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The Necessity for Abolishing General Contracting. A notable evolution is beginning to be felt in the erection of buildings. While in other lines trade has been going constantly into more direct channels, there has been a

continuous effort by some connected with this line to cut off the direct dealings which long existed between the manufacturers or other parties who actually performed the work and the consumer; so that a person proposing to erect a building does not go directly to a carpenter for his carpenter work, to a stoneman for his stonework, or to a manufacturer in such a line for his ironwork. Instead, he invites proposals from a number of persons, actually engaged perhaps in no special line of building trade, but having offices for the carrying on of their business as intermediary. These proposals received, selection is made of one in each line, which are added together, then a profit is added for the intermediary or general contractor, who makes a proposal to erect the building. The architect appreciates that in some ways the intervention of a general contractor will save some work in looking after details, but a reasonable examination should convince even the most prejudiced that there are many evils in the system affecting owner, producer and architect. The owner, like other purchasers, wants the best that his money will buy. He wants quality, and he also wants the lowest price. Whatever figures the general contractor receives from others must be added to for his own profit. Such addition is an extra cost to the owner. While it may be claimed that sometimes the general contractor's figures are as low as can be obtained from first hands, such proposals are at least subject to a question as to good faith, as related to either the owner or the parties who will actually do the work, and on their face are speculative. If a contract is entered into by the general contractor on such a basis, the work called for must be reduced in quantity or quality, either by the general contractor or the actual producer, in order to provide the profits required by the general contractor. It seems evident, therefore, that the owner pays toll to the general contractor either directly or indirectly. The producer or manufacturer, by intervention of the general contractor, is placed in a position where he assumes practically all responsibility and risk, is forced by competitions, before and after the letting of the contract for the building, to take work at unreasonably low figures, and is not recognized in any way by the owner or his architect. There are, without question, responsible and straightforward general contractors, and even with them the system works to the disadvantage of the actual performer of the work, but the system is rapidly bringing into the field a large class of so-called general contractors without special facilities and without responsibility in any way.

General Contracting a Menace to Architects.

This condition of affairs can hardly exist without affecting the architect, whose business is dependent on both. He has no direct relations with or authority over the parties who are actually doing the work. He knows nothing as to the quantities or qualities of materials or workmanship the subcontracts with these parties call for, and very often accepts as a relief from a portion of his

duties, the detail of inspection and superintendence, which he intrusts to the general contractor. The natural result is inferior materials and workmanship. Should the system of general contracting prevail, there seems to be nothing to hinder it going one step farther. The general contract controls everything that goes into or has any relation to the building, except the work of the architect, and this would logically follow in the natural course of events, in fact it has come in not a few cases. As the tradesmen are under the system simply workmen for the general contractor, when the general contract system is fully matured the general contractor will be employing the architects practically as draftsmen, or doing their portion of the work without them altogether. The general contractor would hardly be blamable, as he would simply be following out and perfecting a system encouraged and facilitated by the architect, and which without interference will run its natural course. The remedy is yet possible with the architect by discouraging and preventing the letting of general contracts while it remains in his power to do so. Some of the trades have already decided to discontinue the giving of bids or the making of contracts except to or with the owner or the architect as his agent, and others are taking steps in the same direction. This seems to be the only way in which the erection of buildings can be kept in the hands of those whose proper work it is, and there is apparently no good reason why architects and the trades should not coöperate in such an endeavor.

Burial of
William C.
Smith at
Nashville.

The remains of Col. William Crawford Smith were interred at Nashville, Tennessee, on April 19, with ceremonies rivaling those which attended the burial of President Andrew Johnson. Neither civil nor military pomp was wanting, for every civil and military organization of the State was represented, and the architect of the days of peace and the soldier of the days of war was laid to rest with all that civic and military glory that attends the final tribute tendered to those who have won the gratitude and held the highest regard and respect of a people in the service of their fellow-men. Comrades in the Confederate Army during the Civil War, architects and engineers, representing thirty years of architectural life, and the representatives of his own regiment who fought with him on a foreign soil, were present, and the last rites at the grave were performed by the Masonic fraternity. One volley fired by a company of Confederate veterans and two by members of his own regiment closed the earthly record of the career of William C. Smith, one who was always earnest in purpose, always direct in procedure, and always full of the simplicity of thought and action of a true man.

Convention
of Draftsmen
Called at
Cleveland.

A movement inaugurated by the Chicago Architectural Club and upon consultation approved by the other leading organizations, has for its purpose the assemblage of a convention of delegates from all the associations of draftsmen in the country. In furtherance of this design a circular letter has been issued to the several clubs, outlining the purposes of such a convention and in detail giving those subjects which might with propriety be discussed at such a gathering of representative draftsmen. It is understood that this draft, however, is but tentative, and

that each delegation should attend fully instructed regarding those matters which may be of special interest to their clubs. In thus planning and suggesting this conference the Chicago club has but voiced the general sentiment of most of the architectural clubs in the country. The circular letter is as follows:

CHICAGO ARCHITECTURAL CLUB, THE ART INSTITUTE,

CHICAGO, April 28, 1899.

DEAR SIR,—Appreciating the great influence toward advancement, in the study and practice of architecture, now being extended throughout the United States by the various architectural clubs, and firmly believing that that influence would become infinitely greater and far more comprehensive, should the individual efforts be blended in one united effort toward this end, the Chicago Architectural Club, with the sanction and support of the T-Square Club of Philadelphia and the St. Louis Architectural Club, and the informal approval of the Boston and Cleveland clubs, takes upon itself to call a convention of delegates, from all architectural clubs of the United States, to be held at Cleveland, Ohio, Friday and Saturday, June 2 and 3, 1899.

The object of this convention being to promulgate reciprocity among the different clubs, to bring about a more friendly feeling through a better understanding, and to discuss such questions as will be of the greatest mutual interest and advantage, such as club organization, management and work.

To all acquainted with the management of architectural clubs, the great benefit to be derived from such a discussion is too obvious to need mention, and it is hoped that your club will see fit to not only send a delegate or delegates, but that you will also give the project your strongest moral support.

As some expense, in the way of printing, postage and clerical services will be necessary in carrying out the convention, each club represented is asked to contribute \$10 to the general fund.

Each club will have but one voting delegate, although as many others will be admitted to the convention as you may see fit to send.

The Cleveland Architectural Club has tendered the use of their clubrooms for the needs of the convention and will do all in their power to insure its success.

The programme, in a general way, will be as follows:

FIRST DAY.—"Club Work." Résumé of clubwork for 1898-99, read by the delegate from each club. Discussion of best methods for acquiring and holding the interest of club members. General discussion on the management of exhibitions. Establishing an exhibition schedule and circuit for 1900. Establishing a national exhibition committee whose duty shall be to solicit foreign exhibits in the interest of all clubs of this congress.

SECOND DAY.—Discussion of the "Code Governing Competitions" as adopted by the T-Square Club, the Architectural League of New York, the Chicago Architectural Club, and other similar organizations. The remainder of the day to be devoted to papers on questions pertinent to the profession, and such discussions and new business as may develop later.

The above programme is intended only as a tentative one, and your views and suggestions as to what the convention should take up are earnestly solicited, in order that the final programme may embrace as nearly as possible the consensus of opinion of all clubs.

As the time is limited, it is hoped that your club will take immediate action upon this invitation and notify me at the earliest moment possible of such action. Further information will follow later, as soon as the programme takes more definite form.

Hoping that we may receive your hearty coöperation in this matter, I beg to remain, Very truly yours,

(Signed)

N. MAX DUNNING, Secretary C. A. C.

Such a project as that outlined could not be more timely nor can the necessity be overestimated. Aside from the general good derived from a closer fellowship, there is at least one growing demand for a union of action which should not longer be ignored, and that is in matters pertaining to the general conduct of that great educational feature of American architectural clubs—the annual exhibition. Heretofore the organization of an exhibition has taken months of labor and an expense to the individual club that is out of all reason. And after all, the exhibition is far from what it should be. It contains too much that is not representative and too little that is truly instructive. In order that these heavy expenses may be met the catalogue is farmed out to advertising men that make it a commercial success, but as artistic as a Strand omnibus or the view of the beach pavilions at Coney Island. The catalogue should be the club's year book, and if the friends of the club will assist in defraying its expense they would much rather have their names mentioned as guarantors than be represented as advertisers. No club, however small in membership or distant from the place of meeting, can afford not to be represented at the conference by delegates fully instructed in regard to the particular views and wishes of their respective clubs,

THE CLASSIC REVIVALS IN FRANCE.

A GLANCE at the general state of French politics and art during the reign of Louis XIV., and during the early half of the reign of Louis XV., will reveal the important fact that, when a great nation declines in power and influence, its architecture also tends toward decline. The vigorous and skillful diplomacy of Louis XIV., and his liberal encouragement of art and letters, alone kept up the reputation of France at the end of the seventeenth century. When, however, that high-handed tyrant, Louis XV. (an indolent, rapacious and scandalously profligate man), ascended the throne in 1715, it was but natural that a change for the worse should take place in the state of the country. Not only was France beaten in nearly all of the wars of the period, but her architecture became degraded more completely than ever before.

Paradoxical as it may seem, that branch of the plastic arts had become merely an inharmonious mixture of the most unrestrained license and the severest classical correctness. The latter unfortunate quality applies to façades, which were extremely cold-looking, plain and uninteresting. The inherent fault of this late Renaissance or neo-classic style seems to lie in the fact that, excepting the bare classical orders, pediments, pedestals, parapets, and attics, no architectural ornamentation is in evidence. None of the rich and graceful exterior decoration of the early Renaissance was "the fashion"; everything had to be rigidly classic to suit the taste which prevailed for the time being. The evil of license and extravagance applies to the decoration of interiors, which was characterized by an utter disregard of all constructive propriety. Contorted lines, scrolls, shells, and other like rococo details were used to such an extent as to suppress almost all straight lines.

Although much of this interior decoration was rich, graceful, and blended with an undeniable skill, its general effect was undignified and unrestful, a "capricious negation of all the sterner canons of architecture." The chief end seems to have been to combine the various fantastic motives as inexplicably as possible. In these daring ingenious attempts to exclude all earnestness, the frivolous character of that age is startlingly expressed. To sum up, it may be said that by the middle of the eighteenth century French Renaissance had reached its lowest ebb, that being the case in England, and on the Continent as well. The strict and slavish adherence to antique forms which were not fully understood, together with a considerable loss of creative power, was producing a series of works which were becoming nauseating to popular taste. Naturally, such a state of affairs could not last long without utter stagnation and ruin, as in the case of Ancient Rome; or a revival of an older style, the recourse of the last four hundred years, or else "eclecticism," the dangerous luxury of our own time.

THE ROMAN REVIVAL.

What really did occur was a classic revival, extremely interesting in some respects, appearing like a bright star on the horizon of French architecture during the last twenty years of the reign of Louis XV. The object of the movement was to gain new designs and a severer handling by a more thorough study of Roman antiquity. Apparently not satisfied with their architecture as they had received it from the Italians, the French wished to go to the fountainhead and get the pure article. An exact imitation of the splendors of imperial Rome was what those French designers of about 1750 were aiming at as the best thing to be done. Therefore, to speak more accurately, the revival should be designated as "Classic Roman," to distinguish it from the Renaissance and from the subsequent Greek revivals, all of which were classic in every sense of the word.

The change in style was a very beneficial one, which, during three quarters of a century, supplied France with some of her most splendid monuments. It also satisfied the longings of the masses for something better. And this is saying a great deal, for, unlike most other Europeans, the French, as a people, are keenly alive to a sense of the artistic in every thing, no matter how common or trivial it be. What may be called "architectural thought," or "architectural good sense," is inherent in their character.

An old familiar proverb runs something like this: "When in Rome, do as the Romans do." Well might the architects of the revival have taken that saying and, in a modified form, used it as their watchword; for "When in *Paris*, do as the Romans *did*," applies admirably to their course of action. The Revivalists cer-

tainly did their very best to follow Roman practices. Their whole purpose may be summed up by saying—that they wished to do away with the *guesswork at classical proportions* which had characterized the Renaissance. They ascertained exactly how the Romans designed and superposed their orders, spaced their columns, constructed their arcades, vaults, etc. In fact they made a thorough analysis of what they considered the perfection of architecture. Copying the stately arcades, colonnades and porticos of the best age of Roman art, they placed these as frontispieces to buildings and adorned them with Roman details, elaborated as only the French knew how.

The new movement had, however, at its very beginning, when it was full of life and vigor, one serious defect. These highly decorative façade-treatments, though adding greatly to the beauty of the streets they adorned, were, nevertheless, secured at the expense of that convenience which is required of modern buildings. Owing to the desire to produce grandeur and monumental effect, the very purpose of many creations was defeated. And this certain issue of the Revival, the difficulty of combining highly decorative and imposing façades with logical planning, was for a while a stumbling-block in the way to success. But with the French it could not long be thus, and in time it was so well overcome by them that they have become foremost as designers of stately, dignified and monumental plans. And had this outcome been the only fruit of the Revival, still would that movement not have been in vain. Another important advantage of the style was that it considerably increased the architectural resources of the French.

Such was the general state of French architecture from about 1750 until it was interrupted by the terrors and excitement of the Revolution. There was, indeed, a slight reaction, during the reign of Louis XVI., toward a more delicate and graceful style of interior decoration, but that is of little importance, as it was chiefly with exteriors that the Revival was identified. The principal monuments of the time were the façade of St. Sulpice; the splendid Place de la Concorde; the colonnades of the Grand-Meuble and the cold, but extremely beautiful Panthéon. Those are all in Paris, while at Bordeaux the stately Grand-Théâtre testifies to the skill of the Revivalists.

After the peace of Amiens in 1802, Napoleon was free for a time to devote his energies to many works in the line of architecture, as well as to many of utilitarian value. He seemed to combine in himself, with the military ambition of a Trojan, also a Hadrian's passion for building, and he adorned Paris and many other French cities with buildings, fountains, and memorial monuments of every description. All of these were designed on the same general lines as were those done before the Revolution, except that they showed not quite as much grace. Externally very showy, and internally characterized by an empty and affected grandeur, most of the works of the time were made as Roman as the conditions would permit. In reality, under the Napoleonic régime, the Revival received official recognition, as well as the approval of the architectural fraternity. Known as the "Style of the Empire," it fittingly expresses the spirit of modern Caesarism which seemed to pervade the atmosphere of the first empire. Chief among the many monuments of the day are the well composed and admirably proportioned Arc de l'Étoile by Chalgrin, and Vignon's Madeleine, a fine Roman Corinthian temple, both in Paris. Other important works are the Arc de Triomphe, and the Wing joining the Louvre with the Tuileries on the land side.

Continuing as the official style of architecture after the Restoration of the Bourbons, the Roman Revival, aside from completing some of the works begun under Napoleon, achieved no great successes, and by 1820 its shallow resources were practically exhausted. This result fully illustrates the fate of all revivals, and the case may be easily compared to that of a child and its toy. As soon as every new feature and combination has been tried, and as soon as the originators of the movement, or those whose genius has made it possible, are gone, then the charm of the innovation vanishes. And when the inspiration is gone, creative power tends to decrease. A Revival may produce really good works, and leave beneficial and lasting results; but, as a whole, it will not stand the test of time, unless, of course, all of its practitioners grasp the essential nature of the style to be revived. But such a universal, happy state of affairs with respect to a Revival has never yet been the case in modern times, and never can, because the conditions of our time have never before existed. In the majority of cases merely the superficial aspects of the revived style are studied. The inevitable result is that all, except those possessed of great

genius and great skill, sooner or later lapse into what may be called "archæological servitude," the slavish copying of forms whose real meaning and nature are little understood.

Freedom from the powerful grip of this artificial academic style was what many were longing for at that time, just as in 1750 there was such a strong desire to be rid of the played-out Renaissance forms. But the Roman Revival, modified by survivals of the Renaissance, had taken such strong root in France, especially at the influential *École des Beaux Arts*, that its hold on most of the profession was hard to break.

About 1820 relief came in the shape of two movements, very antagonistic to each other, which were just then beginning to make themselves felt in France. Each was upheld by men who were thoroughly tired of the artificiality of the prevailing style. One of these movements was the Gothic revival, starting in Germany and France, and later spreading to England. The other, far more important to France in the end than the Gothic ever became, was the Greek revival, first precipitated in 1732 by the discoveries of Stuart and Revett in Greece. Taken up enthusiastically in England and Germany long before 1800, it had little influence in France until about 1830, and then in an entirely different spirit.

THE GREEK REVIVAL.

With the French, the Greek Revival proper as practiced in England found little favor, and was extremely short-lived, mainly for two very apparent reasons. In the first place, the principles of Roman architecture were too firmly implanted in Paris, especially at the School of Fine Arts, as we have noticed above. In the second place, the French seemed to discern from the very first what the English signally failed to realize—that the forms of Greek architecture were too severe, too inflexible, and entirely unsuited for modern requirements. This was infinitely more the case than with Roman architecture. As far as is known, temples are the only Greek buildings of which there are any remains; and these, aside from their decorative details, possess no forms which may be adapted to many modern needs. We cannot well design a building as the Greeks designed their temples, or rather, if we do so, the building will not suit its purpose. Again, if we wish to use Grecian forms, and also try to force the design to suit the purpose for which it is intended, then it will, nine times out of ten, lose the charm which so characterizes Grecian monuments. Moreover, the French are famous as designers of buildings noted for their logicalness and adequacy of purpose; and they apparently foresaw, without much experiment, that Greek forms could not be logically used, as Roman forms could to some extent.

From such considerations we see that it was but natural that the artistic and constructive sense of the average French architect should rebel against the use of the cold, antique forms of a Greek temple for a modern building. Notice "of the average French architect," for outside of France the unsuitableness of Hellenic forms was little recognized. Another fact to be observed is that Greek architecture, to be complete and effective, must be supplemented by fairly good sculpture. Yet the French, with their superior skill in this valuable decorative device, considered the successful modern use of Grecian forms of architecture as beyond their power. And later thought has conceded that they were right. There can thus be little wonder that such a poor showing was made by the English, whose sculptural ability was then so inferior to any on the Continent that they tried it in but few cases.

In spite of its unfavorable reception in France the Greek Revival produced there one fairly successful example—the Church of St. Vincent de Paul, by Hitorff. In this structure use was made of external polychromy, another source of charm in Grecian, as well as in most other Southern and Oriental art. This strong and effective characteristic of Hellenic work did not stand the Parisian climate, and that fact was another blow to the Revival in France.

THE NÉO-GREC MOVEMENT.

Still, Greek ideas were not wholly rejected in France. Treated in a different spirit they resulted in forming what is called the *Néo-Grec* movement, the last important modifying influence which French architecture has received up to the present time. About 1830 a small number of architects in Paris set to work on the discoveries of Stuart and Revett and others, in an entirely novel manner. They were wearied of the "artificial formalism of the official Roman style," but were even more averse to the use of Greek architecture as it had been practiced in England and Germany. Their purpose may be defined as an effort to design in the Greek spirit,

but not to use Greek architectural forms. The name itself, *Néo-Grec*, signifies "the new Greek," and it well defines the style. At the head of the movement were three skillful architects, *Beaux-Arts* men, Duban, J. L. Duc, and Henri Labrousse. These leaders, with their scholars and adherents, determined to renounce the grand and useless porticos and colonnades, and the too showy decoration of the prevailing style, and to introduce into their work the refinements of Greek art.

We have seen how, during the Roman Revival, the French had perfected their skill in planning and monumental design. But the ornamentation was as yet weak, and lacking in character and restraint. It now remained for these *Néo-Grec* architects to rectify this fault, by purifying the decoration and general detail. Structurally they made few changes. Their architectural forms, far from being Greek, as in the English and German work, were the accepted types, Roman and Renaissance, well tried and suited to modern conditions. It is chiefly in the domain of ornamented construction that the distinctive characteristics of the style are to be found.

Almost the only structural changes were those made in the arches and capitals. The arch was used in preference to the square opening, seemingly to show that the architectural forms were not in imitation of the Greek. However, two important changes were made in the arch construction, both innovations being new and tending to differentiate the style from the Roman. The first departure from the beaten path was the use of the segmental arch, unknown in Roman work. Used in a few isolated cases during the middle French Renaissance, that form of arch was now resurrected, and became a distinguishing feature of the *Néo-Grec*, as well as a valuable addition to French architecture. The second change in the arch was the usual omitting of the impost band, the architrave continuing down to the foot of the opening. Where the impost was not omitted, its profile was made very bold and plain, sometimes approximating that of a Greek Doric capital. The regular classical architraves were rarely used about the arch, a simpler treatment being substituted, in some cases inspired by Greek compositions.

Néo-Grec capitals were usually either copies of Greek examples, or else original designs full of Grecian details. But the regular Greek Doric and Ionic orders, as well as *all* the Roman orders, were disregarded. The Roman orders were disliked by the "New Greeks," partly because they were too showy and gaudy, partly because they had been used so much that they had become commonplace and uninteresting. The Greek Doric was too heavy and massive to be satisfactory. Why the Ionic was never used is a question; probably it was too light and showy. Recourse was had principally to the Greek Corinthian capital and the Asia Minor cushion-capital; the latter being used chiefly as a crowning for piers or heavy pilasters. As an example, the exterior capitals of Duc's Palais de Justice are close copies of those of the Corinthian "Tower of the Winds" at Athens; while the pier caps on the interior of the same building are imitated from the cushion-capitals of the Temple of Apollo at Miletus. French Renaissance modifications of the Roman Doric capital are also met with, as in one of the façades of the *École des Beaux Arts*. It may be said that a strong feature of the *Néo-Grec* movement is that there are no "orders." Cornices, architraves, capitals, bases, etc., are original, produced by the designers' good sense and the help of Greek prototypes.

While most of the structural forms of the *Néo-Grec* workers were the everyday types (excepting the showy Roman façade-treatments which were rejected), the decorative detail underwent an important revolution. The change for the better was effected in two ways: first, by simplifying those details already in use, and instilling into them an air of Greek refinement; and second, by the introduction of real Greek motives. Nearly all of the Renaissance and Roman decorative features, such as the acanthus, rinceau, wreaths and festoons, rococo scrolls, floral and leaf-decoration, etc., were retained. But all of these were designed and executed with a delicacy and refinement never before equaled in France, producing extremely satisfactory results.

Moldings also received much attention, being freed from the show and complexity characteristic of Roman work, and remodeled with great artistic skill, which was tempered by "Greek feeling." The simplicity itself of these *Néo-Grec* moldings reminds one of the quaint work of the early Louis XIV. style. What has been said of moldings in general applies equally to cornices. These, when not close copies, in mass, of Grecian examples (as on the *Beaux Arts* Law Library), are at least models of refined simplicity.

Not content with refining the material already in hand, the Revivalists went further, and utilized many Greek motives directly in their work, although the case was probably the reverse at the commencement of the movement. The leaders may have first adopted Hellenic features, and then, after mastering their essential nature and underlying principles, applied that new knowledge to the work of remodeling the old forms. These men went much deeper into their subject than did the former Revivalists in their attempt to analyze Roman art.

This brings us to the discussion of the use of Greek motives, which though not numerous, were very frequently employed by the Néo-Grec artists. The typical Greek scroll, of few turns and ending in a V-shape, is one of the most conspicuous features of the style. All through the ironwork of the Library of Ste. Genéviève do we find examples of it, as well as in the interior of the Palais de Justice, and on the exterior of the "Beaux Arts." In fact it is scattered all through the Néo-Grec works. The crisp Greek acanthus also plays an important part, while varieties of anthemion, unmistakably Greek, are not rare. A beautifully executed combination of acanthus and floral anthemion forms a decorative band in the architrave of one of the Beaux Arts doors. The guilloche is another good feature which was thus transferred from the Greek into French architecture. Altogether, this use of Greek forms of ornament and the recognition of the Greek spirit of delicacy produced very satisfactory results. It gave rise to a rich but pure and refined method of decoration entirely different from the accustomed resources of the time.

The movement, which lasted from 1830 well into the 70's, was, as a whole, eminently successful in attaining its end, which was to secure beauty and quaint stateliness without artificial show. Its works are remarkable for their purity and beauty of detail, and their straightforward simplicity, although they do not possess the air of grandeur which characterizes the works of the Roman revival.

As has been said before, a Revival can only be successful if its nature is fully understood by all who participate in it. The early Revivals failed because *none* of their participators understood the revived styles. The more recent ones have failed because only a few skillful men were keenly alive to the underlying principles. The case of Richardson's career and the subsequent Romanesque work illustrates this; and it is equally true of the Néo-Grec. The great works of the latter were produced only by its three or four masters, and when these were gone, progress in that direction ceased. The results of this architectural attempt contain, nevertheless, so much merit that they have profoundly influenced later French work. The Néo-Grec architects produced the final link in the long chain of French architecture, and the latter has advanced with great success ever since.

The chief buildings were the remodeled Palais de Justice by Duc; the quaint little Library of the École des Beaux Arts by Duban; and the Library of Ste. Genéviève, by Labrousse. Another work is the memorial column, Colonne de Juillet, by Duc.

A MODEL HOSPITAL.

BY FREDERICK BAUMANN.

THE principles by which the erection of a hospital ought to be governed are very plain, and in the main of old date. It has always been a simple matter to pronounce them. But when the time arrived for their practical application, it seems to have been found "convenient" to more or less disregard them. They were, and even at this day are looked upon as "theories" to be subjected to rules of "sound practice." But what this practice consists of can readily be observed on a call at almost any of the institutions of the kind in our city, even the most modern. There will be found: courts wholly inclosed with buildings; corridors with rooms on both sides; ^{(1)*} all parts or most of them warmed by steam with direct radiation; ventilation excluded, or wholly inefficient; water closets improperly ventilated, so that wind blowing through the window may sweep their odor and foul gases through the house. Patients breathe the air, befouled by diseased exhalations, over and over again. The air within the entire house partakes of a peculiar odor, most offensive to a visitor coming from the fresh air. Large wards are now and then provided with fresh air blown in by means of a fan which, in many cases, is kept at rest—for "economy."

*See "Addenda" at end of this article for explanatory notes, to which figures inclosed in parentheses refer.

Some sixty years ago there might have been a time when a "modern hospital" of the kind above specified would have been excused, but nowadays the case is very different. We live emphatically in an age of progress. Not more than thirty years have elapsed since a new light appeared on the horizon of medical science, which became bright enough to wholly revolutionize its practice. The original theory by which germs of almost infinitesimal minuteness are originators of every disease has become a positive fact. Every kind of illness is diagnosed under this principle. Wholesome diet and *pure air* are fully recognized as being primary factors in sanitation. As to hospital arrangement the call is: *pure fresh air to each one of its rooms, for every one of its inmates*. This call is most readily made, yet its fulfillment is neglected. Even the best hospital arrangements are virtually behind the time. ⁽²⁾ The late public efforts in regard to sanitary schoolhouses, and the successes thus far obtained, however, should inspire us with a hope that in due time it will be a sober fact that equal success is achieved in regard to hospitals, although with these the case must be admitted to be more difficult. What is herewith published should be taken as an honest effort in the direction of progress.

THE QUESTION OF ECONOMY.

A hospital in particular should be built with prudent economy. This is not to be construed as though it should be built cheaply. It is to serve certain positive ends, and these must be attained. These ends center in the demand for restoring a patient to the highest state of health possible, and do this within the briefest space of time. Time, indeed, is money, even in regard to a hospital. The one which restores twice as many patients during a year, when compared with another one of equal capacity, *is the most economical one*, though its first cost may have been nearly double. It is not merely the most economical hospital, but also the most humane. It shortens suffering. It produces a higher degree of well being. It diminishes the death rate, saves human lives. The best equipped hospital, indeed, is the truest temple of humanity. And is not it really at the same time the most economical? The average patient better cured and within shorter time!

PRIVATE HOSPITALS.

Private patients generally prefer private rooms, with at most three beds, although they would be, as I believe, better accommodated in a large circular ward. All warming should be effected by means of open fireplaces. They give the most wholesome and cheering heat, and no difficulty will be found in arranging for a saving of the heat otherwise so profusely sent off through the chimney. Fresh air may thus be drawn in from without and spread over the whole room. Special ventilating shafts, though of measured size in order to obviate downward currents, should be had for all parts of the house, as will be subsequently described. It is important, as already indicated, that rooms for patients be at only one side of the corridor. This will give light and summer air to the latter, and afford places for balconies. Wards for six or more patients may likewise be warmed by means of open fireplaces, located as may be most convenient and efficient. The cheering effect of open fires should be regarded as a curative expedient. To provide for the coldest weather there may be a limited number of steam radiators, never to be used except in extreme cases. Summer ventilation can, however, be had mainly by opening sashes and transoms.

Although the warming by means of open fires is acknowledged to be the most agreeable and wholesome, it is not only the most costly, but also, to attendants, the most annoying process. A private hospital must be run with the means at disposal; it must also be economical as to the attendants' time. For these reasons it is everywhere preferred to warm by means of steam pipes. But it should be regarded equal to a criminal offense to warm by means of *open* radiators. The air full of disease germs and dust should never be warmed over. It should by all means be expelled, nearest the base of room, into a main ventilator of proper construction. The warming coil, located nearest the outer wall, should be inclosed to draw fresh air constantly through a register in the wall, and discharge it warmed into the room through its open top. The inclosing screens may be movable for occasional cleaning. Such warming arrangements have been here and there carried out. But the coil should always be divided, so that separate supply be had to each part. Such division to be into one-third and two-thirds, in order that heat may be had from one-third

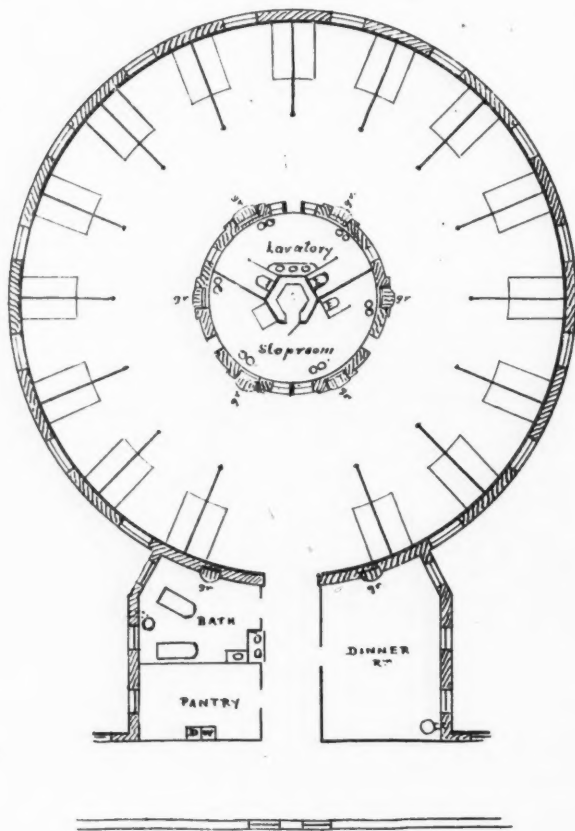
or two-thirds of the whole of the coil, as may be required. The pipes should not be less than one inch (better one and one-fourth) in diameter, in order to be effectually guarded against freezing.

The ventilator referred to requires, in order to be really efficient, a special construction. A mere open shaft is not sufficient. A constant upward draft is not an assured fact without some mechanical means. A sufficient fire should be had at the base, or—much better—a powerful exhaustor at the top. Perfect ventilation can, however, in this way only be had in a building one story high. Where there are more stories the draft will not be equally divided; the top story, the one nearest to the exhaust, will receive the best, the lowest story the poorest ventilation. In order to remedy this defect it is requisite that each and every story receive its independent shaft. All these several shafts to terminate at one level, about six or more feet below the exhaust. With this arrangement it would seem to be feasible to obtain equable ventilation for the several stories, provided proper allowance is made in regard to friction within the individual shafts. The longer shafts should accordingly be somewhat larger than the shorter ones. I am not aware that any vent shaft has been built with this provision. Water closets can readily be fitted with independent ventilation by providing them, in each story, with two flues, one being topped with an injector, the other with an ejector. A private hospital may be built with quite a number of stories. But it can not be fully efficient unless it is built solid, fireproof, and finished as specified under the subsequent heading.

PUBLIC HOSPITALS.

In order to afford a somewhat more complete understanding of the subject, I offer the three sketches given: the one a sort of wholesale plan of the entire complex of buildings, the other a more detailed plan of one of the several wards, the third a part of an upright section.

The administration building, aside from affording the usual kinds of public rooms, will accommodate all officials and help-mates of the institution, excepting nurses. Invalids ought never to be lodged therein. The nurses will have rooms by themselves in some of the buildings alongside the corridors. Each and every room will have an open fireplace. Inclosed direct-radiating steam

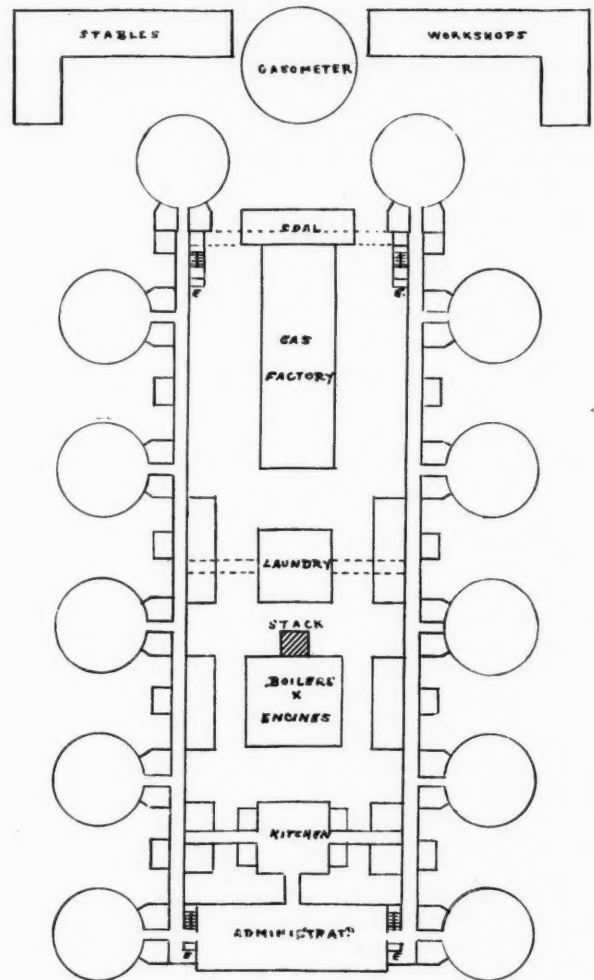


coils, drawing fresh air from without, will be added. The kitchen will be one story high, by itself, and have storerooms attached. In size it is about fifty-five feet square, large enough for all par-

ticular accommodations needed. It is thoroughly ventilated by an underground flue which discharges into the main chimney.

Follow the boiler and engine house, one story high, with adjoining large chimney stack; then the laundry, two stories high, and lastly the fuel gas factory with its coal shed. Gas will be made on the Siemens' principle for immediate supply of the boilers and other conveniences, and in retorts for storing in a gasometer, which is to supply the sundry fireplaces so profusely distributed. No gas is needed for light, which can far more conveniently be had by means of electricity.

The rear is made up with stables and workshops, two stories high. It should be taken for granted that the laundry and gas



factory will be effectually ventilated by the chimney, which will be with fullest arrangements needed for this end.

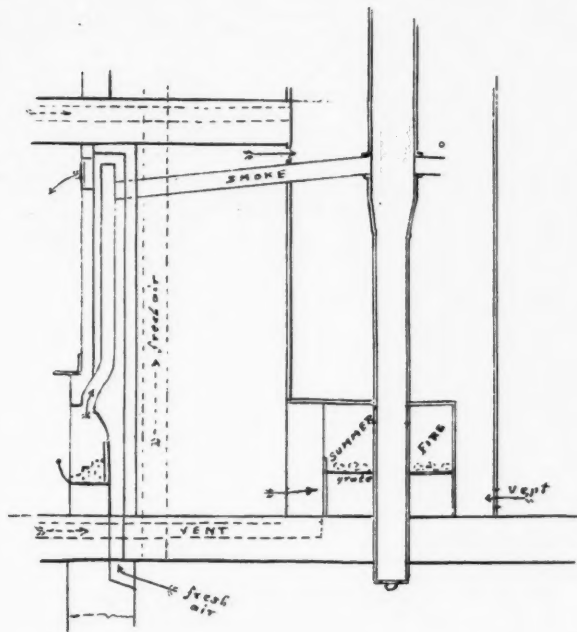
Sundry arrangements for steam, hot-air and various baths may readily be placed in some one of the side buildings. So may be a lecture room in one of the rotundas, with deadhouse in its basement story. Refrigerating machinery with all convenient appurtenances to be in the engine house.

THE WARDS.

The circular wards are the especial features of the hospital⁽³⁾ presented. Their construction is assumed to be fireproof, with hardest kind of thoroughly smooth plastering. Doors to be very plain though perfect in make, their jambs set solid, and be with scant finish. Windows, some four feet from the floor, will be with a double main part, having single transom hinged to a cross mullion, and provided with rod for opening. The shelf to have a small opening connecting with a tube in the wall which terminates near the floor. This arrangement is required to prevent cooled air descending along the window from discommoding the patients. Floors are to be the hardest smooth concrete, covered during day-time with a (rubber) matting.

The warming is effected by means of six large fireplaces, fed with fuel gas. The heat otherwise escaping is here utilized in warming fresh air supplied through special ducts and pipes. It is discharged into the room at a place nearest the ceiling. This

method is by no means new. (4) In order to be fully assured of ample warming accommodations during the most extreme cold weather, it will be prudent to establish a number of small direct



radiators. The temperature of the room should never be beyond 65 degrees during daytime, nor 55 to 60 degrees during night time. The radiators will, therefore, come but seldom in demand. All other rooms of the institution will, as may be deemed expedient, have an inclosed coil of steam pipes supplied with fresh air from without.

Ventilation will be most thorough, as the case requires. Ducts will be in the floor to take fouled air, through an open register, from under each bed into the vent shaft, the air of which becomes heated by the central flue, made of clay ware, increasing in size as it proceeds from story to story. Open registers will be put at base and at top of the partition which incloses this vent shaft. The air within the surrounding central room is thus constantly discharged to be replenished from the ward. Since this draft can never be reverted, the central spaces may assuredly be used as indicated on the plan. In order to be certain of efficient ventilation at times of mild weather, when fires on the grates will be but slightly kept up, if at all, a central gas furnace is established for heating the air within the ventilator enough for a rapid egress. Fresh air is constantly supplied from the basement through special ducts behind the grates, as shown on the plans. On hot summer days, additional fresh air may be had through the transoms over windows, first mentioned.

The diameter of a ward is assumed to be 72 feet, that of its central space 25 feet, the height 12½ feet. This will yield, in round numbers, 1,500 cubic feet for each of thirty patients. Comfort will dictate a partitioning of the wards, as indicated on the plan. Privacy is thus in a measure assured, and, where and whenever required, a room may be screened off. It may thus be with but one bed.

The wards are most effectually detached from each other, and the patients kept from the usual promiscuous intercourse. A sort of barrier is thus had against communication of diseases, and this can readily be made stringent with any number of wards, as the case may require. Meals are to be made up in the pantry and served in a special dining room. Convalescents may sit in the private room off the corridor, which, for summer use, should have a balcony. Arrangements for gymnastic exercise under proper leadership may be established somewhere in rooms off the corridor.

No fancy work of any kind is requisite within or without a hospital. It should, according with its very use and character—I repeat it—be plain, but thorough in all its appointments. All plastering in particular should be free from the minutest cracks. Wards suspected of having in any manner become a domicile of infectious germs may then be readily cleansed to good effect. All woodwork in particular may be taken off, and refitted after having

been subjected to an effective heat. A superiority of the simplest, hardest and smoothest floors becomes self-evident.

The number of stories in such a hospital should not be beyond four.

ADDENDA.

(1) Rooms at either side of a corridor have been forbidden by good sense a long, long while ago. I remember having been admonished by Professor Strack at the Berlin Academy to this fact, some fifty-four years ago.

(2) The difficulties in arriving at the application of sound principles in regard to the planning of a hospital are very serious. Corruption is in the way where a public hospital is to be established. Blind imagination of a superior knowledge of the case on the part of founders of private hospitals often spoils the best intentions. It is always the aim of making the greatest outward show for the amount of funds at disposal, instead of considering the most moral show, which consists in restoring the largest number of patients for a given expenditure of money. Where physicians are intrusted with the care of establishing a hospital—if ever this be done—the difficulty is that they are not considerate experts in the art of building, and finding at once no architect who knows enough of medical science to be able to advise them (provided they are willing to take advice), they copy what they find in existence, with what improvements they may deem proper.

(3) The idea of circular wards with central rooms, as shown, was first conceived by me in 1874 (or 1875), when the question came up as to a hospital for Cook County. It was, of course, left unconsidered by those commissioners, who, at a subsequent time, were sentenced to serve a term in striped clothes. A few years later the superintendent of the Johns Hopkins Hospital called at my office in quest of new ideas. He received a copy of one of my wards, and two similar wards were erected at Baltimore, though with important omissions. Still more recently, the directors of the St. Luke's Hospital, at Chicago, made a similar addition to their institution.

(4) The method of using the heat of stovepipes as a source of additional heat to a room, in manner shown, is, as mentioned, by no means new. There are even a number of worthless patents covering the case. It requires in the present instance, a cast-iron back and top, with three openings for receiving the clay (not iron) pipes which carry off the products of combustion. Fresh air, warmed by contact with these pipes, enters the room through a register, as shown. This air may even be preliminarily warmed by steam pipes prior to entering the space behind the fire back of the grate.

LAUNCH OF A STEEL PASSENGER STEAMER.

ONE of the most important marine events that has attracted attention recently on the great lakes was the launch of the steel passenger steamer Illinois from the docks of the Chicago Shipbuilding Company at South Chicago, on May 22. The launch was made from the ways sidewise, and the immense steel ship, when the supports were removed, slid toward the slip with a perfect gliding motion and took the water with a dash and balance that indicated the skill with which the preparations were made. Over 5,000 people attended the launch, a special party of twelve hundred, guests of the Northern Michigan Transportation Company, being taken to South Chicago upon the company's steamers City of Charlevoix and Petoskey.

The Illinois is 240 feet over all, 40 feet beam, 16 feet molded depth and 12 feet draft. Engines will be of the triple-expansion type with cylinders 20, 33 and 54 inches in diameter by 36 inches

Photo by R. C. McLean.



LAUNCHING OF THE STEEL STEAMER ILLINOIS.

stroke. Steam will be supplied from two Scotch boilers, 12 feet 6 inches in length by 11 feet 6 inches in diameter, and allowed a working pressure of 175 pounds. The engines will develop 1,800 horse-power and are guaranteed to drive the vessel at a speed of 17 miles an hour, while it is probable that with forced draft 18 miles may be easily attained. There will be two dynamos, each with its own engine and carrying a total of 500 electric lights, and a large searchlight will also be provided. The construction is of steel as far as possible, even to the decks, and the hull is divided into six watertight compartments. The cabins will be finished in curly birch with mahogany trimmings, and the staterooms in

cherry. Hot and cold water will be piped to all staterooms. The cost of the steamer when completed will be in the neighborhood of \$250,000.

The Illinois is owned by the Northern Michigan Transportation Company, and will go into commission July 1, and, in conjunction with the Charlevoix, will ply between Chicago and Mackinac Island, making three trips per week and stopping at the principal intermediate ports. The steamer will be luxuriously fitted and perfectly equipped, and will accommodate two hundred passengers. In plan many notable improvements that will contribute to the comfort of passengers are introduced, such as hot and cold water in every stateroom, wire mattresses of the best make and a mattress of a fibrous material that makes them at once soft and luxurious, and, in case of accident, each is a perfect life raft in itself. The electrical equipment is superb, and the double deck of staterooms, each having outside windows, the cabins, music room and general dining rooms, all show an ingenuity of plan that reflects credit upon the designer.

As the leading transportation line to Mackinac Island, Charlevoix, Petoskey and the Georgian Bay and Lake Superior country, the Northern Michigan Transportation Company have in this superb floating palace indicated its policy in catering to the summer tourist, and as an expression of the company's motto in regard to each of its steamships, the Illinois is the embodiment of "speed, comfort and safety."

OUR ILLUSTRATIONS.

Interior of New Synagogue, New York. Brunner & Tryon, architects.

Residence, W. F. Vanderbilt, Hyde Park, New York. McKim, Mead & White, architects.

Ohio Odd Fellows' Orphans' Home, Springfield, Ohio. Yost & Packard, architects, Columbus, Ohio.

Municipal Building, Binghamton, New York. Ingle & Almirall, architects, New York. Exterior view and view in vestibule are shown.

Residence of William F. Havermeyer, Red Bank, New Jersey. Brunner & Tryon, architects, New York. The following views are shown: General View, Rear View from Dutch Gardens, Hall, Upper Hall, Dining Room, Bedroom.

Office Building for Henry Herman, Milwaukee, Wisconsin. Jenney & Mundie, architects, Chicago. The building is to be a high-grade steel skeleton fireproof office building, finished with all the modern improvements and conveniences and elegance. The three lower stories are of stone; above the third story the street fronts are of brick and terra cotta. The basement is for a safety deposit, with the Wisconsin street end for rent. The ground floor is to be occupied by the North-Western Railway for a ticket office. The second story is for a bank or some other business requiring fine, large offices. These three lower stories are to be finished in mahogany and marbles with mosaic floors. Above these are the general office stories, to be finished to suit tenants. Work commenced May 1, 1899, and will be pushed to completion as rapidly as practicable.

The Merchants Loan & Trust Bank Building, now being erected for Mr. Marshall Field by Messrs. D. H. Burnham & Co., architects, will consist of ten stories, 181 feet 1 inch by 99 feet 4 inches, situated corner Clark and Adams streets, diagonally opposite the new Federal and Post Office building. It will be of steel skeleton construction and granite facing for the exterior. The design is classic in its lines, and especially adapted to granite. The entrance to the building will be on Adams street, and will be indicated only by additional pilasters, without making any further attempt at display. The lobby and entrance hall will be an imposing feature of the building. Special care and attention have been given to this spacious entrance hall, which will be enriched by walls and ceiling of Carrara marble with two grand staircases of marble, leading to the bank on the second floor. At the end of the hall six elevators will be placed for the use of the tenants of the building, the inclosures of which will be of solid bronze. The entrance doors of the building will also be of solid bronze.

New St. Xavier's Academy and Convent of Mercy, Chicago. Egan & Prindle, architects. The new structure will be placed in the center of the block. The extreme dimensions are 277 feet east frontage on Evans avenue and 200 feet north and south frontage on Forty-ninth and Fiftieth streets. The west frontage, on Langley avenue, or what might be termed the rear, but which is treated architecturally and thus becomes also a frontage, is divided by two courts, each about fifty feet in width, thus also subdividing the building on that frontage into three main wings, one on the north, one on the south, and one in the center, this central wing being set apart for the exclusive use of a chapel, and a hall for academical exhibitions and exercises. Interiorly the building is planned with extreme simplicity and practical utility for the purposes of an educational and conventual house. The educational or academic portion is arranged exclusively on the main or first floor, and comprises reception parlors, office, large study hall, art hall, seventeen large classrooms, fourteen music rooms, vocal and instrumental rooms, all of which are located in the front, north and south wings, the central or chapel wing on this main floor being arranged for the academy hall, and being provided with staged seats, stage, anterooms and every appliance demanded by the most advanced ideas regarding the equipment of such an adjunct to so great an educational institution as this. The chapel, which may be said to be the crowning feature of the interior, as in all such institutions, devoted essentially to religious

education, has ample accommodation for some 200 sisters and about as many resident pupils. It is of Romanesque or Byzantine character, and has a vaulted ceiling, forty-five feet in clear height, and clear inside dimensions of about 100 by 50 feet. It is placed on the second floor, in the central wing, and directly over the academic hall, which is on the main or educational floor. The general character of the design, as will be perceived, is Romanesque, the main front entrance being defined by bold projecting pavilions, and an arched portico, characteristic of the style. This is to be surmounted by a statue of the patron saint of the institution, of life size, in marble. Projecting pavilions or wings on the north and south of the main frontage also emphasize the interior. The contracts for the principal items of construction: Masonry, carpentry, cutstone, roofwork and ironwork are now awarded, and work will be commenced as soon as weather permits and vigorously pushed to completion. The total cost will be \$250,000.

Photogravure Plate: Chicago Orphan Asylum, Shepley, Rutan & Coolidge, architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Church of the Divine Paternity, New York. W. A. Potter, architect.

Residence of E. W. Bliss, New York. Little & Browne, architects, Boston.

New York Free Circulating Library, New York. James Brown Lord, architect.

Residence of W. C. Whitney, New York. McKim, Mead & White, architects.

Residence of J. Hooker Hammersley, New York. William B. Tuthill, architect.

Residence of Stuyvesant Fish, New York. McKim, Mead & White, architects.

Synagogue, Congregation of Shearith Israel, New York. Brunner & Tryon, architects.

PAINTS IN ARCHITECTURE.

I AM asked by a well-known architect in an Eastern city to give standard formulas for white paints for interior and for exterior use. He complains of the average local painter whose knowledge covers only the mixing of lead, colors, turpentine and oil, and of the lack of time on the part of architects to give due attention to this most important branch of their profession. He also wants consumers "educated to the fact that pure lead, oil and turps, together with color, cannot retain their shade, for the reason that lead is a porous pigment, and most chemical colors mixed with it flash out and lose their tone as well as their shade."

This correspondent, it will be at once recognized, only voices a universally felt want. On the other hand, it is rather difficult, and risky as well, to set down a hard and fast formula good for all materials and under all circumstances. However, if strictly pure linseed oil be certainly obtainable for thinning, I will suggest two formulas for paste paints, one for interior and the other for exterior use, either of which would pass for straight lead in the hands of the most prejudiced painter, and either of which will outwear pure lead in material and in color. Equally good formulas can be devised containing no lead whatever, but in one of the formulas given I use practically equal bulks of zinc and lead, while in the other the weight of the zinc used is three times that of the lead, which can be omitted with excellent results. The formulas include the materials in the paints ready for use, but it is understood that the paint shall first be ground in paste form, and the additional oil added when ready to apply. In the second formula the oil used for grinding is ample for binding the pigment. The formulas are for use over white pine or poplar:

EXTERIOR PAINT.

Dry zinc white.....	30 pounds
Dry white lead.....	60 pounds
Pure raw linseed oil (about).....	6 gallons
Special japan drier (if required).....	1 pint
Turpentine (if required).....	1 pint

INTERIOR PAINT.

Dry zinc white.....	75 pounds
Dry white lead.....	25 pounds
Pure linseed oil (for grinding).....	2 gallons
Turpentine.....	6 gallons

Driers may be used in the second formula if required, the proper proportion being about one pint to one and one-half pints in this formula. If very light tints are to be used, a light-colored oil (bleached or simply washed and well settled, though with zinc the sunlight will bleach the oil) should be used. The proportions of turpentine, oil and driers will vary, of course, according to the effect desired.

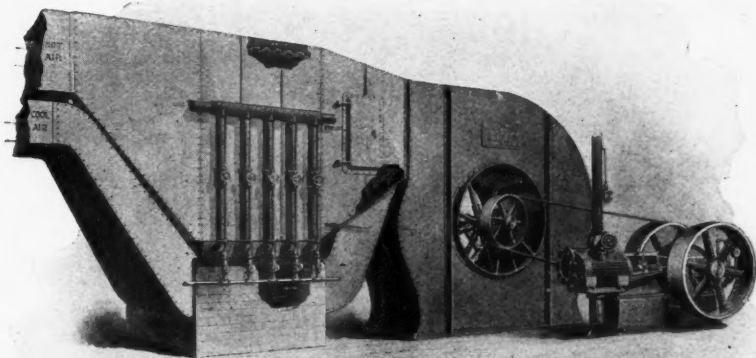
In the above formulas I give merely the commonly accepted ideas of the leading manufacturers. Nearly all of them, however, assert that lead should not be used at all on interiors, and that the lead is put in chiefly to placate prejudice and to economize work. Four coats of straight zinc or three coats of zinc and barytes, zinc and paris white, or zinc and any mineral color, will undoubtedly hold color much better.

The point to be noted in all such formulas, whether the priming and the finishing coats be the same or different, is that zinc holds the oil and protects the lead.

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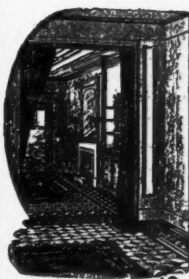
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No. 4

BUFFALO FORGE COMPANY.

This firm was awarded the highest gold medal for the best high-speed engine at the Omaha Exposition. The engine making the record was one of their horizontal, non-condensing Class A machines, with a cylinder diameter of sixteen inches and a sixteen-inch stroke, working under a boiler pressure of 125 pounds and making 250 revolutions per minute. The engine was in operation from eighteen to twenty-two hours daily for 183 days. Among the points of special mention were noted: refinement of regulation, exceptional economy, uniform smoothness of operation and special adaptation for direct connection with generators. The firm takes a pardonable pride in its product, and will gladly respond to inquiries for further information, addressed to Buffalo Forge Company, Buffalo, New York.

TRADE PAPER ADVERTISING AGENCY.

Three men of experience in trade-paper work have established in New York City an agency for the purpose of handling the advertising of manufacturers and dealers who use trade papers exclusively. These men are O. O. Rouse, Charles E. Robinson and Edward Caldwell. Both Mr. Rouse and Mr. Robinson have been connected with the Manufacturers' Advertising Bureau, the former for nearly six years and the latter for four years. Mr. Rouse was previously engaged in trade-paper and newspaper work in New York City, and Mr. Robinson was for seven years in charge of the advertising department of the *Manufacturer and Builder*. Both gentlemen have made many personal friends among publishers and advertisers with whom they have had business dealings for several years. Mr. Caldwell has been engaged in trade-paper work almost continuously for ten years, in Boston, Chicago and New York, on the *Electrical World*, the *Street Railway Gazette*, the *Street Railway Journal* and the *American Electrician*. For more than two years he was associate editor of the *Electrical World* and for two years business manager of the *Street Railway Journal*. Such a combination of experienced men ought to produce good results for the advertiser who places his business in their charge.

TRADE NOTES.

V. J. JAESCHKE, of Buenos Aires, S. A., writes that many contemplated changes in public works and buildings in that city offer rare opportunities for American products in the line of structural iron and steel. Mr. Jaeschke is a prominent architect and engineer, and his long residence in that city, covering a period of twenty years, has given him ample opportunity to judge accurately of trade conditions. In his advertisement elsewhere in these columns he solicits correspondence on the subject, and desires to act as representative to such manufacturers as wish to enter that field.

MERCHANT & CO., INC., of Philadelphia, New York and Chicago, report a heavy increase in tin and Babbitt metal business. They have recently taken, among numerous others, a carload order for Babbitt metal from a large Western machinery manufacturing company, the shipment consisting of an assortment of grades. This order was placed after an exhaustive list of samples from a number of manufacturers. This company have been manufacturing all grades of this metal for a quarter of a century, and their present large business in this line is a fitting tribute to their thorough experience and reliability in its manufacture.

WILKS' hot-water heaters, steam generators and steel tanks are worthy of passing notice. The superiority of steel over cast

iron as the basic material for this class of goods is generally conceded. With a good material, a scientific plan and careful construction the product ought to be satisfactory. The Wilks' heaters possess all these, and abundant testimonials of their efficiency are not lacking. A recent catalogue issued gives a clear conception of these necessary equipments of modern buildings, and the company, S. Wilks Manufacturing Company, 53 and 55 South Clinton street, will cheerfully answer all inquiries, giving full information as to sizes required and the other essentials connected with the heating of dwellings, churches, offices, bathhouses, etc.

THE use of Spanish tiles made of copper, galvanized iron, tin, etc., is constantly growing. The tile is one of the most artistic roof covers, and if made of good material and a good mechanical design it supplies a most durable roof. One of the principal features in any tile is the lock, and if a dry roof is to be secured, this lock should be a perfect one mechanically. The tile design of Merchant & Co., Inc., of Philadelphia, New York and Chicago, excels in this respect. The lock is a vertical one, and the only one made. The design is fully covered by patent. Designers or builders contemplating the use of tiles would consult their own interests by communicating with this long-established and well-known company before making their selection of these materials.

ALL of our readers will be interested in the advertisement of Keuffel & Esser Company, because this company furnish everything required for drawing and measuring. They are probably known to most of our readers, as they are recognized leaders in their line of business, their goods are the standard of quality, and their generously distributed catalogue is in the hands of every professional. They make most of their goods, and absolutely control nearly all goods which they import, and they warrant all of their goods to be exactly as represented, or better. They carry an immense assortment, and probably the largest stock of any house in the world in their line. Their lavishly illustrated catalogue of over four hundred pages is a model of terse but efficient description, and is sent free of charge to professional people applying for it.

THE old-established manufactory at Haydenville, Massachusetts, known as the Haydenville Company, makers of high grade plumbers' and steam fitters' brass goods, has been wholly reorganized and placed under new management, with principal offices at Haydenville. These mills are among the largest in the country, and are equipped in the most complete and thorough manner. This well-known company have always enjoyed an enviable reputation for fine brass work, and many of the most costly residences and largest buildings in the United States are equipped with their specialties. They manufacture all classes of bibbs, stops, basin and double bath cocks, and a large variety of special lavatory and bathtub appliances. They are prepared at all times to take up new articles of special design and dimensions, being particularly fitted up for such special work. The new officers are all capable and experienced brass men, and are as follows: C. J. Hills, president; C. K. Sanborn, vice-president; A. S. Hills, treasurer.

"PAINTS IN ARCHITECTURE," a practical treatise in the characteristics and properties of pigments and paints for the use of architects, by Stanton Dudley, is the title of a pamphlet just issued by the New Jersey Zinc Company. Among the manifold requirements of the architect is a knowledge of paints and their qualities, since defective painting will destroy the harmony of beautiful forms. Indeed this knowledge

of paints must include more than a proper comprehension of the "color scheme," inasmuch as the composition of a paint is all-important in its relation to permanent effect. It is the purpose of the pamphlet to set forth certain facts regarding the base pigments and various manufactured paints, which will assist materially in a proper selection from among them. The author very properly states the object of painting to be "to protect and beautify," and then, taking up the subject of pigments and vehicles, states in concise form the well-established facts relating to the standard elements in the class of fixed colors. In the scope of his work he has eliminated the aniline lakes and similar fugitive colors, restricting the treatise somewhat to the comparative merits and peculiarities of white lead and zinc white, alone and in combination with inert pigments, and with each other. The work will be appreciated by all interested in this department of constructive finishing. Copies may be secured by addressing the New Jersey Zinc Company, 52 Wall street, New York.

THE best way of lighting large store windows is a matter which concerns every architect whose practice extends to mercantile work. Assuming that a merchant wishes to make his window display appear to best possible advantage, he can do no better than follow the methods used for lighting the large picture galleries. A special store window light, embodying the principles of a picture light, is made by Mr. I. P. Frink, of New York, who for forty years has been identified with the manufacture of reflectors for all kinds of lighting. To those architects who are not acquainted with the sort of work Mr. Frink does, a mention of some of the more important installations of his picture light will be satisfactory guarantee that his store window light can be safely specified. Of the larger galleries, the Metropolitan Museum of Art, New York; the Art Institute, Chicago, Ill.; the Carnegie Library, Pittsburgh, Pa.; the New Corcoran Gallery, Washington, D. C.; and the Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y., are perhaps the most representative of his system of lighting, while among the smaller private galleries are those of Mr. George W. Vanderbilt, Com. Elbridge T. Gerry, Mr. Charles T. Yerkes, Mr. M. D. C. Borden and Mrs. R. L. Stewart, New York; Mr. Potter Palmer and Mr. James W. Ellsworth, Chicago, Ill.; Mr. L. Z. Leiter, Washington, D. C., and Mr. Joseph Jefferson, Buzzard's Bay, Mass. It is pretty safe to trust the lighting of store windows to a man who is lighting so many fine works of art as the above galleries contain, and it is worth remembering that an estimate on the proper lighting of any special room costs nothing, and puts you under no obligation to Mr. Frink.

PROPOSAL.

TREASURY DEPARTMENT,
OFFICE SUPERVISING ARCHITECT,
WASHINGTON, D. C., April 29, 1899.

SEALED PROPOSALS will be received at this office until 2 o'clock P.M. on the 25th day of May, 1899, and then opened, for the construction (except heating apparatus and laundry machinery) of the boiler-house, isolation ward, etc., for the United States Marine Hospital at Chicago, Illinois, in accordance with the drawings and specification, copies of which may be had on application at this office or the office of the Custodian at Chicago, Illinois.

JAMES KNOX TAYLOR, Supervising Architect.

TREASURY DEPARTMENT,
OFFICE SUPERVISING ARCHITECT,
WASHINGTON, D. C., May 9, 1899.

SEALED PROPOSALS will be received at this office until 2 o'clock P.M. on the 7th day of June, 1899, and then opened, for the changes, alterations and repairs to the United States Customhouse, etc., (old) at Detroit, Michigan, in accordance with the drawings and specifications, copies of which may be had at this office or the office of the Custodian of the U. S. Courthouse, Post Office, etc., building at Detroit, Michigan.

JAMES KNOX TAYLOR, Supervising Architect.



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VOL. XXXIII.

THE INLAND ARCHITECT AND NEWS RECORD.



OFFICE BUILDING FOR MARSHALL FIELD, CHICAGO.

D. H. BURNHAM & Co., ARCHITECTS.

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VOL. XXXIII.

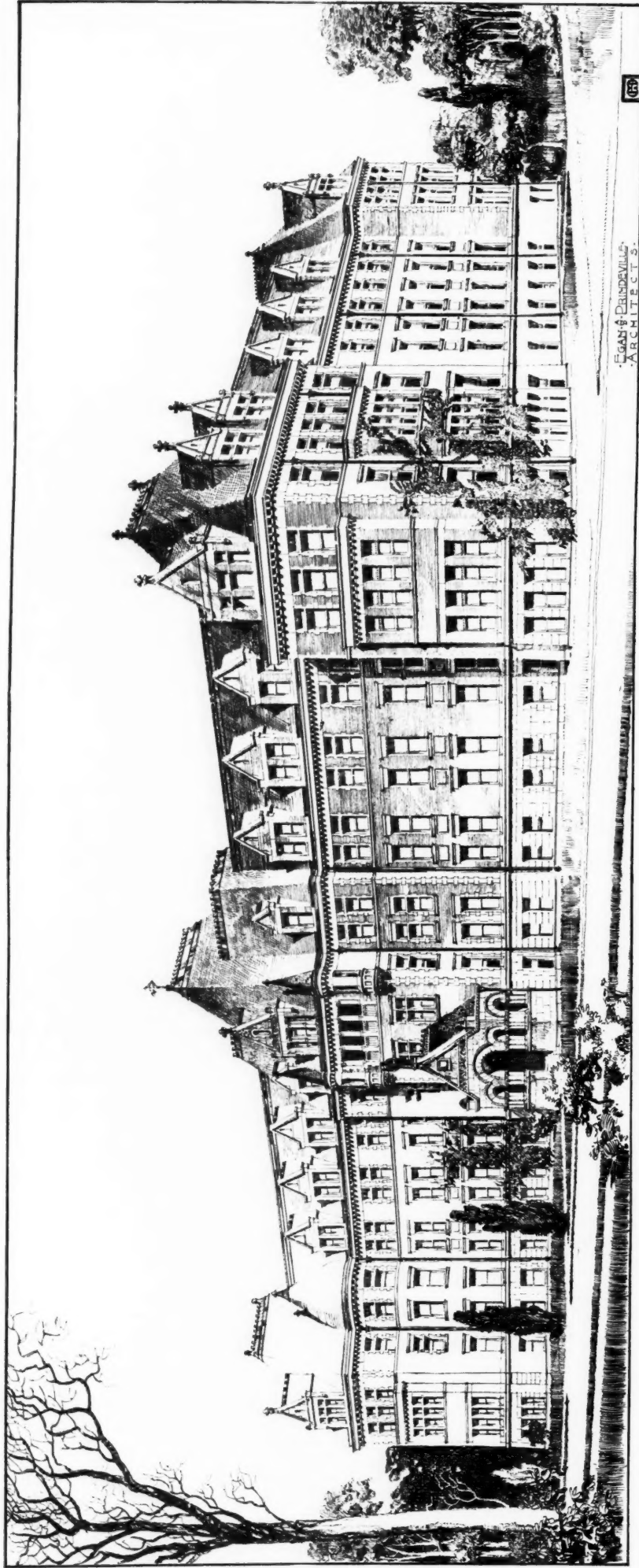
THE INLAND ARCHITECT AND NEWS RECORD



Wurts Bros., Photo., N. Y.

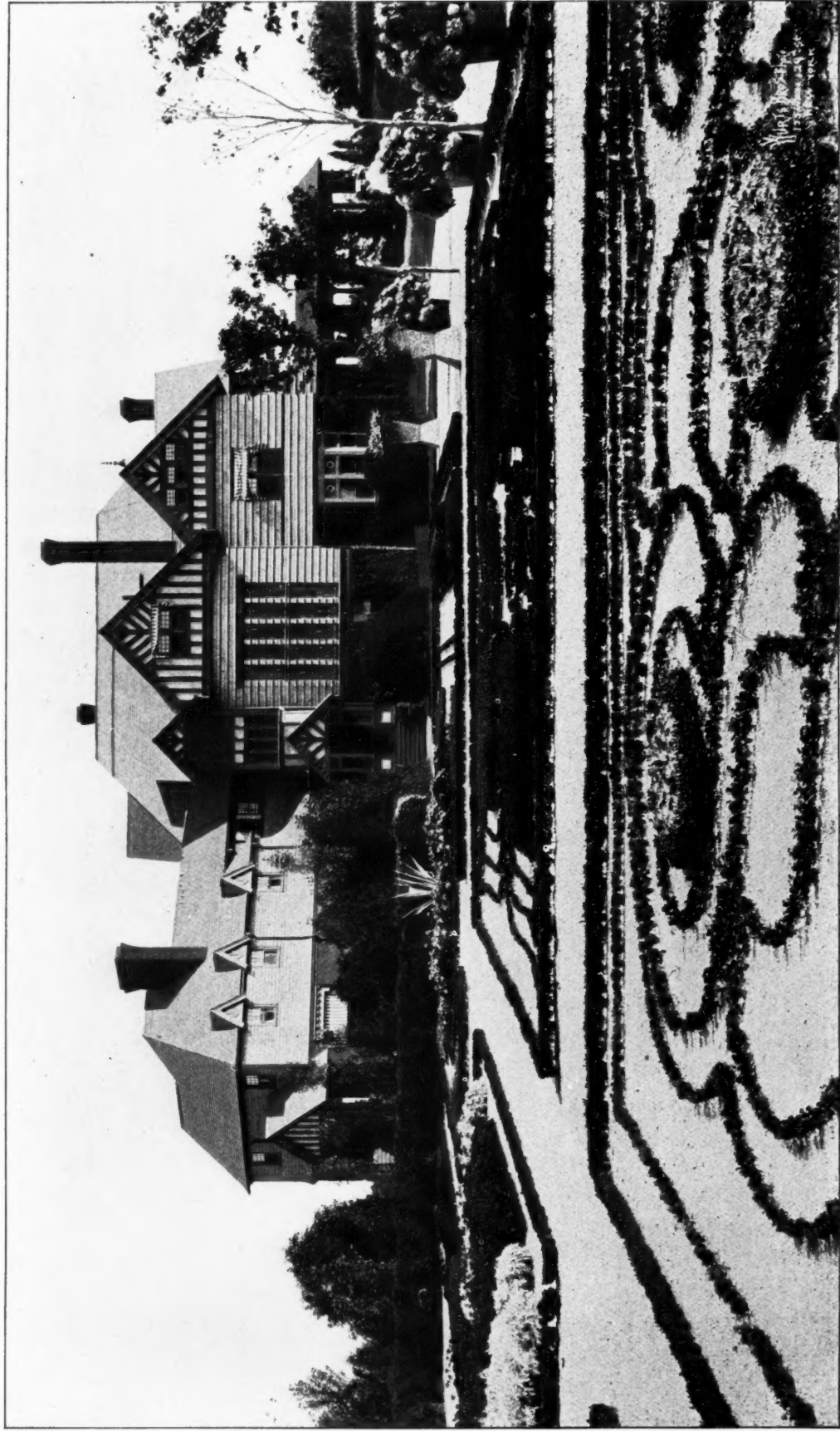
RESIDENCE OF W. F. VANDERBILT, HYDE PARK, NEW YORK.

MCKIM, MEAD & WHITE, ARCHITECTS.



CONVENT OF MERCY AND ST. XAVIER'S ACADEMY, CHICAGO.

EGAN & PRINDIVILLE, ARCHITECTS.



REAR VIEW FROM DUTCH GARDENS, RESIDENCE OF WILLIAM F. HAVERMEYER, RED BANK, N. J.
BRUNNER & TRYON, ARCHITECTS, NEW YORK.

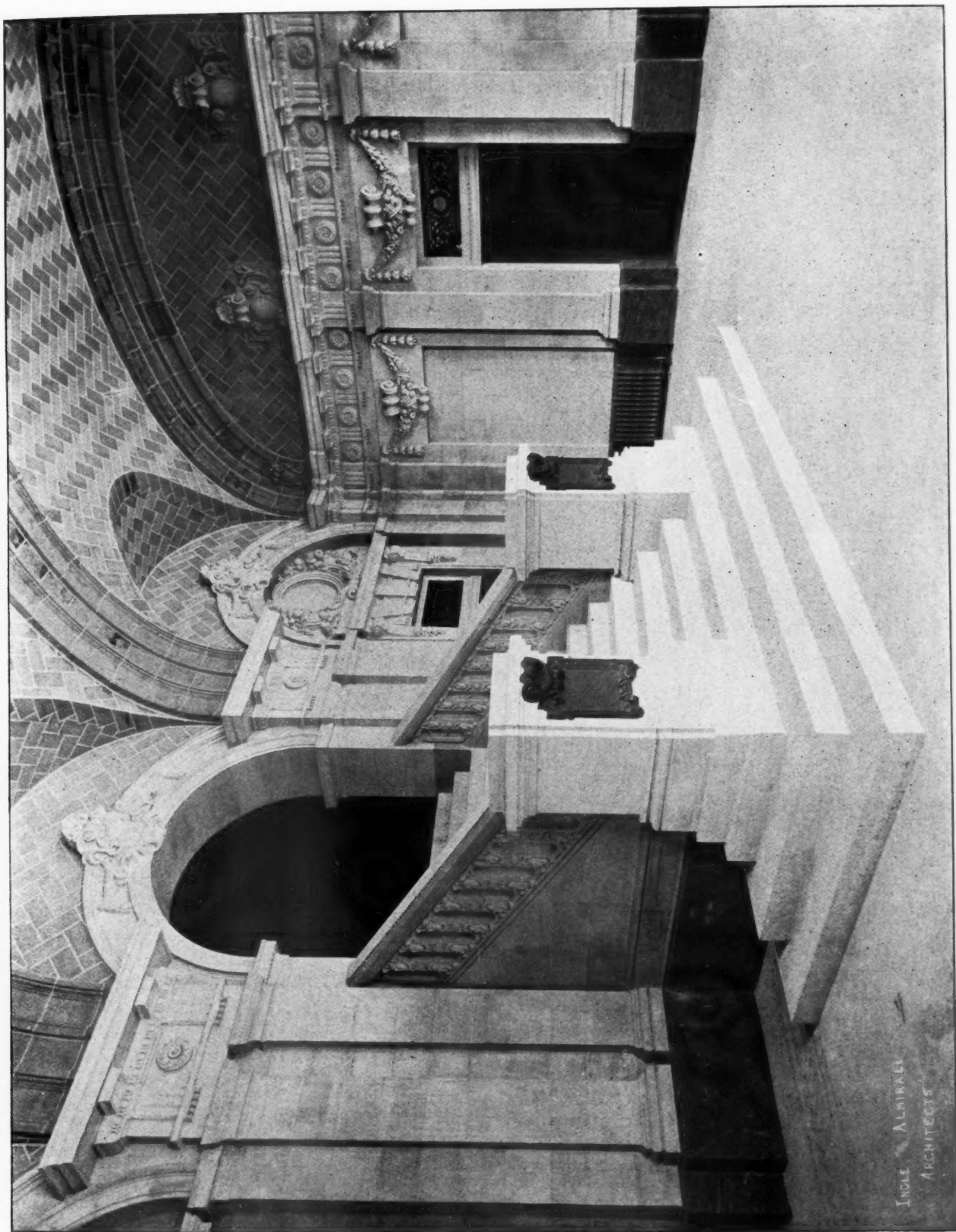
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MUNICIPAL BUILDING, BINGHAMTON, N. Y.

INGLE & ALMIRALL, ARCHITECTS, NEW YORK.

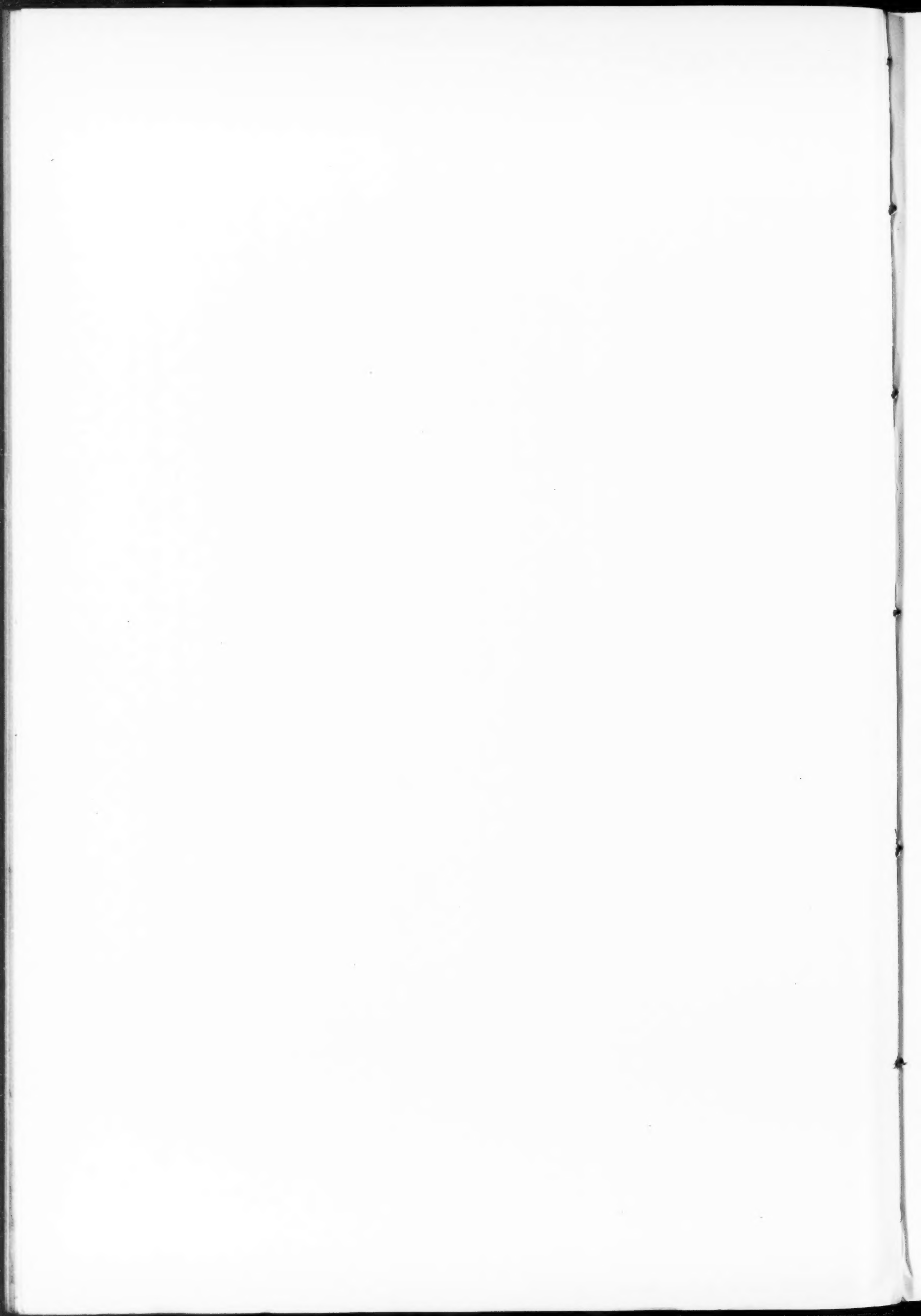
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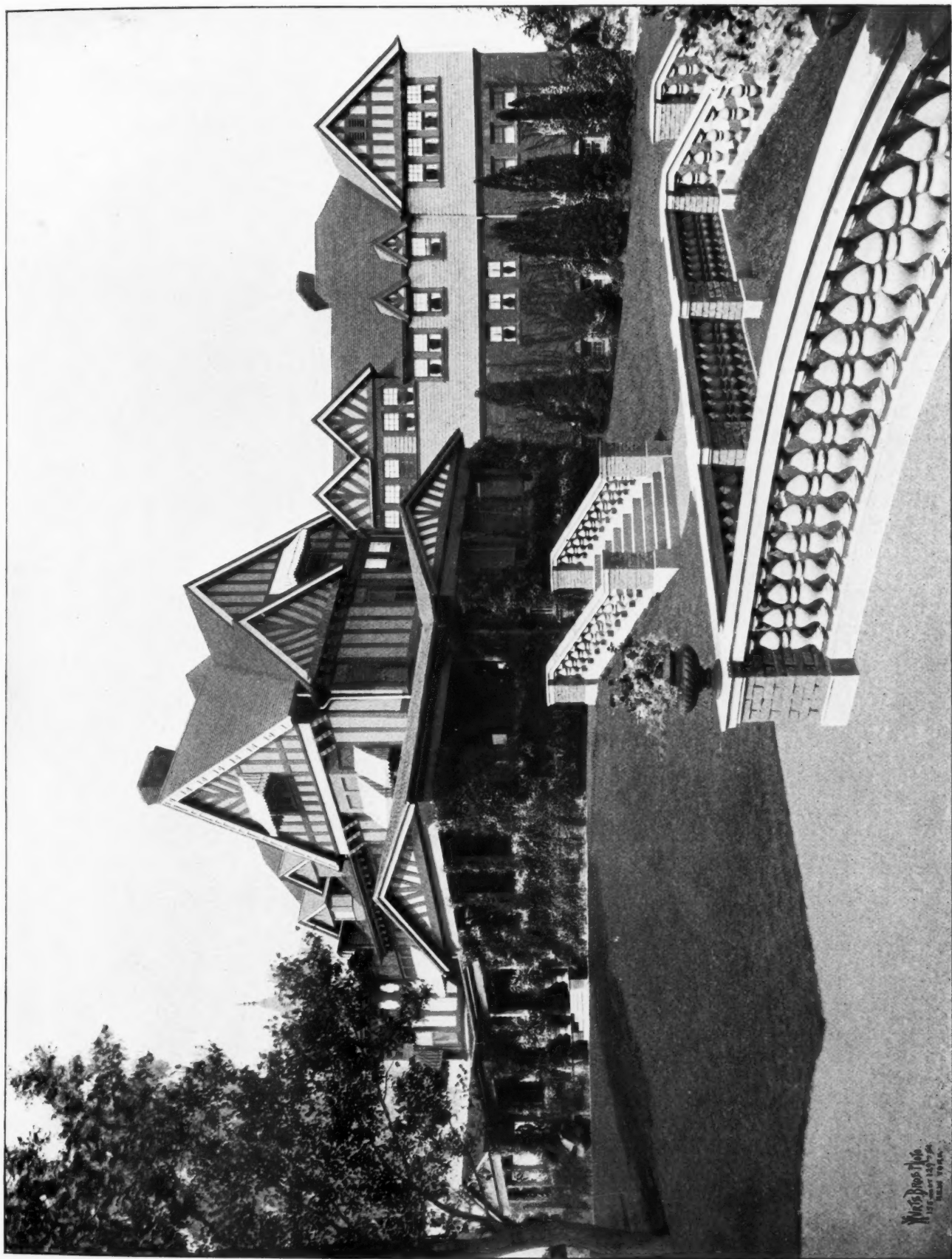
VIEW IN VESTIBULE, MUNICIPAL BUILDING, BINGHAMTON, N. Y.

INGLE & ALMIRALL, ARCHITECTS, NEW YORK.

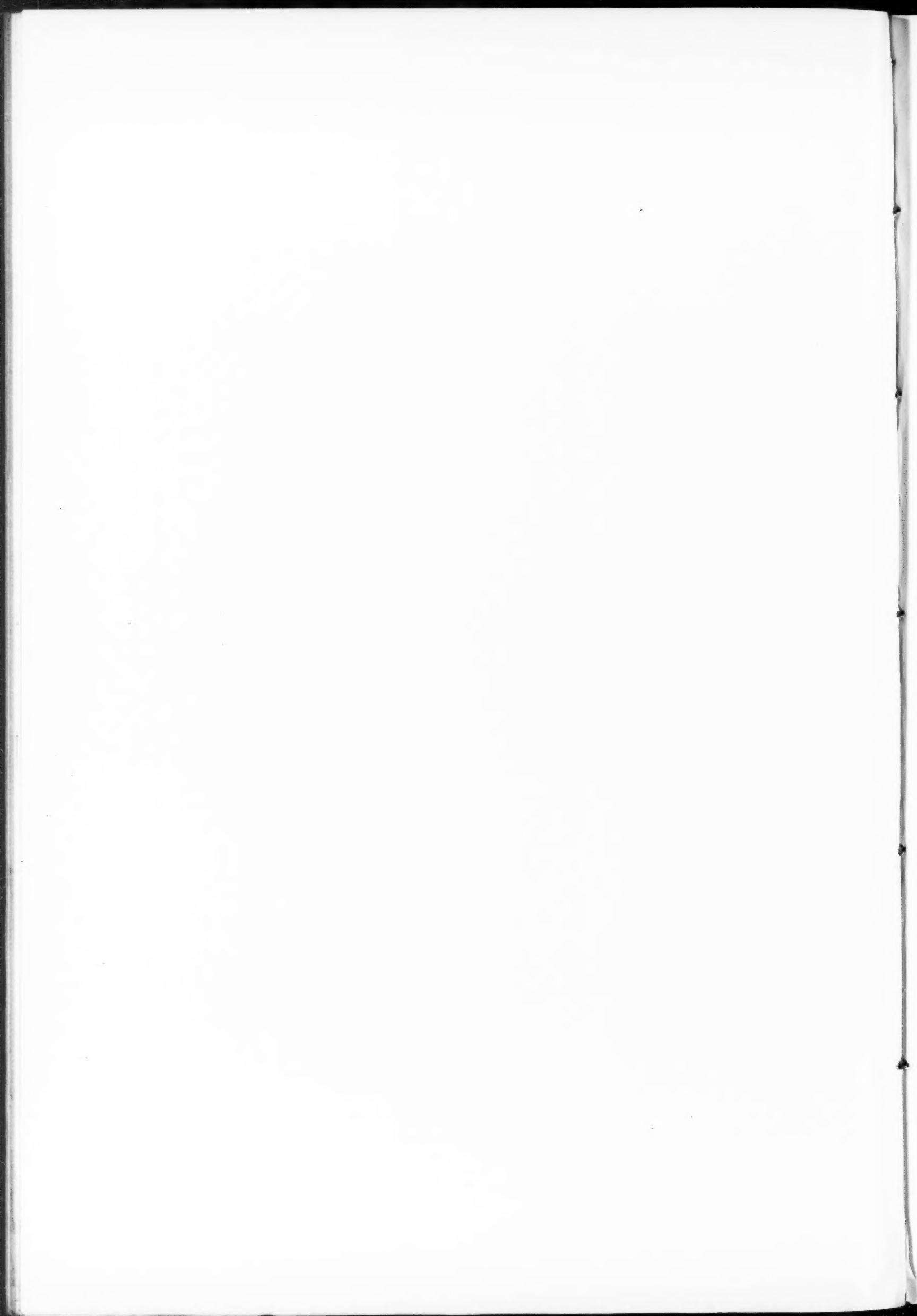
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ARCHITECTS



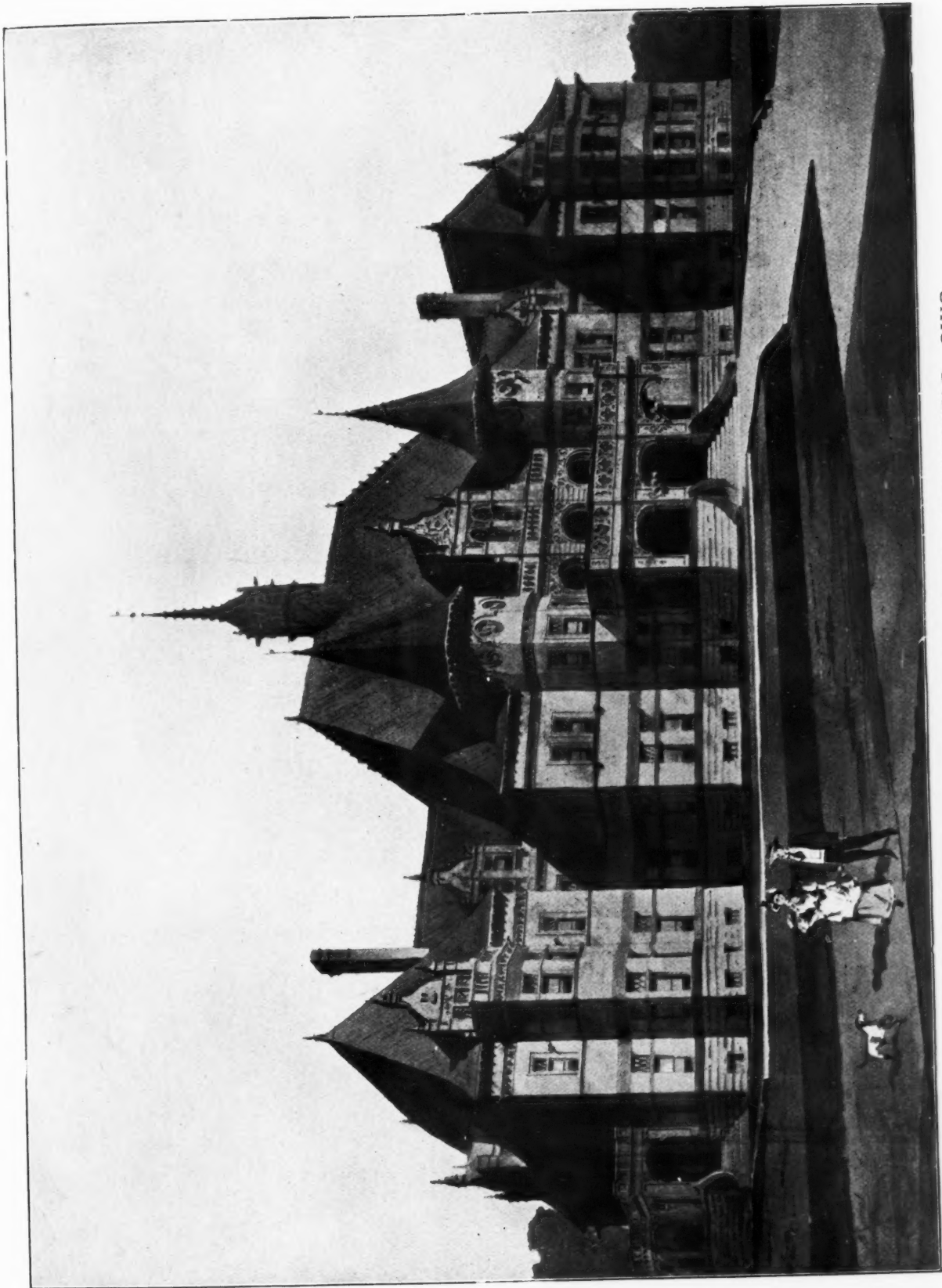
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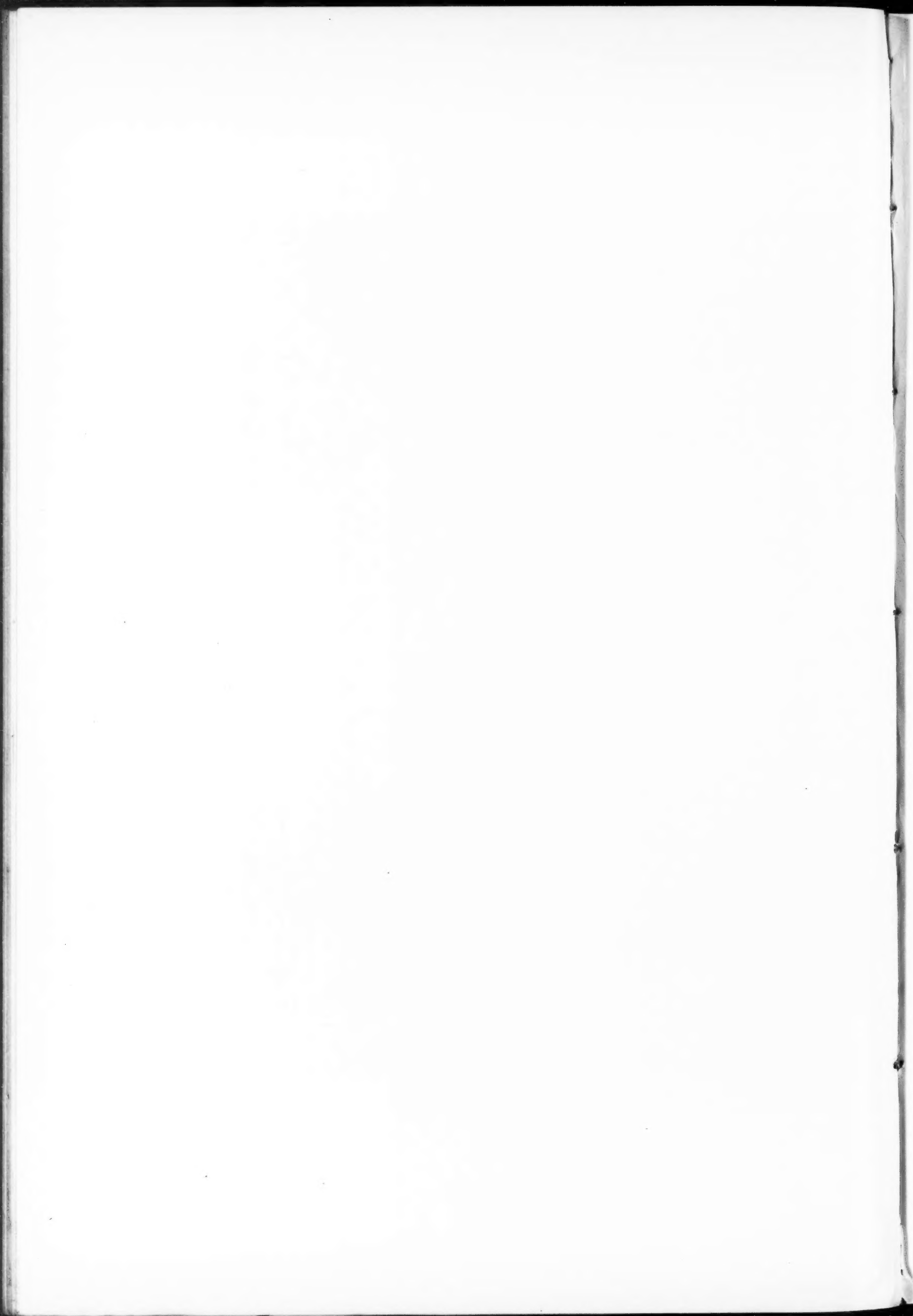
OHIO ODD FELLOWS' ORPHANS' HOME, SPRINGFIELD, OHIO.
YOST & PACKARD, ARCHITECTS, COLUMBUS, OHIO.

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INTERIOR VIEW, NEW SYNAGOGUE, NEW YORK.

BRUNNER & TRYON, ARCHITECTS.

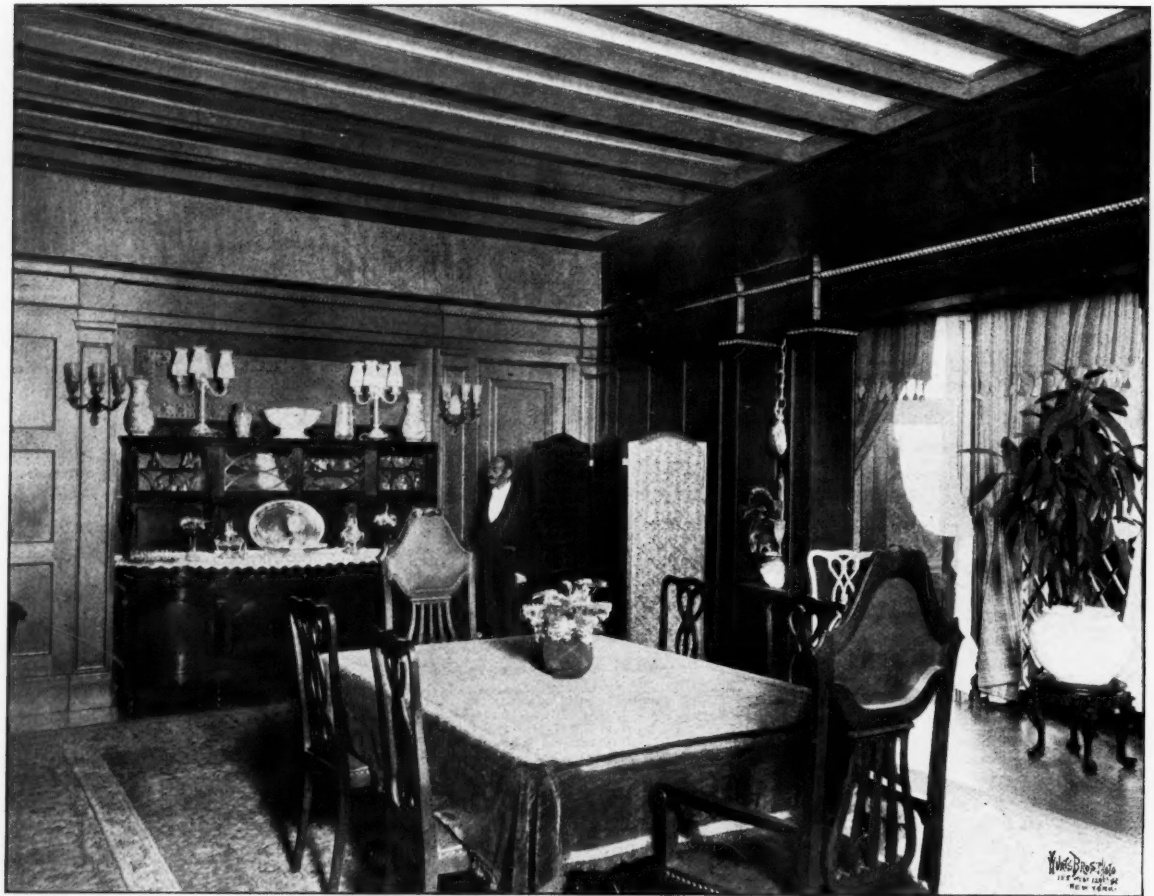




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VIEW IN DINING ROOM.



VIEW IN HALL.

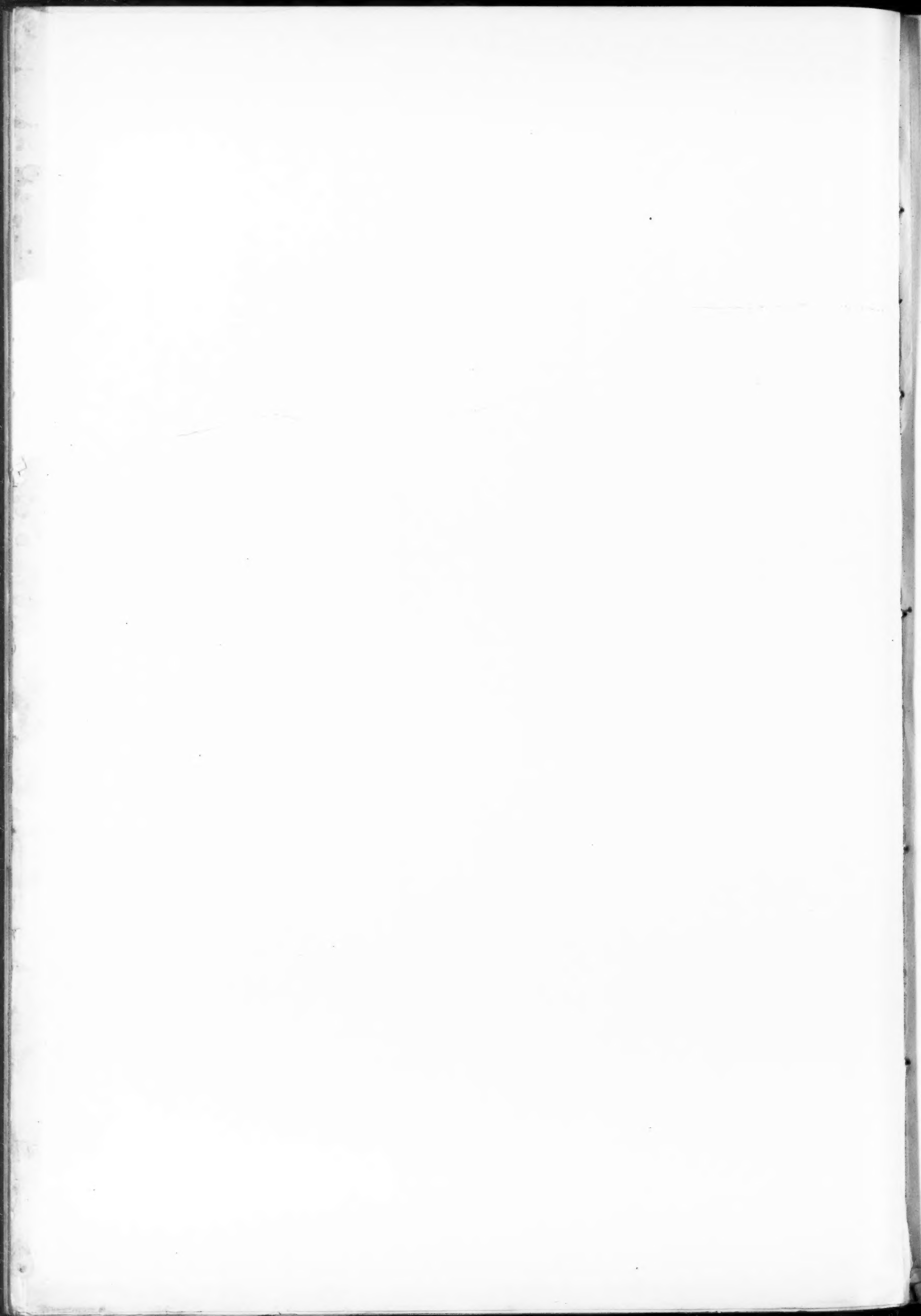
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VIEW IN BEDROOM.



VIEW IN UPPER HALL.



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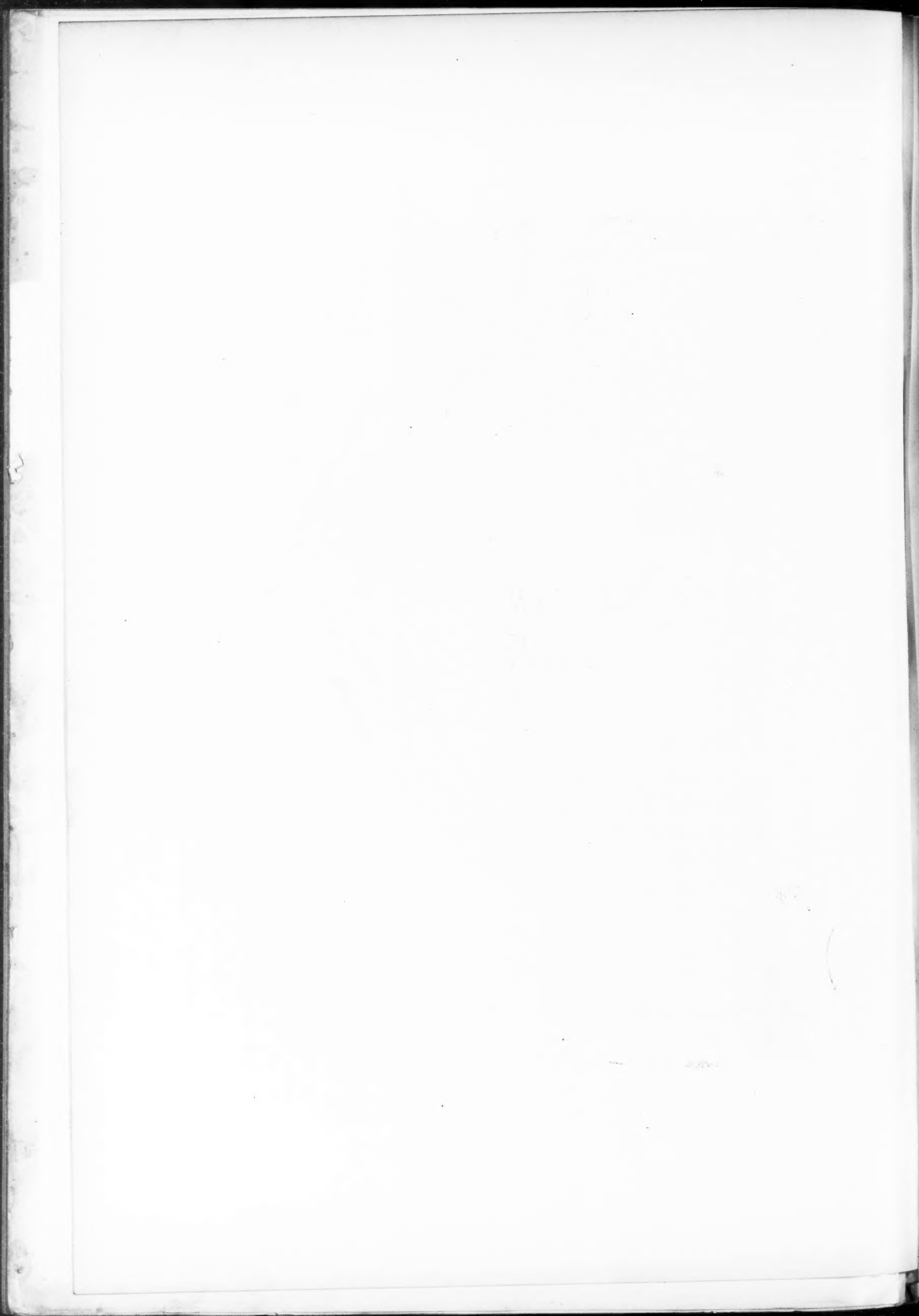


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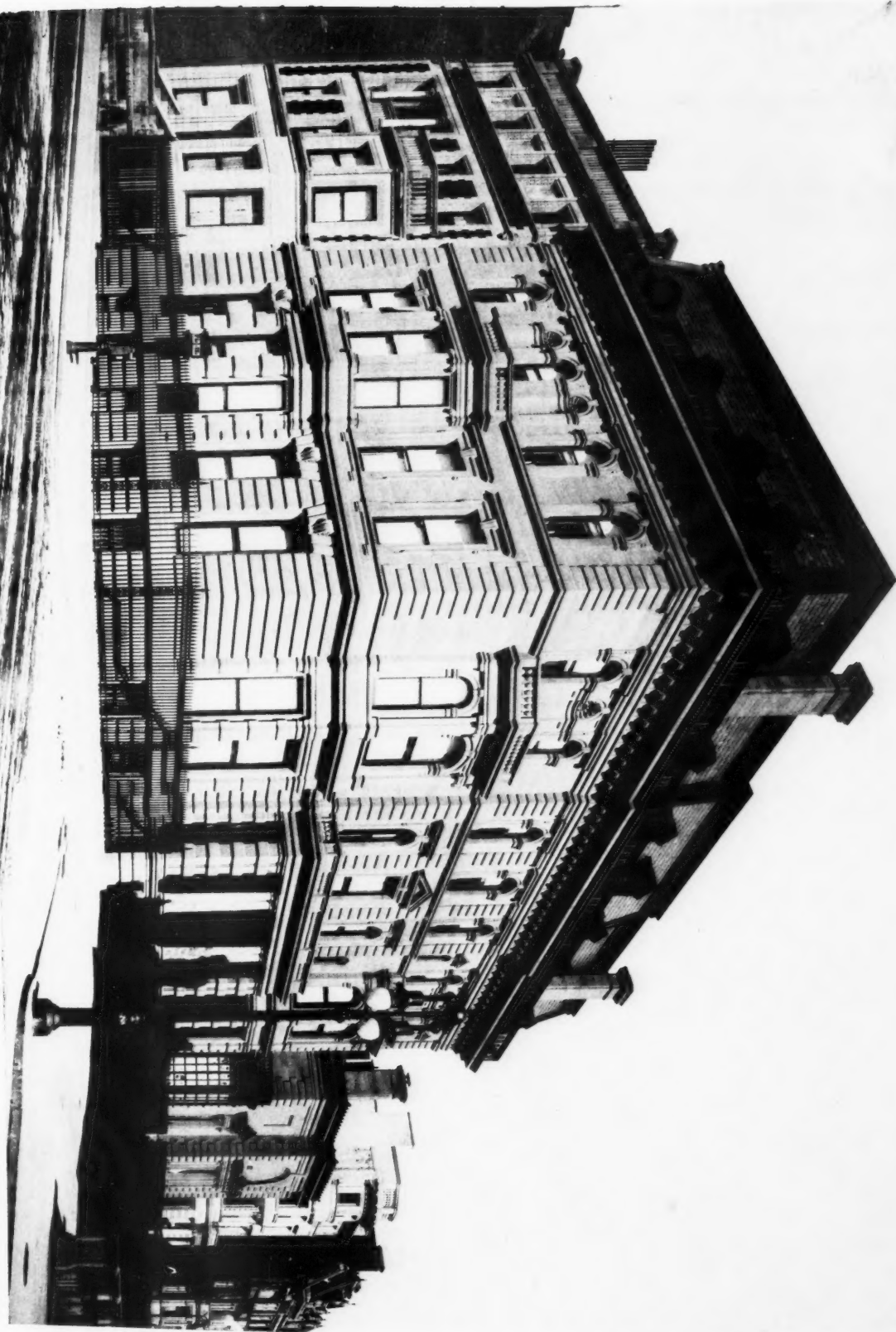
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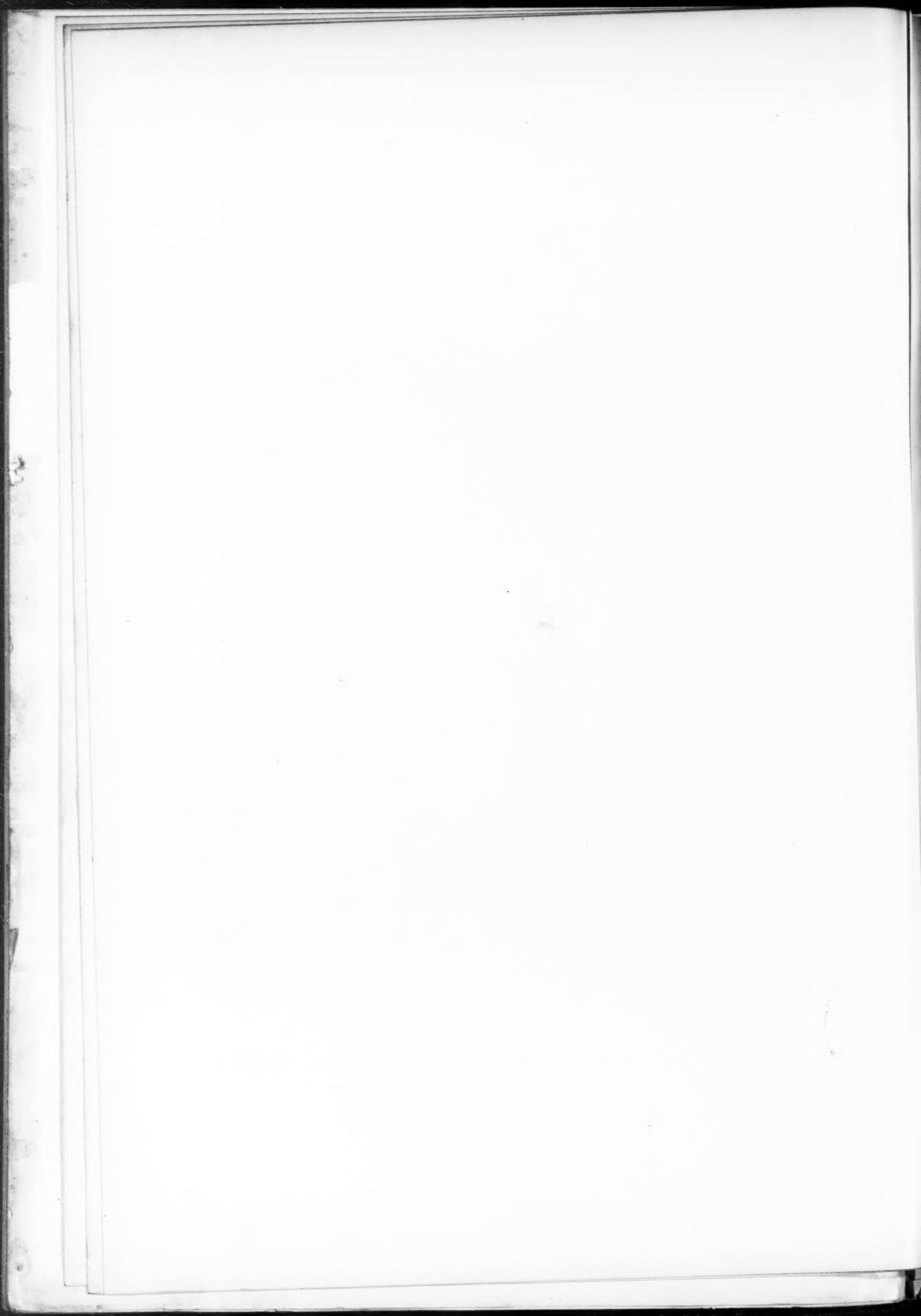


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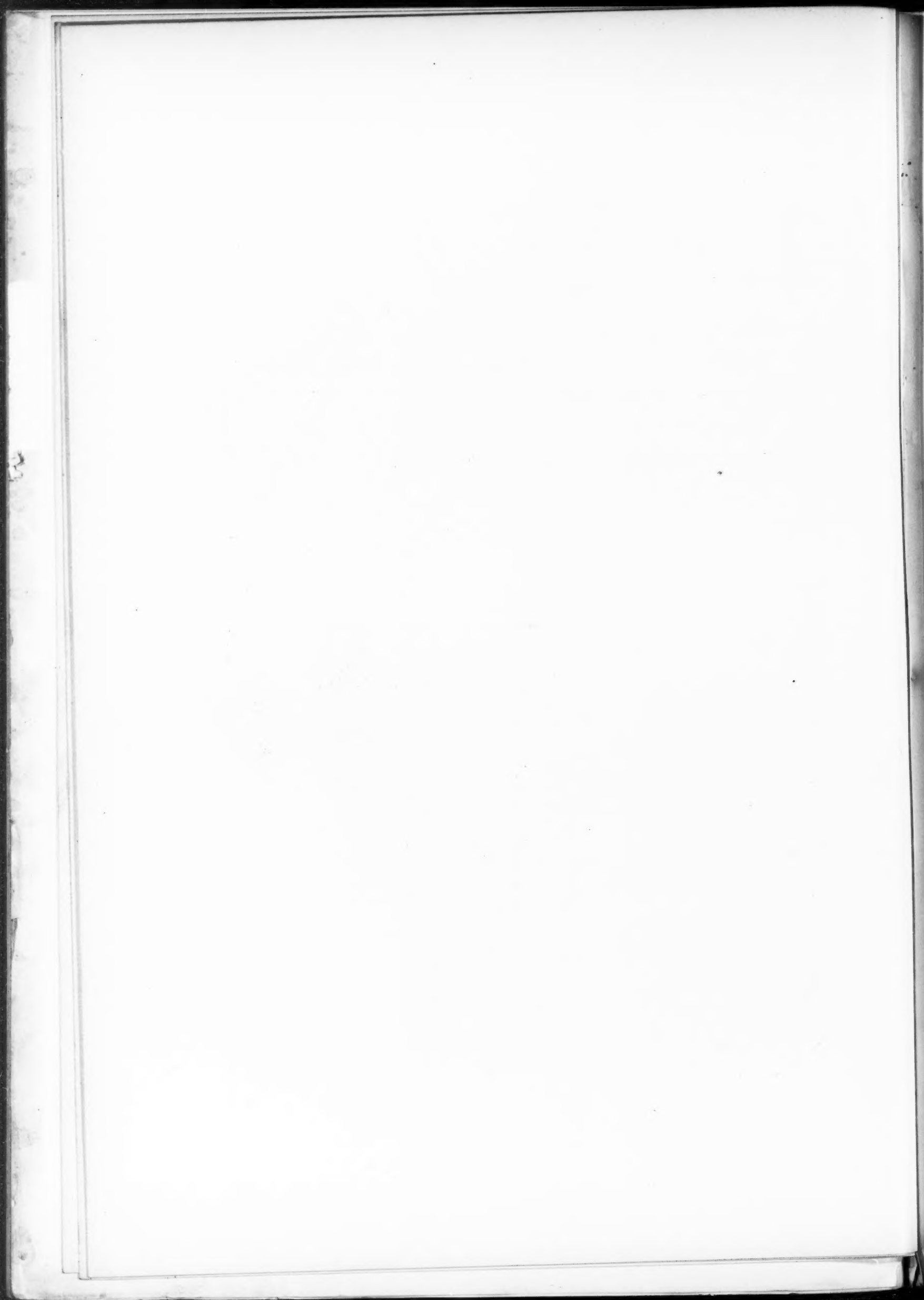


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MCKIM, MEAD & WHITE, ARCHITECTS.



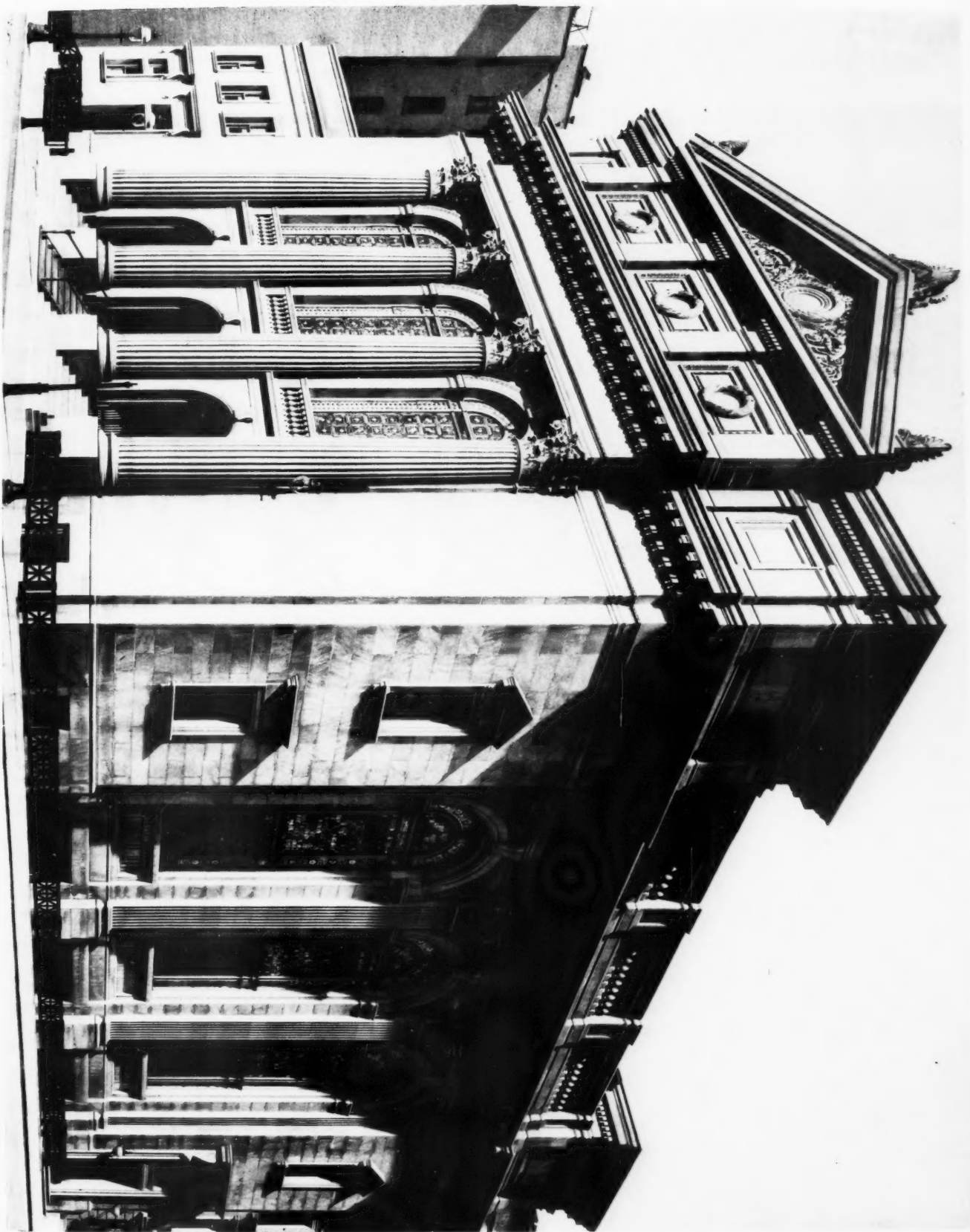
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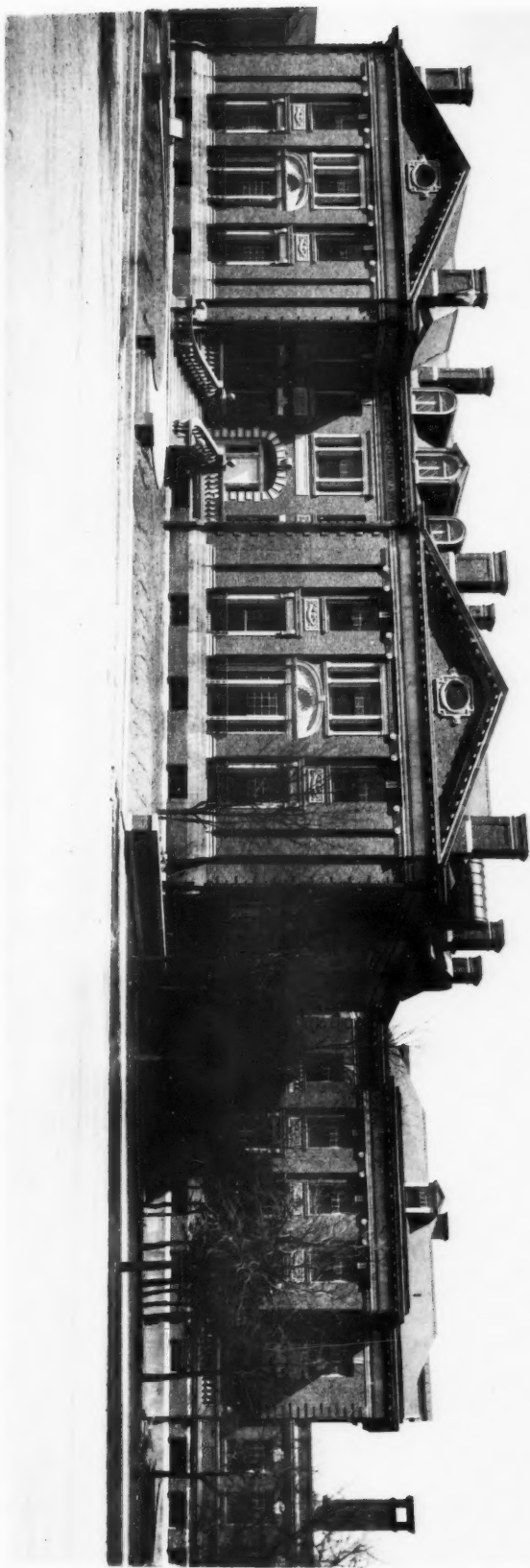
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H. E. Torgersen, Photo, Chicago.

CHICAGO ORPHAN ASYLUM.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.