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The N. A. B. Twelfth Annual Convention.

The attendance of delegates at the twelfth annual convention of the National Association of Builders, which was held at Milwaukee last month, was the smallest in the history of that organization. Without attempting to explain the decline, it would seem to indicate that something more than general business depression actuated those exchanges that had withdrawn from time to time. This depreciation in membership has been going on in the face of constant, vigorous, effective work by its secretary, than whom there is none in any like capacity in the country who has pursued his work with broader intelligence or greater zeal. But as he had twelve years ago planned the scheme of organization, and it proved an immense success, so at this convention he advised a thorough change, recognizing that the work had outgrown its former limits and that the future must in a greater degree be given into the hands of the individual exchanges. The wisdom of this will be apparent in the rapid increase of affiliated exchanges during the coming year. All the intelligent members of local exchanges recognize the benefits of the national organization, and all others should be excluded from participation in its benefits. It is singular to note that just as the Builders' Association is abandoning a strictly delegate system that the Institute is adopting one that, however, is drawn upon similar lines to those that will form the substance of the new rules of the National Association of Builders.

Illinois Examiners of Architects' Report.

The first triennial report of the State of Illinois Board of Examiners of Architects has been issued by the secretary and is an interesting document, as it gives in detail the results accomplished by the first State law enacted for the legalizing of the profession of architecture and the regulation of practitioners. The board held its first meeting September 31, 1897, and up to the date of the last meeting, February 11, 1899, 714 applications for license had been approved and seventy-three rejected. As a sample of the direction taken by the examination papers, the subjects presented at the last examination may be quoted as follows:

January 11, 9 to 12 A.M., "Materials and Construction of Buildings," ten subjects, as follows: Foundations, Stone Masonry, Mortar, Brick Masonry, Cast-Iron Work, Carpentry, Joinery, Tinners' Work, Plastering, Painting. Same day, 1 to 3 P.M., "Strength of Materials," seven subjects, as follows: Tension, Compression, Cast-Iron Columns, Shearing, Transverse Strain, Steel Floor Beams, Roof Truss. Same day, 3 to 5 P.M., "Supervision," seven subjects, as follows: Excavations, Stone Masonry, Brick Masonry, Iron and Steel Construction, Carpentry, Roofing, Plastering. The second day, January 12, was given entirely to making a preliminary study of a problem, as if given by a client to an architect, to demonstrate "ability to make practical application of such knowledge in the ordinary professional work of the architect." The candidates were not advised of the "points" by which this exercise would be judged. They were such as are most prominently involved in the problem in question, and might be different in other problems. The points in this case were as follows: (1) Merit as Investment. (2) Planning. (3) Construction. (4) Design. (5) Rendering. The third day, January 13, was given to "Sanitation," three hours, 9 to 12 A.M., seven subjects: Soil Pipes and Traps, Plumbing Fixtures, Cold Water Supply and Fixtures, Hot Water Supply, Hot Air Furnaces and Pipes, Steam Heating, Ventilation.

The consolidation of all the markings showed that the highest out of a possible 100 was 84 and the lowest 46. A passage average was first set at 50 and subsequently raised to 70. As a result of the State law the Chicago building ordinances require that all plans submitted to the Department of Buildings must be stamped by a State

licensed architect, a vast advance upon old methods in the direction of safe and sanitary construction. The law seems to be popular throughout the State and violations are few and none persisted in, as each case investigated seems to have been through ignorance of the provisions of the law rather than through direct intent and no prosecutions have been instituted, and the number of applicants is so far in excess of what had been anticipated that it is evident that very few who claimed to be architects in the State have failed to make application for license and be passed upon by the board. There is no good reason why a similar law cannot be passed in every State; the bad reasons which have hitherto prevented the accomplishment, notwithstanding the hard and constant labor performed in its behalf by architects, is the political venality of legislators, and, in some cases, like that of one Flower, of New York State, the direct opposition of a governor who cares more for the desire of a political "boss" than any good that may come through him to the people. The report of the Illinois board should be circulated whenever the legislatures are asked to pass a State license law. Perhaps one, if not the main, factor in the successful introduction of the Illinois law was the wise appointments of the Governor in the establishment of the examining board. The five members represent the best intelligence and representative standing in the profession in the State, and much is due to their careful and thorough work in the formation and carrying out the examinations under the law. Their efforts have been and are ably seconded by the Chicago Architects' Business Association, the standing committee of which, appointed for the purpose, is always ready to prosecute violations of the law.

George Watson and Trade School Progress. In a brief article in this issue Mr. George Watson gives a synopsis of the progress made in the advancement of mechanical education through the medium of mechanical trade schools. Since the death of Colonel Auchmuty no one has given greater study or more enthusiastic support to the trade school idea than Mr. Watson, and as his work in this connection has been purely that of "one who loves his fellow-man" and his intelligence and understanding of economical questions is of the highest order, the statements he makes can be taken as thoroughly conservative, and beyond question incontrovertible facts. Mr. Watson is not a writer, does not seek to advance his own personality, but in his modest way has for many years given much of his time and money to the working out of the trade school problem, which is one that his city and State can little afford to allow to continue without official recognition and adequate support.

Illegality of Contracts Demanding Union Labor. The right of public officials to contract with labor unions to use or let contracts to those who will use none but union labor has been negatived so often and so decidedly by the chief judiciary in many States that it would seem that the labor unions would learn that, like stealing and other infringements upon the rights of others, this was against public policy, contrary to the spirit of the Constitution and illegal. While the principle of unionism among workmen is right and just, the manner of its exercise in many cases is pernicious. Though wages are as high as they ever were in this country or in England, the employer does not get more than one-half the amount of

labor. It was this disposition to "equalize" in the engineering trades that has lost to England much of her commercial supremacy, and now, because of a demand by the plasterers that their foremen shall be members of the union, a general lockout in the building trades is threatened which will stop building progress at a time when business is better than it has been for twenty years. It is right for workmen or employers to combine in resisting oppressive movements, but it can never be other than disastrous to the organization that ignores the rights of others, and selfishly and arbitrarily sets aside the laws which human progress and enlightenment have set up for the general benefit of all.

The Recent Senate Architectural Attack.

In addition to the extended comment upon the recent attack by members of the Senate upon the Supervising Architect's office, which we print upon another page in this issue, we present a copy of a letter from Mr. George B. Post, of New York, to the present Supervising Architect:

NEW YORK, February 10, 1899.

MY DEAR MR. TAYLOR,—I have had placed in my hands this morning a clipping from the New York Sun containing an attack on you made in the Senate yesterday in the discussion with regard to the appropriations for the Civil Service Commission.

If you can suggest any way in which the architects of the Institute can be of service to you in fortifying you in your position, or assisting you in bringing our Senators and Representatives to a more just appreciation of the merits of the question of Government Architecture in its relation to your office and to the art itself, you may command the services of the Committee of the Institute on Government Architecture and through it all of the prominent architects of the Institute. Although no longer the President of the Institute I am still the chairman of this committee, and it can act probably more promptly in any matter of this kind than the Institute itself. I am,

Yours very truly,

GEORGE B. POST.

James K. Taylor, Esq., Supervising Architect,
Treasury Department, Washington, D. C.

No higher indorsement of Mr. Taylor's work can be found than that of the American Institute of Architects, as that body has been most persistent in its efforts to procure a system by which capable Supervising Architects might be appointed, and artistic and economical buildings designed and built. If the Senators had been as active in the past in expunging obsolete and worthless rules and methods and enacting better regulations as they seem to be in interfering with a system that is the foundation of future architectural stability and beauty in our public buildings, the many now under construction would not be in so great a degree subject to criticism.

A Movement for Artistic Grouping in Buildings.

The recent action of the Chamber of Commerce of Cleveland in the adoption of a resolution looking to the harmonious and convenient grouping of public buildings in our large cities is a matter for congratulation inasmuch as it shows that at last the public has been reached by the constant efforts made by architects in this direction, and that their influence is beginning to be felt by the public at large. The following resolution, introduced by Professor Olney and approved by the Board of Directors, was amended and passed at a recent meeting:

WHEREAS, By an exceptional and fortunate coincidence several public structures are soon to be erected in Cleveland, thus giving this city an opportunity to carry out a magnificent scheme of architectural unity that has seldom come to any city and may never come to Cleveland again; therefore, be it

Resolved, By the Cleveland Chamber of Commerce, That the President be requested to appoint a committee of five to confer with the commissions and boards having in charge the erection of these public buildings and ascertain whether or not it is feasible to erect them upon such sites and in such relationship to each other as to form one harmonious architectural plan, and contribute to public convenience and utility.

The Society of Architects of Boston recently proposed a similar plan to be presented before the legislature.

AN ATTACK ON THE SUPERVISING ARCHITECT'S OFFICE BY THE SENATE.

THE INLAND ARCHITECT has always taken the liveliest interest in the office of the Supervising Architect of the Treasury, and it may be pardoned for feeling a certain degree of pride and self-gratulation for the improved methods in that office, the appointment of the present Supervising Architect and the high standard of his present staff, knowing, as it does,



that it was in a degree through its efforts that those things came to pass. The major causes of those reforms were, of course, the persistence of the American Institute and the experience and good judgment of the present Secretary of the Treasury that led the latter to yield to and coöperate with the former in securing them.

It is, therefore, to us unfortunate that several members of the Senate have forgotten for the moment to attack the mistakes made by the "other fellow" in the conduct of the war and turned their attention to matters they know even less about, as the following extracts from the Congressional reports of a recent debate will show. They are a fair sample of grave debates and wise comments made upon the Supervising Architect's office by that body:

A brief but lively civil-service debate was precipitated by an inquiry of Mr. Cockrell (Mo.) concerning the expenditure of money for the office of the Supervising Architect. He maintained that the work of the Supervising Architect's office was done slowly, if not badly. The construction of public buildings dragged through year after year. Were the same buildings being erected by private individuals they would be completed in one season.

Mr. Gallinger (N. H.) pointed out in this connection that the Treasury Department was authorized to invite competition of private architects in the construction of public buildings.

"We have a bureau and a very expensive bureau," said he, "yet we are dawdling along with the public buildings of the country in a shameful manner."

He told of one of the most distinguished architects of the country, who came to Washington to take the civil-service examination for Supervising Architect. He did not pass the examination, "yet," said Mr. Gallinger, "after we have secured such an architect as now occupies the office we proceed to discredit him by letting out the jobs to architects who could not pass the department's examination."

Mr. Gallinger explained that his objection was that thousands of places had been included under the civil-service law which had never been intended as civil-service positions by the promoters of the law.

Mr. Cockrell expressed surprise that the Supervising Architect should be under the civil service. He regarded that as ridiculous. He held that the choice of a Supervising Architect ought not to be left to a merely technical examination. He promised to press later some other plan for the administration of the office.

Mr. Perkins (Cal.) told of the serious time the people of San Francisco had had in securing such a government building as they needed and desired.

Mr. Gorman (Md.) regarded it as a wise and proper thing to increase the compensation of the Supervising Architect, in order to enable the President to obtain a man for the office who was competent to fill it.

Mr. Perkins said in the course of his remarks on the San Francisco building that it is to accommodate the post office, the land office, the subtreasury, the different courts of California and the Circuit Court of that city. He said the plan of the Supervising Architect had been submitted to the judges who composed that circuit and judicial district, and which embraces some four States and three Territories.

They had criticised the plans, and regarded the provisions made in it for a courtroom, library room, office of the marshal and the general arrangements as unsuitable. They had submitted these plans to architects in San Francisco, and they had been revised. The Supervising Architect said that he knew more about what the judges wanted than they did themselves.

As an addition to the space which has been devoted to the Supervising Architect's office in past numbers, the subject merits

the attention of the profession and we wish to notice these comments of the Senate and to state a few facts in that connection.

The present Supervising Architect has been in office but a year and a half. All the buildings completed during that time have been from plans and under contracts that could not be changed — bequests or relics from past administrations; the work of men appointed directly through senatorial influences and not from the civil service. Is it the present incumbent's fault if those buildings are not astounding successes?

If there are delays, an expensive bureau and other internal troubles in that office, neither the Supervising Architect — be he ever so capable and ever so well supported by the superior executive officers of the Treasury — nor anyone else than the gentlemen of the Senate and House can remedy them. It would be otherwise if it were a case merely of architect and client, the Supervising Architect on the one hand and the Secretary of the Treasury on the other; a case of the one building to suit the other and according to certain municipal laws. With this government officer there are all the difficulties that attend the private practitioner, plus fifty pages or more of laws, legislative enactments, obsolete rulings of ante-bellum attorneys-general and a hundred other trammels that this particular Senate may not have cast about the office, but that it could easily remove — were it willing. The offices, the duties of each, the salaries, how the work shall proceed, everything has to be "according to the book." The very men who cry the loudest against what they call present mismanagement would be the first to clamor for an investigation should the Secretary and the Supervising Architect exercise their own good judgment rather than follow these ancient rules in the guidance of the "architectural bark."

We would like to see the Supervising Architect get more salary, as suggested by one of the Senators; yet, we are compelled to admit, it would be an injustice unless Federal salaries were raised all around. Why are not the great architects as public-spirited as are the great lawyers, the journalists, the financiers? There is a certain honor in being a national officer that seems to compensate for mere salary. We see a Gage leaving the salary and ease of the presidency of a great bank behind to receive the pittance paid the Secretary of the Treasury, a Choate leaving his enormously profitable practice for the expensive post of Great Britain, and why should not a Post or a Robertson leave his remunerative private practice to receive the paltry salary of a Supervising Architect?

The examination for the incumbency of that office was open to all and the examining board of the highest professional standing. Mr. Taylor, besides passing it with as high honors as any of the candidates — but two others ranked with or near him — brought to the office the experience gained in years of service as the principal technical assistant in that office; an experience that was of the greatest value, for he not only knew the routine that *had* to be observed, but had been in close contact with the honorable Senators and had had it thoroughly demonstrated to him, by his



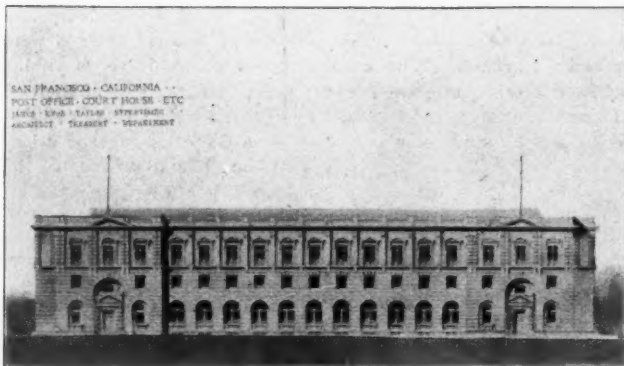
former superiors' mistakes, what it was wise to do and what it was best to leave undone.

Mr. Taylor's administration has been, young as it is, a successful one. Both the Secretary and the Assistant Secretary, General Spaulding (to whom all questions of policy and management of that office are referred, its immediate superior), say so, and they evidence their confidence in him by switching off as much of the senatorial and other interferences with the office as they can —

influences that, in the past, were to blame for much of the trouble the profession so much lamented.

The Secretary and Mr. Taylor, while they may not believe that the Tarsney act is the very best that could be, yet wishing to benefit the service and act upon the advice of the profession, have given it, and are giving it—as the best law so far enacted by the body legislative—a fair trial. The making and carrying out of the programme have virtually been in the hands of the Institute. The three firms who have succeeded so far in securing governmental work are composed of reputable architects, and their designs are wholesome and far superior to the rank and file of the average (past) governmental building. They are not, however, in our estimation, one jot more artistic, appropriate nor attractive than are the designs made under Mr. Taylor's administration. For fear we may be prejudiced, we present to our readers a few of the designs made by his direction and wish them to be compared to the only three competitive designs so far obtained. As monumental structures we think that the Omaha Exposition building compares favorably with the Ellis Island station; and we would like to know if the Norfolk building is more appropriate for its locality than is the true Southern structure—the Newport, or which building impresses one as being most fitting to represent an old Colonial community—the Camden or the Brocton?

Now as for the San Francisco building. As originally designed under a former administration, it was to be of marble and a very ornate structure. It was through senatorial pressure, we believe, that it was lately changed to granite, yet the appropriation and the legislative rules were such that only a change of material, not of design, could be made. What charm there was, if any, was in the delicate ornamentation of the marble, something that could



not be done in granite; hence the rather severe, though not unpleasant, lines. There is nothing about it, at least, that "cries out to Heaven"; it is quiet, eminently respectable, and, Senator Perkins to the contrary notwithstanding, there is nothing in San Francisco that will far overshadow it artistically.

The architects the Senator refers to as having made revised plans for the building may know better what is wanted than does the Supervising Architect, but we may be permitted to doubt it. From long habit of dealing with public officers and from his intimate knowledge of the relative importance and duties of all the governmental departments, the Supervising Architect, if he be intelligent, must certainly know more about what is really needed by those officers than they do themselves. Our readers, from their own experience with individual clients, must appreciate this.

Of course, we do not know these for facts, but venture the assertion that if the Supervising Architect should be guided not by his own judgment, but by the wishes of the different officers occupying the public buildings, he, in preparing plans for those buildings, to satisfy the post office authorities would have to sweep most of the other officers from off the face of the earth, give up the entire structure to that department, give each deputy a palatial suite of rooms, private toilet-rooms to every letter carrier and stabling for the post office horses where the courts were to be. Should he listen to the honorable judges of the courts, he undoubtedly would have as nice a time; each one would want a different arrangement of the whole; and as a compromise between them the courts would have to be on the street level, the private chambers bay-windowed, padded with satin, supplied with Turkish baths, and all street traffic stopped between the hours of 10 and 2, etc. And who can imagine what he has to contend with in pleasing the military divisions, and so on *ad libitum*.

And yet Mr. Perkins is having some friend, an architect of San Francisco, plan a building that will be deemed suitable by the judges of the courts!

Possibly these periodic attacks upon the office by gentlemen of the legislative branches are made with the idea of pleasing their architectural constituents. No reputable architect is pleased with them nor inspires them. The best men in the profession, as well as the technical press, deplore them. We wish to see the office, unhampered by such discouraging comments and actions, work out its own salvation under the men who are so well fitted to do so as are the present Secretary of the Treasury and the Supervising Architect.

We have just received a copy of a letter (from one whom the profession thought enough of to place at the head of their Institute) that leads us to believe that we not only voice the sentiments of the architects with whom we have discussed the matter, but of the profession at large.

PHILADELPHIA T-SQUARE CLUB EXHIBITION.

THE catalogue of the Architectural Exhibition of the T-Square Club, Philadelphia, January, 1899, is unique among publications of its kind. It not only represents and illustrates an exhibition, but it also gives evidence of an active movement for the growth upon artistic lines of the city of Philadelphia, and of the important part in that growth which is taken by the T-Square Club.

The volume is well compiled and printed, and is introduced by a cover designed in good taste. In addition to the usual list and illustrations of exhibits, one finds at the outset in this volume tributes to Garnier, Hunt, Waring, and Dr. Pepper.

Following these much-deserved tributes is a résumé of matters of public and civic concern in Philadelphia. We cannot commend too strongly this movement on the part of the Civic Club and its indorsement by the T-Square Club. It is quite evident that the Civic Club must contain within its membership a large proportion of the T-Square Club, and if that assumption is correct Philadelphia is to be congratulated. There is great need and limitless opportunity in Chicago for similar activity upon the part of our architectural societies.

The Civic Club has interested itself in the development of various piers as places of recreation, and has been instrumental in the construction of a pleasure pavilion upon one of them. It will push the work further if this effort is appreciated by the public. Why cannot the Chicago Club revive its former well-directed efforts in regard to the development of the lake front and continue them perpetually?

The Civic Club has concerned itself with the decoration of schools and the reservation of playgrounds around them. In Chicago we have a Public School Art Society, which is doing effective work in this line, but there is great opportunity for the architectural clubs to render assistance.

The club, through a special subcommittee, after months of deliberation, has selected sculptors for statues and busts for fifteen commemorative subjects. A similar work should be done in Chicago. The sculptors selected are most of them men of national reputation.

The society has also interested itself in the preservation of the old Statehouse. Why cannot Chicago societies interest themselves in the demolition of the Courthouse? The society, with commendable fearlessness, has called attention to the scandals in relation to the City Hall and the Pennsylvania State Capitol. The Chicago society has ample field in which to follow this particular example set by the Philadelphia organization.

We have also to be grateful to the T-Square Club for including in its catalogue a series of letters from prominent architects in answer to the question: "Do you as yet see any signs tending to indicate the development of an indigenous architecture in America?" We cannot fail to derive inspiration and profit from any such discussion in spite of the fact that we believe that all efforts to produce a strictly American style of architecture are both unnatural and impossible.

The illustrations are well selected and well reproduced. While we have not seen the exhibit, we are sure that they must be typical of the kinds of drawings submitted. We see evidence of the freedom from precedent and the devotion to principle which we would naturally expect from the opening pages of the catalogue. This we have chosen to show by reproducing a selection of cuts.

MECHANICAL TRADE SCHOOLS.

BY GEORGE WATSON, PRESIDENT, MASTER BUILDERS' MECHANICAL TRADE SCHOOL OF PHILADELPHIA.

THE subject of the Master Builders' Mechanical Trade Schools is one in which I am deeply interested, and I regret that I have not the ability to convey the interest I have in the work, and in so doing create a greater enthusiasm in the community to encourage manual training and trade schools, but in my plain way I may present a few facts that may be of interest.

The old apprenticeship system in vogue years ago is now obsolete. At that time a young man at the age of sixteen was apprenticed to a master mechanic to learn a trade, serving five years and living in the family of his employer, who not only instructed him in the art of his trade, but in a measure guided him morally. Formerly mechanical trades and work of all kinds were accomplished by hand, and buildings were erected on a much smaller scale. Instead of costing thousands of dollars they now exceed hundreds of thousands. To expedite work machinery has superseded manual labor, and the master mechanic is engaged in his office with executive duties while the work is carried on by foremen under his direction. The home life of the apprentice has gone, and for many years it has been impossible for a young man to obtain a situation where he could learn a trade in consequence of trades unions and labor organizations. We were forced to look to foreigners for skilled mechanics, with whom came an element of discontent and oligarchy, the leaders of trades unions being of this class, doing all they could to decrease the number of apprentices. This condition of affairs caused immigration of skilled mechanics, of whom many left home temporarily, coming in the early spring, working at their trade during the building season, and returning with their earnings to their own country in the fall. Statistics show that 90,000 of these "birds of passage" were going and coming annually, taking millions of our money to be spent in foreign lands. Chauncey Depew has stated, in a speech, that this number has increased to 120,000, and that we were dependent, as I have before stated, on this foreign element for our workmen with their opposition to our teaching our own youth skilled trades.

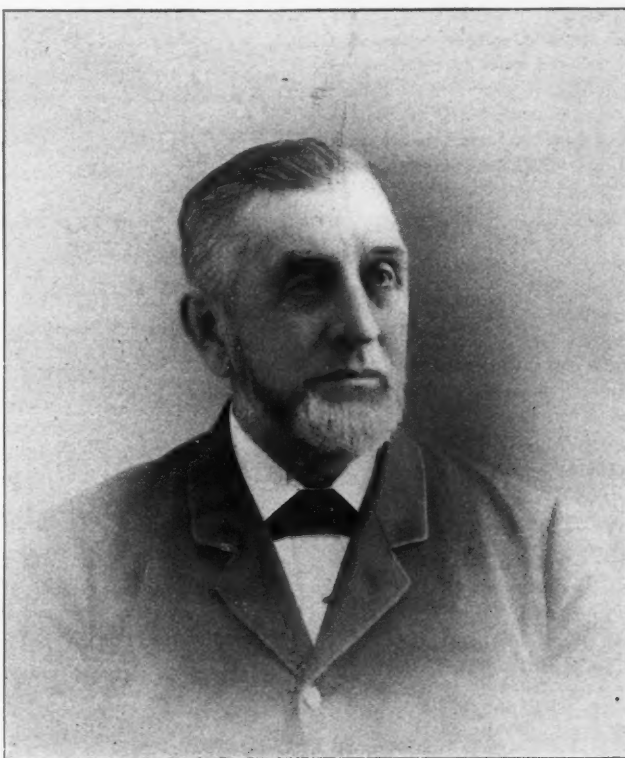
These foreign mechanics receive but a pittance in their own country, but when they come here demand excessive wages, and are the leaders in the many strikes that occur throughout our land.

I will relate a conversation I had in 1889 in Munich with a workman. Visiting the rathskeller, or beer house, at the noon hour, I found mechanics by the hundreds sitting at the rough board table eating their midday meal, consisting of beer and brown bread. To mingle with them I called for beer and took my seat alongside of one whose face denoted some intelligence and who could understand English and converse in broken language. I asked his occupation and the amount of wages he received. He answered that he was a skilled mason and plasterer and received 5 marks (about \$1.25) per day. I then asked if this were his usual lunch. "Oh, yes," he replied, "not only lunch, but breakfast and dinner; we cannot afford to eat meat more than once a week, and rarely that." He said, "You are an American?" When I told him I was and further stated, "You are a type of the workmen that come to our country and demand 20 marks per day and cause your fellow-workmen to strike if you do not obtain it," he looked at me with a bewildered air and ejaculated, "Och, mein Gott, I wish I could get there," and they are all wishing they could get

here. The American public has realized this and has felt it was necessary to stem the dangerous current, and manual training has been inaugurated in many of our educational institutions throughout the United States: In the Illinois University in 1852; in the Massachusetts Free Institute in 1865; in the St. Louis University in 1876; in the Spring Garden Institute in Philadelphia in 1880; in the Master Plumbers' Trade School, Philadelphia, in 1881; in the Girard College, Philadelphia, in 1882. In 1885 it was incorporated into the Public School system of Philadelphia.

About this time Col. R. C. Auchmuty, a wealthy citizen of New York City, was obstructed in his building operations by a strike, which caused him to conceive the idea of the first trade school proper where American boys might be taught a trade. He commenced with a class of about fifty boys and increased his school until he had an attendance of about eight hundred boys, coming from Maine to California, and to quote his own words: "It has been my fortune to give instruction in the building trades to nearly 2,000 young men." It has been stated that a young man cannot learn a trade in a school, but the experience of his school proves this to be a fallacy. I have visited buildings constructed by those instructed in his shops, and have found the work equally as well done as where journeymen have been employed.

The system he has introduced in his studies enables young men from seventeen to twenty to attend his school, thus allowing them to obtain a mathematical and technical education which will fit them to do their work intelligently. Colonel Auchmuty died five years ago, but the school is carried on by the trustees with an endowment fund of \$1,000,000—\$500,000 left by him and a similar amount from J. Pierpont Morgan—thus establishing the school on a firm basis to continue the excellent work they are doing. About this time I. V. Williamson, of Philadelphia, left to trustees \$1,500,000 to establish a trade school where American boys could obtain an education and trade to support them through life. This school has graduated about three hundred boys. The Pratt Institute, of Brooklyn, was established in 1887, also the School of Industrial Arts, in Philadelphia, which give a practical and thorough technical instruction in the arts and textile work. Although the system of trade schools is new



GEORGE WATSON.

President of the Philadelphia Master Builders' Mechanical Trade School.

to us, other educators have realized their benefits. France owes much of her wealth to her industrial schools, and Germany by her trade schools has obtained a considerable portion of the American and English trade, and the old London guilds are now spending their accumulated wealth in the establishment of schools throughout England. The foreign trade schools are of two kinds. Those where a trade is learned during the four or five years required to obtain a good education, and schools where the young men employed in shops can learn what the workshop does not teach. In 1889 the Master Builders' Mechanical Trade School of Philadelphia was established, under the auspices of the Master Builders' Exchange. Colonel Auchmuty donated \$3,000 per year for three years, and by his liberal help and the efforts of the members of the Exchange it has graduated over four hundred pupils. The system adopted is to teach the boys the use of tools and a practical knowledge of their trade by competent instructors who devote part of their time in giving technical instruction under the care of three master mechanics from each trade taught, until the pupil has obtained a proficiency to enable him to receive a certificate, which certificate will entitle him to a place with a master mechanic, deducting one year from his term of appren-

ticeship, at wages sufficient to support him until he finishes his trade. This school was incorporated in 1895.

The question has been asked, "Do the trades unions interfere with your work?" In answer to that, "No." The officers of this school have visited, by invitation, nearly all the trades unions, have been received kindly, and after explaining our mode of teaching they have given us encouragement and in many instances have subscribed to our school, appointed a committee to assist us, and give our boys the preference for apprentices. I have thus gleaned the field and given a synopsis of the different trade schools and their rise.

The Pratt Institute, New York Trade School, and I. V. Williamson school were endowed by wealthy men, but the Trade School of the Master Builders' Exchange is supported by a small fee for tuition and from the funds of the Exchange. Through the liberality of the Pennsylvania Legislature we received an appropriation for two years amounting to \$7,500.

A mechanical trade with a scientific and technical education is now a profession, the difference between it and other professions being that while many physicians, lawyers and others find it difficult to obtain a competency, a master mechanic can always obtain a situation.

We look around and find many monuments erected by the skill of the mechanic and architect, among these the great cathedrals of Europe, with their magnificent and stately columns of great height, supporting from their foliated caps graceful arches rising heavenward covered with a delicate tracery. All of these were wrought by the hand of the mechanic, creating a feeling of reverence and awe that no other skill can produce. In our own land, observe the magnificent buildings on the streets of our cities rising in beautiful architectural proportions and constructed of heavy materials, but made graceful by artistic touch.

The railroads that stretch their length throughout our land, spanning ravines and rivers with heavy bridges to sustain immense weight, yet so graceful in their proportions that they are objects of beauty—all these are monuments to the skill of the architect, engineer and mechanic, and nothing can give more pride to man than to feel that he has been able to beautify his country.

And further, the executive ability and knowledge obtained by an eminent mechanic enables him to fill other positions in life. Some of our ablest financiers and legislators commenced life as mechanics, and positions of trust have been thrust upon them.

TWELFTH ANNUAL CONVENTION NATIONAL ASSOCIATION OF BUILDERS.

THE twelfth annual convention of the National Association of Builders was held at Milwaukee, Wisconsin, February 7, 8, 9 and 10, in the rooms of the Builders and Traders' Exchange. The sessions were ably presided over by the National President, Mr. Thomas R. Bentley, of Milwaukee; William H. Sayward, of Boston, secretary. The first session was opened by an address by the president. The president then introduced the president of the Milwaukee Exchange, Mr. E. J. Roberts, saying that he it was "who erected the Pfister Hotel, the new Library building, and other important Milwaukee buildings." Mr. Roberts' address of welcome was well received.

The Committee on Credentials, Messrs. S. B. Sexton, Jr., of Baltimore; George Watson, of Philadelphia; Charles A. Vaughan, of Worcester, Massachusetts, reported the attendance of delegates from nine exchanges—Baltimore, Boston, Chicago, Lowell, Milwaukee, New York, Philadelphia, Worcester and Rochester—the number of delegates, exclusive of alternates, being thirty-four.

Following the roll call, President Bentley appointed the following named gentlemen as a committee on the time and place of next convention and nomination of officers: Warren A. Conover, New York; Charles W. Gindele, Chicago; Lyman D. Willcutt, Boston; Charles H. Reeves, Philadelphia, and J. Herbert Grant, Rochester, N. Y. Next in order was the secretary's report.

SECRETARY'S REPORT.

In view of the thoroughness with which questions of organization had been discussed in previous reports, the secretary confined himself to a brief statement of work done since the last convention, showing that it had been pursued with unremitting energy and in the customary channels. Proceeding to that part of his report relating to recommendations for the future, the secretary said in substance:

Experience has demonstrated conclusively, at last, that the principal if not the sole cause for the condition in which the association now finds itself, as regards its reduced membership, is the matter of cost. Leaving out of consideration the exchanges formerly members that have been abandoned because of internal defects, the number of exchanges still in existence that have withdrawn from the association because of the cost of membership, and the number of new exchanges that decline to join for the same reason is sufficiently large to warrant the belief that our membership cannot be materially increased until a method of maintaining the association without cost can be devised. The causes to which withdrawals have been ascribed in the past are no longer

adequate, and our prospect is narrowed down to the sole question of expense as being the one upon which the whole future of the association depends.

Through the instrumentality of the National Association the experimental period of organization among builders has been passed. We have demonstrated the possibility of permanency among local organizations, builders' exchanges, and we are now confronted by the question of permanency for the National Association. The pioneering in a measure, has been done, and we are now at the place where the continuance of the association apparently depends upon such changes in its methods as will permit the intimate personal interest and active participation in its conventions and conferences of every builders' exchange in the country, large or small, and wherever located. New exchanges are being constantly set up, and almost invariably they profit by all the work of the association, using its published advice and freely calling upon its secretary for assistance, until there exists a legitimate and natural constituency that has to all intents and purposes been created by the association, but from which it is at present debarred from securing even technical support because of the expense.

Correspondence during the past year in relation to membership has determined more positively than ever that the present per capita tax of \$3, or any amount approximating to it, is more than exchanges will pay, and that it is the question of expense which stands in the way of continuing our work upon present lines.

It is manifestly unfair to ask the few exchanges now remaining in membership to bear the entire burden of a work which is conducted to so great an extent upon the principle of building up better general conditions for the good of the whole, and for the direct benefit of so many constituencies of builders who, while gladly accepting the fruits of our labors as an organization, decide that they cannot associate themselves with us because of the expense.

It has been proven by our experience that the cost of maintaining an establishment with definite work and paid workers commensurate with the dignity of our position and the service we aim to render is too great, under present comprehension of the function and necessity of associated effort among builders, and under conditions surrounding the constituencies which must be relied upon to support such an organization as ours.

It would seem to be imperative for our future that we remove wholly the question of expense, or reduce it to some very small sum, sufficient to meet



JOHN S. STEVENS.

President National Association of Builders of the United States.

cost of a limited amount of clerical work, and of stationery, postage, etc., and to seek to accomplish the results we are now striving for through work done solely at the annual conventions; abandoning entirely, for the time, the expense now incurred through the secretary's office. There is little reason to doubt that all the principles for which the association stands would receive increasingly wide dissemination if the attendance at the conventions was large enough to compensate for the omission of the work now done throughout the year from the secretary's office. This attendance cannot be had under existing conditions, but it is reasonable to suppose that the entire removal of any cost in connection with membership would be followed by an immediate increase in membership and the ultimate accession of nearly every exchange in the country. The peculiar nature of the National Association, being free, as it is, from any elements which would create antagonisms; and existing, as it does, solely for the improvement of all business conditions affecting those connected with building in whatever relationship, leaves it free from any outside obstruction that would be likely to restrict a very material increase in membership if the question of cost were eliminated. If, for example, a majority of the exchanges now in existence were represented at any given convention, the experience of their delegates and their reports to their several organizations would go far to take the place of the work now performed by the secretary's assistant.

The abandonment of all the present causes for expense, the secretary's assistant, the publication of the *Bulletin*, the systematic mailing to builders' organizations throughout the country of large quantities of our printed matter, etc., and the consequent wiping out of all question of salary, the virtual obliteration of expense for printing, office expense, etc., would place the association upon a footing where the affiliation of new exchanges would be possible, and where the net result in extension of the principles of the association would be reasonably satisfactory.

I therefore advise that the paid establishment heretofore maintained be abandoned, and to meet the small necessary expense for clerical work, stationery and postage to which I have referred, that an assessment be levied by the Executive Committee on each constituent body, in amount sufficient to meet said expenses, but such assessment in no event to be greater than 25 cents per capita of the membership. I recommend that hereafter the duties

of the secretary be understood to be only those customary to such an office, and not the extended duties of the past twelve years.

In view of this change of policy it would seem desirable also that the system which has heretofore been followed in relation to place of meeting should also be altered. Up to the present time it has been the custom to hold the conventions in the city in which the president resides, electing each year a second vice-president with the intention of holding the convention in the city of his residence after electing him successively first vice-president and then president. This custom has limited the term of service of the president to one year, and a large part of that year has been consumed in preparations for the entertainment of delegates to the convention, the whole charge and expense of which has been borne by the exchange in the city in which the meeting is held. This feature of the annual meetings should be abandoned because of its hampering effect upon the president; and particularly because it entirely prohibits the possibility of the convention being held in any of the cities in which the smaller exchanges are located.

Entertainment has been so lavish in the past that none of the smaller exchanges could entertain a convention without great hardship both of comparison and expense.

In view of these facts, I would also recommend, first, that the president to be elected at this convention be selected with particular reference to securing someone thoroughly familiar with the principles and work of the association, whom it would be possible to reflect from year to year, so long as his services met with the approval of the exchanges composing the association; and, second, that future conventions be held in cities in which the association has no representation; and that if any special entertainment is arranged at the time of conventions, its cost shall be defrayed by those who participate therein.

The secretary's report was enthusiastically received, notwithstanding the fact that the main recommendations contained therein came in the nature of a surprise to a large majority of those present. On motion of Mr. Walsh, of Baltimore, the secretary's recommendations were referred to the Committee on Resolutions.

The treasurer, Mr. George Tapper, of Chicago, next made his annual report, which showed an almost entirely exhausted treasury, there being about \$100 on hand, with liability for office rent still unpaid.

The Chair next appointed the following gentlemen as a committee on resolutions: Stephen M. Wright, New York City; Ira G. Hersey, Boston, and J. J. Quinn, Milwaukee.

Next in order were reports from constituent exchanges; Baltimore, Boston, Philadelphia and Worcester presenting theirs at this time.

An interesting discussion followed the report from the Philadelphia exchange in relation to the trade school maintained by that organization.

The session closed with the appointment of a committee to audit the treasurer's report, consisting of Frank M. Harris, of Philadelphia, and William N. Young, of Boston.

The last session of the convention was opened by an address on "Architecture," by Architect H. C. Koch, of Milwaukee. Mr. Koch addressed the convention in part as follows:

Through your efforts and combined action you have reduced the number of that peculiar class of individuals styling themselves "General Contractors." I emphasize the name "General Contractors" because to my mind this name is very ambiguous; in most cases it means a master builder who is a practical mechanic, while in others it means an individual who is no mechanic but a sort of building broker or dealer under false pretenses, who secures and peddles the subcontractors' bids he can get, which is his only method of estimating, then adds up the lowest subbids and sometimes reduces the aggregate ten per cent so as to be certain of being the lowest. After being awarded the contract, he again visits the various subcontractors with the intent of getting lower figures, after exposing the figures of others, and finally combines with those subcontractors that belong in his class. The work progresses in the same character as that of the contractor, and, therefore, before the structure is half finished its rottenness is brought to the surface. The local press then takes a hand, magnifies facts, condemning all contractors and architects, and thus public opinion is sometimes formed.

But this class of general contractors are not the only individuals that have polluted the reputation of honorable master builders; there is another class of individuals equally if not more guilty than the peculiar "general contractor" and known as "designing architects," that enter all competitions with elaborate colored perspectives on a large scale, in their way promising the most expensive construction and finish; who often meet with success when they have a "tenderfoot" or questionable committee to deal with, provided the structure can be built within the appropriation. The so-called working plans are drawn to a scale of $\frac{1}{8}$ inch to the foot. The specifications consist mainly of the general phrase "as will be directed," or "as shown on the plans." Very little is shown on the plans, and the term "as will be directed" is so elastic that it either makes or breaks the contractor, and when the structure is said to be completed the contractor retires with the reputation of a rascal or a fool, either one of which will not elevate the reputation of master builders or architects. I have referred to the peculiar "general contractor" and the "designing architect" for the purpose of impressing upon you that the reputation and interests of honorable and reliable master builders, as well as those of the competent and honorable architect, are identical and mutual; as no builder, however competent he may be, can erect a structure with credit to himself after the plans of an incompetent or unreliable architect, and vice versa; and I suggest the assertion that it is very essential to the master builders, as well as the architects, of this country to relieve each other from the peculiar class of individuals which a portion of the public may call colleagues. Both are a menace to your reputation, which your association is endeavoring to elevate. It is often said that the builder only carries out the ideas of the architect, which may be true in some instances, but in many cases where complicated problems in construction and erection present themselves the architect often seeks and adopts the ideas of the experienced master builder. In architectural and technical schools the theories of construction are taught to the embryo architect, but such theories were evolved and deduced from the practical experiments of the mechanic. Several years ago, while on a visit to the Massachusetts Institute of Technology, I became very much interested in the details of construction of the various building trades that are taught there, and complimented Professor Chandler on the thoroughness of the method, illustrated in the detail plates published by him. He informed me that the credit for the method of construction belonged to the masters of the various building trades of Boston, whom he had consulted, and that he considered them superior to ordinary office methods of even the prominent architects, and hence their adoption in the regular course of architecture in the Institute. This is the highest compliment that can be bestowed on the ability of the master builders of this country.

Mr. Koch's address was listened to with undivided attention, and frequently interrupted with bursts of hearty applause.

An able address by Herbert Kinne, of Milwaukee, followed. An address upon "Manual Training," by Prof. Frank W. Kendall, superintendent of the Stout Manual Training School at Menomonie, Wisconsin, was listened to with deep attention. Mr. Kendall is a gentleman who has devoted many years to the consideration of

the question in its larger aspects, and whose experience singularly fits him to present the subject interestingly and comprehensively. Professor Kendall presented his subject in the form of a narrative of the experience of the pupil in the manual training school at Menomonie from the beginning to the end of his or her career, illustrating with great clearness and distinctness the exact relation of each successive step in the progress of education to the ultimate development of what he termed the "educated" youth. The speaker made clear the value of "all-round" education, which should beget not only manual skill but education of all the senses, mental and physical, looking to the production of a well balanced, well educated man or woman at the end of the school life, emphasizing particularly the fact that each step from the kindergarten to graduation was preparatory for the better understanding of each succeeding step and for the better fulfillment of all the obligations of life at the time of graduation.

Professor Kendall's manner of presenting his address was such as to hold the undivided attention and interest of all present, notwithstanding the fact that the subject was not in the ordinary sense intimately connected with the business of building, and at the close of his remarks, which were extemporaneous, he was greeted with hearty applause. In moving a vote of thanks to the three speakers, Secretary Sayward took occasion to remark that the addresses just delivered were among the most interesting that had been listened to by delegates to any convention of the association since its institution. The secretary laid considerable emphasis upon the value of such educational work as was typified in these addresses, pointing out the fact that if for no other reason the National Association had justified its existence in making it possible through its annual conventions for its members to receive the information and inspiration contained in addresses such as those to which they had just listened. He stated also that the Master Builders' Association of Boston would take pleasure in printing the three addresses in full and in sufficient quantity to supply all who might desire copies of the same. A vote of thanks was extended to the Boston association for this action.

Addresses by ex-presidents John S. Stevens, of Philadelphia, and Ira G. Hersey, of Boston, followed.

Charles A. Cowan, on behalf of the New York delegation, asked on behalf of his exchange the privilege of printing and distributing the secretary's report.

Next on the programme was the report of the Committee on Resolutions, which was presented as follows by Stephen M. Wright, chairman:

Resolved, That, until otherwise ordered, all salaried services and all publications involving expense be, and hereby are, abandoned. That the expenses necessary to correspondence, such as typewriting, stationery, etc., be met by appropriations to be made by the constituent bodies, upon request of the Executive Committee; said appropriations not to exceed an amount equal to 25 cents for each unit of membership in said constituent bodies.

Resolved, That, until otherwise ordered, the place of meeting for conventions be left discretionary with the Executive Committee. That said places of meeting, when practicable, shall be in localities where there is no constituent body and, inasmuch as our convention should be primarily and mainly for purposes of business and improvement of conditions under which the building business is conducted, that wherever any convention is held, no constituent body shall be permitted to bear any expense incident to any form of entertainment for delegates or visitors to said convention.

Resolved, That the persons chosen as president, vice-president, secretary and treasurer be selected with particular reference to securing the services of those familiar with the principles and work of the association, and without reference to the locality in which conventions are to be held.

Resolved, That, in addition to the regular delegates provided by the constitution, any member of any constituent body shall be allowed the privileges of the floor at conventions, and shall be permitted to discuss any questions regularly and duly before said conventions. He shall be permitted to vote on any question which simply comprehends arriving at the sense of the meeting, but shall not vote on questions determining the policy or administration of the association.

Resolved, That all portions of the constitution in conflict with the resolutions already passed, or with this, be and hereby are suspended until the close of the next convention, and that the secretary be, and hereby is, instructed to prepare amendments to the constitution made necessary by these adopted resolutions, and present said amendments at the next convention for action, giving notice thereof, as required by Article VIII of the constitution.

(Signed) STEPHEN M. WRIGHT, Chairman,
IRA G. HERSEY,
JAMES J. QUINN,

Committee.

On motion of M. B. Madden, of Chicago, the report of the committee was amended by the adoption of the following additional resolution:

Resolved, That constituent bodies be instructed to select and consider questions which they believe to be of importance to their members and to the builders of the country generally, and that after such subjects have been considered, they be referred to the next ensuing annual convention of the National Association for further discussion and action.

The report of the committee as amended was adopted seriatim, each resolution being acted upon separately and the whole unanimously adopted.

The next business in order was the report of the Committee on Time and Place of Next Convention and Nomination of Officers, which was presented by the chairman, Warren A. Conover, as follows:

To the Twelfth Annual Convention:

GENTLEMEN.—The resolutions already adopted having settled the question of time and place of the next convention, your committee have no report to present on that part of the duty assigned to it. As to the nomination of officers, your committee offers the following list for your consideration:

For president, John S. Stevens, of Philadelphia.
For first vice-president, George Tapper, of Chicago.
For second vice-president, Charles A. Cowan, of New York.
For secretary and treasurer, William H. Sayward, of Boston.
(Signed) WARREN A. CONOVER, L. D. WILLCUTT,
CHARLES H. REEVE, J. HERBERT GRANT,
CHARLES W. GINDELE.

On motion, the retiring president was instructed to cast one ballot for the officers as named in the report of the committee.

President Bentley cast the vote as instructed, and the officers were declared elected as named.

The directors for the ensuing year were named as follows: S. B. Sexton, Jr., Baltimore, Md.; Lyman D. Willcutt, Boston, Mass.; Charles W. Gindele, Chicago, Ill.; W. H. Kimball, Lowell, Mass.; James J. Quinn, Milwaukee, Wis.; Warren A. Conover, New York City; George Watson, Philadelphia, Pa.; H. H. Edgerton, Rochester, N. Y.; B. C. Fiske, Worcester, Mass.

After the usual votes of thanks to entertainers and the press, the convention adjourned.

SOME INTERESTING RESULTS IN RECENT FIRES.

THE past winter has been no exception to the rule that the winter months bring the heaviest fire losses, increasing in number as the temperature drops. With the severe cold of the month of February came the most destructive fires of the whole year, and in the flood tide of destruction was caught the building and stock of the great book and publishing house of A. C. McClurg & Company. Many choice and rare works were burned which can never be replaced, and the loss gives another demonstration of the necessity of making business buildings as nearly fireproof as possible and still have them properly adapted to the requirements of the tenants. The loss to any business house which has its premises and contents destroyed by fire or damaged by water can never be more than partially covered by insurance, for the interruption and disturbance of the business of the concern entails an inevitable loss for which there is no recompense, and against which no insurance can be placed. Buildings that are structurally fireproof have been erected in large numbers throughout the country during the last ten years, and have been subjected to the most severe tests without developing

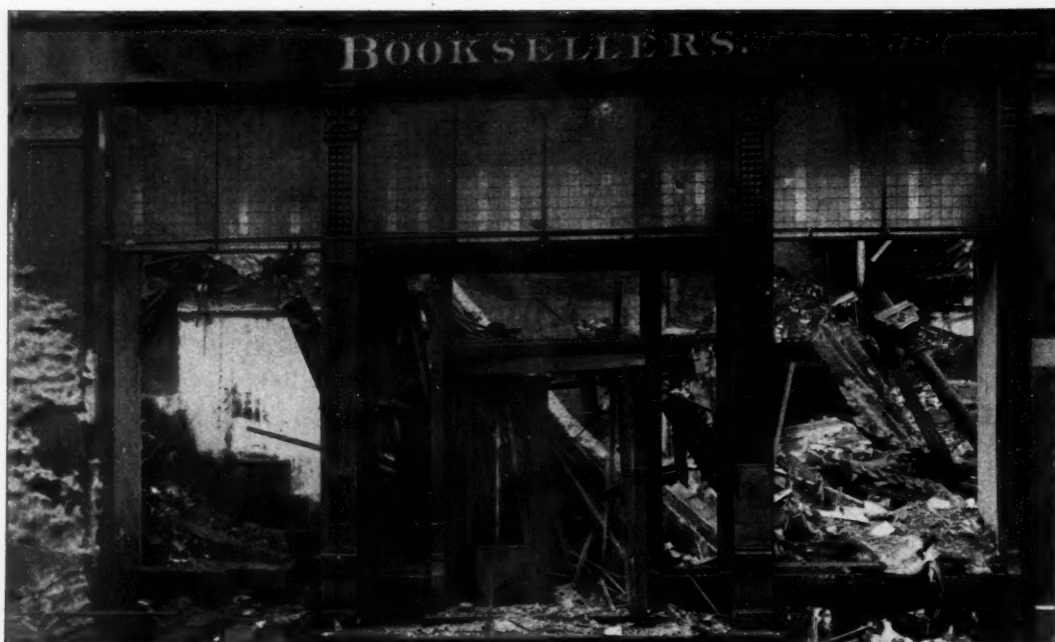
any structural weakness. The most notable fire of recent years completely destroyed the Rogers-Peet establishment on Broadway in New York without impairing the structural integrity of the adjoining Home Insurance Building, and while certain exposed iron-work was twisted and the ornamental marble of the front badly defaced and injured, and though the interiors of the offices in the upper part of the building were burned out and completely ruined, structurally the building remained intact. The vulnerable points through which injury came to this building were the windows which overlooked the Rogers-Peet Building. The heat almost instantly destroyed the plate glass and the flames had free access to all the interior woodwork thus exposed to ruin. The illustrations which accompany this article show a feature in connection with the McClurg fire which has occasioned wide-spread comment. As was the case at the Home Insurance Building in New York, the ordinary plate glass was destroyed almost immediately, but the plates of Luxfer Prisms which were installed in the transoms of the Wabash avenue front and over the entrance on Madi-



MADISON STREET ENTRANCE, SHOWING LUXFER PRISMS COVERED WITH ICE DURING FIRE.

son street withstood all the effects of heat and water and remained practically intact. Somewhat similar results were observed a year ago at the time of the destruction of the Ayer Building, No. 221 Wabash avenue. The glass in the windows across the street was

broken out by the heat from the burning building and the interiors filled with smoke and soot, but the Luxfer Prism transoms in Brentano's store, also opposite, remained intact; and the proprietor of the establishment made the frank statement that he was satisfied his stock was saved because of the protection the Luxfer Prism plates gave him. Months before, the American Luxfer Prism Company had, by a series of most interesting tests, demonstrated conclusively that prism work or plate glass in four-inch units glazed by their method of electrolysis, would successfully resist the heat to the melting point of glass or copper,



MADISON STREET ENTRANCE, SHOWING LUXFER PRISMS AFTER FIRE, NOT BROKEN BY THE POWERFUL STREAMS OF WATER OR WEIGHT OF ICE.

and the results at the McClurg store show most conclusively that this claim has been most emphatically verified. In this connection it is a fact of interest that the owners of the Rookery Building are having all the plate glass removed from the openings of the

this group of buildings. The finish of this entrance will be in bronze and cast iron. The vestibule on the main floor, about twenty feet square, will have walls of Numidian marble, a dome ceiling of ornamental scagliola and floor of marble mosaic. From

this vestibule two elevators will run to the upper floors of the building. The elevator inclosures will be of ornamental bronze. The waiting room on the eighth floor, as well as the remaining portions of the general offices, will be finished in Mexican mahogany. This building, as well as all buildings composing this group, will be strictly fire-proof, being built of steel and tile and having the Mississippi Glass Co's solid wire glass placed in all the windows, except on the



WABASH AVENUE SIDE, SHOWING EFFECT OF FIRE AND LUXFER PRISMS.

east front and plates of electro-glazed plate glass or prisms installed instead, in order to protect their offices from the ruin which would ensue in case the Lakeside or adjoining buildings on Clark street were destroyed by fire.

MODEL MANUFACTURING BUILDINGS.

THE building just being completed for the Western Electric Company, on the corner of Clinton and Congress streets, Chicago, is one of a group of fifteen which composes the works of the above named company. Its dimensions are 180 feet on Clinton street, 90 feet on Congress street and 50 feet on Jefferson place, and, as will be seen, is ten stories and basement in height. A portion of the main story of this building will be a continuation of the power house and engine room which adjoins this building on the west, and when fully equipped will contain engines aggregating 4,000 horse-power. From this point through iron conduits, electric power will be transmitted to the different buildings occupied by this company; the remaining portion of the main floor

office floors. This wire glass is glazed in copper metal frames and pivot sashes. The entire building will be heated by the hot blast system, the fan and engine being placed on the second floor near the center of the building. The cost will be \$200,000. The bird's-eye view illustration shows the entire works of the Western Electric Company, the building nearest the eye being the one of this group shown by the perspective view in our illustration pages. The whole plant represents twenty-seven acres of floor space. Mr. S. A. Treat is the company's architect.

SKETCH ON WIRE GLASS.

THE brittle nature of glass and the liability to accidents and losses resulting therefrom are too well known to the educated readers of THE INLAND ARCHITECT to require extended comment.

Our legislators, in some States, provide partially against accidents by enacting laws compelling the suspension of strong copper netting under skylights. This is at best but an uncertain protection from falling glass, as in time the netting thus exposed corrodes, especially in the smoke and sulphur-laden atmosphere of train sheds and factories, where such protection is most needed.

The enormous extent of heavy and expensive wire netting thus used is strikingly illustrated by the fact that 1,045,000 square feet were placed under the skylights of four main exhibition buildings in the late World's Columbian Exposition in Chicago.

The immediate collapse of glass in windows and skylights on the approach of fire, unable to withstand its assault for more than a few brief moments, has long been a subject of most serious concern to fire insurance underwriters, and is admitted to contribute in no slight degree to the tremendous aggregate of fire losses in the United States.

For many years past, these inherent defects in the nature of glass, have attracted the attention of inventors, and remedies have been sought by devising processes and mechanisms whereby the glass could be reinforced and strengthened through the introduction of metallic netting within the sheets while in a plastic condition at time of manufacture.

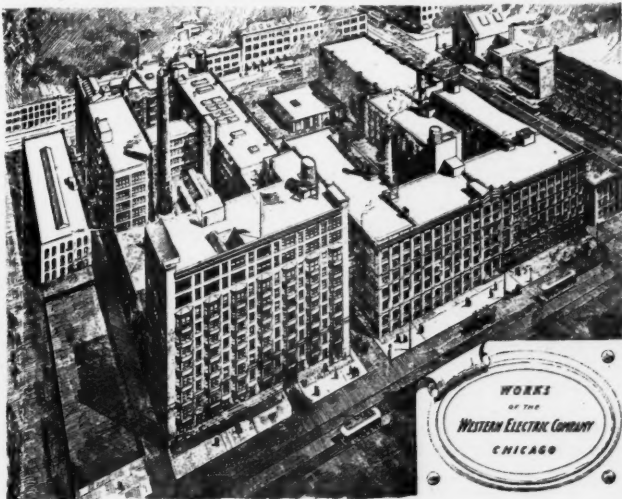
The first invention showing wire netting embedded in glass is the British patent, No. 1528, granted in the year 1855, to Newton, for fire and burglar proof glass.

In the years following 1871, several patents were issued in England, Germany and France, all of which, while ingenious in theory and detail, proved failures practically and commercially. In most of these instances the inventors appear to have followed the false lead of the original British patent granted to Newton in 1855, in endeavoring to produce wire glass by rolling or pressing a sheet of glass on a table or mold, placing the wire netting thereon, and then rolling another sheet of glass over the netting, thereby hoping to produce perfect sheets of wire glass.

It is well known to all practical glass manufacturers that the rolling or pressing together of two sheets of glass at different temperatures, no matter how slight such difference may be, cannot result in the production of good glass, as the perfect homogeneity of the mass is not attained.

In spite of the advantages claimed for wire glass in those earlier years, and of the frequent and varying efforts and experiments made thereafter by inventors, the defective process above mentioned has resulted in failure to produce wire glass which architects and owners of buildings could use with reasonable confidence in its supposed merits.

In 1892, however, Mr. Frank Shuman, of Philadelphia, devised the means whereby wire glass could be made by embedding wire



will be used for a shipping room and an extension of the foundry. The next five stories will be occupied by machinery used for insulating copper wires; this will be one of the largest departments of this plant. In this portion of the building wires from the size of a small cotton thread to that of a lead pencil will be covered with the different materials used in insulating these wires, which are used for conducting both telegraphic and telephone messages and power. Many of the cables which may be seen suspended above our heads and which are drawn through underground conduits in the streets, contain as many as two hundred pairs of these carefully covered wires. The eighth floor will be a continuation of the general offices which already extend about 220 feet west on Congress street and 180 feet south on Jefferson street. The ninth floor will be occupied by the drafting department. The tenth floor will contain the chemical laboratory and departments for photographing, blue printing and calibrating. The principal entrance to this building will be at the corner of Clinton and Congress streets, and will lead to the entire executive departments of

netting within the center of one solid sheet of glass during process of manufacture, for which patents were granted him by the United States, Great Britain and the Continental governments.

The success of Mr. Shuman's methods having been practically demonstrated, The American Wire Glass Manufacturing Company, of Philadelphia, was organized and a factory erected at Tacony, Pennsylvania.

With the installation and operation of this plant, wire glass became a recognized commercial article. Since then many hundred thousand feet annually have been made and used for the various purposes for which wire glass is designed.

The demand has largely increased in the past few years, due in great measure to the improved methods practiced at the works of The Mississippi Glass Company, of St. Louis, Missouri, which, in 1894, obtained the sole right to manufacture from The American Wire Glass Manufacturing Company.

In the method employed by The Mississippi Glass Company the wire netting is forcibly immersed to its proposed position in the center of the sheet through the molten mass of glass while the sheet is in process of formation.

In this manner the netting obtains the maximum temperature of the molten glass on the rolling table and is thus incorporated simultaneously with the rolling throughout the sheet.

Wire glass made under this method by The Mississippi Glass Company is now characterized by boards of fire insurance underwriters, architects and merchants as "solid wire glass," in contradistinction to the glass made under the old European methods by the "sandwich" process.

The desirability of affording, wherever possible, increased protection against fire induced the boards of fire insurance underwriters of the United States to investigate during the past two or three years the claims of wire glass as fire retardant material. With commendable prudence, characteristic of the insurance profession, the glass was subjected to severe tests made under the supervision of fire chiefs and other officials, before any decisions were reached.

As a result of these tests, "solid wire glass" is recognized by boards of underwriters of all the chief cities of the country as fire retardant; an acceptable light in skylights (without an over-grating or under-netting), fireproof doors and elevator shafts; in windows in lieu of fire shutters; and for various other uses when placed subject to their approval and under their rulings.

The recent fire in New York in which the noble fireproof structure of the Home Life Insurance Company was partially destroyed by fire from external exposure to a burning block of buildings to the north of it, has taught many lessons in construction and equipment of such buildings.

As is well known, the fire was communicated to this building through the windows alone (they being of plate glass in wooden frames).

The opinion has been expressed by many competent authorities that if these windows had been glazed with approved wire glass, set in hollow galvanized iron frames, the fire could not have gained entrance and no damage would have accrued.

The value of wire glass as a fire retardant is now in fact widely recognized, as is shown by the numerous new buildings in Chicago and other cities in which it has been placed, both in skylights and windows of warehouses and factories. As an example, the Western Electric Company have had placed in their new buildings 55,000 square feet of solid wire glass, in the windows glazed in copper metal frames and pivot sashes. The advantages derived from its use as windows in the latter class of buildings are evident.

Iron fire shutters have never been wholly satisfactory, as they are liable to rust, especially at the hinges, and to get out of repair, causing firemen serious trouble.

By the use of iron-framed wire glass windows, there is free transmission of light, and should a fire occur in the closed building, it is likely to be quickly discovered.

There is undoubtedly a great and growing market for wire glass, and it is by no means improbable that through continued study and observation of all conditions bearing upon its production, the manufacturers of "solid wire glass" will still further improve its quality and adaptability for the many useful purposes to which it may be applied as architectural glass.

PAINTS IN ARCHITECTURE.—II.

MANY pigments, admissible for some uses, are valueless in architecture. Some of these, like the aniline dyes, are most beautiful in appearance, but they will not stand exposure to the sunlight. Others are in themselves unstable and are therefore employed at the peril of the user.

Among all common pigments white lead is the one with which the public is most familiar. Painters are thoroughly acquainted with the manner of handling it, and consequently it yields in their hands the best results of which it is capable. As it is rather coarse in grain it absorbs but little oil, and consequently has great obscuring qualities. But, on the other hand, it deteriorates rapidly by the chemical destruction of its oil and in a short time "chalks off," finally leaving the painted surface bare. It affects, by chemical action, many of the colors and is itself darkened by the formation of lead sulphide.

To minimize these defects and at the same time to avail ourselves of the serviceable qualities of this pigment, there is only one possible plan. That is to combine with it some material

which will dilute the lead, increase the proportion of oil and form a surface impervious to the gases which darken it.

The method usually pursued is to add zinc white. This pigment is absolutely unchanging in color, requires a very large proportion of oil to fit it for painting, and forms an impervious surface. White lead combined with it will wear much better than if used alone, and the effect on the colors with which it is mixed will be diminished in proportion to the dilution of the lead.

Such admixture is always an improvement, but to secure the best results the incorporation of the materials should be effected by machinery—in other words, a true combination paint will always be found more satisfactory than a paint-shop combination in which the components are imperfectly incorporated by hand.

CHARLES JOURDAIN.

AN ART AND NATURE EXHIBITION.

IN the fore part of the seventeenth century, Champlain left Montreal, then the western boundary of civilization, and with a view to discovering a passage to the Pacific ocean, ascended the Ottawa river. After many weeks of labor up rivers, through lakes and past rapids, traveling about five hundred miles, he reached what is now known as Georgian bay. He entered this adjunct to Lake Huron at its northeast border, and, descend-



POINT AUX BARIL LIGHT.



LOOKING OUT TO SEA.

ing southward for some hundred and fifty miles, he returned by another water route by an almost straight course to the St. Lawrence river near the foot of Lake Ontario. It is singular that today the route he traveled during his entire journey is almost as uncivilized as when Champlain saw it, and the country inclosed in his circular route is still the home of the Indian and the deer. Inland there are innumerable small lakes dotted with islands, and all heavily wooded. The rock is granite, and bold headlands, rocky gulleys and rapid streams and waterfalls characterize the entire district lying east of Georgian bay. Not more than a hundred miles north of the city of Toronto there commences a range of lakes called the Muskoka district, which is well supplied with hotels and steamers for the accommodation of visitors, and is very much like the Thousand Islands in the number of cottages built upon the islands and shores. But there are no adjacent farms and cities to mar the wildness of the scenery. The shore of Georgian bay traversed by Champlain, with the exception of three lumber-



AN ISLAND HOME.



A GLIMPSE OF THE ARCHIPELAGO.

ing towns in the entire distance, is as Champlain saw it—rugged granite, wooded islands and an ever-changing seascape dotted by the white foam above the reefs that line the shore. But here the shore is only apparent, for from five to ten miles from the mainland there are innumerable islands (one hundred for every day in the year, the official survey says), and here is found the sportsman's paradise. Safe bays of deep water for sailing, bass fishing from every rock, trout in every stream, and in the hunting season partridge innumerable, and deer. All this country so accessible and so ideal for a week or a month's vacation is reached by many branches of the Grand Trunk Railway System, so that in twenty-four hours from New York, Boston or Chicago the traveler finds himself in the heart of the Muskoka district or on one of the steamers that reach the islanded part of Georgian bay.

To illustrate this most inviting and superb of all the inland scenery of this country, the Grand Trunk System has prepared enlarged photographs, 24 by 30 inches in size, handsomely framed and over one hundred in number, and, with a corps of representatives, are placing them on exhibition in all the large cities of the country. The exhibit at Chicago occupied the entire space in the clubroom of the Palmer House and was visited by thousands. Not only was the exhibit of interest to those who were seeking information, but to all who appreciate art; for here was a distinct departure from the ordinary photographic methods. Every frame held a picture; and many of them—in composition, in light and shade, and that quality artists call "feeling"—would rank with any exhibit by the best landscape painters of the country. The photographic artist who produced this superb

work, Mr. J. Wesley Swan, of Norway, Maine, spent the summer among these islands and lakes, and produced the photographs and enlargements, and so well is he versed in the technical as well as the artistic side of photography that his enlargements are as finely executed as the original negatives. The exhibit will be shown at Louisville, Memphis, New Orleans and other cities in the South, and later, at Pittsburg and other Eastern cities. It is, as a whole, the most comprehensive as it is the most artistic exhibit of the kind ever made in this country, and is a credit to the artist and an evidence of the enterprise of the officers of the great railway system that projected it. The country they invite attention to cannot be otherwise than these superb photo-pictures represent it.

WILLIAM CRAWFORD SMITH.

WILLIAM CRAWFORD SMITH, architect, of Nashville, colonel of the 1st Regiment Tennessee Volunteers, fell from his horse and died of apoplexy while on the firing line leading his men in a charge against the natives near Manila, Philippine Islands, on February 6, 1899.

Col. W. C. Smith was born in Petersburg, Virginia, November 26, 1837. He was a millwright by trade and when about twenty years old he went to Nashville and obtained work at this occupation. When the war broke out he went back to his home in Petersburg and joined, as a private, a company raised in that city. This company was attached to the Army of Northern Virginia throughout the war. Colonel Smith was in Mahone's brigade the greater part of the time and participated in all the engagements of that command, notably at the battle of the Crater, in which he was the standard bearer. Colonel Smith was very proud of this honor and preserved the staff of the bullet-riddled flag which cheered the Confederates to death on that day. It was one of the relics of the late war of which he was particularly fond.

At the close of the war he removed to Nashville and resumed his former trade. About two years later, or in 1868, he commenced practice as an architect, meeting with success from the start, and continued in practice of that profession until commissioned colonel of the 1st Tennessee Volunteer Infantry. He planned some of the largest buildings in Nashville and other cities in the South, among which are the Phoenix Cotton Mills and Vanderbilt University. He was a public-spirited citizen and was one of the first to suggest the Tennessee Centennial. In the original organization of the company he was made Director of Works, but afterward resigned. His latest and to some his greatest architectural work was the reproduction of the Parthenon for the Centennial. He became a member of the American Institute of Architects in 1881, and was re-elected a director of that body at the last convention. He was one of the best known and popular architects in the South and always active in any work that tended to advance the profession and elevate the art.

Colonel Smith stood high in Masonic circles. He joined the Masons in Petersburg in 1864, and was made a Knight Templar in Nashville in 1872. He was presiding officer in all the subordinate lodges of which he was a member, and in 1889 was elected Grand Commander of Knights Templars of Tennessee. He was universally respected and had the confidence of the members of the order. He was a member of Corinthian Lodge No. 414, a Past High Priest of King Cyrus Chapter No. 107, Royal Arch Masons; a member of the Order of High Priesthood; a member of Nashville Council No. 1, Royal and Select Masters; a member of La Vallette Commandery No. 17, and Past Grand Commander of Tennessee, Knights Templars, and a sixteenth degree Mason of the Scottish Rite.

Colonel Smith married Miss Rachel Mathias, of Nashville, in 1867. He leaves two children. His son George, who is in Manila, being Regimental Sergeant-Major of the 1st Tennessee, and a daughter, Miss Susie Mai Smith.

Colonel Smith's connection with the National Guard was not extensive. His connection with the State troops dates from

December 21, 1895, when he was elected lieutenant-colonel of the 1st Tennessee Regiment. He was made colonel of the regiment on May 22, 1897. When the war broke out he offered his services and was retained in this position, and was commissioned in the volunteer army by Governor Taylor.

When the United States entered upon its mission to blot out the last expression of Spanish barbarity and greed in the Western hemisphere and advance civilization and enlightenment to peoples that had never known what freedom of the individual meant, and men of all ranks and classes gave their best to the call of the nation, it was not strange that Colonel Smith responded. He by education and pursuit belonged to that most intellectual class which has raised from century to century the only monuments that remain, and it could not be said that it was the latent savage in such a man that made him take up the sword, but only the highest ideal of his duty as a man, that sent him to aid in bearing his share of that burden that comes to the Anglo-Saxon race in this moment of history. He was a fit representative of the architectural profession in this war for human progress. For almost twenty years he had been a member of its highest representative body, and in his early manhood he had learned the trade of the soldier in the most severe school that the century has known. As in his profession, his record is the highest; so in the War of the

Rebellion the Virginia soldier, enlisting at the place of his birth with those whom he had always known, did his duty in the cause he felt was right. This record would not be complete without a brief sketch of his service in the Confederate army.

When the civil war began, the subject of this sketch, one of a family of worthy brothers, enlisted in one of the volunteer companies of Petersburg, having come from Nashville, his adopted home, for the purpose, and through all of the four years of bloody strife was at his post of duty, except when temporarily disabled by wounds received in battle; and when it is stated that the company of which he was a member, the Old Grays, was one of the companies of the 12th Virginia Regiment of Infantry, of Mahone's brigade, this tells of participation in most of the leading engagements wherein the two great armies of American soldiers, the Army of Northern Virginia and the Army of the Potomac, grappled for the mastery; and when we say that no man in either army had a better record as a soldier, a better record for faithful discharge of duty and courage, than had Sergt. William C. Smith, we speak within bounds and do him but justice. In at least a score of fierce battles, in two of which, that of Crampton's Gap, September 14, 1862, and the Wilderness, May 6, 1864, he received wounds, his mettle was well tried. As acting ensign of the 12th Regiment he bore, and with conspicuous gallantry, its colors on several famous fields. In his hands were its colors in

the memorable battle of the Crater, in which they received no less than eighty-four shots, seventy-five of which pierced the bunting and nine struck the flagstaff.

A few days later, on August 19, 1864, when Warren took possession of the Weldon Railroad with his corps and General Mahone made one of his brilliant flank movements, coming down upon Warren's right flank and capturing over 2,000 prisoners, Mahone's brigade, one of the three under General Mahone, under the command of General Weisiger, veered off toward a Federal battery that was firing upon this aggressive force under Mahone, but was soon nearly surrounded by two divisions of Parke's corps. Ensign Smith, realizing the imminent danger of capture in which the brigade stood, and determined to prevent the regimental flag in his hands from falling into those of the enemy, tore it from its staff and placed it in his bosom, a precaution which happily turned out to be unnecessary.

Of his service in Manila no word but that of the official report has been received. "He died on the firing line." What more honorable death for a soldier or more indicative of the character of the man? And when the roll of the Institute is called and his name is among those of the absent, it will be with a feeling of pride that each member will call to mind how well the profession was represented in another hemisphere.



WILLIAM CRAWFORD SMITH.

MOSAICS.

THE tenth annual exhibition of the Chicago Architectural Club will be opened in the Art Institute on March 30 and continue to April 16, inclusive. The exhibition promises to be the most comprehensive and important in the history of this club. Special representatives of the club were sent to the Eastern cities and secured a large number of important exhibits, and the efforts to make this display of architectural work perfect in quality and large in quantity has been most successful.

MR. P. D. ARMOUR has recently added to his already long list of donations to the institute which bears his name the munificent sum of \$750,000. This sum swells the total of his gifts to this worthy institution to \$3,000,000. The real estate included in this latest gift is valued at \$250,000 and lies on Armour avenue immediately north of Thirty-third street. The \$500,000 interest-bearing securities will be added to the endowment fund, thus raising the annual income of that fund from \$75,000 to \$100,000. This, added to the sum received from tuitions, will give the institution an annual fund of \$129,000 for current expenses. Mention has been made heretofore in these columns of the successful work of this institute. While yet in its infancy it stands second to none, and promises to become the foremost technical school in the world. In its equipment for instruction in mechanical, electrical and chemical engineering and architecture it ranks with Cornell University, the Massachusetts Institute of Technology and Stevens' Polytechnic Institute. The developing possibilities of technical education, manual training, are just becoming recognized, and promise to give us a new technical standard. Mr. Armour's public-spirited generosity has made it possible to demonstrate this fact in the most practical manner, and at the same time leave an enduring monument to his philanthropy.

OUR ILLUSTRATIONS.

New building for Western Electric Company, Chicago, S. A. Treat, architect.

Accepted Design for Free Public Library, Jersey City, New Jersey. Brite & Bacon, architects.

Selections from Catalogue of Exhibition for 1899 of T-Square Club, Philadelphia, Pennsylvania:

Cemetery Entrance, by Oscar Enders, St. Louis.

An Interior. Elmer Grey, architect, Milwaukee.

Sketch in Alexandria, Virginia, by Arthur S. Brooke.

A Large City House. Brite & Bacon, architects, New York.

Union Station, Pittsburg. D. H. Burnham, architect, Chicago.

House for Mr. Newbold. F. M. Day & Bro., architects, Philadelphia.

Accepted Design for Army and Navy Building. Paris Exposition, 1900.

A Suburban Church. A sketch design, by John J. Bissegger, Philadelphia.

Workingmen's Houses. Sketch design by John J. Bissegger, Philadelphia.

Fountain for George C. Boldt. G. W. & W. D. Hewitt, architects, Philadelphia.

An Interior Detail Drawing. Kennedy, Hays & Kelsey, architects, Philadelphia.

House for H. W. Kelsey, Wilmette, Illinois. R. C. Spencer, architect, Chicago.

Entrance to a Cemetery at Potsdam, New York. Edgar A. Josselyn, New York.

House for Mr. Moore; House for Mr. Leidy. Wilson Eyre, architect, Philadelphia.

Residence at Overbrook, Pennsylvania. David Knickerbacker Boyd, architect, Philadelphia.

Interior of St. John's Chrysostom, after St. Stephen's, London. Bailey & Truscott, architects, Philadelphia.

Restoration of the Arch of Titus, by Louis Herman Duhring, Philadelphia, first holder of the John Stewardson Memorial Fellowship in Architecture.

Gage Brothers' Building for McCormick Estate, Chicago. Holabird & Roche, architects. Façade by Louis H. Sullivan, architect. The illustration presents a type of architecture only too rare in the United States, and, so far as buildings of any size are concerned, does not exist in any other country. This front represents nothing new in the element of construction—it is simply the pier and lintel. The forms of its openings are changed from that of ancient architecture because of the possibilities of new materials, or, rather, old materials so perfected in manufacture that they may be used in new and larger applications. These materials are steel, terra cotta and glass. Having, then, the simple construction of pier and lintel, the rest is individuality. The type, then, is individual. The style is Sullivan. If imitated by anyone else the style would be Sullivanesque, lose its individuality and return to the imitative type which is practiced the world over today. So much for the style of the building. In its materials, the first story is cast iron and glass; above the first, terra cotta and glass—in both cases covering the skeleton of steel. The cast iron is covered with ornament in low relief of that type peculiar to Mr. Sullivan, which consists of a geometric-all-over pattern interlacing and passing behind, giving a certain depth which apparently has no background. This pattern is accented and enlivened by growths of more or less realistic representations of natural forms. In the terra cotta, the ornament is more condensed and exists rather as a decoration of surfaces than as a surface itself;

unless the under side of the cornice be taken as an exception. In the representation of natural forms, Mr. Sullivan has not, as yet, given us the American plant; his forms of foliage are not such as we love in our woods, or perhaps there is too much of the succulent luxuriant quality to well represent the hardy refinement of native growth. The openings bounded by the piers and lintels are filled with glass. The lower part of each opening has a large sheet of plate glass, and, in some cases, casement windows. These openings are filled in at the top with Luxfer prisms standing out beyond and draping the plate glass. The purpose of this last material is to carry the rays of light gathered from the sky at a lower angle to the rear of the building. The glass is composed of innumerable prismatic forms of varying angles, which are so constructed that there is no apparent division of the light into its primary colors. This material is one of the latest, and its possibilities are only beginning to be known. From the inside, from the rear of the building, one seems to see the sky through the glass prisms, although there may be a high building across the street. From the outside the prisms have rather the appearance of a screen wall than of a window. As a whole, the building has great character and virility. Whoever may quarrel with Mr. Sullivan's individuality, he can have nothing to say against his principles or the force he puts into his forms.

Photogravure Plate: Residence of Prof. W. S. Hale, Chicago. H. M. G. Garden, architect.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Residence, New York City. Schickel & Ditmar, architects.
Residence of I. V. Brokaw, New York City. C. F. Rose, architect.

The Bank for Savings, New York City. Cyrus L. W. Eidlitz, architect.

The Empire Building, New York City. Kimball & Thompson, architects.

Residence, H. W. Noble, Detroit, Michigan. Nettleton & Kahn, architects.

Residence of Arthur McGraw, Detroit, Michigan. Rogers & MacFarlane, architects.

Residence for Harlow C. Curtiss, Buffalo, New York. Esenwein & Johnson, architects.

N. A. B. CONVENTION NOTES.

THERE are seven goats,
And the whiskers at their throats,
Wave in the New York wind;
There's "Papa," "Cap" and "Doc,"
"The Deacon," "Com" and "Jack,"
And Pe Ell in the bunch you'll find.

For seven years together
They've ate convention clover,
And furnished the fun and the sense;
They represent New York
And do most all the work,
With fame for their recompense.

May they contract long on earth
In the city of their birth,
And when they climb the golden stair
May the Great Architect
Make them of the elect,
And give each a contract there.

R. C. M.

PRESIDENT THOMAS R. BENTLEY, who was elected last year at Detroit, and presided at this convention, came from Portland, Oregon, for that purpose and returned after the convention. He is engaged upon the construction of the new federal building at Portland. Mr. Bentley is a native of Milwaukee, and served an apprenticeship in the office of the late Architect E. T. Mix.

WHILE those faces of members from Philadelphia, familiar at every convention of the National Association of Builders for the last fourteen years, and of all that have ever attended, the most respected Messrs. Stevens, Harris, Charles and Stacey Reeves and George Watson were present, the absence of William Harkness, George W. Roydhouse and Milton Shafto was noticed. A convention without some of these would be uninteresting indeed.

IN the selection of John S. Stevens, of Philadelphia, for president, it is probable that the larger majority of members of exchanges throughout the country will be more pleased than with any other of the long list of representative builders that might have been selected from. Aside from his personal worth, broad knowledge and great interest in association affairs, he leads even in a delegation composed of the oldest and strongest supporters of the National Association.

THE Milwaukee Exchange has the honor of having given the last entertainment as an exchange that will be permitted by the new rules during the sessions of conventions. This entertainment was superb in plan, but the coldest weather of the winter interfered much with the arrangements. A well-arranged smoker was given in the largest hall in the city to the gentlemen and one hundred lady visitors were entertained at a banquet. During the intermissions the visitors inspected the magnificent new library and museum, the Government building, as well as indulging in a "trolley party," which allowed the inspection of a number of the chief industries of the city. At the Exchange the especially arranged and constructed "Marble Hall" contributed to the refreshment and physical well-being of the delegates and friends.

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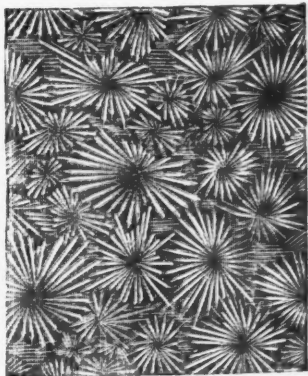


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It is a well-known fact that bent glass adds to the attractiveness of any building or store front; in fact, a single pane gives extra tone to the whole structure.

To those contemplating building, or making alterations, it is important to know that common double-thick glass can be bent to any part of a circle not exceeding half-circle. Polished plate can also be bent in the same manner. The difference in appearance between the two lights after bending is hardly perceptible; in fact, when set in a building it would require an expert to detect any difference at all. However, there is quite a difference in the cost. Bent double-thick glass is only about one-fifth of the cost of bent plate glass, which is considerable of a saving in the construction of a building.

The curving or bending of double-thick glass takes away the waviness, gives a polish to the glass and adds to its strength and resistance to high winds and severe storms. This was clearly demonstrated in the city of St. Louis by the tornado that visited that city May 27, 1896.

The Oriel Glass Company, St. Louis, Missouri, manufactures bent glass exclusively. This company manufactures all kinds of bent glass for buildings, show cases and fancy furniture, etc.; the product being all of superior make and finish, and shipped in large quantities not only to all points in the United States, but also to Canada and Mexico.

TRADE NOTES.

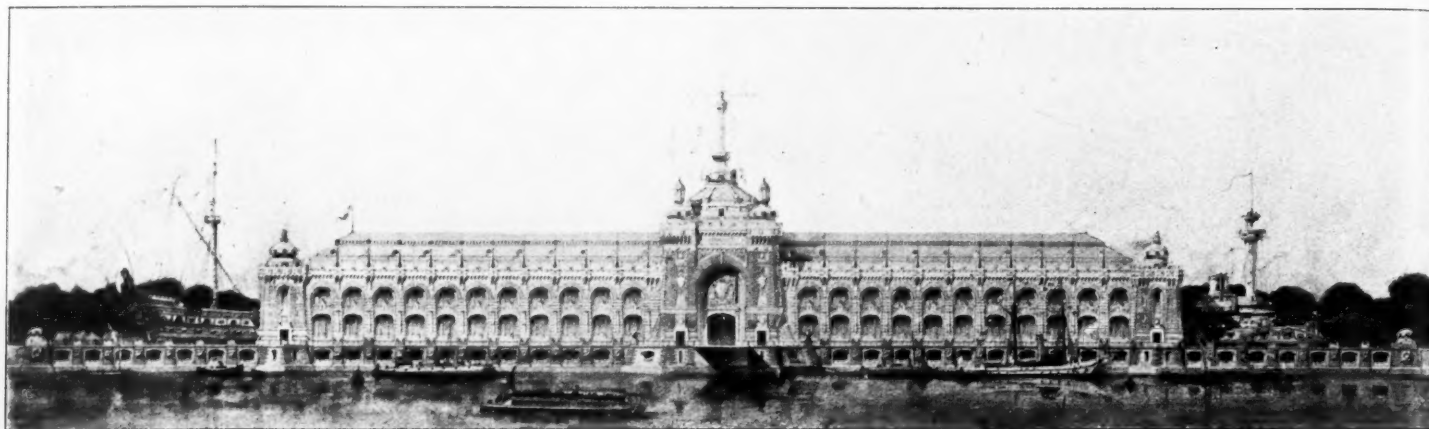
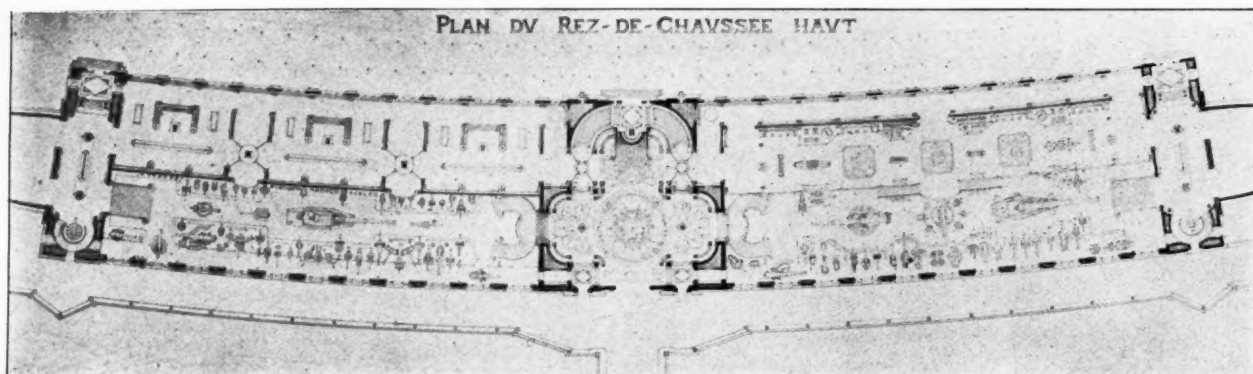
THE Decorators Supply Company have large contracts for their supplies in Chicago, Detroit, Cleveland, Milwaukee and Kansas City. Their designs are up to date and their grille work is of high grade. Send to 209 South Clinton street, Chicago, for their catalogue and estimates on work.

THE Powers System of Temperature Regulation will be installed in the new addition to Kings County Hospital, New York. The Powers System of Heat Regulation will be used in the City Hall at Newport, Rhode Island. The Darwin School, Edgewood avenue and Catalpa court, Chicago, Illinois, will be equipped with the Powers System of Temperature Regulation.

SIMPSON BROTHERS COMPANY, Chamber of Commerce building, have recently put Portland cement floors in the basement, and also the eighth and ninth floors, of the Garrett building, Lake and Market streets—nearly 80,000 square feet. Their increasing orders are an indication that in adopting the principle to turn out only the highest grade of first-class work they have laid a foundation for successful business that cannot be overthrown. The satisfactory character of their product is abundantly attested by their numerous and satisfied customers. Estimates furnished on application.

ONE of the cleverest and most artistic devices for lighting large rooms is found in the ballrooms of the Waldorf-Astoria and Sherry's and in the dining room of the Democratic Club, and which has attracted the attention and caused favorable comment of almost every visitor. It is a unique scheme to light the arched ceilings brilliantly while concealing the light source. This is done by a device originated by the Frink Company, which have also introduced this method in private residences, and which is especially valuable where ceilings are richly decorated. I understand that a music room ceiling decoration now being painted by a well-known Washington artist will be lighted in this way. Of course, the technical details cannot enter in a reference to this successful illuminating scheme, except to mark that sunk back of the cornice there is a trench, so to speak, in which the electric lights burn, with a series of reflectors behind them, each on its own individual angle, which so graduate the light that every part of the ceiling is evenly lighted. A beautiful result is obtained.—The Art Collector.

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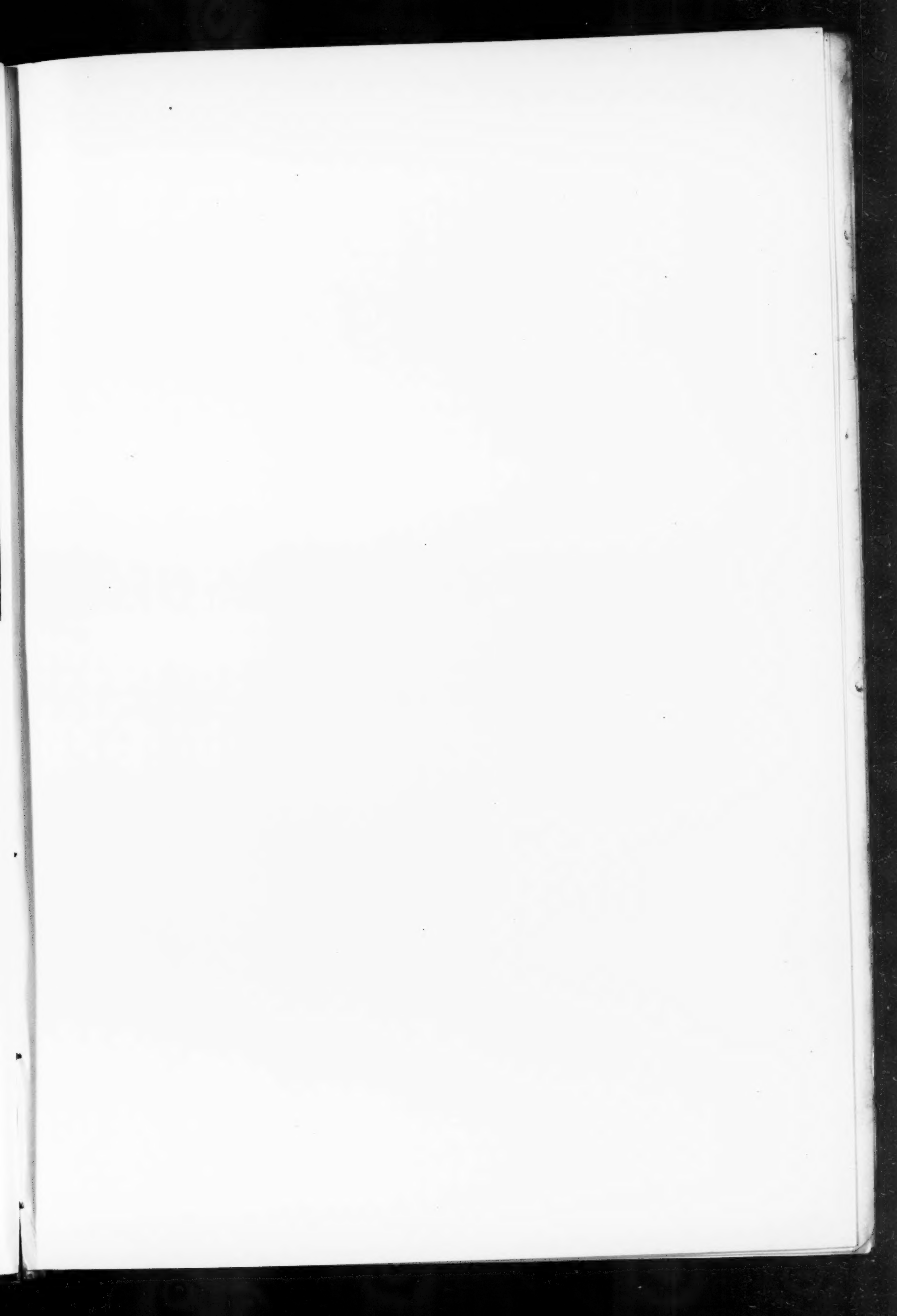
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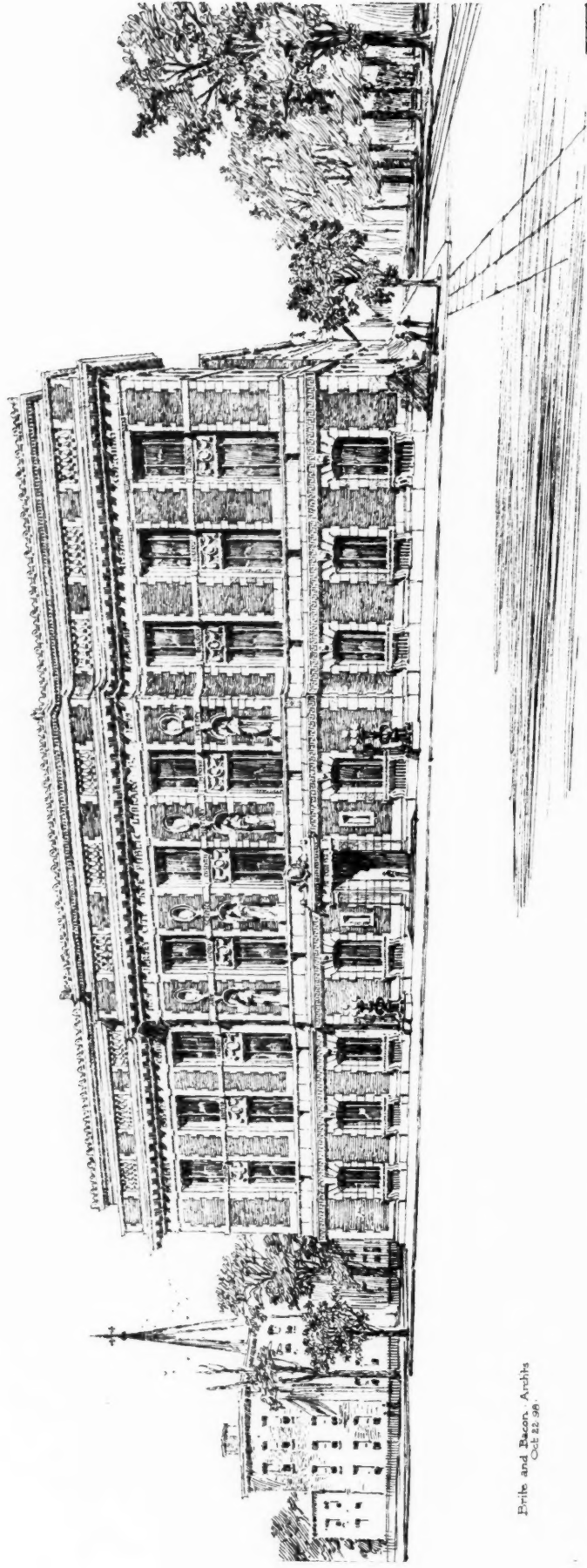


AN INTERIOR.

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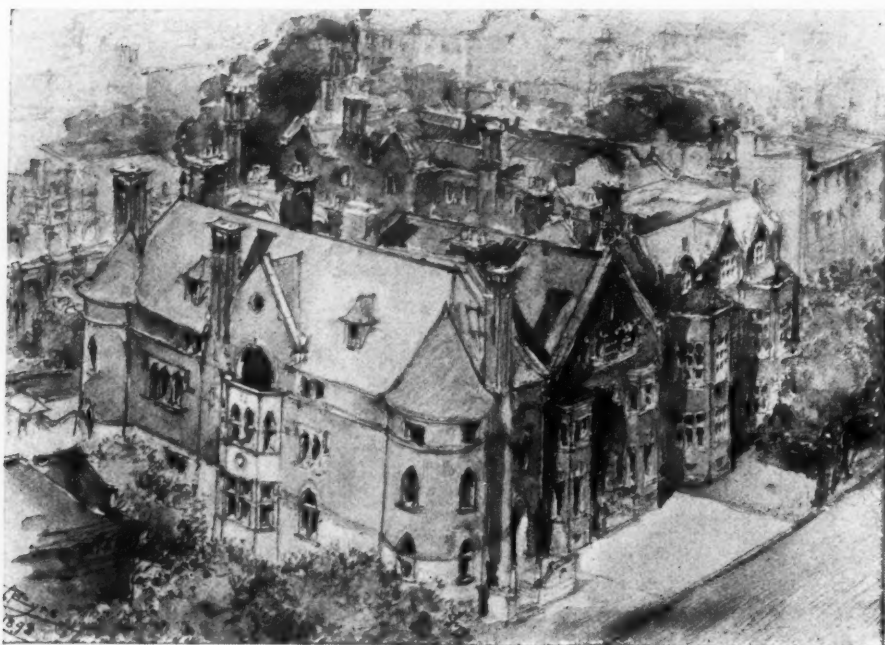
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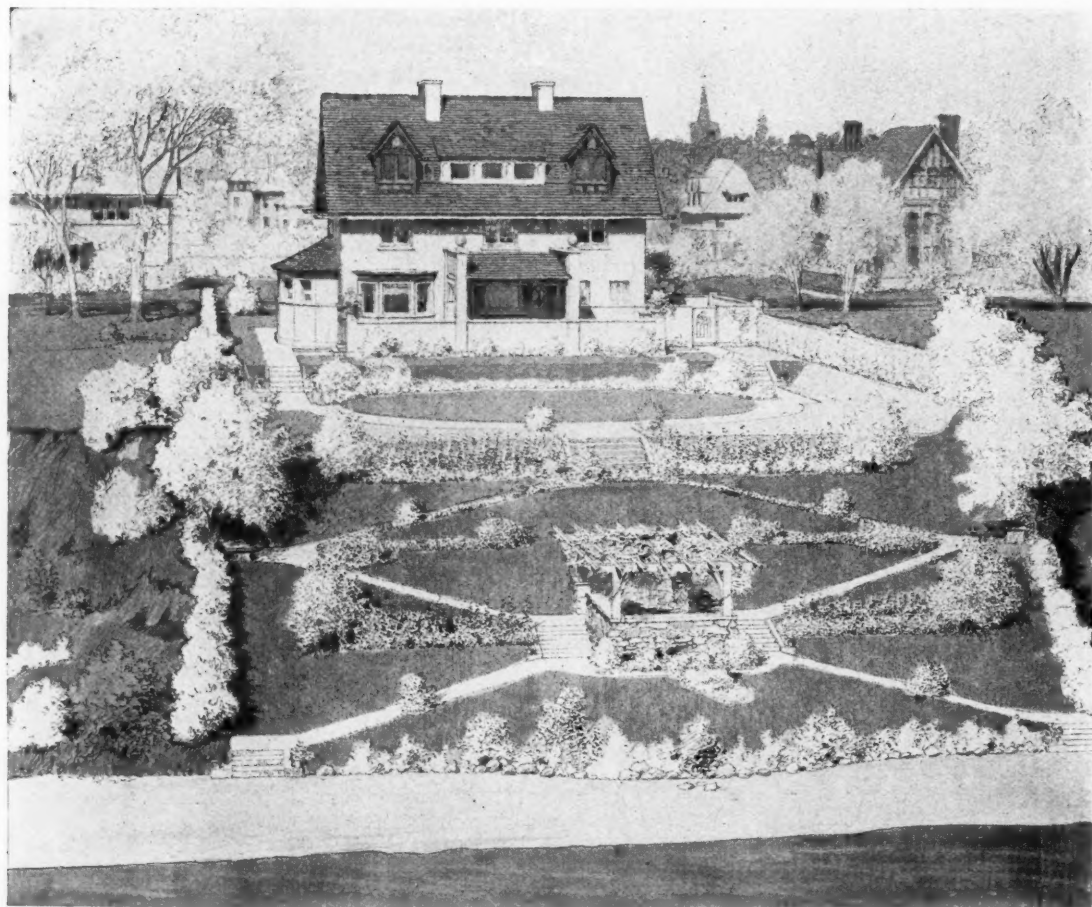
HOUSE FOR MR. MOORE.

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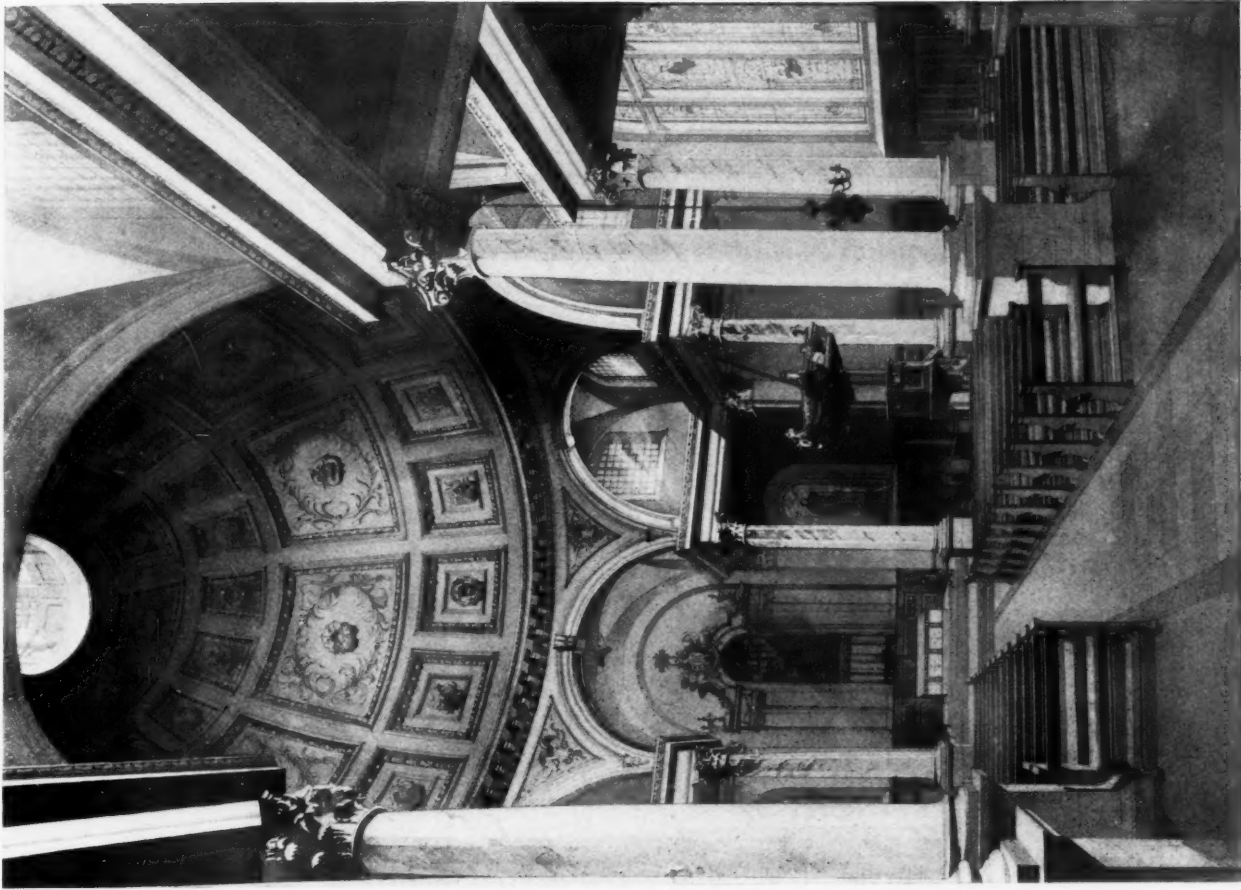
F. M. DAY & BRO., ARCHITECTS, PHILADELPHIA.



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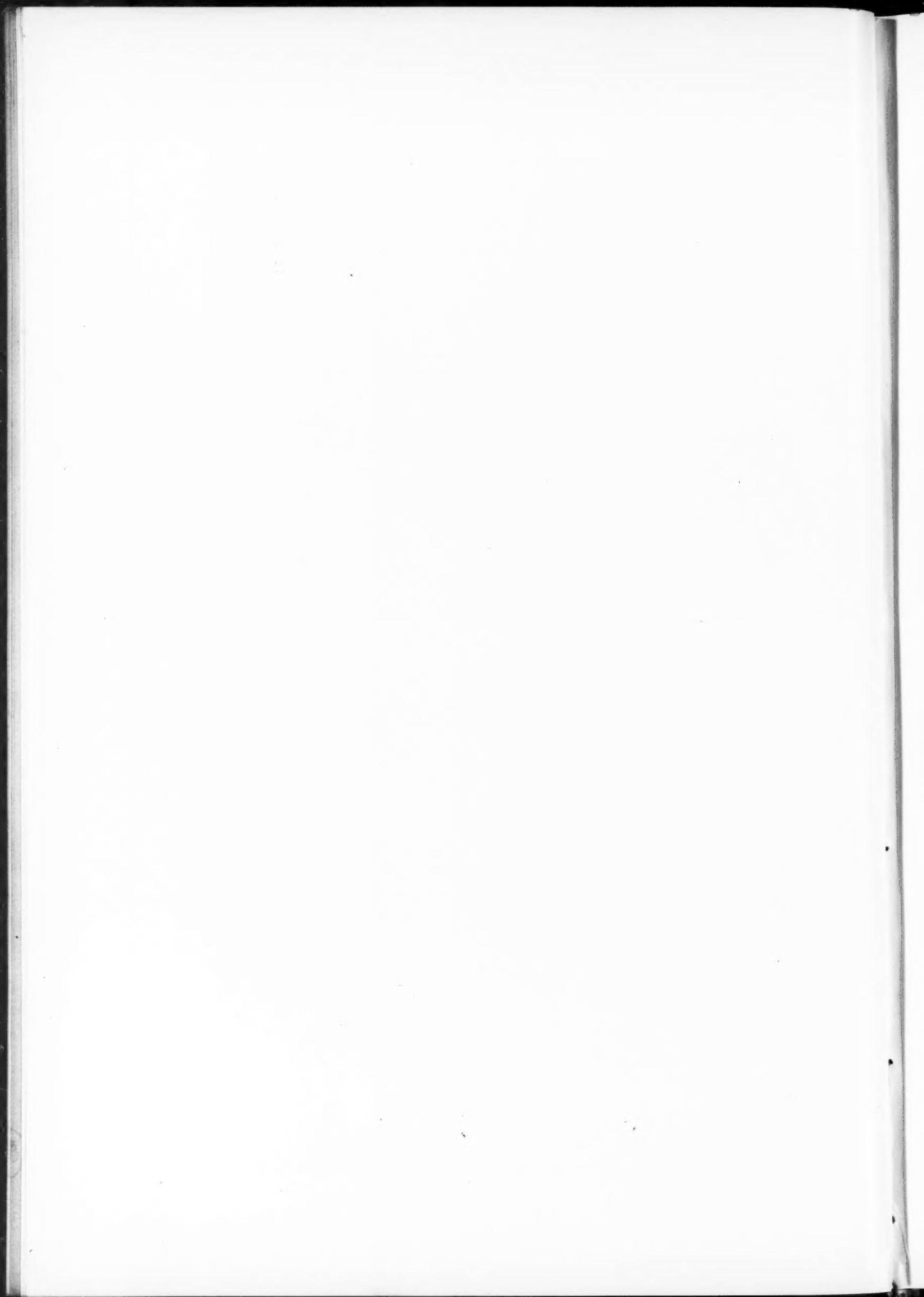


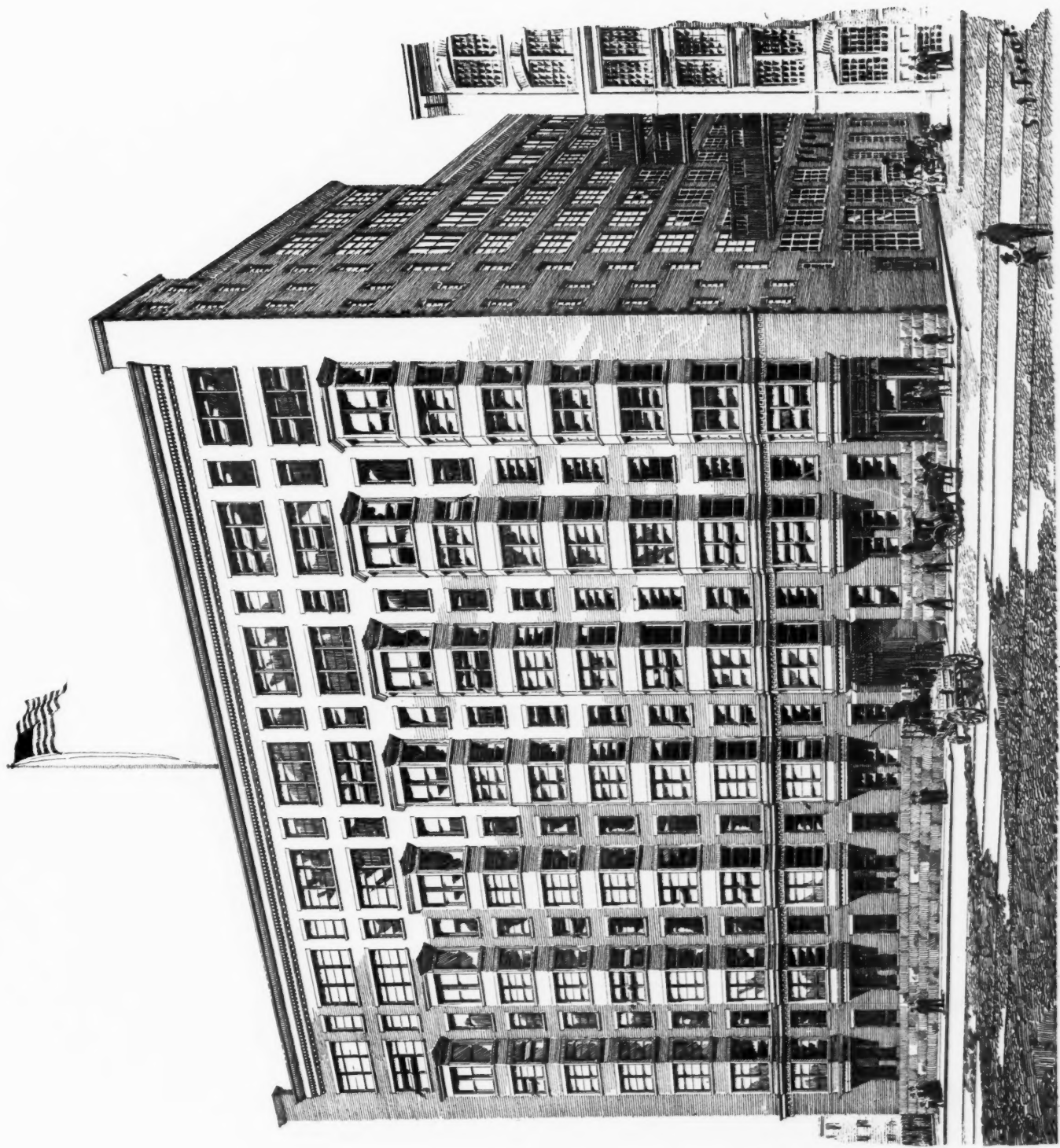
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BAILEY & TRUSCOTT, ARCHITECTS, PHILADELPHIA.



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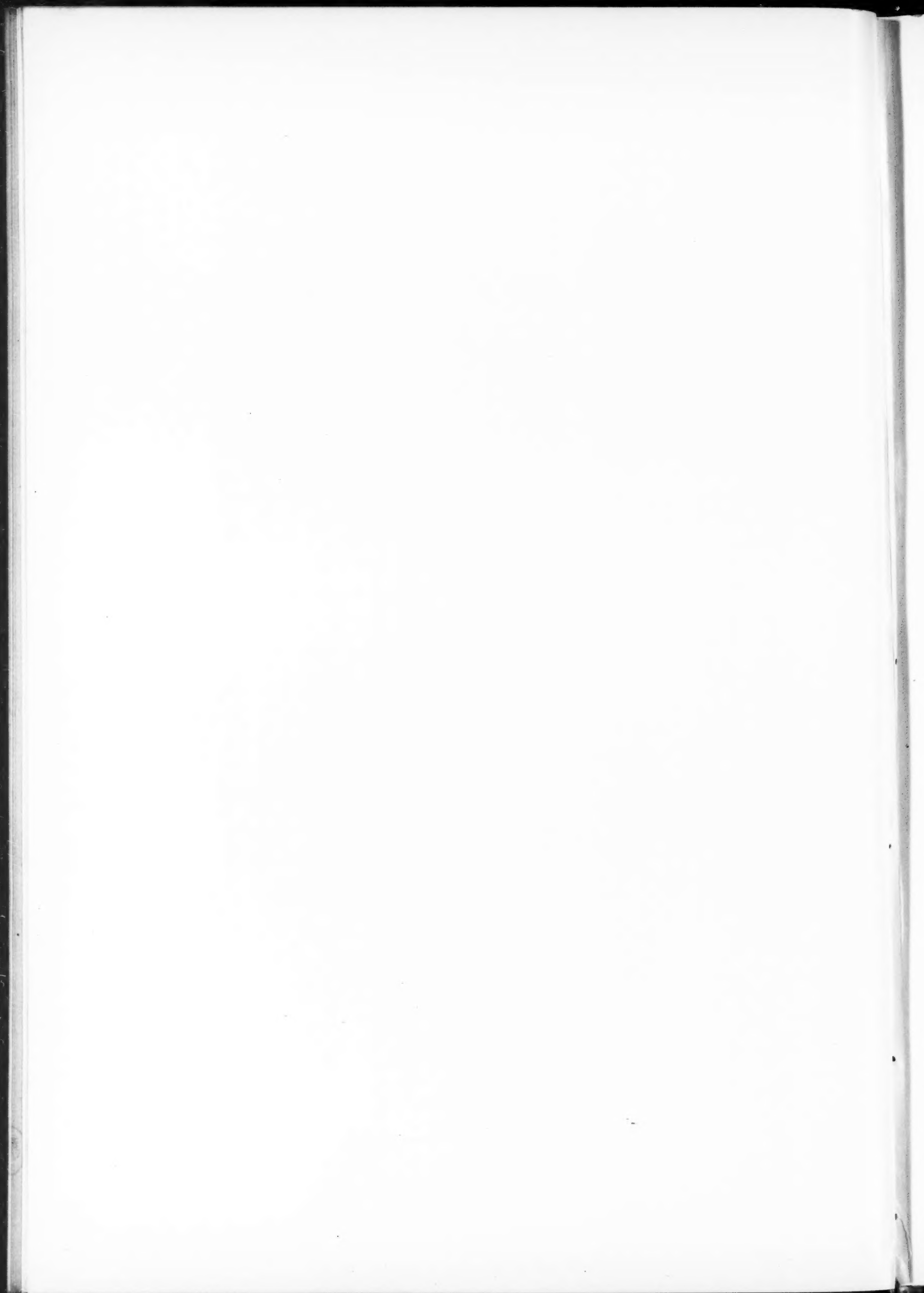
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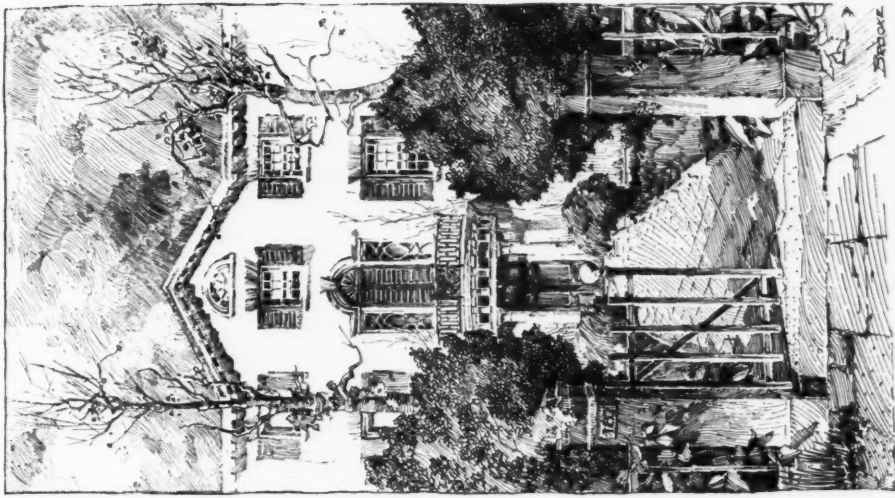




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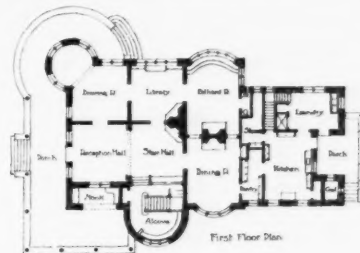


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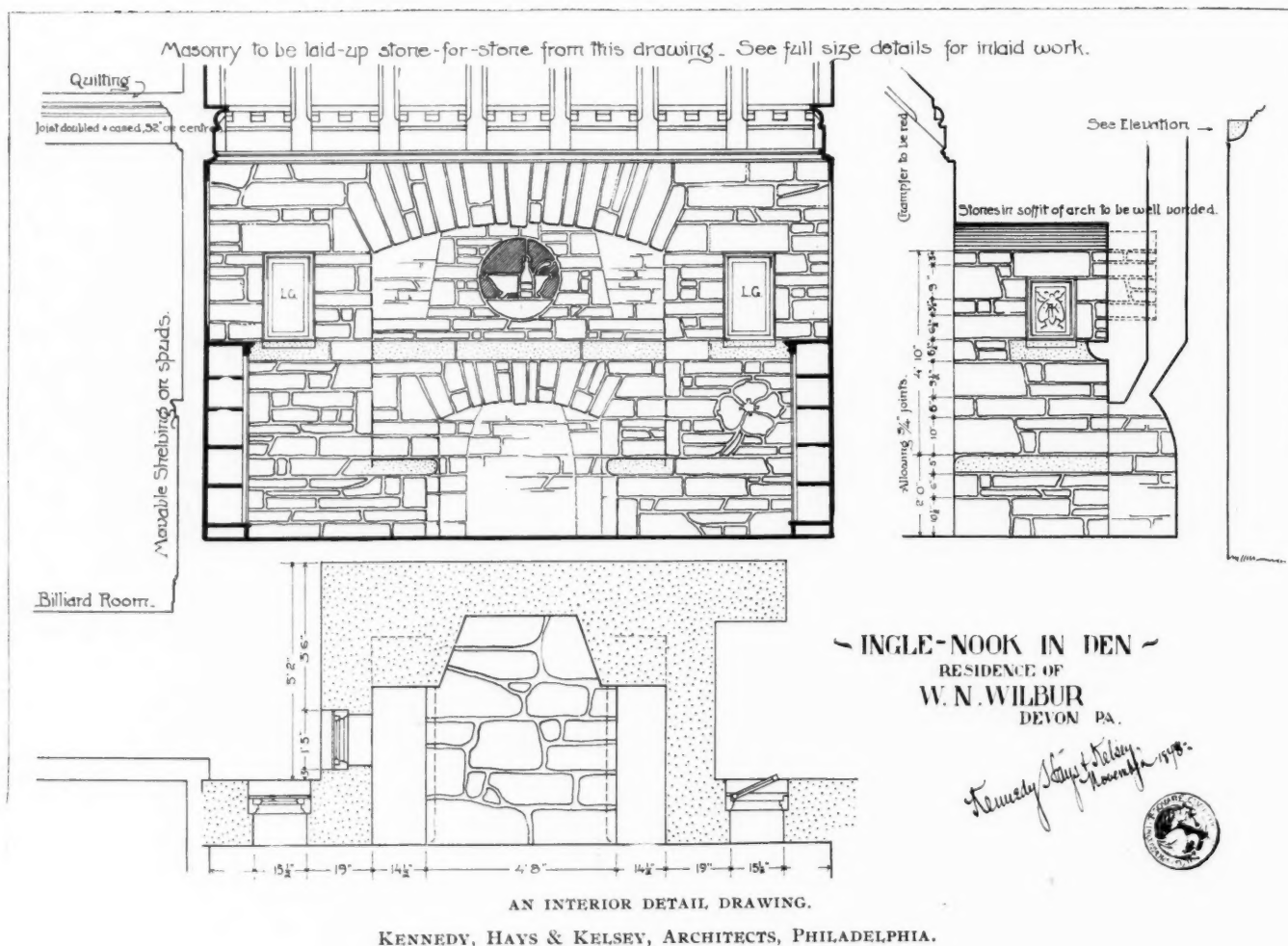
First Floor Plan



SOUTH WEST ELEVATION



RESIDENCE AT OVERBROOK, PA.
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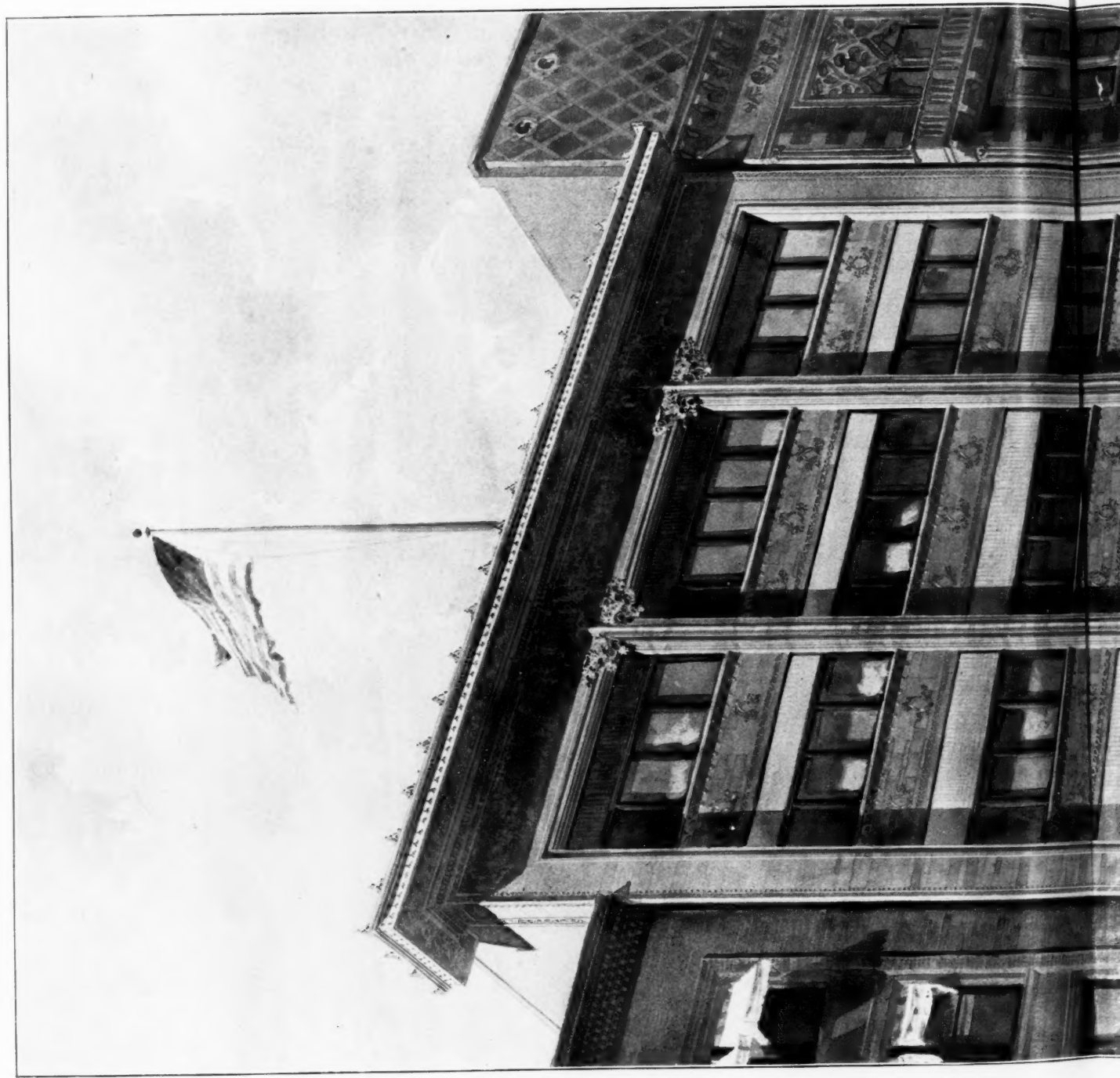
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SKETCH DESIGN BY JOHN J. BISSEGER.



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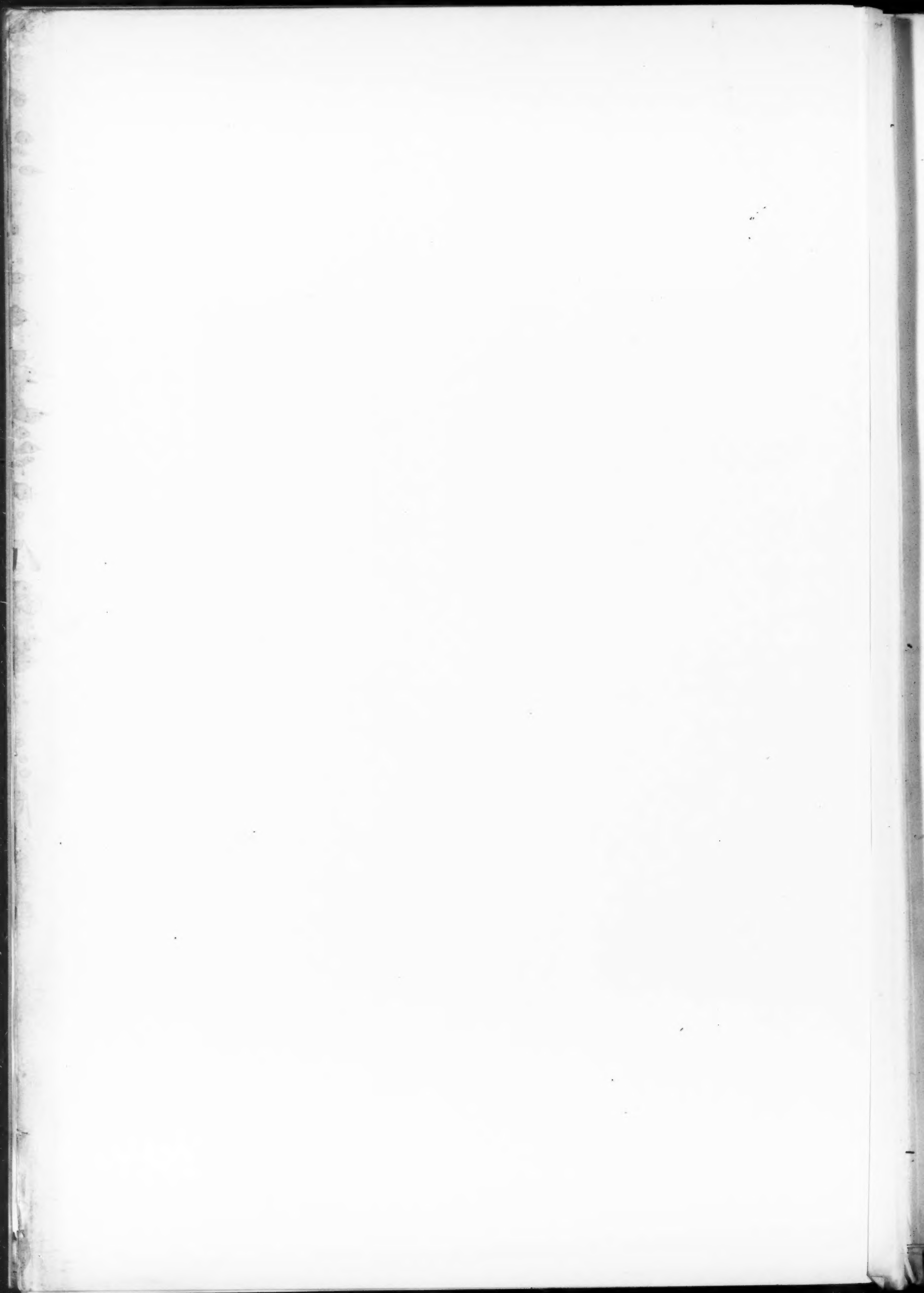




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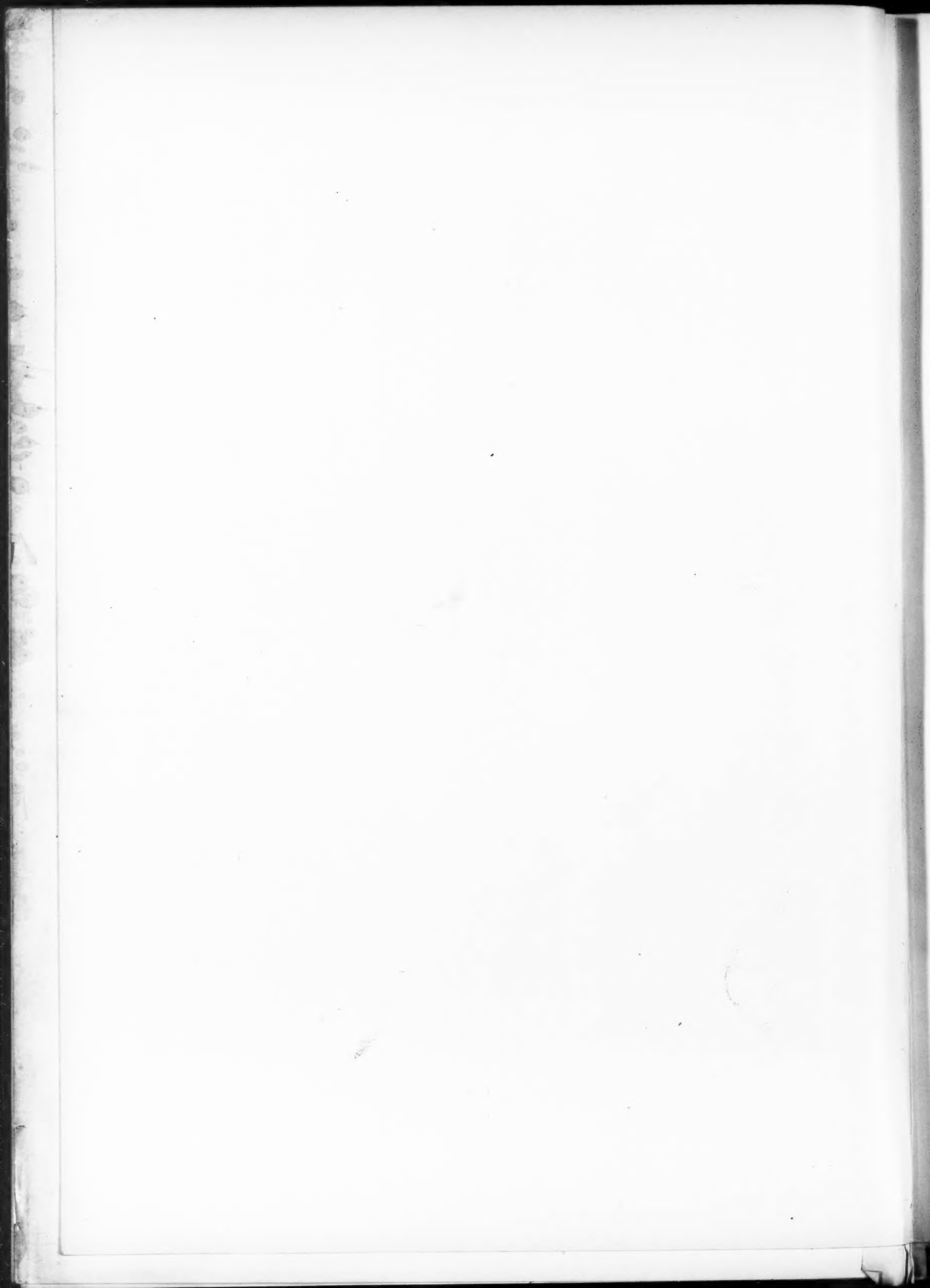




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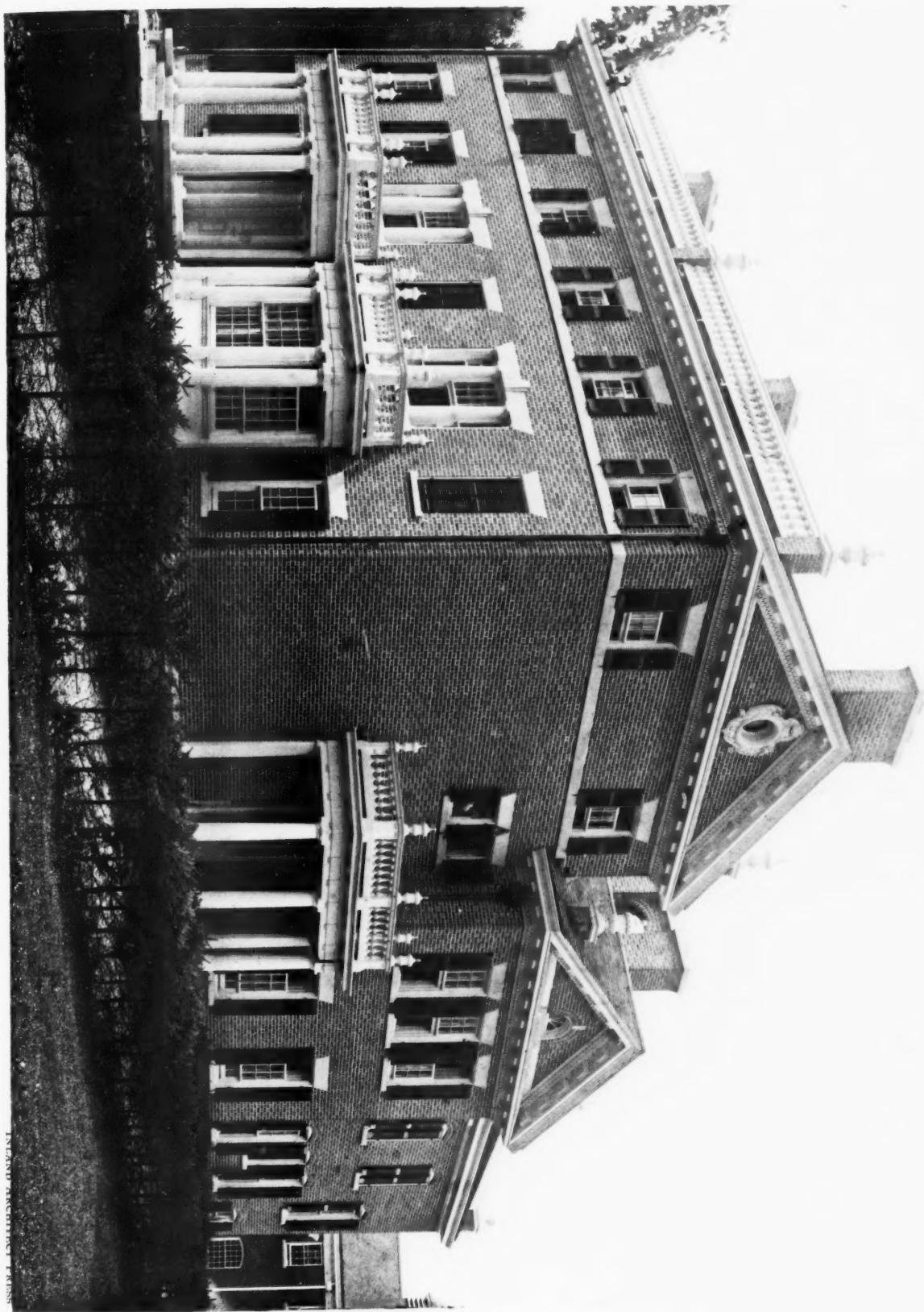
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