene of grace and beauty restful to the eye. This is best done by planting the flowers and shrubs in masses by having many plants of the same variety together. We aim to produce a mass effect of foliage or flower and an individual plant will not give this effect. It is generally best to have an open center lawn with plantings of flowers and shrubs along the border lines with a skyline of trees. This will give the effect of increasing the area of a place even on a city lot. The shrubbery groups should be so arranged that all of a place does not appear from any one point of view, thus giving the appearance of "more beyond." Except in extreme formal gardening a building should have a few shrubs planted close against its foundations in order to make it appear as a part of its surroundings. On residence grounds especially it is important that a few shrubs be planted just next to the front porch. The varieties to be used will depend upon the height of the porch.

It should be understood that attractive landscape cannot be made in a day. It must be a thing of growth. It takes time for the flowers, shrubs and trees to become full grown and attain their full perfection. It is thus important that the landscape architect should supervise the after care of a place. He will then notice spots which need a rounding out of the masses of shrubbery or places wherein the planting of a few additional flowers will bring a color scheme into perfect harmony. He can then also see that the trees and shrubs are properly pruned to remove dead wood or to keep the flowering shrubs in a young and vigorous growth that they may produce a maximum of flowers. Insects and plant diseases at times play havoc with some plants and if the landscape architect has a place under supervision, he can give the gardener instructions as to how to prevent these enemies.

FIREPROOF CONSTRUCTION OF THEATRES.

BY FREDERICK BAUMANN, ARCHITECT.

The June Report of the Director of the Experimental Station at Boston contains a number of very pertinent suggestions in regard to theatre construction, which I heartily indorse. The statutes need not be incumbered with a number of prescriptions, often so lengthy and complex that they are apt to become a very hinderment in obtaining the desired object. They should not be, I trust, under the sole control of a Common Council, whose members are wont to keep themselves so far above their own laws, that they are in a habit to in manner "outlaw" their favored constituents.

Owing to the general fear brought on by the Baltimore fire, building laws in all cities have been subject to earnest considerations. Even the Board of Underwriters has, I am informed, not failed to be active in this regard. I have a copy of the new Cleveland ordinance, said to be the most proper and complete one in existence. Though probably this is a fact, I nevertheless beg to say that it appears to be too much in the sense of an ordinary building specification; besides its language is not always in legal form, and many of its commands are of a very questionable nature. Air spaces about iron parts, instead of being prohibited, are expressly ordered. So are inverted arches, in spite of their generally accepted condemnation in my "Foundations," published in 1873. On hard ground, they are superfluous; on soft ground, pernicious for exterior piers, which they cause to settle out of plumb. Landings are demanded for theater stairs in the face of the evident fact that these are stumbling blocks for crowds who may be compelled to be anxious for a speedy escape. As though stairs were here required mainly to facilitate easy ingress. Broad stairs are left undivided, leaving free chance to over-anxious escapers to create havoc, while the plainest sense dictates that they should be sub-divided by firm handrails, which every descendent can grasp in order to be able to check those following. Single flights should accordingly in no case be beyond two feet wide. Sound thought in regard to all this matter seems to have been rather wanting.

Concerning Fire Proof Buildings, The Cleveland law cannot fail to become so complicated, that at once it seems doubtful whether it ever will or even can be administered with fair success. The recommendations made in this report in regard to Theater Ordinances are here also, I expect, altogether fit for deserving a preference. At the least it would appear to be practicable to exempt from the law all buildings of a certain higher grade, the erection of which to become the duty of an Architect, under the proviso that mainly he and his Engineer, secondarily his Employer be held responsible for the outcome under laws enacted to that effect. In the main this would undoubtedly yield better results than would the complicated provisions of a code, made up by proper, respectively erring experts, and administered under the politics of a common council. In Germany, the code is limited to generalities, and positive orders are accordingly given in each case by a large Board of honest Commissioners. And such Board would be far too slow in our country, and, therefore, inappropriate for the purpose, even under the assumption of being beyond politics. We are bound to be satisfied with an individual Commissioner, and all that citizens can do for the benefit of the building community, aside from exerting their influence on the appointment of a good man, is to watch him. In this regard they may have legislative aid, to which I am not at present prepared to explicitly refer.

In spite of the self-evident fact that iron construction should be based on the well-established strength of the respective materials, there are several constructions in vogue with the object of deluding innocent builders. They are based on experiments carefully made to this effect, and patented. Thus it is shown that a large floor surface between main beams can be upheld by a moiety of limber metallic material enveloped in concrete. It is, however, of account only in times of "peace," while in time of "war" it fails, even were the amount of iron expended ever so ample. A fire has the effect of heating the ceiling. Since concrete is a partway conductor of heat and since the respective irons are nearest the surface of a ceiling, they become seriously expanded and weakened. In consequence the panel bends downward, and may utterly yield to the weight of its load. In either

case it becomes necessary to reconstruct it. Fair reasoning alone shows the inefficiency of such construction, and a practical demonstration of this fact was given by the great fire in Pittsburg, which came to pass some six years ago. It furnished the most palpable evidence as to the certainty that it is useless for anybody to try making something out of nothing. The folly is aggravated in another such system, in which even columns and girders are built up out of insufficient strings of metal enveloped in concrete. This system represents the "ne plus ultra" of venturesome construction and can have success only through a most extraordinary care in regard to quality of materials as well as work. Where this is in any measure wanting, there is collapse. An example of the kind is cited in the "Fireproof Magazine" of October. A whole building of the kind was utterly discomfited by the collapse of panels in its upper floor. It is time that the cheapness craze for these kinds of constructions be stopped. Building laws ought never to give them recognition. Insurance companies should leave them outside of their domain. Success is never assured where the plainest laws of nature are kept out of sight, nay opposed to.

Sufficient beams of established form and proper strength covered with hollow burnt clay ought ever to be the mainstay of floors in buildings, and I doubt whether it is prudent to space them beyond six feet apart. The limitation is mainly governed by the necessity of providing a filling which will endure the test of a fire. Arches spanned from beam to beam should be preferred to any other filling, especially so when made with fire clay.

THE RELATION OF THE ENGINEER TO THE ARCHITECT.*

BY CORYDON T. PURDY, C. E.

The dividing of the work in the architect's office and the likelihood of delay growing out of doing so seems tangible enough to those who have believed it, and who have had little or no experience to disprove the notion. I remember one case in which the owner arranged for an outside engineer to do the work, but the architects were so sure that it was an impossible arrangement that they spent some hundreds of dollars duplicating the work of the engineer before they were convinced that it was unnecessary. As a matter of fact, the very opposite is true. The dividing of the work is more likely to give point and snap to the work remaining to be done in the architect's office, than otherwise. It is hard to make the doubting believe, but more than one member of this Institute has borne testimony to such an experience.

No consulting engineer can preserve his independence in business unless he can find a way of doing his work with little or no trouble to his client and also unless he can do it quickly, making every figure and every line count in the final result. He can not afford to have the work drag in his office, nor to speculate with uncertain data. He wants to get things settled. So does the architect; but the architect can be put off. The engineer, however, objects to doing work until things are settled. So decisions are hastened, and both the architect and the engineer get the benefit. Many times, also, the touch of the two offices with each other is like an infusion of new blood to the slower ones. Sometimes it is to keep ahead of the engineer; just a matter of rivalry, and at other times, it is to keep him informed regarding the general construction. This particular difficulty, therefore, can always be overcome if the work is rightly managed.

The cost of the work, as already stated, has been the hardest difficulty to adjust satisfactorily. It has prevented the employment of the engineer more than anything else. If the cost of his services could always be obtained from the owner without encroachment upon the architect's regular fees, it would undoubtedly do much to simplify the problem. But the general acceptance of such an arrangement in the immediate future can hardly be hoped for. From all reports, it is often difficult to obtain the regular commission, and any charges in excess in such cases are impossible. If any general effort should be made by the architects or by the engineers, or by both professions co-operating, to definitely establish this relation between the two professions, and

* Concluded from January issue.

it was predicated upon the willingness of the public to pay the extra commission, the movement would probably come to nothing. The public are educated slowly, and for a good while, at least their willingness to pay the additional commission would be the exception. In the meantime, other influences are gathering headway, and they in turn, would probably prevent the success of such an effort in the more distant future. The conditions are such, it seems to the writer, that such an undertaking should be made, if at all, upon some basis which can be put in operation in a comparatively short time, and which does not require the co-operation of the public. This does not mean that an extra commission from the owner is undesirable. It is desirable, and every effort, both of the architect and the engineer, should be put forth to secure it. It is probably a fact that the amount of work required of the architect in these days, in proportion to his income, is greater than it used to be, and that this additional compensation, if it may be called such, would not make the architect much, if any, better off, than he would have been with the same amount of work a few years ago. It is also true that some owners have already paid this additional compensation, and that some others can be easily induced to pay it; yet, notwithstanding these points to the contrary, it is important that the success of the movement should not be dependent upon the willingness of the public to pay the extra commission.

It seems to the writer that the following points should be made with reference to this question of the engineer's compensation:

1. It should be paid by the architect.
2. It should be adequate.
3. An extra commission on account of this expense should be obtained from the owner, if possible.
4. The compensation should be a commission.
5. If an extra commission can be obtained from the owner, the engineer should get the benefit of it.
6. If the extra compensation cannot be obtained from the owner, the engineer should be content with a smaller commission.
7. The commission should be the same for all kinds of engineering pertaining to building work, structural as well as mechanical, and
8. The commission should cover only the work included in the service.

The engineer's compensation should be paid by the architect, because that is most in keeping with the subordinate relation of the engineer. It puts into the architect's hand without friction and without question the power to retain his management of the business.

The compensation should be adequate, otherwise the whole idea of establishing a permanent and satisfactory relation between the two professions will fall to pieces. The engineer will more and more assert himself, and he will not agree to any fixed relation unless it provides for a full and adequate compensation for his services.

If an additional commission is paid by the owner, the engineer should give something for it, otherwise it will be difficult to persuade the owner that the additional compensation is necessary. It is suggested that the engineer should assume the full responsibility of the architect in reference to his part of the work when he receives the full commission, that is, the full compensation which he should receive when an additional commission is obtained from the owner; and on the contrary, that he should not be held any more responsible than an employee of the architect's office, if this full compensation is not paid. This will be to the advantage of both the architect and the owner. It will tend to prevent the employment of incompetent men as consulting engineers, it will encourage the employment of better employees in the engineer's office, and will promote better work in every way.

The engineer will undoubtedly be more careful with his work if he faces the possibility of losing his commission when it is not properly done. Mathematical computations will be more perfectly checked, plans and specifications will be more thoroughly studied, and the placing of the responsibility on the engineer in a definite way cannot fail to bring about a better service. This is really the same argument that we are now presenting to the owner when we tell him that he can have an engineer's services if he pays for them; for, under present conditions, the architect is

bound to furnish the owner something in the way of technical work whether an extra compensation is paid or not.

And this compensation should be a commission though a number of the leading engineers of the country undoubtedly prefer a fixed sum. Many of the architects are also accustomed to paying a fixed sum instead of a commission, but notwithstanding these preferences, it is the writer's opinion that in all ordinary cases it should be a commission. If any arrangement is made to establish a definite and fixed relation between the two professions, it must unquestionably cover the problem of compensation, and that can be stated in the terms of a commission definitely, equitably, and generally, while it cannot be stated in any general terms on the basis of a fixed sum. Moreover, such a plan can be carried out and the adequate compensation of the engineer can be maintained in that way with the least friction. It also enables the architect to compare the amount he pays out with that which he receives, which he can not readily do if the engineer's compensation is fixed in any other way.

In any case, the architect ought not to be obliged to pay out all that he receives. It is right that the engineer should be adequately paid, but it is also right that there should be a fair division. If it is worth while to undertake to establish a fixed relation between the two professions, which can be maintained whether the public fall into line or not, and the architect is to employ the engineer, whether he receives the extra commission or not, the engineer should be expected to serve in any case and to receive a less compensation if necessary.

In order to give point to this suggestion with reference to compensation, the writer would suggest the following rule to cover all ordinary work: Charge the owner $7\frac{1}{2}$ per cent commission for all technical work for which engineers are required. If the $7\frac{1}{2}$ per cent is obtained from the owner, pay the engineer 5 per cent when superintendence is included in his services and $3\frac{1}{2}$ per cent when it is not. If only 5 per cent commission is obtained from the owner, pay the engineer $3\frac{1}{2}$ per cent when superintendence is included in his services and $2\frac{1}{2}$ per cent when it is not. The cost of the engineer's services for extraordinary work under this rule would have to be adjusted in each individual case, and the question of whether work was ordinary or not would have to be determined before the work was begun. The rates named in the rule would not be sufficient to cover all cases. Often the actual cost of designing the structural steel work for a theater, without superintendence, is 5 per cent, or more.

Let us turn now to the other query:

"Has the relation advantages of sufficient importance to warrant changing other methods we have been using in order to secure its adoption?" It seems to the writer that it has. There are perhaps twenty-five or more engineers of large experience in the several departments of building construction, now in independent practice in different parts of the United States, and the most eminent and the most capable men in the world in these departments of work are to be found in this number. The moneyed interests of the country are awakening to a greater conception of the importance of good structural and mechanical designing, and more and more, in the future, they are going to require technical services of a high order. They will eventually force the situation. Unless some arrangement is made for co-operation, most of these engineers will, sooner or later, be employed by the interests that now employ the architects, and the more this is done the more difficult it is going to be to standardize the relation of architect and engineer. In this same connection it should not be forgotten that the schools of our country are turning out well trained young men in the engineering profession, several thousands of them each year, a considerable part of whom are going into building work. This will certainly have its effect in another generation. An evolution is in progress. Shall we drift with the current, or shall we control it? It would seem to be better to fashion events and not let them fashion us. It would seem to be better to yield a little here and a little there of our individual preferences, in order to secure the common good. It would seem to be better, possibly, to sacrifice something at the present time, if thereby a reasonable relation between the two professions may be fixed and maintained.

In this day of the centralization of power and responsibility, the best interests of the owner are unquestionably subserved by

making one man responsible, and only one. I confidently believe that no practice can become uniformly acceptable; no relation between architects and engineers can ever give satisfaction, that is not founded upon this fundamental idea—the centralization of responsibility in one man. If this is true, engineers should not hesitate to accept a position of subordinate service, for it may be reasonably contended that the architect is the one man that should be in this position of supreme control. Not only is precedent in his favor, but the character of his work and the wide range of its requirements, especially fits him for this larger responsibility. In this new dispensation, whatever else he is, he must be a man of affairs in the architectural world, and the engineer cannot take that place of responsibility, however well qualified he may be for doing so, without subordinating his technical work to the larger demands of such management.

On the other hand, the architects should not fail to appreciate the changing conditions. They should not hesitate to meet the engineers half way. They want only reasonable profits for their labor, an undivided responsibility in their own departments, and the credit which is due to them for really worthy achievements. Less than this they will not be content with.

The architect in full control of the planning and execution of every great architectural undertaking, retaining structural and mechanical engineers who have their own independent practice, and sharing with them the emoluments and the honors of their achievements, the engineer laboring independently within his own province, without limitations, except by the financial and architectural conditions of his problems, receiving adequate compensation while he maintains the position of the architect; such is the ideal relationship of architect and engineer; and particularly so if both individuals are broad-minded and reasonable, and over all, there be mutual sympathy.

Let us summarize the points we have made in relation to it:

1. It is open to no unsurmountable objections.
2. The details of its operation can be arranged in all cases so as to offer no serious disadvantage.
3. It can be made to afford the engineer a regular and adequate compensation.
4. It conserves the best interests of all concerned, by fixing the responsibility and the managing control for each undertaking in one man.
5. It provides that the architect shall be that one man, and would undoubtedly perpetuate that arrangement.
6. It insures the best results, making it possible for any architect to avail himself of the best technical service the country affords, and
7. It enables the architect to place a definite responsibility for the technical work upon those whom he calls to his assistance.

Only one thing more remains to be said: Certain things must be done, if we would undertake to establish such a relation.

1. It must be deliberately worked for. It will not come drifting.
2. It must be a co-operative effort.
3. It must be a general effort.
4. It must be undertaken in a spirit of compromise and good-will.

If a committee were appointed by the American Institute of Architects to consider this matter and to confer with the engineers, the latter would undoubtedly find some acceptable way of meeting them.

There is certainly a great deal of dissatisfaction with present conditions, and a number of the leading engineers have already expressed their wish that some action might be taken to put the relation of the architects and engineers upon a better basis. Any such effort will come to naught, however, unless it is undertaken in a spirit of compromise and good-will. There must be, on the part of the engineers, a willingness to take a subordinate part, and to support the architects in maintaining that relation, even though some times it may require an apparent sacrifice; and there must be, upon the part of the architects, a willingness to share both in their compensation and in the credit of their achievements.

Grosvenor Atterbury, Irving K. Pond, Henry F. Biglow, Alfred B. Harlow and C. B. J. Snyder were elected Fellows of the Institute.

THE SELECTION OF AN ARCHITECT FOR GOVERNMENT WORK BY COMPETITION.*

BY JAMES P. JAMIESON, ARCHITECT.

OF THE three ways by which the United States Government may have its architectural work done, when investing public monies in a building. First, through the Supervising Architect's office; second, through the direct selection of an architect because of influence or of previously shown distinction; and third, through the architect's selection in a properly conducted competition, I propose in this paper to make the contention that the last named, is that most highly commending itself from every point of view.

If we are to have competitions at all, if they are to be recognized amongst us as a perfectly legitimate means of determining one's particular fitness to invent and carry out any building's design, surely a government building, above all others, is the one wherein the competition is most proper. The nation's money is to be spent, favoritism must be avoided, abstract art and suitability are the criterion and not any individual's taste, and the requirements of a government building are usually of such a character as to lend themselves to broad solutions and the solutions to satisfactory comparison one with another.

In considering the selection of an architect for government work by competition, it is not to be overlooked that there is bound to be at all times a mass of work for which the best results are to be had in the office of the Supervising Architect. Structures where an elaboration of arrangement to suit peculiar and diversified needs is the case, for example, and it is not the intention to suggest any criticism of the work coming from that office. We all know that at the present time the Supervising Architect and the men under him are, fortunately for the country, amongst the most capable in the profession. It is not incompatible with this statement, however, to say that the work of these men would be still better if achieved in the full glare of publicity and with the striving that comes from trying to obtain more glory than our fellows.

The term "competition" is after all the very keynote of all architectural practice. We are in competition with each other and with ourselves in each new design we attempt, whether we alone are engaged on it, or whether we must do better than half a dozen others to succeed, only in the first case we may live to regret that there was no "jury of award" to turn us down.

From the architect's standpoint it must be admitted that the competition is not without its dangers, although government competitions as at present conducted are less liable to them than any other. The public is apt to assume that the architect must show his wares and like the street hawker flaunt his plan in the face of the wary prospective builder before a commission is given. The art and skill necessary to the invention of a general scheme lose their value in the layman's eyes when he sees from five to ten produced when all but one are for naught. These, and other evils, it seems to me, however, must be met as best they may, as the points of merit far outweigh them. The good effects of government competitions may be considered from three standpoints—as they improve the opportunities of architects, as they advance the cause of architecture, and as they affect the owner, the government itself.

Taking the first, we find in the competition perhaps the only way in which the unknown but capable aspirant for architectural honors has an opportunity to show his powers and the incapable to find his level. Some few of the younger men, destined in time to become leading practitioners, might have a friendly "pull" to bring to them a commission where direct selection ruled, but the weary wait and uphill struggle would be the lot of most. It is fair perhaps that he, who by proven merit has made his name famous enough to be known in the official bureaus, should be given outright a national monument to build. He cannot be given them all without a danger of monotony and there are not men enough of this stamp to go round. It is not unfair to him therefore that he should occasionally be required to match himself with others less eminent and if his design be not approved as best, it is at least a guarantee that the one selected will be a credit to architecture.

* Paper read at the 38th Annual Convention of the American Institute of Architects at Washington, D. C. Revised by the author for THE INLAND ARCHITECT.

This brings us to the declaration that in general the Architectural result is better by competition than otherwise. The man of reputation may not make so happy a solution occasionally as the one less known. And if he does he loses nothing by having others try to surpass him and fail. The government is not so much interested in this perhaps as it is in the resultant architectural betterment. If we run over in our minds some of the competitions of recent date, we will be surprised to realize how many of them have been won by men whose names we should probably not have picked out as winners, before the decision was made.

The government continues to have a great deal of its architectural work done in its own office and must have satisfactory reasons for doing so. Where it is desired to have an architect in private practice take hold, the competition furnishes a means whereby a suitable selection may be made without wire-pulling, favoritism, or giving offense. The public, if it give attention to the matter at all, has no reason to complain, but every reason for congratulation in as much as merit alone decides the question. The government is carrying on the business of erecting buildings in a business way, and so long as it continues to conduct its architectural competitions in a manner to induce the best firms in the country to compete, it cannot fail to see the advantage in having different architectural ideas on one subject to choose from.

It may be contended that every argument used in favor of government competitions can with propriety apply with equal force to the spreading of the competition habit like a virulent contagion to all classes. This is by no means admitted. And unhappy should we be to do aught but strive to limit the field in which this branch of our labors is approved. But take buildings other than national ones, there is an individual or a committee or some more or less localized body of men in charge. They are conversant with the architectural work that has been going on around them, they have more or less pronounced views of the kind of design they would have put up for them. They may look about and inquire and determine which architect is likely to produce such a design for them, they may consult him and keep in touch with him until their desire is gratified. When their building is finished they are unlikely to be required to repeat the experience again and again as is the case with the government, and so there is no parallel between the two cases. In large state and city projects there may be reason for competition on account of their great importance, the diverse views of the officials in charge or the feeling that no one particular architect should be favored by direct selection, but generally speaking, the less public the structure the less call for and the less benefit to be derived from competition.

The Tarsney Act and the regulations for its enforcement as amended in February, 1903, set forth in detail the steps followed in competitions for government work. These call for no comment here except in one or two particulars. It is provided that the unsuccessful competitors shall have no remuneration. This of course is not as it should be and at some future day we may hope to have it corrected. The status of the architect and his work is being more and more correctly understood by the layman, and in time the leaven of understanding will make itself felt in our halls of legislation. It will not do to force matters. If five or six men are willing to give their talent and professional skill to the creation of preliminary designs for the same object, in order that the government may have the privilege of choosing one from their number, it is clear that payment of some sort is due them, and the least is that in vogue in other competitions where a sum is paid of sufficient amount to cover actual outlay for draughtsmen and other expenses. If for no other reason than to enable poor but talented men to enter the field this should be done, should such an argument be needed with our lawmakers.

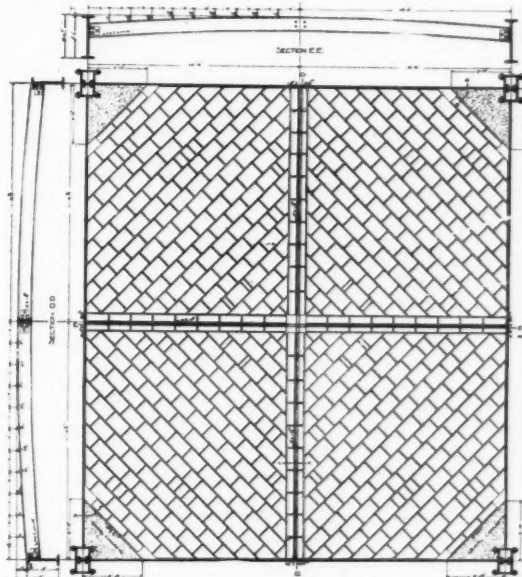
Another point and that a difficult one to give an opinion upon, is the manner in which the men are to be selected for any given competition. The Secretary of the Treasury must have a difficult task occasionally to determine this. It would not do perhaps to have the Institute lend a hand as jealousy of its being a close corporation is to be avoided. With a broad minded and capable architect in the Treasury office competent to make a

proper selection there is little need to worry on this score but sometimes a real difficulty may arise in the proper carrying out of the Tarsney Act for lack of such a man in office. One of the most admirable provisions of the Act perhaps is that requiring competitors to be invited. Open competitions would soon defeat their own end. Competent men could not afford to enter them either with proper regard for their profession or their pocket. We can only trust that the professional adviser of the Secretary of the Treasury may continue unbiased and skillful and happy in suggesting fit men for the work.

A NEW SYSTEM OF FIREPROOFING FOR WAREHOUSES.

BUILDERS, architects, engineers and insurance people are greatly interested in a test of a new floor construction, which was made by the National Fire Proofing Company at its Bedford avenue plant, Pittsburgh, Pa., in preparing. The construction is to be employed throughout the floors of the big system of forty warehouses now under course of erection in Pittsburgh for the Pittsburgh Terminal Warehouse & Transfer Company.

These warehouses are located along the Monongahela River. will have first-class wharf and switching facilities for the transfer of all kinds of merchandise both by rail and water, and will cost about \$2,000,000 when completed. They will represent the highest type of fireproof construction, nothing but the latest and the most improved materials being used, and the insurance rates will be the lowest ever given on any building of this class in this country. Chairman C. G. Smith of the National Board of Fire Underwriters has declared that their warehouses will be models of fireproof construction for all builders in the United States to copy after. Mr. Chas. Bickel of Pittsburgh is the architect, and Messrs. Kindel & Glaffey are the engineers.



STRUCTURAL STEEL DETAILS FOR FLOOR ARCH CONSTRUCTION
22 FEET SPAN.

These buildings cover an area of 370'x390' with basement below first floor level, and six stories above. The four upper stories are divided longitudinally by a roadway 45 feet wide leading from Carson street, and extending from front to rear of building. Exterior walls are to be of brick, 13 inches between plasters. No stone will be used in the construction of exterior walls, and all sills will be of terra cotta. Total height of building from railroad track to top of parapet wall is 90 feet.

The first floor is arranged for a terminal station with six tracks entering building; wide platforms are provided on each side of tracks for receiving and distributing of freight consigned to the different warehouses.

Elevators are provided for each warehouse, enabling tenants to receive goods directly in their respective warehouses, with equal facilities provided for shipping goods to outside points.

In designing the building skeleton construction has been employed, and consists of use of "Z" steel built up columns beginning at the base and to continue to top of roof and connected horizontally at the floor levels with steel beams and girders, each floor being of sufficient strength to bear safely upon every superficial foot of its surface 350 pounds with a factor of safety of 400 pounds.

The soil is of such nature that it was deemed advisable to use concrete piles and upon this foundation concrete piers were erected forming the base of the steel columns.

The buildings throughout are fireproof. The floor and each bay will consist of four terra cotta arches extending across the bay diagonally and at right angles to each other, 8 inch "I" beams cambered to conform to rise of arches will be placed at right angles to the girders and beams intersecting exactly in the center of the bays. By this method of construction it will be impossible for one entire bay or floor space to collapse in the event of some heavy object striking the arch. The floor arches are to be leveled with concrete, and topped with a cement finish 2" thick.

The arch proper will be made of hollow porous terra cotta material in blocks 6" deep, 8" wide and not over 12" long, set with broken joints, the shells averaging $\frac{7}{8}$ " thick. The arches will spring from the bottom flanges of the corner beams, thus diverting the loads direct to the columns and have a rise in the center of 18" above the flanges. Attention is called to detailed sketch showing construction of the iron work and terra cotta tiling. The roof is what is known as the "Johnson System of Construction." A wire mesh laid over the centering, this mesh to be imbedded in cement mortar not less than $\frac{3}{4}$ " thick in proportion of one (1) of cement and $2\frac{1}{2}$ of sand and the tile laid in same and grouted in position. All beams to be covered with terra cotta, the covering of the bottom of flanges of beams to be not less than 2" thick. Top to be leveled off with cement mortar and made smooth ready for roof covering, which will be four-ply roof gravel.

All floors will be made solid without openings, except the stairways and elevators, and will be inclined toward the division wall away from the side in which the floor openings occur, and at an inclination of one (1) inch in twenty (20) feet. Gutters will be formed of cement, with four inch pipe, passing through walls on each floor level, with light swinging cap attached to pipe.

The test proved beyond the chance of controversy that hollow fireproof tile exceeds any other building material for modern building construction of any sort and that it is capable of withstanding the severest tests which could be given it. The Pittsburgh Terminal Warehouse and Transfer people are immensely pleased with the results of the test, which will result in giving them the lowest possible rate of insurance for their building.

The test was conducted by Prof. Ira H. Woolson of the Columbia University, New York; Mr. W. L. Lemmon, Consulting Engineer for the National Board of Underwriters of New York City, and Mr. W. D. McGill, Chairman of the Local Underwriters' Board, and Fire Marshal of Pittsburgh. Its purpose was to determine the effect of a continuous fire. The floor to be tested constituted the roof of the test building and was practically one unit of the proposed warehouse floors. After four hours of 1,700 degrees of heat while still redhot the floor was subjected to a stream of water from a city fire engine. The cement coating on the tile disappeared in ten minutes after the fire started, but after the fire was extinguished no cracks or broken parts were apparent.

AMERICAN CERAMIC SOCIETY.

THE seventh annual meeting of the American Ceramic Society was held at Birmingham, Ala., on January 30-31 and February 1. This society is now recognized as the foremost organization of its kind in the world. The World's Fair brought to America several new clay working experts from Germany, France, England and Japan who sought admission to its ranks. In the endeavor to investigate the problems of clay working it has enlisted scientists of high reputation in geology, metallurgy and chemistry. Men who direct the technical ends of the great brick, terra cotta and fireproofing plants, the sanitary electric porcelain art and general ware potteries are fast seeing the vast aid the society affords in solving the vital question of reduced cost and improving the quality of their wares. One committee is charged with examining and extracting the literature of the technical press throughout the world. German, French and British journals are studied and the value of their information pointed out to the end that those who are especially interested in certain departments of clay working may find light. The whole ceramic field is exploited and this is defined by Prof. Orton of the Ohio State University as that covered by the silicate combinations produced by fire. This includes brick, terra cotta, tile, pottery, porcelain, cement and glass.

A most exhaustive discussion was participated in by numerous celebrated constructive engineers and chemists. The transactions of this society form a literature of most valuable character which after each convention is issued in quarterly volumes, embracing all the papers read. These books are sent free to members and hence the names of most of the technical superintendents of the great brick, terra cotta and fireproofing plants are found in the roster of associate members. There are about 180 members, including many of the greatest and most progressive geological and clay scientists in Germany, France, England, Denmark, Holland, Sweden and some from Japan.

The following were elected as officers for the present year: President, Wm. D. Gates, American Terra Cotta Company, Chicago; Vice-President, Ellis Lovejoy, brick manufacturer, Columbus, Ohio; Secretary, Prof. Edwin Orton, Director Ceramic

Department, State University, Columbus, Ohio; Treasurer, Stanley G. Burt, Rockwood Pottery, Cincinnati, Ohio; Managers, Walter M. Ficks, Elmer E. Gorton, New York; Edward C. Stover, Trenton, N. J.

ASSOCIATION NOTES.

CHICAGO ARCHITECTURAL CLUB.

The activities of the Chicago Architectural Club for the coming year are suggested by the February program which comprises various papers to be read before the club. After a social evening on February 6, a lecture by Louis H. Sullivan is announced for February 13. This will be followed by an illustrated talk on Fireproofing by E. V. Johnson on February 20 and a lecture by Alfred H. Granger on February 27. The club has commenced classes in water-color and also pen and ink work, which promises to be largely attended. The pen and ink class has been organized by Max Dunning and the revival of that art, which fifteen years ago reached a perfection that was remarkable at the time but lost since, is most valuable at this time when the delicacy of line and proportion is so frequently lost in brush work and bad drawing.

ARCHITECTURAL DRAFTSMEN'S CLUB, NEW YORK.

At the second annual election of the Architectural Draftsmen's Club of New York, the following officers were elected to serve on the Executive Committee for the year 1905:

President, L. A. Cramer.
Vice-President, A. T. Rose.
Recording Secretary, W. F. Anderson.
Corresponding Secretary, W. T. Smith.
Treasurer, A. M. Hedley.
Chairman Current Work Committee, E. H. Rosengarten.
Chairman Entertainment Committee, C. F. Winkleman.

A program of varied and interesting monthly prize competitions, combined with a series of discourses by prominent professional men, will constitute the year's current work.

OUR ILLUSTRATIONS.

Talmud Torah School, Chicago. Turnock & Ohrenstein, architects.

The Clarendon Apartment Building, Chicago. S. N. Crowen, architect.

Stable Building for the Frank Parmelee Co., Chicago. Minard L. Beers, architect.

Entrance Detail of Store Building for C. H. Rowe Company, Pittsburgh, Pa. Alden & Harlow, architects.

Residence, Racine, Wis. Frederick W. Perkins, architect, Chicago. The rear view and view in hall are shown.

The Times Building, New York. Eidlitz & McKenzie, architects. Two exterior views and floor plans, etc., are shown. The building has a height of 363 feet; its walls are of cream-white brick and terra cotta. The irregular shaped lot taxed the ingenuity of the architects, and the engineers dealt with several difficult problems.

The Agnes Memorial Sanatorium, Gove & Walsh, architects, was founded and endowed by Mr. Lawrence C. Phipps of Pittsburgh and Denver, in memory of his mother. The object of the institution is the care and cure of patients afflicted with tuberculosis in its incipient forms. The present buildings, five in number, are arranged as follows: Administration Building, Medical Building, two Pavilions (one for women and one for men) and Power Plant. The latter large enough to accommodate double the present demands, and the building so arranged as to increase the present power one-third. The buildings are erected on the highest eminence east of Denver and five miles from the business center of the city. The grounds of the Sanatorium consist of one hundred and sixty acres. The buildings are built of brick cemented on the exterior with Portland cement left in its natural color, a warm gray, and roofed with red Spanish tiles. The interior is finished in Southern pine finished natural. The interior of the Medical building and Pavilions is finished with as little wood-work as possible; no trim whatever is used, all corners and angles are rounded, patent plaster was used and all walls and ceilings painted. The floors are narrow quartered Southern pine varnished, and finished against the walls with a concave shoe. All lavatories are tile and marble. All partitions between sleeping rooms are sound proof. The buildings are heated by steam. Direct indirect radiators are used. Each room is ventilated.

SPECIAL PLATES.

Edgewater Presbyterian Church. George W. Maher, architect.

Residence for R. W. Sears, Oak Park, Ill. George W. Maher, architect.

Building for John H. Whittemore, Chicago. Dean & Dean, architects.

Mount St. Vincent's Orphanage, Denver, Col. Gove & Walsh, architects.

The Times Building, New York City. General exterior view and entrance detail are shown.

Residence, Racine, Wis. Frederick W. Perkins, architect, Chicago. The front, exterior and view in parlor are shown.

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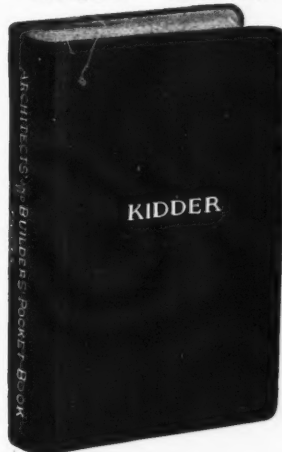
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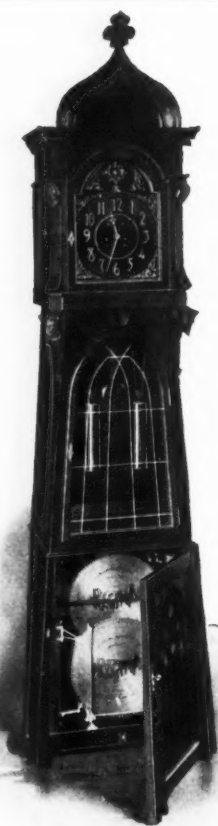
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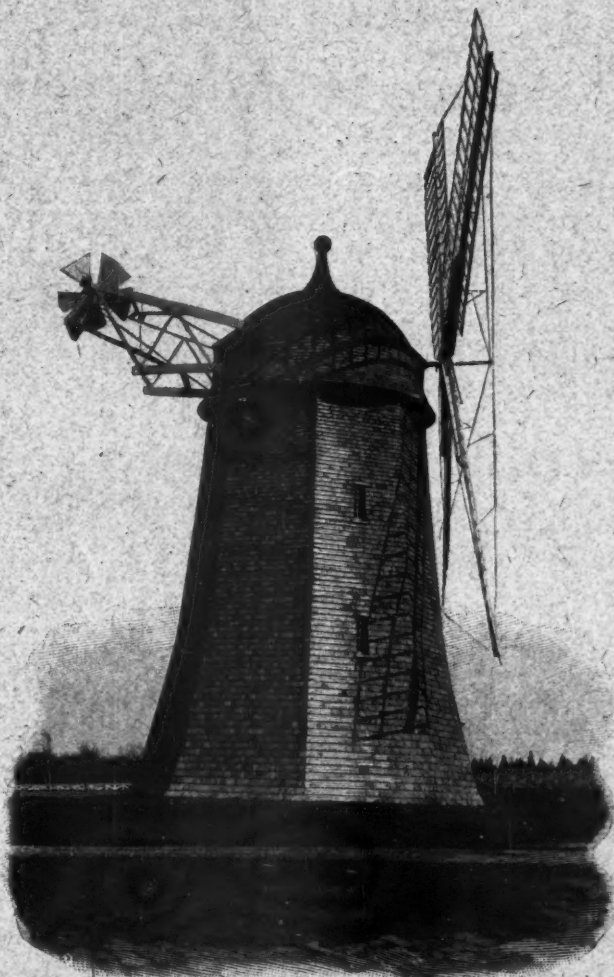
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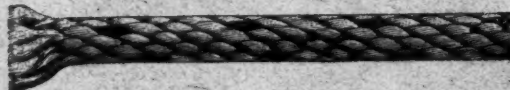


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