

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXXII.

AUGUST, 1898.

No. 1



A Monthly Journal Devoted to

ARCHITECTURE,
CONSTRUCTION, DECORATION AND FURNISHING
IN THE WEST.

PUBLISHED BY THE INLAND PUBLISHING CO.,
609-610 MANHATTAN BUILDING, CHICAGO, ILL.

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TERMS: Regular number, \$5 a year; Photogravure edition, \$10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), \$1. Advance payment required.

The columns and illustration pages of THE INLAND ARCHITECT are open to all alike, merit and availability only determining what shall be published. Contributions appropriate to its pages are always desired.

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Peculiarities of Old Colonial Churches.

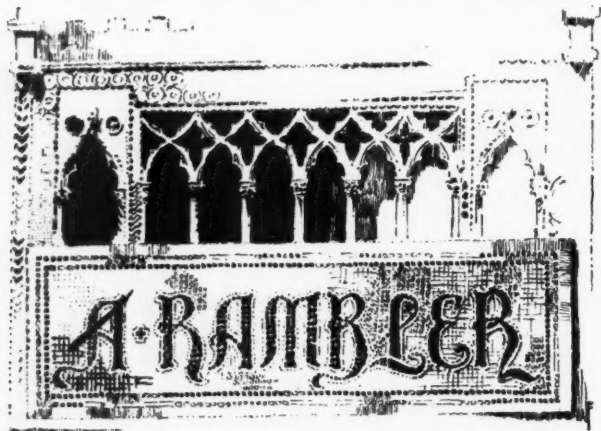
Outside of New England a frame church of any considerable size is rare, brick or stone being used instead of wood. But the old Colonial churches are generally of large dimensions, two stories in height, and while the architectural forms are more appropriate to stone than to wood, the general effect is very pleasing to the eye of a beholder not too critically disposed. They are always (almost) painted white, and have tall ornate spires. These, rising out of the dense foliage which usually enfolds the body of the church, form a picturesque and very graceful feature of a New England landscape.

Decision Against Union Interference.

Labor agitators are fond of advocating a man's right to stop work whenever he wants to, regardless of the harm to his employer, or to fellow-workmen, and regardless of his own agreements with his employer. The interposition of the courts is needed at times to protect a man's right to obtain work and to pursue it without molestation by labor unions. This right is just as real and inalienable as the right to stop work. Judge Frank Baker, of the Circuit court of Cook County, Illinois, has announced a decision of great importance in this connection. Four members of the Hoisting Engineers' Union conspired to prevent one Eugene Charles from obtaining work, and actually kept him from pursuing his rightful occupation for nearly three years. He obtained an indictment against them which was sustained by the judge in all its essentials.

How Much Should an Architect Know?

This question might be asked about any subject concerned in a building. How much should an architect know about masonry, about carpentry, about plastering, about painting? How much should he know about the thousand and one subjects that are employed in the construction of a building? It is a question that has been disputed over many times. On the one hand it is said: It is impossible for any man, architect or other, to be thoroughly conversant in all the trades which are necessary to erect a building; and on the other it may be said: How can an architect plan and design a building without knowledge of such subjects? One thing is sure, the drawings should combine and exhibit all necessary requirements before the building is constructed, otherwise extra trouble and cost, besides perhaps injury to the structure, will accrue. The only practical way seems to be that an architect should learn a sufficient amount about each of the matters concerned as will enable him to make a design which will not conflict with constructional requirements. It may be admitted as true that it is utterly impossible for an architect to attain a complete knowledge of all the different trades, etc., concerned, but it is equally true that he should have some knowledge of them all, and when it is necessary call in expert assistance in various matters, that he should know enough to be able to judge of the value of the assistants that he engages. Otherwise he is liable to be imposed upon by incompetent persons styling themselves engineers, etc., and this is done to a greater extent than is generally known.



THE INLAND ARCHITECT having particularly directed that I supply a "ramble" around the government buildings in Washington and vicinity, I hasten to comply, but with some trepidation. The field has been gone over and over again; every guidebook, almanac and railroad folder tells just how much money is printed every day in the Bureau of Printing and Engraving, gives you estimates of how much coffee and other restoratives are consumed daily by our legislators, and other such exact information about our public buildings; so much, indeed, that the subject is trite, absolutely stale—that is, that part of it that treats of what is done *within* those buildings. But I find, upon diligent investigation, that comparatively little has ever been said about the buildings architecturally in the architectural press, and as that would seem to me the theme best fitted for an architectural journal, perhaps I can make this slightly interesting, particularly if I say but little and show much. Besides, it is so much easier, this hot weather, to roll up a lot of photographs and direct them to Chicago, Illinois, than it is to sit down oneself and actually write things.

By the way, I want to call your attention to the excellence of

playing to give the life, color and tone necessary to complete a magnificent picture—a picture once seen one never forgets. Imagine looking down grand old Pennsylvania avenue from the Treasury steps, and witnessing such a parade as an inauguration procession, or, as seen so often these days, great masses of troops marching to the front. Why, to see the background alone of such a picture, the stately dome of the Capitol in the distance, is well worth a trip all the way from even our latest candidate for statehood, Hawaii!

The early history, the inception of the great executive buildings, was well reviewed some years ago by the then Supervising Architect, Mr. Jeremiah O'Rourke, from whose interesting paper I quote:

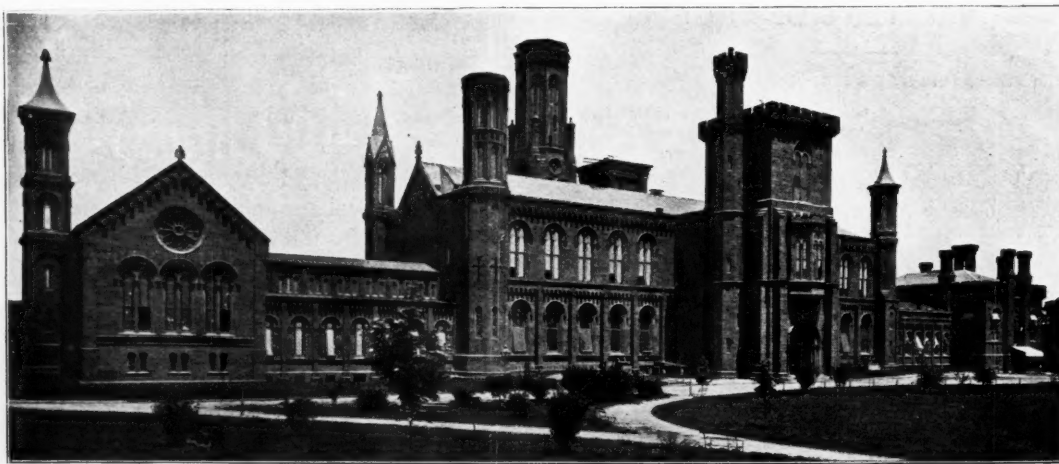
"The details of the administration of the United States Government under an admirable constitution have been gradually but slowly developed from rude beginnings. Architecture with the fine arts had long to wait their turn in a young agricultural and commercial country, and, as was the case in ancient Rome, had to depend for their development almost entirely on foreign genius and talent.

"It was fortunate that during the early decades of this country, men of broad views, superior education, and strict integrity, were called to the presidency, and surrounded themselves with their peers in cabinet.

"The first happy venture of the young republic in the realm of art was with a landscape architect, Charles P. L'Enfant, an eccentric French Major of General Washington's staff, who was intrusted with the design of the city of Washington and the location of the sites for public buildings.

"After a long period of decadency in the fine arts, a new era of classicism dawned upon Europe, under the reign and impulse of the first Napoleon. It was reflected in this country, the Federal Government leading in the movement, Congress providing the means; the selection of architects and methods of carrying on the works was largely left to the Executive.

"Architects of acknowledged superior ability were applied to for designs, in competition or by special invitation. They



SMITHSONIAN INSTITUTION. COMPLETED 1855.

James Renwick, Architect.

those photographs. They are copies from negatives taken by the Treasury Department gallery, and go to show how well government work can be done when properly administered.

The views here shown represent only a portion of the Federal work hereabouts, mostly the executive departments. The Soldiers' Home, the St. Elizabeth Asylum, the Naval Observatory and several other interesting and picturesquely situated buildings I will make subjects for another paper—or, rather, subjects for other photographs.

As everyone knows, Washington is most beautifully situated and is certainly the most artistically planned city on earth. The vistas are grand, the streets broad and well kept, the buildings monumental, clean (which must be hard for a Chicagoan to appreciate) and well located, and there is generally enough excitement going on, flags flying, soldiers marching and bands

received compensation, and were retained at what was then considered liberal salaries.

"The Capitol at Washington is a prototype of the architecture of that early day. In the year 1791 a premium of \$500 and a building lot in Washington were offered for the best design for the United States Capitol, and in 1792 the plans of S. L. Hallet, a French architect, were accepted. As the author of the plans, he was employed to start the work, but he retired before long. After many unfortunate vicissitudes, Benjamin W. Latrobe, a native of Yorkshire, England, was called from Philadelphia, and from the year 1803 to 1817 he reconstructed the work, freely developed, matured and executed the plans, so that his name deserves to be recorded along with that of the author.

"Shortly after the competition for the Capitol, a competition was started for designs for the President's house. Mr. James



CAPITOL—EAST FRONT AND PLAZA.
751 feet long, 350 feet wide, 155 feet high to cornice, 288 feet to crest of liberty statue.



STATE, WAR AND NAVY BUILDING.
471 feet by 253 feet. Completed in 1893. A. B. Mullett, Architect.



NATIONAL MUSEUM. COMPLETED 1881.

Hoban, a native of Dublin, Ireland, then a resident architect of Charleston, South Carolina, and a highly esteemed competitor on the Capitol designs, was successful. The work being intrusted to him, he had it sufficiently advanced for occupancy in the year 1799. The completed building was burned by the British, but was subsequently rebuilt by Hoban, and in this shape it stands today.

"The first building for the Treasury Department was intrusted to George Hatfield, an English architect, who after Hallet's retirement had been called to this country to take charge of the work on the Capitol, but found it impossible to get along with the amateur commissioners of the District of Columbia. He finished the building in 1799. In 1801 a fire consumed a part of it, and in 1814 the whole building was burned by the British. It was recommenced in 1817, finished in 1823, and again destroyed by fire on March 29, 1833.

"In the second quarter of the century the above and other severe lessons led to the adoption, by the Government, of fireproof construction, but in the design the slow progress consisted mostly of better adaptation of antique styles to modern requirements, in which, however, its designs were fully equal to the best class of work in the older States.

"At the middle of the century the wants of a progressive nation had outgrown the size of the original Capitol, and plans for its extension were invited by a committee of Congress. A premium of \$500 was offered to the successful author and the right was reserved to the Government to combine the merits of various plans. The successful competitor was Mr. Charles Frederick Anderson, an eminent architect of the city of Cork, Ireland, then recently settled in the United States. He was awarded the premium, which was paid under President Fillmore's administration from the contingent fund of the Senate. Subsequently Mr. Thomas H. Walter, architect, of Philadelphia, and for years president of the American Institute of Architects, was intrusted with the work, under radical changes in the premiated design, and after many years of heated discussion Mr. Anderson, by a special act of Congress, received additional compensation for the use of his, so far underpaid, plans. While acting as architect of the Capitol, Mr.

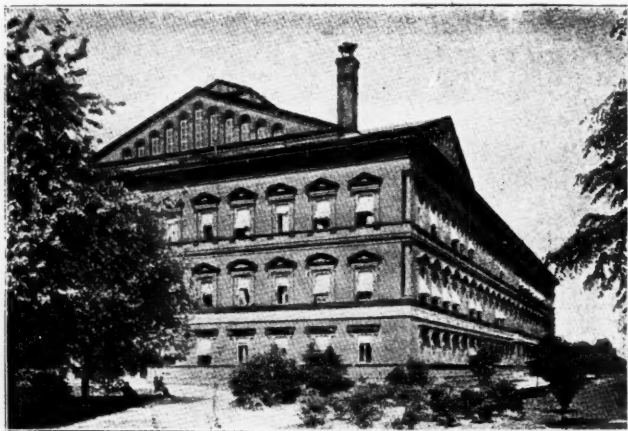
Walter was intrusted with the designs of the extension and completion of the Treasury Department and Patent Office buildings, as well as of the picturesquely grouped buildings of the popular Soldiers' Home, since remodeled and extended by Mr. William M. Poindexter, of Washington, D.C."

The history of the other older buildings is equally interesting, as is that of our later additions. I "rambled" over the Library some numbers ago, and in due course will touch upon the others, of which THE INLAND ARCHITECT will present views.

The cost of some of these buildings may be a surprise to some of my readers, and possibly a help to others who, anticipating similar commissions, will have something

to "cube-up" and proportion *their* work to; you see I am always considering my fellows and trying to make their paths easy, free from all spawls and other foreign matter, and strictly according to the true intent, etc.

The old Capitol cost \$493,196.24; the center part of present building cost \$1,113,184.70; the extension of legislative wings cost \$8,156,096.52; the dome cost \$1,086,637.91; the gasfitting

PENSION BUREAU.
400 feet by 200 feet.

cost \$41,000; the heating and ventilating cost \$310,237.45; the improvement of grounds, terraces and steps, etc., cost \$1,653,229.04.

The State, War and Navy Departments, under the one roof, cost \$10,038,482.42.

The Treasury Department cost \$6,563,841.82.

The Department of Agriculture cost \$294,899.73.

The Patent Office cost \$3,141,000, which was expended under the rather startling number of twenty-six separate appropriations by the Government, covering a period from July 4, 1836, to March 3, 1879.

The Post Office Department, including the grounds, etc., cost \$1,803,623.56.

However severely one may be inclined to criticise Mr. Mullet's design for the State, War and Navy building, and it does make one think of a Chinese pagoda, yet its very size is imposing, the masses think it beautiful, the workmanship is splendid—no better granite work was ever cut in this or any other country—so one might as well let it pass; regretting,



AGRICULTURAL BUILDING.

nevertheless, that such a magnificent opportunity had not been given to a real artist. But if a really atrocious design is required to act as a foil for the many beautiful buildings surrounding it, or for any other purpose, no more fitting example (to illustrate the word atrocious) exists in this country, or in any other, than our own lovely Pension building! The Lord be praised for small mercies, however; it was designed (?) not by an architect, but by General Meigs, of the War Department. An enormous Noah's ark of red brick, relieved by a band of ten yellow terra-cotta soldiers, four horses, three mules and two carts repeated all around its several hundred feet of girth, its sacrificial chimneys, its "fore-peak" gables, the magnificent six-foot columns supporting a tie-rod across the roof, and its many other fine features would gladden the heart of a Comanche. General Sheridan's remark, on being told that it was fireproof, merits being handed down to posterity—he said he was blank sorry that it was fireproof!

(To be continued.)

LITERATURE OF HEATING AND VENTILATING.

BY JAMES R. WILLETT, ARCHITECT.

MUCH attention has been given for some years past to the subject of heating and ventilation of buildings. A number of books have been published and improvements are being made. A great deal of information has been acquired by various contractors for such work, but these men, as a general rule, have published but little or nothing. The consequence is that not as much is known of the actual practice of such work to engineers and others engaged in planning it as is known to the trade. However, writers have now arisen who are practical men to a greater or less extent, notably such writers as Mills, Baldwin, and—lately and more completely, perhaps, than the others—Carpenter. The last-named author can scarcely be rated as a practical man in the ordinary sense of the term, since he is not engaged in business and is professor in a technical college, yet his book has probably done more to combine theory and practice than any as yet published. From a "sanitary" point of view the work of Dr. Billings takes precedence.

The book of J. H. Mills entitled "Heat" is in many respects an excellent one. It is full of valuable data. Unfortunately, it is not as well arranged, perhaps, as it might be, and also it has statements of articles patented by Mr. Mills which in a technical sense it would have been better to have omitted, as it gives the appearance at least of an advertisement. However, it is a valuable work, more valuable, perhaps, to a person who already knows something on the subject than to a novice. Mr. Mills is a thoroughly practical man with much experience, and his book is the result thereof.

Mr. Baldwin (who is "Thermus" of the *Engineering Record*) is also a thoroughly practical man, and has, like Mr. Mills, been in practice for many years. He has written a number of works. He began writing many years ago. The last edition of his book, "Steam Heating for Buildings," was published only about a year or so ago, and is an improvement, in some respects, on the first edition, which was issued long since. In his first edition of this work he gave a rule for ascertaining the number of heat units necessary to heat a building, which has been largely used. It is rather surprising to find in the last edition that this rule has been omitted, and, moreover, no other rule has been given in its place. As this rule is the condition precedent to the completion of the necessary computations for the heating of a house, it takes away, as it were, the very foundation of all such computations, and to that extent renders this book defective. Mr. Baldwin should remedy this omission. There is nothing in the book itself to show whether this matter was intentional or was merely overlooked, but in either case something should be done to supply the place of the omitted rule, as it greatly lessens the value of the book.

Mr. Baldwin's last book which we have seen is the "American Steam and Hot-Water Heating Practice." It is eminently a practical one. There are some rules given for various purposes, but its principal value is the number of examples it gives of works actually executed, and that, too, in all kinds of buildings. It has two or three examples of heating and ventilating by means of a blower or fan. The novice, such as a young architect, will be able to gather some considerable practical information from it, and what is even more valuable, it will call his attention to

matters so that he may make further inquiry from practical men, and thus acquire information more rapidly and accurately than he otherwise would. It also has some rules for ascertaining the dimensions of various parts of the apparatus, but it is not full or complete on the subject. The chapter or two on the carrying out of actual works, together with rules for the computation of the necessary dimensions of the parts, would have greatly improved the value of the book, but nevertheless, it is a book that is well worth a study by all architects, especially young ones desirous of improving their knowledge on the subject.

The next book that might be considered would be "Heating and Ventilating of Buildings," by Professor Carpenter. This book is meant to embrace the whole subject, both theoretical and practical. It is a recent work, published about two years or so ago. The author is a professor in Cornell University, and appears to have devoted a large portion of his time to both theoretical and practical methods. It is not, however, merely a theoretical treatise written by a college professor in his closet; valuable in its way but needing adaptation in order to put it into actual use, as so many books written by college professors are. It might be said to be the first book the writer has noticed where theory and practice seem to be well combined, and it is in a large degree successful, though some might doubt whether it has been entirely so. It is scarcely written for what is ordinarily understood to be a practical man; it is apparently intended, principally, for technical students who have gone through a course of physics. The young man who has no training in physics will find some of its statements rather uncertain and indefinite. Nor has the author entirely shaken off all the attributes of a college professor. However, it is a great advance, and does credit to its author and to all his assistants, for he appears to have used his students as assistants, and thereby done a service to them and also to the public at large. We sincerely hope he may keep on in such work. There are some points we might make exception to, but we dislike to appear carping with a book that is so excellent.

To a Western man some of his omissions will appear odd. As, for instance, he gives engravings of fittings, valves, etc., pretty extensively for such a work, yet no mention or engraving of an offset valve appears, which would indicate that the subject of the practical execution of the one-pipe system has not been given much attention.

The author endeavors to embrace all systems of heating, taking in even heating by electricity.

On the subject of heating by means of blowers, or the forced-blast system, he gives considerable information, but not as full as might be desired. The subject of heating and ventilating by means of blowers is one that has only lately come into common use for ordinary buildings, although blowers for ventilating mines have been used for a great many years; but now it is not uncommon to heat and ventilate buildings of any size by means of the blower, and it is to be hoped that their use will increase.

After giving the rules for calculation, and so on, he also gives practical methods which were furnished to him by a practical man, thereby, as it were, supplanting his own rules. However, it is excellent to have both. Indeed, one of the criticisms we would make on the book is that it has not enough examples worked out from beginning to end.

We stated, in speaking of one of Mr. Baldwin's books, that it was a book of practical examples and not of rules. We might say, with regard to Professor Carpenter's work, that it is a book of rules rather than examples, although some examples are given, but they are not as complete as they might be. If, under the chapter headed "Design of Heating Systems," Mr. Carpenter had taken examples and worked them out from beginning to end, giving the rules which he used in doing so, it would have added to the value of the book, especially to beginners, and these are the men whom we think will principally purchase Professor Carpenter's book. Moreover, if such examples had been made out, they would serve to make clear some obscure expressions in his work.

The work on "Ventilating and Heating," by Dr. Billings, is well known in its first edition. The last edition, which has been out several years, is greatly improved and enlarged. For a medical man it surpasses all other books we have seen in the application to practice. We do not mean by this that he would be considered a practical engineer, and his book would give completely the necessary information how to design a heating and

ventilating plant, for it does not do so, but it gives a thorough exposition of the subject from a sanitary point of view, and leads well up to the practice. To any architect desirous of understanding the subject from a sanitary point of view, it is much the best book we know of, and is well worth reading. To a person who can afford the time to read and the money to purchase a number of books, it would probably be the best book to begin with. After having read and digested it, it then would be well to take up a book more practically adapted to the execution of work.

We notice in more than one of the books that the outside temperature is usually taken at zero. We presume this is because that temperature is usual in the locality where the book is written. But this country is a large country, and there are parts of it where the temperature not infrequently gets down as low as minus 40 degrees. In such countries it would not do to take the outside temperature at zero.

In other places there are, we think, statements showing that the difference between the outside temperature and the inner may be taken at 60 degrees — from 60 to 70. Of course this would not be true in the cold countries we have previously spoken of, and beginners should be on their guard against such statements, especially in designing heating apparatus for countries with which they are not familiar.

WAYSIDE NOTES ON SCHOOLS.

BY NORMAND S. PATTON, ARCHITECT OF CHICAGO BOARD OF EDUCATION.

YOUR request for an article on schoolhouses reaches me while on a trip to visit public school buildings. Our party, sent by the Board of Education of Chicago to inspect Eastern schools, consists of Mr. Thomas Gallagher, vice-president of the Board, Mr. Bernard F. Rogers (since appointed chairman of the Committee on Buildings and Grounds), Mr. Thomas Waters, chief engineer, and myself, the architect. Our trip has been too hurried to get more than a glimpse at a few schools, and in this article I will not presume to pass critical judgment upon the school buildings of Eastern cities, but only to jot down some rambling impressions as they came to me.

As the Chicago Board has decided to build all schools fireproof, our attention has been somewhat particularly directed to the question of fireproof buildings. The schools which we have visited are:

PHILADELPHIA.—High School for Boys, Girls' Normal, and the Grammar and Primary on Fifteenth and Norris streets.

NEW YORK.—Elementary schools—No. 1, at Henry, Catherine and Oliver streets; Madison avenue and One Hundred and Nineteenth street, and one other.

BOSTON AND VICINITY.—High schools at Roxbury, Brookline, Newton, Brighton; English and Latin High at Cambridge, and Elementary schools—Paul Revere, Boudoin, Mayhew, Auburn and Vernon streets, and Robinson street.

SPRINGFIELD, MASS.—High school.

HARTFORD, CONN.—High school.

The Philadelphia schools are all planned by the architect of the Board of Education, and seem to reflect the Philadelphia idea of architecture (as known of old to readers of *THE INLAND ARCHITECT*) rather than the personality of any architect. It is fair to remark that the modern spirit in design has reached Philadelphia, and is illustrated in some buildings of great interest, but school architecture is yet faithful to the ancient traditions. Durability rather than beauty, expensive materials rather than pleasing form are marked characteristics of their schools. The school is evidently considered of great importance, for the well-known Philadelphia pressed brick is not good enough, and granite is the favorite material.

The high and normal schools are fireproof, the elementary schools are not; but there are unusual precautions taken in the matter of fire escapes. In the schools visited the stairs are of wood; but there is a double-barreled inside-out stairway which almost baffles description, but which is fireproof beyond a doubt. From the rear side of the corridor on each of the three stories there is a passage for the boys, leading through three doors to an outside iron balcony, which communicates with a fireproof stair *inside of the building*, but having no communication with the interior, and lighted by open arches in the outside wall. There is a corresponding passage for the girls to another balcony, which communicates with a stairway starting over the first landing of

the boys' stairs, and continuing down to the girls' yard between the flights of the boys' stairs, the two flights of stairs thus converting the fundamental properties of matter by occupying the same space at the same time, and not even communicating with each other. I am informed that these stairs are used regularly as the means of communicating with the yards in which the water closets are located in detached buildings. A noticeable feature of the plan is that four classrooms on each floor, all in a line along the front of the building, are thrown into one by sliding doors to form an assembly hall for daily use. This necessity of the school management prevents the use of wardrobes lighted by a window. The Boys' High School, which, according to report, will cost \$1,000,000, has drawn so heavily upon the granite quarries that the work is stopped for lack of funds. The main building is practically ready for use, but the rear wing is not roofed. This building, though fireproof, has a system of fire-escape stairs, built inside the walls, but reached only from outside balconies. The Girls' Normal School, erected in 1893, is a large fireproof structure with a complete system of laboratories, cooking department, etc.

If the Philadelphia schools seem somewhat severe and lacking in ornament on the exterior, this is offset by what we meet within. The tile wainscoting, in two colors, has every piece decorated with ornament in relief, and when I cast my gaze upward upon the paneled glories overhead I was "visibly affected."

Recent school building in New York, under the able architect of the board, Mr. C. B. J. Snyder, has been so fully illustrated in a recent number of the *Architectural Record* that I need not enlarge upon it. Great improvement has been made upon the old-time schools. The new buildings are entirely fireproof, are excellent in design, the lighting and ventilation have been well considered, and in the matter of playgrounds there has been developed the unique idea of utilizing the roof. In spite of these excellencies, our committee cut off New York with less time than was planned, because the local conditions affecting the schools are so different from those in Chicago that there is little that can be in common between their buildings and ours. The high price of land and consequent limited area of school sites in New York has developed much ingenuity on the part of the architect, but our principals would not be satisfied with corridors five feet or less in width and crooked at that, and with wardrobes opening into them so that the clothing must be taken from the wardrobes by monitors and distributed to the pupils in the rooms. Nor with classrooms so small that the desks must be set in double rows. It may not be practicable to do better in New York, but we can be more liberal with space in Chicago.

A typical New York elementary school has the entire first story, which is about two feet above the sidewalk, devoted to a playroom, divided by a fence or partition between the girls and boys. Below this is a cellar for heating apparatus and fuel. Above the playroom are three stories of classrooms and in many schools a fifth story for manual training, gymnasium, cooking department, etc. In the tenement district there is added a playground on the roof, entirely covered over with wire netting. There are stairs of the double type, as described under Philadelphia, but connecting with the corridors direct. The water closets are usually in buildings in the yard, with additional closets on the fifth floor.

In Boston the conditions seem to be more parallel with ours in Chicago. The schools differ from ours mainly in being smaller, for which reason the Boston schools will be of interest to the profession as being about the size usually adopted by school boards. For some years all the Boston schools were designed by the city architect, and the work of Mr. Wheelwright is particularly familiar to the profession. Since the abolition of the office of city architect a number of architects of eminence have been employed to plan the schools. This arrangement would naturally tend to variety of design and plan, rather than to progress in any definite direction. The tendency under the individual architects has apparently been toward a more lavish expenditure of money.

Boston is a few months ahead of Chicago in building its first fireproof school, the Paul Revere school being nearly completed, while our John Spry is in the early stages of construction. I must reserve to a future time my comments on the comparative cost of schools in Chicago and elsewhere, only remarking now that the style of finish at the East is much superior and the cost per classroom much greater than with us. In Chicago, the best we have been able to afford is Southern pine interior finish with the varnish

left in the gloss. In Boston the regular finish is oak, as well finished and rubbed down as in a good residence.

As an instance of money spent to an ill purpose I was surprised to see two long flights of granite steps leading to the entrances of the Paul Revere school. Outside steps were out of date for school buildings a decade ago.

Eastern cities have been greatly ahead of Chicago in the precautions for exit from schools in case of fire. The Philadelphia plan of going outdoors and then coming in again may seem cumbersome, but it is sure. The Boston method is to make the stairs and stair halls fireproof and separated from the corridors by fireproof doors. One eight-room school, with a central stairway of iron, has at each end an additional fire-escape stairway, accessible directly from each classroom. It seemed to me on observing these various elaborate precautions taken to provide escape in case of fire that the same sum of money applied toward the general construction of the building would go a long way toward making the same fireproof, and I believe that our Board of Education has done wisely in pushing on at once to the scheme of fireproof schools.

In the midst of the marked tendency to make school buildings, especially high schools, fireproof, I was surprised to meet a notable exception. The Cambridge Latin High School, situated adjoining the English High School, and now approaching completion, has wood construction in the interior, with apparently no precautions to render it even slow-burning. There will be marble steps in the entrance and iron stairs in the corridors, and with its massive and imposing architecture without will doubtless pose before the public as a fireproof building; but within are wood floors, stud partitions plastered on wood lath and no plastering behind the wainscoting. The galvanized iron hot-air flues are inclosed with stud partitions, forming flues from cellar to attic. The ceilings alone are on metal lath. Such construction may be allowable today on a two-story school of small size, but not on a large and expensive high school, and I hope that the time is not far distant when our building laws will prohibit this style of building entirely.

I will close these rambling remarks with a few classified notes.

Blinds and Shades.—Venetian blinds are used in one of the schools visited. In the Philadelphia grade schools there are transoms with obscured glass, below which is hung a shade to cover the lower part of the window. All other windows, as far as noticed, have shades hung at top.

Sash.—Boston schools have double box frames with double sliding sash to all windows.

Stairs.—With one exception all stairs noted are iron with iron treads; sometimes covered with rubber, which emits a bad odor; sometimes inlaid with asphalt, which is not handsome but appears to be practical; sometimes faced with six inches of Mason's combined steel and lead safety tread, which is much used in Boston. Most of the school stairs are far from handsome; those in New York remind one too much of a jail.

Height of Story.—Almost universally thirteen feet in clear; but a few of the newer buildings have reduced height to twelve feet. This height I believe to be preferable if sufficient window area is provided; the windows run close to ceiling and the shades or blinds are not hung at the top.

Blackboards.—As a general rule are put on all sides of classrooms, except in the Philadelphia school, which follows our latest Chicago method of blackboards on two sides only. In any case, blackboards between windows are of no use.

Wardrobes.—Were found of every description, and some high schools have a singular lack of system, one classroom, for instance, having a regulation wardrobe with doors into room and corridor, the next classroom accommodated only with hooks in an end of the corridor. The Brighton High School, like that in Buffalo, has individual lockers in the basement.

Laboratories.—All high schools were equipped with ample laboratories, usually three—chemistry, physics and biology or botany—containing well-arranged tables, suites, apparatus, etc. There is usually a scientific lecture room with raised seats, and a large drawing or art room.

Heating and Ventilation.—Forced ventilation by a fan seems to be universal, but in most cases the heat is supplemented by steam coils in the rooms. Most of the systems are complicated and expensive as compared with that in our Chicago schools, and it is safe to say that Chicago leads in this respect.

Playgrounds.—These have been abandoned in Chicago of recent years, except as small spaces may happen to be left around

the building. The lots purchased are usually barely sufficient to take the length of the building. Small playrooms are provided in the basement. In Boston, ample playgrounds are provided for each school.

NEW ENGLAND NOTES.

BY CHARLES E. ILLSLEY, ARCHITECT.

ARCHITECTS visiting the East for recreation and instruction will do well to give an important place on their list to the city of Newburyport, Massachusetts. Less than an hour's ride from Boston on the Boston & Maine Railway, it is easily reached by half a dozen trains daily, and is the center of a region full of interest and charm to the artist, the historian and the architect. It is especially rich in well-preserved examples of Colonial architecture at its best period and in great variety, including handsome churches, business houses and domestic architecture.

Comparatively few are aware that "Ould Newbury," near the mouth of the Merrimac river, was one of the first locations in the colony of Massachusetts bay to attract settlers, being founded in 1635, and antedating Boston itself. Newburyport is simply the commercial part of Newbury, and, when commerce became more profitable than farming, the finest buildings were erected here. Consequently there are many stately residences, churches, etc., dating well back into the eighteenth century, all of which have been continuously occupied ever since, and have been kept in such excellent repair that the visitor seems at once transported back to the period of the Revolution.

It was of Newburyport that Whittier wrote these lines:

"Up and down the village streets
Strange are the forms my fancy meets,
For the thoughts and things of today are hid
And through the veil of a closed lid
The ancient worthies I see again."

The "First Presbyterian Meeting House" in Newburyport, Massachusetts, is one of the largest, oldest and best bits of "Colonial" in the United States. It was erected in 1756. The interior was slightly remodeled in 1829, mainly by changing the pulpit from the side to the end of the church. The essential features of high, square pews, etc., were retained, and the exterior bears as much as ever that impress of Sir Christopher Wren's genius to which mainly we owe the charms of Colonial church architecture. In this church the celebrated George Whitefield preached, and he was buried beneath its pulpit. His marble cenotaph flanks the pulpit and is almost as prominent.

St. Paul's Episcopal Church, on High street, erected in 1738, rebuilt in 1800, is another excellent example of Colonial architecture. The square pews, wide galleries, small, square glass in the windows, the open belfry and the quaint portico are all interesting. A peculiar detail is a *padded elbow rest*, built on a curved bracket or on a turned baluster at each end of the pew inside. This seems to have been necessitated by the great height of the square pew inclosures, much too high for the occupants to rest their elbows upon them unless they stood up.

Another very interesting Colonial church in Newburyport is that of the First Congregational Society (Unitarian) on Pleasant street, built in 1801. This is a large two-story building with handsome belfry and spire, all of wood. The spire ostensibly exists for the purpose of supporting at its apex a large and spirited-looking gilt rooster. This, by the way, is a not uncommon feature in Colonial churches. It is not known what service to religion has ever been rendered by roosters to entitle them to so high a position in church architecture, always excepting that reproachful bird whose triple crow brought stony Peter to repentance; but certain it is that steeple designers two hundred years ago were rather fond of topping off with a chicken. There are two examples in Newburyport almost within a stone's throw of each other.

The parish house of St. Paul's church, in Newburyport, is a neat stone structure gracefully designed in Early English, with triple lancet-head windows and deep splayed stone reveal. It is a good specimen of its style, and, standing close beside the much larger frame church, it affords a rare opportunity to compare, or rather, to contrast the two styles of church architecture.

There is considerable building in progress in Boston and vicinity this summer. The most notable single structure is the South Side Union Station at the foot of Federal street. Travelers to Boston are already familiar with the North Side Union Station on

Causeway street, now about ten years old, and one of the best of its kind in the country. It accommodates the Boston & Maine and the Fitchburg railway systems.

The other Boston railways are all included in the extensive systems of the Boston & Albany and the New York, New Haven & Hartford. These will occupy the new station, which will be larger and finer than the north side station. Its construction began about a year ago. It is now ready for the roof, and construction trains already enter and use the train shed. Its cost will approach \$2,000,000.

Work is still progressing on Boston's "Subway," by which the various electric lines of street railway pass beneath the Common and the central business part of the city. One part was opened to travel last fall, and another portion a few months later, but the extension, running to the Union Station, is still unfinished. While there was much opposition to the subway scheme at its inception, it is now universally praised. An immense amount of passenger travel streams through it at all times, while the surface lines seem to have lost none of their patronage.

A very tasteful subway station of granite and copper has been erected in Scollay's Square. There are a half dozen or more subway stations in Boston Common, all of granite and all designed in excellent taste, one great merit of which is their simplicity; there is no obtrusive ornament. Some observers have thought they detected a resemblance to the Boston Library, and one of the papers humorously remarked that the Library had "had a litter of pups on the Common."

A WONDERFUL SUMMER LAND.

THE summer vacation is becoming more firmly established as an institution each year in the United States, learning as we do from our Anglo-Saxon neighbors in Canada and England that longevity depends upon the change and rest given the physical and mental systems when overtaxed. Formerly it was only the rich that were supposed to be able to afford the luxury of a



ON THE SEVERN, MUSKOKA LAKE REGION.

"lay off" when they were well enough to attend to daily duties; but means of travel have become so general that the most distant points can be reached quickly and conveniently. Next to the seacoast, the most picturesque and healthful center of which is found about Portland, Maine, the country lying to the eastward of Lake Huron in the Canadian province of Ontario offers the greatest attractions, though until recently but little known to the tourist and a terra incognita to the average citizen. The section may be called the Georgian Bay country, for it encompasses this wonderful sheet of water with its thirty thousand islands as well as that lying east of the bay that centers in lakes of the Muskoka Lake district. While the bay and adjacent country can be reached by boat to Mackinac Island at the foot of Lake Michigan, and there connecting with the White and the Black lines of Canadian boats, the favorite and most direct route is by the Grand Trunk Railway System. This old and noted road in its ramifications covers all the country the traveler may desire to reach. Its twenty-six-hour route from Chicago to New York by way of Niagara Falls, and the luxurious trains that take the traveler from Chicago to Portland are not only well known but are becoming the most popular of all the Eastern lines, but it is only to those who have sought recreation in the Canadian lakes and forests that the magnitude of the system becomes apparent, for, in fact, tickets on the Grand Trunk System can be purchased in Chicago that will take

the traveler to Mackinac and all the northern Michigan cities, or to the three main ports on Georgian Bay, the Muskoka district, the Trent valley lakes which lie beyond Toronto and Peterborough, and to all those noted lakes in the St. John country beyond Montreal. All these places mean the same to the man who wishes to leave his business for a few weeks and with his family, or without, seek natural and healthful recreation. It means the best of fishing and hunting for the sportsman, and as certainly the pleasures of boating on quiet inland waters, and a Canadian boat—whether it be a skiff, sailboat or line steamer—is always well built and equipped, it being a notable fact that the water craft found in the most remote districts are built and equipped equal at least to those found at the most progressive watering places in the United States.

To those who love nature and delight in forest and stream and the deep water with all the sailing and fishing, the healthful and invigorating climate, and other pleasures that are associated with these, this entire country reached by the Grand Trunk Railway presents them at their best and beyond all chance of disappointment. The way is made most pleasant through the thorough equipment of the trains, as the management that a few years ago took this system in charge has left nothing undone that can possibly add to the comfort and convenience of its patrons.

As evidence of this, the latest addition to its rolling stock placed upon its Canadian branches has brought the construction of rolling stock well-nigh to perfection. One lot of twenty-six cars just turned out of the Grand Trunk shops are veritable palaces. They are of the vestibule order, sixty-two feet long, with six-wheel trucks for smooth running, and Westinghouse quick-action-triple brakes and air signals. The first feature that strikes the passenger on getting on the car is the peculiar construction of the platform, which is made of steel with coverings for the steps, so that the whole platform can be arranged to form a vestibule. By this means dust and foul air are excluded, and all danger to passengers on the platform removed. A powerful light over the platform is an unusual and very convenient appointment. The interior work and finishing of the cars are extremely beautiful. The woodwork is of finished mahogany, and the car, which is much longer than the ordinary first-class coach, seating with comfort seventy-two passengers, is handsomely upholstered.

The comfort of the passengers is evidently the first consideration in the arrangement of the seats, which are adjustable—that is, by means of a spring they can be turned from one side to the other—while the backs as well as the seats can be easily removed for cleaning purposes. To the lovers of the fragrant weed the most interesting feature of the coach will be the commodious and luxurious smoking room that has been provided for their use. It is a separate inclosed apartment at one end of the car, where they may enjoy a quiet smoke without interruption. Even to the most minute details, such as the arrangement of the private apartments, the convenience of the passenger has been studied. The closets are self-flushing, and separate lavatories have been provided for the ladies. Improvements are noticeable in the smallest details. Hereafter when a weary passenger desires to arrange a blind, his temper will not be so sorely tried that he will be inclined to use language more forcible than elegant. The ball bearings of the blinds are so arranged that they will stop at any point desired. The cars are heated by steam and lighted by the Pintsch gas. The ventilating arrangements are ample and satisfactory, and everything about the new coaches wears an air of ease and elegance.

On the whole, the new coaches are models of modern constructive skill, and the Grand Trunk, by such improvements, shows that its management is actuated by a spirit of enterprise and progress which augurs well for Canada's pioneer railway system.

As an introduction to the vast district reached by the Grand Trunk System, an excursion has been planned to leave Chicago August 19 to visit one of the most interesting points, the Muskoka lakes. The rate has been reduced to the lowest point, and the speed and convenience of the trains brought to the limit of perfection, and it will only need a few such introductions to turn the hearts of those who wish to exchange the view of prairies and high buildings to endless vistas of islands and lakes, forests and rivers, scenes surpassing all others upon this continent.

A POINTER ON SUMMER TRIPS.

IN planning a trip of two weeks in which the time for recreation at any one place is limited by distance it is well to consider how to make the going and coming enjoyable. This is accomplished in no better way than by taking the Northern Michigan Transportation Company's boats to Charlevoix, Petoskey and Mackinac. They are safe, easy sailing and commodious steamers, in charge of some of the best ships' officers on the lakes, always courteous to passengers and skillful in the discharge of their duties. The fare is equal to that of the best hotels and the catering is a specialty of the stewards on these boats. Trips many times repeated have made many Chicagoans convinced that for variety of scenery and for safe and luxurious traveling there is no other trip that yields so large a percentage of pure and unalloyed pleasure. There has never been an accident to a boat of this line, and the frequent ports reached en route give a variety to the hours of travel that is appreciated. The beautiful town of Charlevoix in its landlocked harbor, Petoskey on its green hillside, and its environing summer homes stretching around the foot of Little Traverse Bay, and the splendid island of Mackinac need not be

described. They each have their own peculiar attractions and over all that region the air is pure, filled with the balsam from the pine forests and always cool from the surrounding lakes. The architecture of man has given to these places few noticeable examples, but the Architect of the Universe has built here in granite and in water and in wood a resting place for the people of the cities.

NEW PUBLICATIONS.

THE ARCHITECTURE OF CLASSICAL ANTIQUITY AND THE RENAISSANCE. By J. Buehlmann, architect and professor, at Munich. 75 steel engravings and photo-lithographic plates in portfolio, with descriptive text translated from the German of the second revised and enlarged edition by G. A. Greene.

The choice of the fundamental works for an architect's library, those that make up the marrow, bone and sinew of professional study, is no longer an easy one. This field, widened and enriched by the constant research of many of the noted students and archaeologists of the schools and universities of Europe, has yielded during the past few years a bounteous and varied harvest. The market today bulges and swells with a vast store of Atlas plates, infolios and their voluminous accompanying texts, exhausting every epoch, every style, every chary piece of detail that can lay a modest claim to architectural pretension. The very cubic bulk of this mass of technical matter becomes appalling. The student, the beginner, is particularly struck with dismay to find himself face to face with this mighty rank and file of excellent material, this good, substantial food dressed in so many ways and all recommending a fair trial. He hesitates. He is at a loss to make a selection; does so haphazard, or yields to desultory, unsystematic inquiry. The results are time-killing and discouraging, the knowledge gained unreliable and superficial. It might be styled of the "hopoty-skip" order. "Just a smattering, enough to get an idea." The start is a bad one, and, more than that, it entails consequences. The student once launched at sea in a chaos of professional prints and literature, forms the habit of gleaning here and there the bits of wreckage from the classics and the middle ages that happen to float his way.

This is detrimental to good training and the judicious use of time, and perhaps we have all felt, at one time or another, the helplessness and vacancy of such attempts at study.

Formerly and very often today the first book put in the student's hands is the classic, time-honored "Vignola." This work, embodying a treatise on the five orders—the five Roman orders—with their mathematical modules and multiple parts, was the designer's sole companion during the first two or three years. He learned here the proportions of a shaft with its cap and base and crowning entablature. He could get a first idea of what is meant by architectural form; but that idea was little more than a paper image into which no structural thought entered. The "Vignola" taught what the orders of architecture were, but not why! It gave no outline of their growth and their development, and no examples of their application. It sought only to instill first impressions, and these more imaginary than real.

Some years ago a first attempt was made to remedy this defect, and a new edition of the original "Vignola" appeared, supplemented with a number of plates that sought to apply the theory of the orders. Since then many publications of general excellence have been put on the market, all conceived with the idea of giving a thorough elementary instruction in the first principles of architecture. These works have won the appreciation of the student world. They have leveled the irregular and uneven road of architectural study by systematizing and grouping the fundamental laws. The syntax and rhetoric of a simple sentence in art-building has been written.

And still the work is always incomplete. The last word always remains to be added and absolute perfection is never attained. The current production appears to us exhaustive and finished to the dotting of an i and crossing of a t until we investigate further and find several months later another step taken in advance. A stride in this direction on the road to progress has recently been made by J. Buehlmann, architect and professor at Munich, in a work entitled "The Architecture of Classical Antiquity and the Renaissance," published in Berlin, and translated by G. H. Greene. This production is a new departure, in so far that it not only considers the elements of architecture, but those of its allied decoration as well, and a short, well-studied accompanying text gives an excellent instruction in the history of the ages.

Here is a Vignola not content to lay down arbitrary laws for a chosen type of five Roman columns, but one giving a résumé of all the best works of the classic part and the flower of the Renaissance, with examples of the most noted buildings and their dissected parts.

The order is no longer considered as an element apart and independent in itself, but as a unit in the whole. In connection with the study of the Parthenon, that refined Greek Doric is given, showing the elegant shaft and crowning entablature in place in the building, and then studied apart at a larger scale, considering all details and their Greek characteristics. This is the principle followed right through the work—a principle of synthetical analysis. The Roman columnar decoration is shown applied to the building, which is in itself the structure, and plans, sections and details render each plate clear and comprehensive.

Thus the study of architectural form is made in connection with the building with which it is allied. This is a lesson applied. The interest is increased. We certainly cannot fail to appreciate these living object lessons and derive more benefit from them than

in going over the dry and speechless pages of our time-honored "Vignola."

The work of Mr. Buehlmann is arranged in three distinct parts. The first treats on the orders of architecture, or what he calls the *orders of columns*. The second treats of the various forms of arches, arcades, doors and windows, and of façades of buildings. And the third is concerned with the development and decoration of rooms, and takes also into consideration in this connection the exterior of buildings so far as it corresponds to the conformation of the rooms.

The plates are well presented in fine steel engraving, the drawing carefully and conscientiously executed.

Not only the student, but the professional man as well, will find here an excellent addition to his library in this simple architectural compendium, but we will say in words of more than one syllable, thorough and complete in itself, and above all, perfectly reliable.

Another gap in the shelves of the best libraries has been filled, and well filled.

OUR ILLUSTRATIONS.

Views of the Omaha Exposition of 1898, as follows: Agricultural Building, Cass Gilbert, architect, St. Paul; Mines and Mining Building, S. S. Beman, architect, Chicago; Exterior and Interior Views of Fine Arts Building, Eames & Young, architects, St. Louis; Liberal Arts Building, Fisher & Lawrie, architects, Omaha; Manufactures Building, J. J. Humphrey, architect, Denver; Administration Arch, Walker & Kimball, architects, Boston and Omaha; Machinery and Electricity Building, Dwight Heald Perkins, architect, Chicago; Bird's-eye View of Grand Court.

Inter-Ocean Building, Washington, D. C. T. F. Schneider, architect.

Emmons S. Smith Building, Washington, D. C. T. F. Schneider, architect.

Church at Corsicana, Texas. James Riley Gordon, architect, San Antonio, Texas.

Ground Plan of Columbia University, New York; and Floor Plans of Library of Columbia University. McKim, Mead & White, architects.

Photogravure Plate: The Sloane Residence, No. 9 East Seventy-second street, New York. Carrère & Hastings, architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Detail of Entrance, New York Life Insurance Company building, New York.

The Waldo Residence, corner East Seventy-second street and Madison avenue, New York. Kimball & Thompson, architects.

Detail of Front, Havemeyer Hall, Columbia University, New York. McKim, Mead & White, architects. The following views of Columbia University are also shown: Detail of Physics Building; Detail of Front, Engineering Hall; Rear View of Library Building; Front View, Schermerhorn Hall.

SYNOPSIS OF BUILDING NEWS.

Architects are invited to furnish for publication in this department monthly or occasional reports of their new work before the letting of contracts. Reports of buildings costing less than \$5,000 are not published.

Chicago, Ill.—Architect Robert S. Smith: For Mrs. Augusta Heberlein, a six-story store and flat building, 66 by 67 feet in size; to be erected at 359 to 363 Chicago avenue; to be of buff Bedford stone up to second floor, and pressed brick with stone trimmings above; marble wainscoting, tile bathrooms, gas and electric fixtures, all open nickel-plated plumbing, steam heating, electric light, mantels, sideboards, cement work; cost \$30,000.

Architect Oscar Bluemner: Made plans for a two-story, basement and attic residence, 26 by 50 feet in size; to be built at Sheridan Park, Ravenswood; to be of frame construction with stone basement and pressed brick chimneys, have interior finished in oak, gas and electric fixtures, hot-water heating, mantels, sideboards, tile and marble work, open plumbing, etc.

Architects Hill & Woltersdorf: For John M. Durand, remodeling building at 42 to 46 Wabash avenue; will put in new store fronts, cast iron and plate glass, steel beams and columns, new plumbing, electric light, steam heating, elevators cement work, marble work, mosaic floors, etc.

Architect De Witt Taylor Kennard: For R. Curran, a three-story apartment building, 50 by 157 feet in size; to be erected at the northeast corner of Sixty-fourth street and Greenwood avenue; to be of pressed brick and stone, have all the modern improvements, steam heating, electric light, etc.; cost \$30,000.

Architects Huehl & Schmid: For Mrs. Mary Weterer, a two-story flat building, 22 by 50 feet in size; to be built at Perry street between Wilson and Sunnyside avenues, Ravenswood; to be of frame construction, stone basement, have oak finish, hot-water heating, gas fixtures, mantels, sideboards, etc. For Mrs. E. G. Klauer, a two-story and basement flat building, 25 by 77 feet in size; to be built at Orchard street opposite Deming place; to be of buff Bedford stone front and stone porch, tile roof have hardwood finish, furnaces, gas and electric fixtures, mantels, sideboards, cement basement, etc. For H. F. Lundgren, a three-story and basement apartment house, 47 by 50 feet in size; to be erected at Briar place; to have a basement of buff Bedford stone, and above this will be of pressed brick with stone trimmings; the interior to be finished in oak and Georgia pine, have the best of modern plumbing, mantels, sideboards, gas and electric fixtures, steam heating, electric light, etc. Same architects made plans for the large building now being erected at the northeast corner of North avenue and Wells street, for the L. H. Boldenwick estate; it is 125 by 129 feet in size, four-story and basement; to be of Roman pressed brick with buff Bedford stone trimmings, have the modern open plumbing, gas and electric fixtures, oak and Georgia pine finish, etc.

Architect Frederick Ahlschlager: For Mr. A. M. Dittes, a two-story and basement flat building, 22 by 54 feet in size; to be built at 5543 Princeton avenue; to be of frame construction, have oak finish, plumbing, gas fixtures, mantels, furnace, electric bells, etc. Same architect made plans for remodeling residence at 167 Lubeck street; pressed brick and stone, plumbing, etc. Same architect made plans for a two-story store and flat building, 52 feet front, to be erected at Chicago Heights; to be of pressed brick and stone front, have the modern plumbing, gas fixtures, mantels, sideboards, etc.

Architects Murphy & Camp: For John Treleare, two two-story, basement and attic frame residences, 21 by 39 feet each; to be built at Addison avenue

near Lincoln avenue; to have brick basements, oak finish, mantels, sideboards, gas fixtures, hot-water heating, electric bells, speaking tubes, etc.

Architect H. F. Swanson: For Victor Olsen, a two-story, basement and attic residence, 30 by 50 feet in size; to be of frame construction with Bedford stone basement, have interior finished in quartered oak, special mantels and sideboards, gas and electric fixtures, hot water heating, electric light, etc. For Charles H. Bourgoyne, a two-story and basement flat building, 25 by 76 feet in size; to be built at Leavitt street near Greenwich; to be of pressed brick and stone front, have all the modern improvements, steam heating, gas fixtures, etc.

Architect James R. Torrance: For William Stevenson, a three-story and basement apartment house, 50 by 70 feet in size; to be erected at Calumet avenue and Forty-second street; to have a front of buff Bedford stone, hardwood interior finish, mantels and sideboards, gas and electric fixtures, steam heating, electric light, marble, tile and mosaic work; cost \$15,000. For Mrs. Fannie Dickinson, remodeling and front and rear additions to flat building at 225 La Salle avenue; four stores, 28 by 80 feet; to be of buff Bedford stone front, hardwood finish, the best of modern plumbing, steam heating, electric light, mantels, etc. For William H. Patterson, at Fifty fourth street near Ellis avenue, three three-story and basement residences, 60 by 60 feet in size; to have fronts of pressed brick with buff Bedford stone trimmings, hardwood finish, gas and electric fixtures, steam heating, electric light, marble and tile work, etc.; cost \$25,000.

Architects J. F. & J. P. Doerr: For C. W. Lundelius, two three-story and basement flat buildings, to be erected at 4847 to 4849 Calumet avenue; Bedford stone fronts, hardwood finish, steam heating, gas and electric fixtures, mantels, sideboards, etc. For Morris & Collins, a three story and basement flat building, 22 by 78 feet, to be erected at 4853 Calumet avenue; Bedford stone front, oak interior finish, mantels, sideboards, steam heating, electric light, electric bells speaking tubes, etc.

Architects Church & Jobson: For C. A. Binney, a two-story, basement and attic residence, 36 by 61 feet in size; to be erected at Sheridan Road, Edgewater; to be of pressed brick and stone, have interior finished in quarter-sawn oak, specially designed mantels, sideboards, consoles and grill work, the best of nickel-plated plumbing, gas and electric fixtures, gas ranges and fireplaces, marble, tile and mosaic work, hot-water heating, electric light, cement basement and sidewalks, etc. Same architects made plans for a two-story, attic and basement residence, 33 by 56 feet in size; to be built at Kenmore avenue, Edgewater, for Henry Beck; to be of frame construction and stone basement, have the best of modern plumbing, gas and electric fixtures, gas ranges and fireplaces, electric light, furnace, electric bells, speaking tubes, cement work, etc.; cost \$6,000. For Charles A. Goodman, a two-story, attic and basement residence, 32 by 58 feet in size, to be erected at Marinette, Wisconsin; frame, stone basement, hardwood interior finish, furnace, mantels, sideboards, etc. For G. H. Gates, a two-story, basement and attic frame residence, 38 by 40 feet in size; to be built at 1205 Winthrop avenue, Edgewater; brick basement, best of plumbing, hot-water heating, gas fixtures, mantels, etc.

Architects Stiles & Stevens: For Henry Schultz, a two-story, basement and attic residence, 26 by 41 feet in size; to be built at Lagrange; to be of frame with stone basement, have oak interior finish, mantels, sideboards, consoles, all open plumbing, gas and electric fixtures, hot-water heating, electric bells, speaking tubes, cement basement and sidewalks. For William Hoskins, remodeling residence at Lagrange; will put in new plumbing, hot-water heating, hardwood finish, mantels, sideboards, bookcases, gas fixtures and new addition, 18 by 24 feet, of frame and stone.

Architect H. P. Harned: For George Lally, a two-story business block, 60 by 160 feet in size; to be built at the northwest corner of Fifty-fifth street and Monroe avenue; to be of pressed brick and stone, have the modern plumbing, steam heating, gas fixtures, electric wiring, etc.

Architect George Beaumont: For Western Cold Storage Company, a four-story warehouse, 120 by 150 feet in size; to be erected at Illinois Central Pier No. 2; to be of common brick, mill construction, have freight elevator, plumbing, cement work, etc.

Architect Julius H. Huber: For E. S. Hartwell Lumber Company, a two-story mill, 79 by 220 feet in size; saw shed and powerhouse—two stories, 58 by 190 feet—and office; to be erected at Elston avenue and North Branch Chicago river near Deering.

Architect Dankmar Adler: For Charles Yondorf, a six-story store, 40 by 100 feet in size; to be erected at 282-284 Fifth avenue; to be of pressed brick with terra cotta trimmings, have plumbing, electric light, steam heating, etc. For Morgan Park Academy, a three-story dormitory; to be of pressed brick and stone, have slate roof, modern plumbing, hardwood finish, steam heating, etc.

Architects Benes & Kutsche: Made plans for a two-story and basement school, 72 by 82 feet in size; to be erected at Rossville, Illinois; to be of pressed brick and stone front, have slate roof, hardwood finish, steam heating, cement work, gas fixtures, plumbing, etc.

Architect A. G. Lund: For Claus A. Carlson, a three-story and basement apartment house, 50 by 77 feet in size; to be erected at Indiana avenue south of Fifty-fifth street; to be of buff Bedford stone front, have hardwood finish, mantels, steam heating, electric light, marble and tile work, etc. For James Penhalligon, a three-story flat building, 46 by 107 feet in size; to be erected at 6532-6534 Butler street; to be of pressed brick and stone front, oak and pine finish, mantels, sideboards, gas fixtures, steam heating, etc.; cost \$35,000. For A. W. Anderson, a three-story and basement flat building, 44 by 71 feet in size; to be built at 6338 Harvard street; to be of pressed brick and stone front, have the modern plumbing, gas fixtures, oak and pine finish, steam heating, marble and tile and cement work. For Gus Johnson, a three-story flat building, 37 by 79 feet in size; to be built at 152 Sixty-seventh street; to be of buff Bedford stone front, have hardwood finish, mantels, sideboards, steam heating, electric wiring, gas fixtures, etc. For C. A. Carlson, a three story flat building, 45 by 77 feet in size; to be erected at 5417-5419 Indiana avenue; to be of buff Bedford stone front, oak finish, mantels, steam heating, gas fixtures, electric bells, tile bathrooms, etc.

Architect J. A. Miller: For Paul Streff, a three-story store and flat building, 24 by 76 feet in size; to be built at Webster avenue between Racine and Clifton avenues; to be of pressed brick and stone front, have the modern plumbing, gas fixtures, oak and pine finish, furnaces, mantels, sideboards, etc.

For Charles Adler, a four-story flat building, 24 by 56 feet in size; to be built at Franklin street near Locust; pressed brick and stone front, oak finish, mantels, sideboards, gas fixtures, etc. For A. Merkel, a frame cottage, 21 by 48 feet; to be built at Perry street near Addison avenue, Lake View; plumbing, furnace, mantels, gas fixtures, etc.

Architects D. H. Burnham & Co.: Made plans and have commenced work on the Quincy Railway station for the Chicago, Burlington & Quincy Railroad; to be 60 by 300 feet in size; of pressed brick, stone and terra cotta, have tile roof, hardwood finish, modern plumbing, steam heating, electric light, mosaic floors, cement work, etc.; cost about \$80,000.

Architect J. M. Van Osdel: For J. W. Kiser, a two-story stable, 38 by 48 feet in size; to be built at rear of 3812 Michigan avenue; to be of pressed brick and stone, and have galvanized iron bays and cornice, slate roof, bathroom, gas fixtures, furnace, cement work, etc. Also made plans for a two-story basement and attic frame residence, 38 by 40 feet in size, for J. K. Hamilton.

Architect S. N. Crown: For Mrs. Annie Patterson, a three-story and basement flat building, 46 by 63 feet in size; to be erected at 6113-6115 Kimbark avenue; to be of buff Bedford stone first story, and the rest of pressed brick with Bedford stone trimmings, have hardwood finish, steam heating, mantels, sideboards, gas and electric fixtures, all open plumbing, etc.; cost \$18,000.

Architect Richard E. Schmidt: Reports having commenced work on the twelve-story warehouse, 86 by 163 feet in size, at Michigan avenue, for Montgomery Ward & Co.; it will be of pressed brick, with terra cotta trimmings, steel construction, thoroughly fireproof, have steam heating, electric light, elevators, etc.; the cost will be about \$300,000. Also adjoining above a ten-story building, 74 by 163 feet in size; to be of steel construction and fireproof, etc.; cost \$175,000.

Architects Brainerd & Holsman: For Max B. Nahm, a two-story store, 25 by 120 feet in size; to be erected at Paducah, Kentucky; pressed brick and stone, modern plumbing, steam heating, electric light, etc. For Dr. D. G. Murrell, a two-story office building at Paducah, Kentucky; making plans down there.

[NOTE.—Brainerd & Holsman have an office at 227 Broadway, Paducah, Kentucky.]

Architect Theodore W. Pietsch: Making drawings for a two-story clubhouse, 79 by 110 feet in size; to be erected at Hinsdale, for the Hinsdale Club; it will be constructed of frame, and have stone basement, plumbing, steam heating, electric light, cement work, etc.; it will have a theater to seat four hundred persons.

Architect C. M. Almquist: For Henry Bernmitter & Co., sixteen two-story houses, 20 by 40 feet each; to be erected at 524 to 536 Eddy street, Lake View; they will be of pressed brick and stone, have hardwood finish, mantels, sideboards, consoles, gas fixtures, cement basement floors and sidewalks, the modern open plumbing, hot-water heating, etc.; cost \$64,000.

Architect George W. Maher: Making plans for the Swedenborgian Church, 45 by 115 feet in size, and basement for Sunday school; to be erected at Seventieth street and Stewart avenue; to be of pressed brick and stone, with slate roof, have gas fixtures, steam heating, plumbing, cement work, etc. For George W. Davis, a two-story basement and attic frame residence, 28 by 40 feet in size; to be erected at Buena Park; brick basement, hardwood interior finish, mantels, sideboards, gas and electric fixtures, steam heating, cement basement, floor and sidewalk, electric light, etc.

Architect Fred Gatterdam: For Viehmann Building Company, a three-story flat building, 25 by 65 feet in size; to be erected at 836 Wilson avenue near Clark street, Ravenswood; it will have a handsome buff Bedford stone front, hardwood finish, steam heating, gas and electric fixtures, mantels, sideboards, consoles, etc.

Architect John P. Hettinger: For Henry Newmann, a two-story store and flat building, 25 by 60 feet in size; to be erected at Lincoln avenue near Grace-land avenue, Ravenswood; to have a buff Bedford stone front, copper bays and cornice, oak finish, mantels, sideboards, steam heating, gas and electric fixtures, tile bathrooms, etc.

Architect I. M. Mitchell: For I. H. Shoen, two three-story flat buildings, each 44 by 65 feet in size; to be erected at 530 to 536 East Fifthieth street; Bedford stone fronts, oak and pine finish, steam heating, gas and electric fixtures; cost \$36,000.

Architect H. L. Ottenheimer: For Leon Hartmann, a three story residence, 30 by 77 feet in size; to be erected at 4720 Grand boulevard; to have a handsome front of buff Bedford stone, hardwood interior finish, specially designed mantels, consoles and sideboards, electric light, etc.; cost \$20,000.

Detroit, Mich.—Architect R. E. Raseman: For Edison Illuminating Company, four-story brick and fireproof factory building, with buff sandstone trimmings; cost \$8,000.

Architects A. C. Varney & Co.: For Mrs. Lottie W. Kendall, two and one-half story frame residence, finished throughout with hardwoods; cost \$5,000.

Architects Nettleton & Kahn: For Bernard Ginsburg three-story and basement brick residence; to have slate roof, hot-water heating, and to be finished in hardwoods; 40 by 65 feet in size; cost \$6,000. For Louis A. Parshall, two-story brick and frame residence; cost \$6,000.

Architect Fred T. Houk: For Parsons & Co., six two-story residences of red pressed brick with white cut-stone trimmings, and galvanized iron cornice; to be finished with hardwoods throughout; 92 by 100 feet in size; cost \$10,500.

Architects Malcomson & Higginbotham: For Marr & Taylor, addition and improvements on business building; cost \$6,000. For William B. Millar, block of three two-story brick stores and residence flats; cost \$7,000.

Architect A. Lindenfeld: For Capt. John W. Legged, two-story brick residence; cost \$8,000.

Architect Edw. C. Van Leyen: For Ira L. Grinnell, three-story apartment house; cost \$15,000. For John W. Gray, two-story brick veneer double residence; cost \$6,000.

Architect Gustav A. Mueller: For Mrs. Caroline Kuttbauer, two-story brick double residence; cost \$10,000.

Architect Peter Dederichs: For George H. Gies & Co., remodeling hotel building, including an entire new front; cost \$25,000.

Architects Spier & Rohns: For University of Michigan, additions and improvements to central building of University at Ann Arbor; 80 by 127 feet in size; cost \$10,000.

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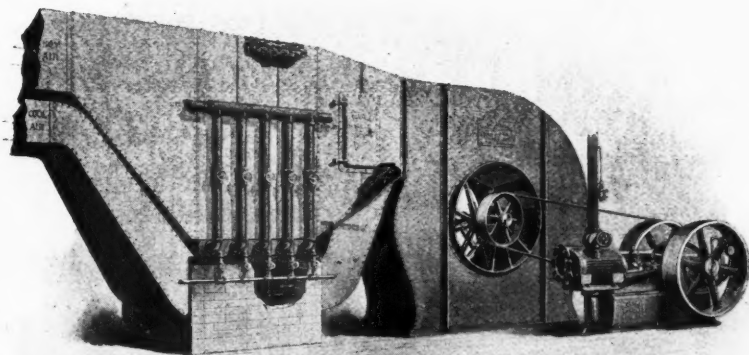
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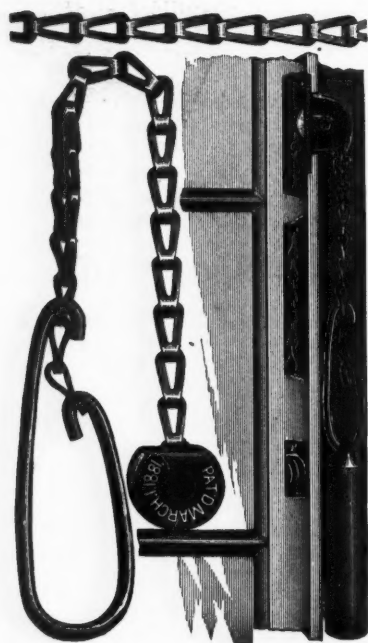
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Vol. XXXII.

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No. 1

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eral passenger and ticket agent, Michigan Central Railroad, Chicago, Illinois, or to the Chicago City Ticket Office, 119 Adams street, will secure this little work or any other information in this line.

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Fig. 2 Section of Floor Block.



Fig. 3 Protection of Bottom of Floor Beam.



Fig. 4 Column Protection.

heretofore has been restricted to partitions, columns, beam protections, etc. Its adaptation to fireproof floors is now clearly recognized. In most of the fireproof floors now on the market, the arch is the basal principle relied upon for strength, while in the Mackolite flooring the beam principle is utilized, thus avoiding the end thrust feature which must otherwise be provided for. Steel floor beams with flanges above and below are used, and the Mackolite blocks so shaped as to slip into position between these beams and held there by the flanges. The blocks are made in various lengths up to five feet, this being the maximum spacing between the beams for ordinary construction. This arrangement makes a flat yet very firm surface. The bottom of the blocks form a smooth and even ceiling on the underside which requires materially less plaster than the old style arch construction. There is no camber in this mode, a certain requirement where the arch form is employed, and from these two facts it is estimated that twenty per cent is saved in the plastering. As there is no end thrust to provide for, no tie rods are needed to hold the floor beams in position. So firm a support is given that no deflection occurs until eighty per cent of the load capacity is reached, thus there is little danger of cracking a ceiling by floor weight above. As the weight of Mackolite is considerably less than that of fire clay, or clay tile, a lighter system of framework may be employed. The blocks can be cut and sawed to shape, or bored with augers to permit the passage of pipes, wires, etc. What further enhances the value of this new application is the fact that the cost is claimed to be from ten to fifteen per cent less than that for tile arch floors.

The following table gives the result of tests of different sizes of Mackolite blocks, the loads being applied to the center and the figures given being the averages for ten separate tests in each case:

Depth of block.	Space.	Wt. of block per sq. ft.	Failed under center load.	Corresponding load per sq. ft.
in.	feet.	lbs.	lbs.	lbs.
10	4	25	1,150	575
10	4	30	1,650	825
10	5	25	1,145	460
10	5	30	1,500	600
7	4	22	1,000	500

Another very desirable feature of the material is its advantage over clay as a non-conductor of heat, its heat-conducting capacity being only one-third that of clay. In a test of the two materials made in Cornell University, two chambers were formed over a furnace, one being floored with Mackolite, and the other with fire-clay tiles,

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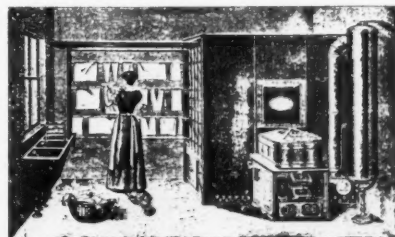
This material will not resist abrasion to any appreciable extent, and is not recommended for use below the ground water line unless protected with Portland cement.

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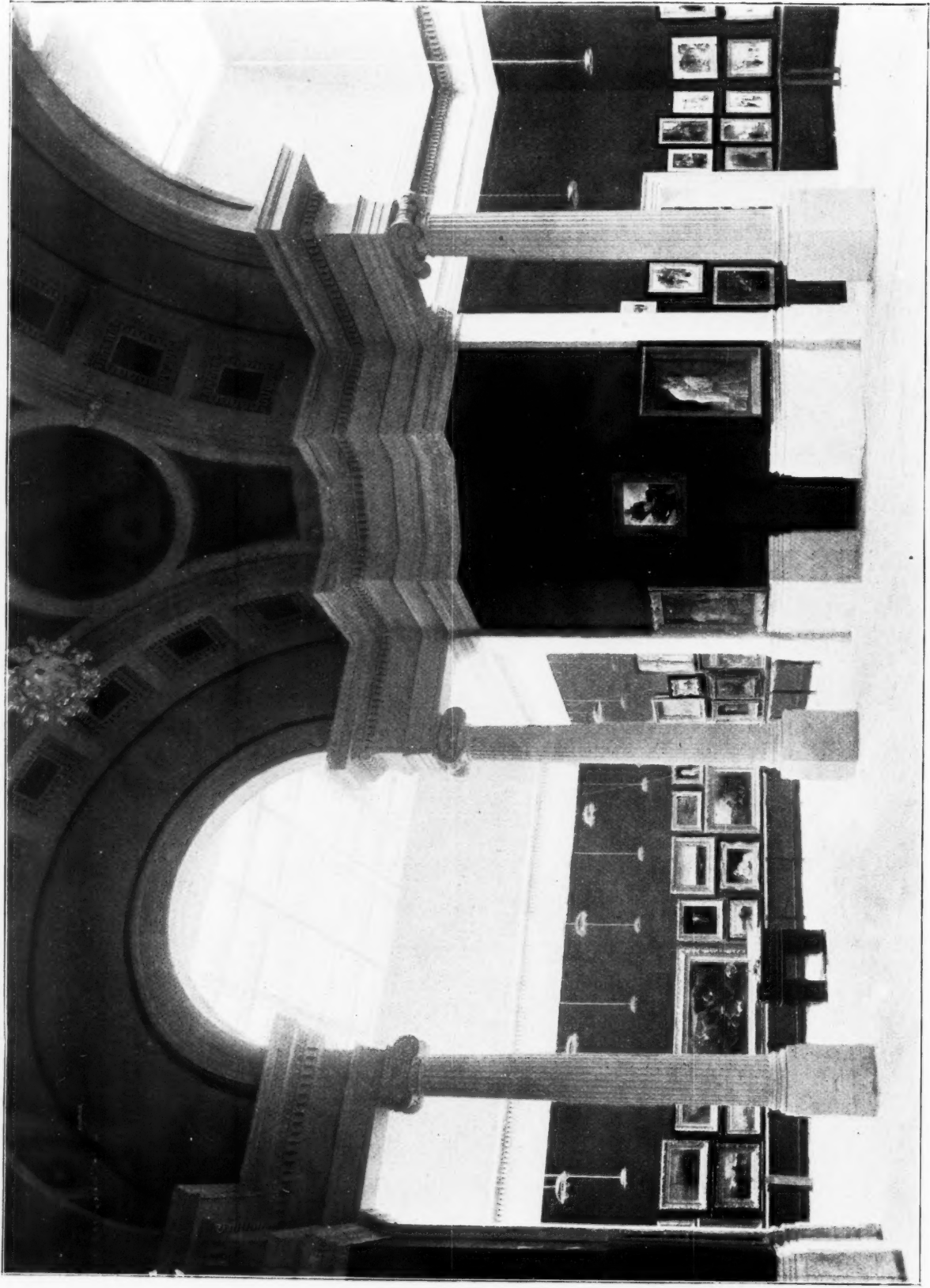
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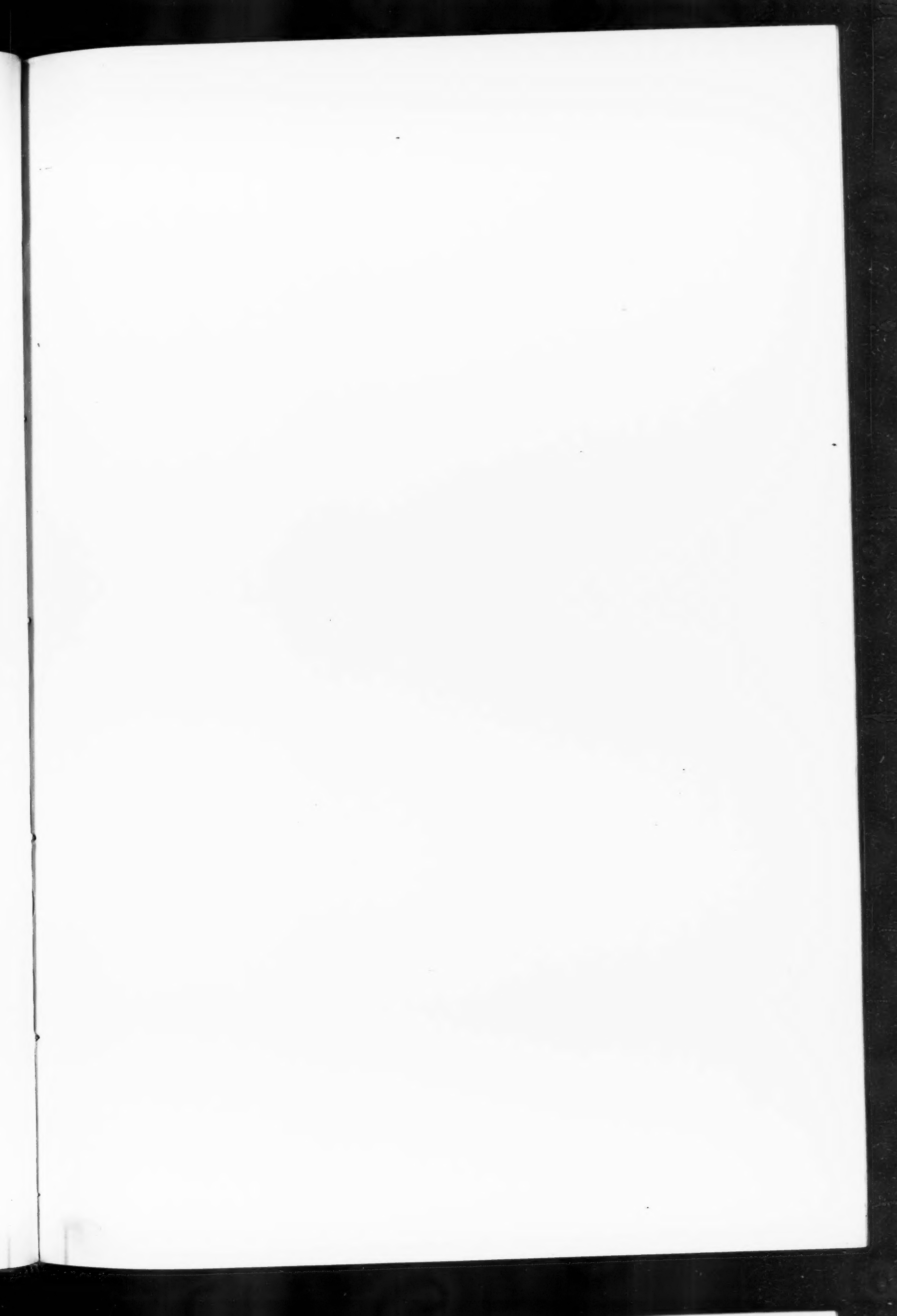
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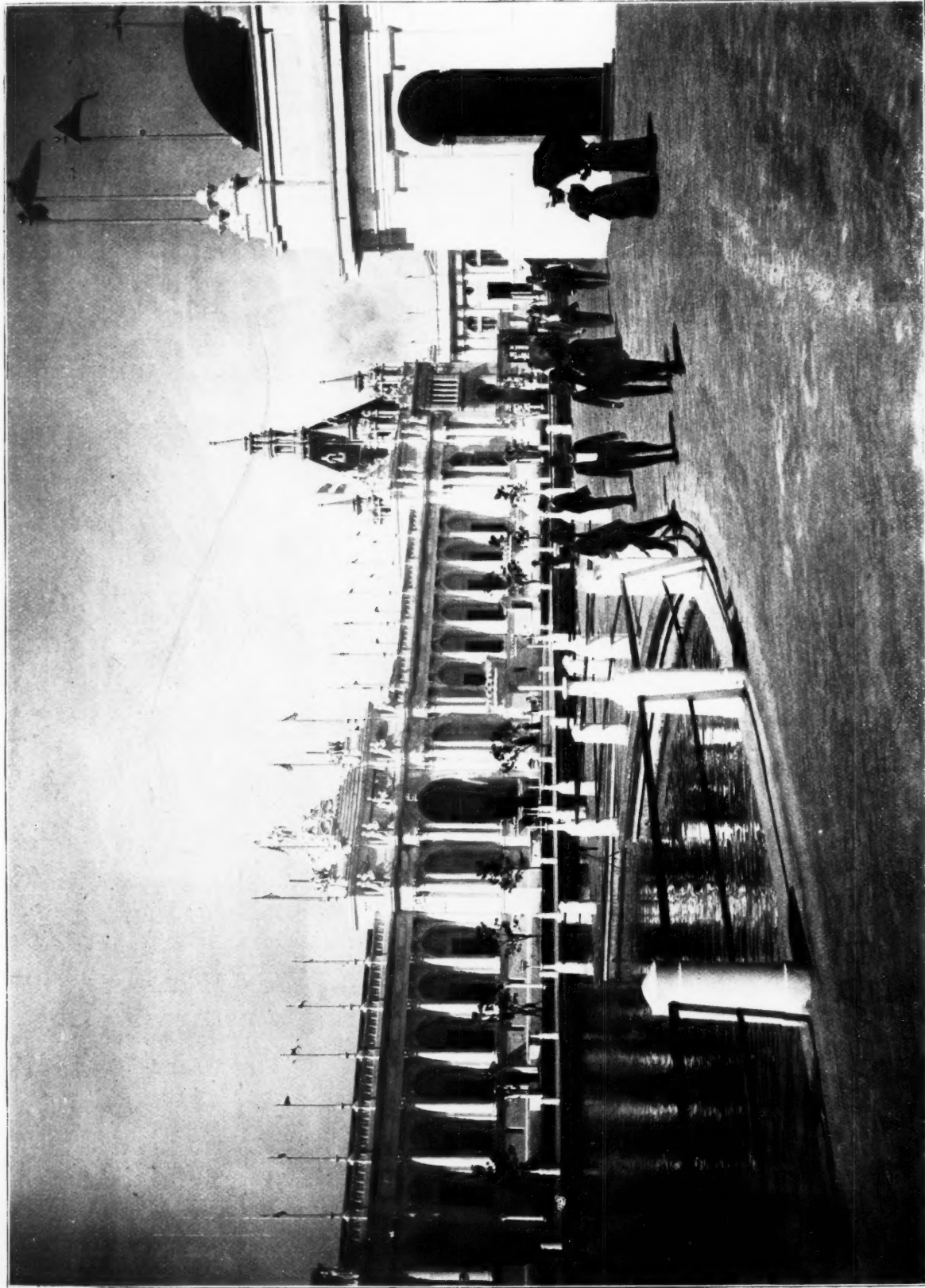


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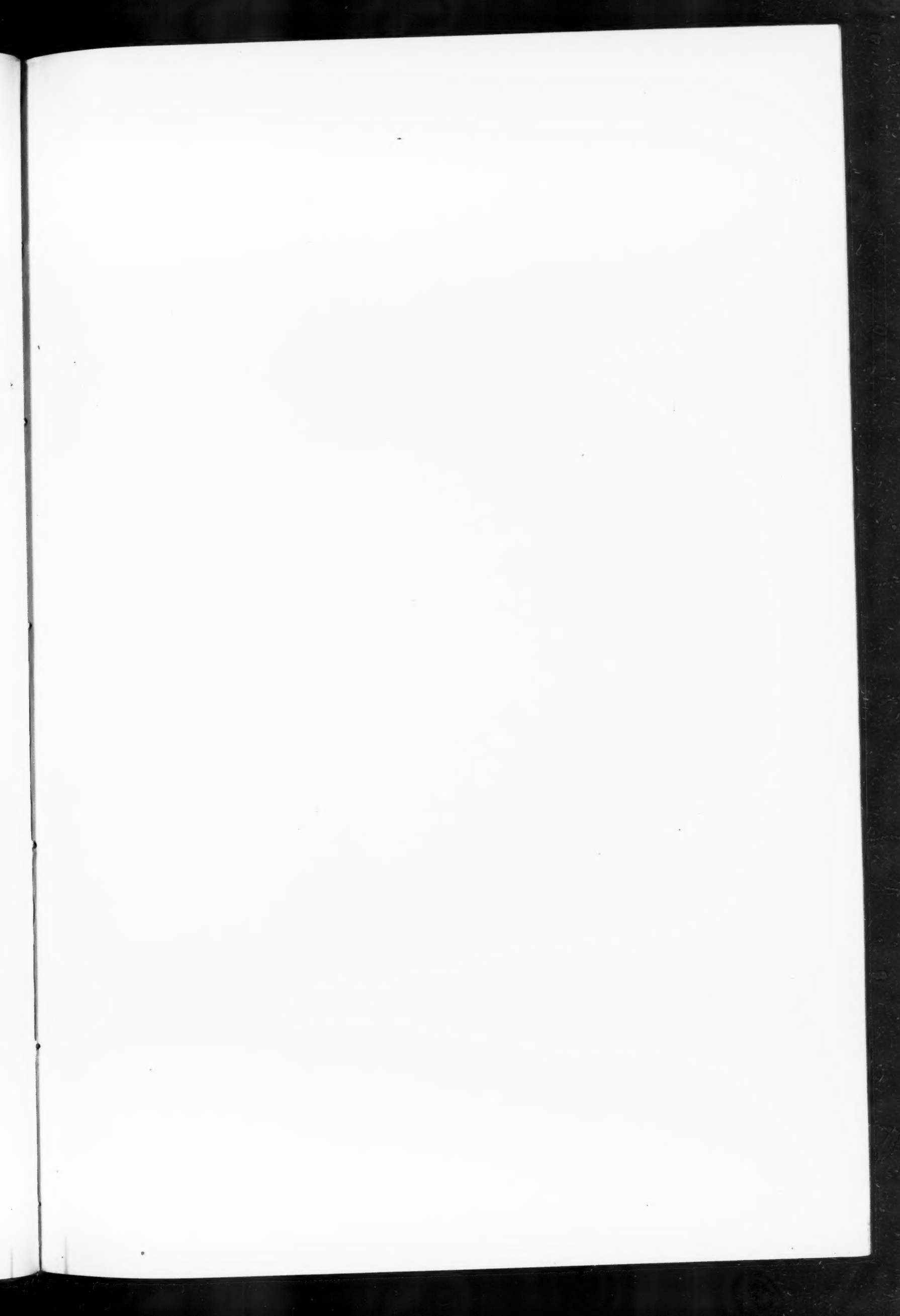


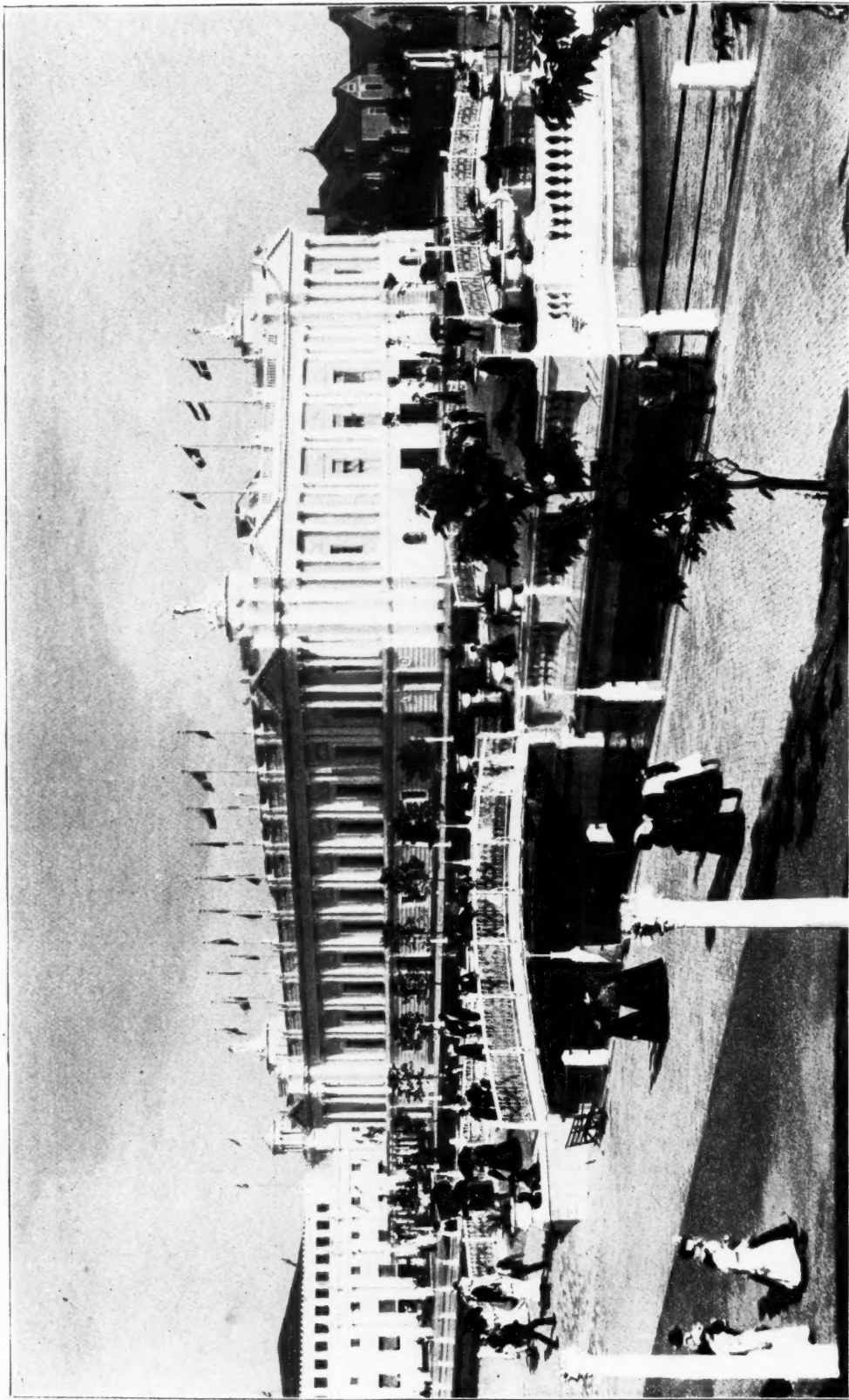


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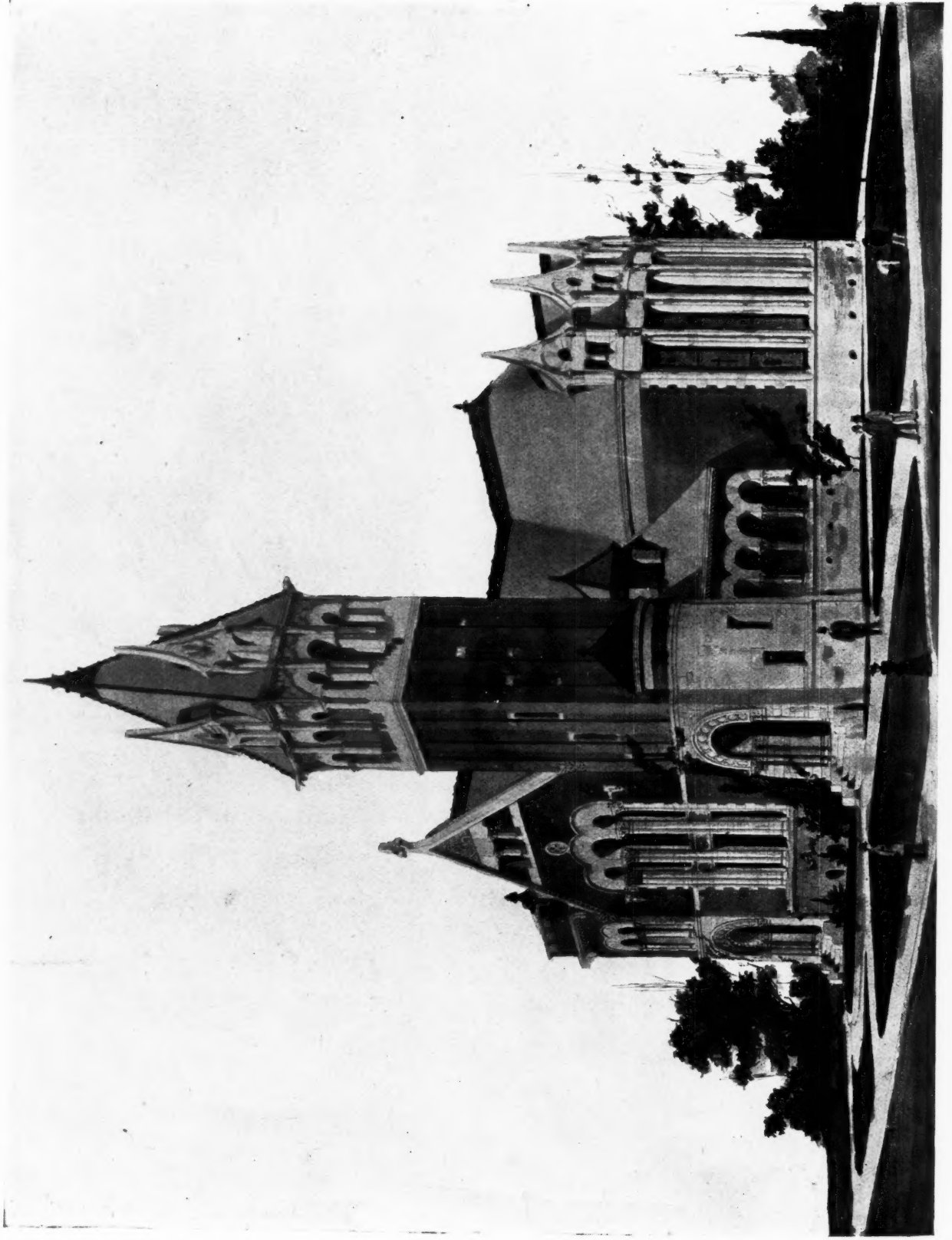
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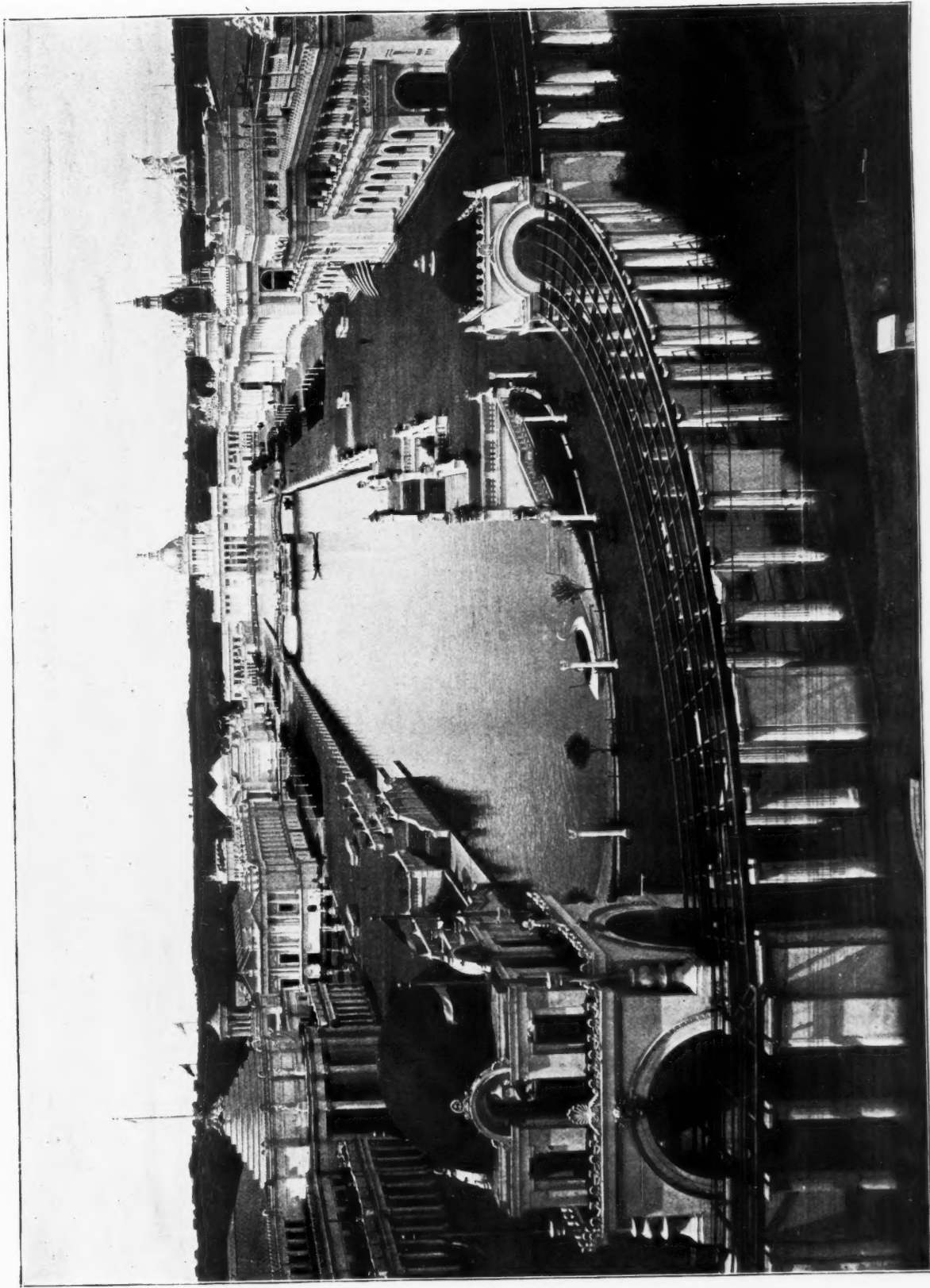


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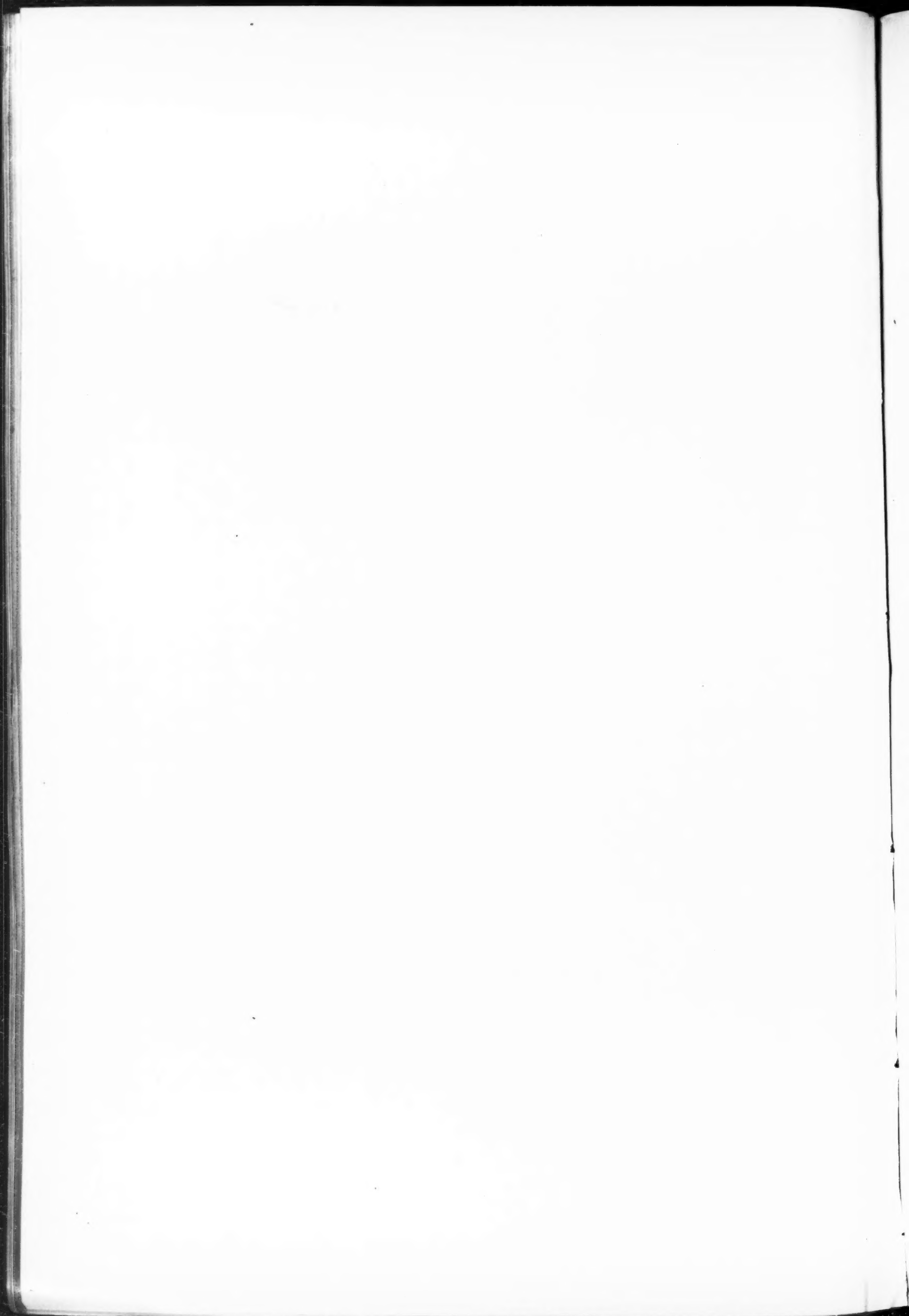


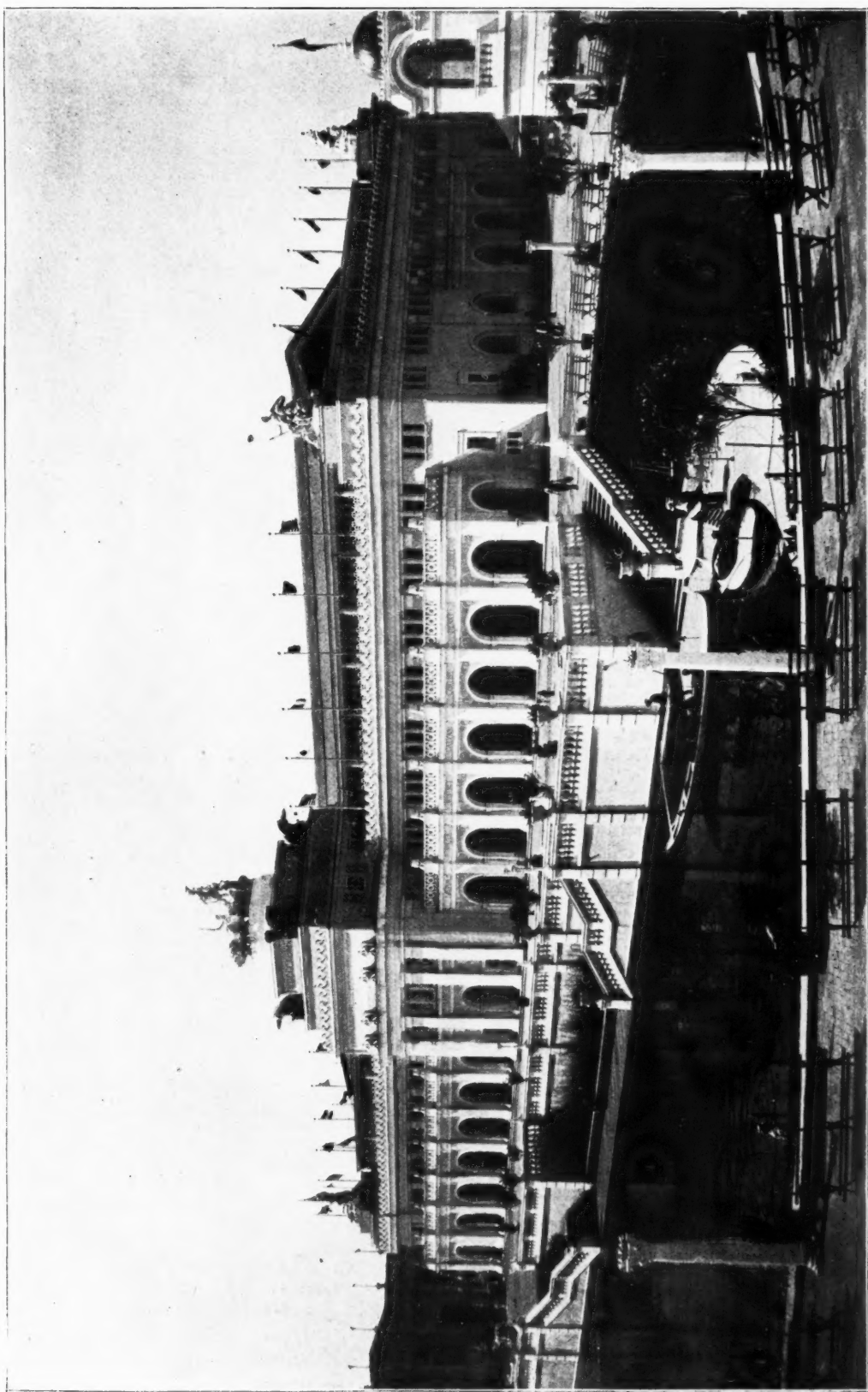
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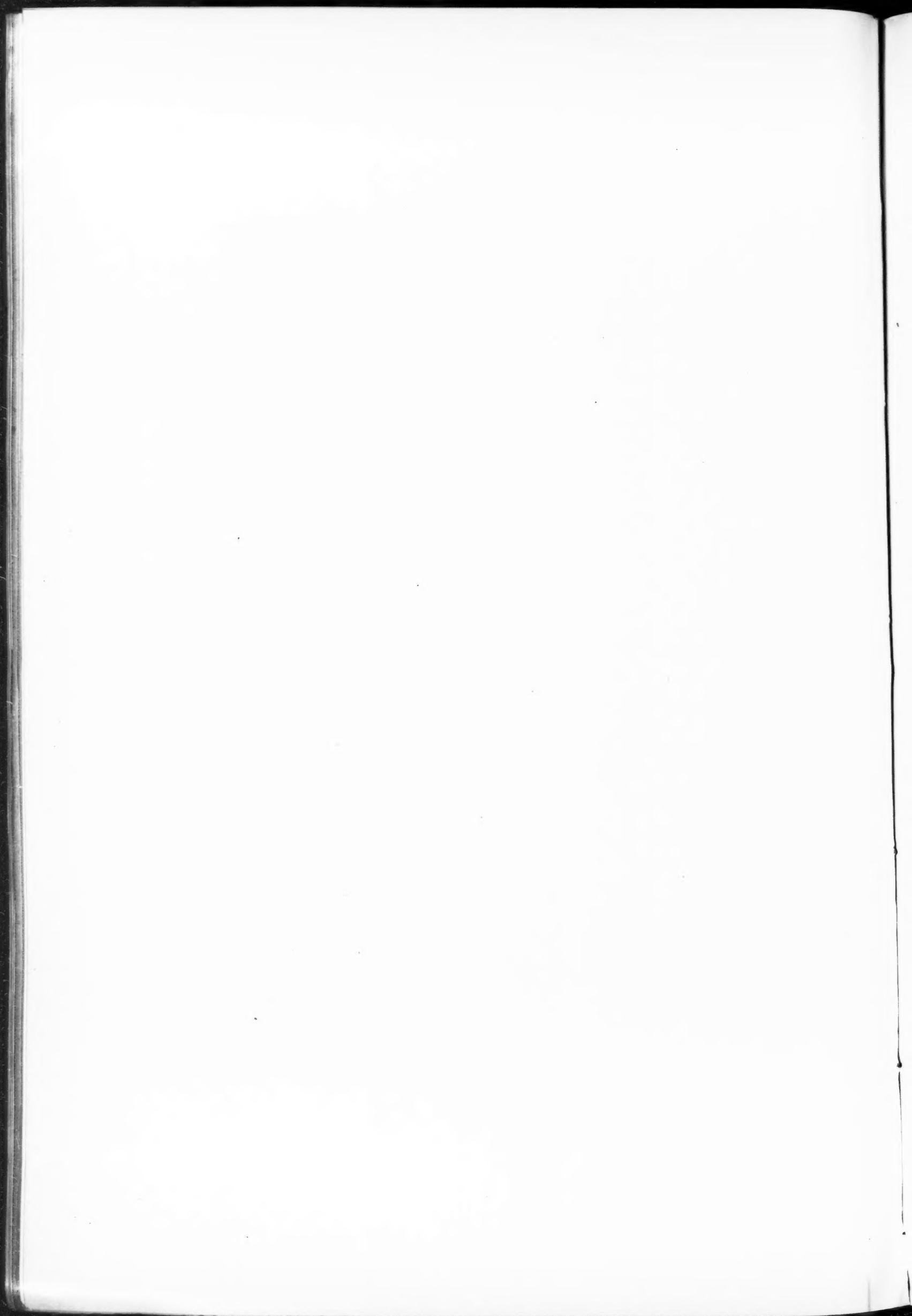


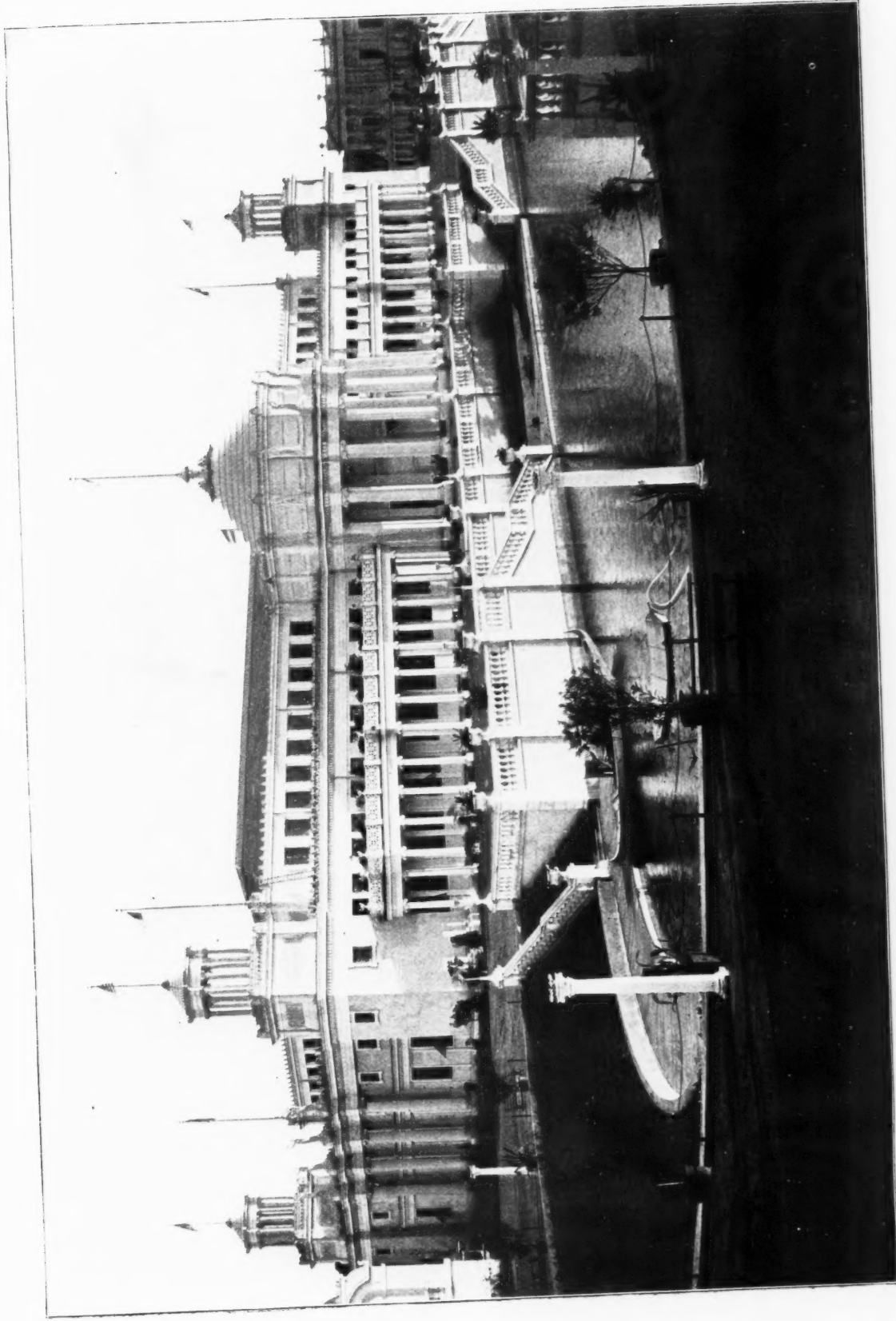


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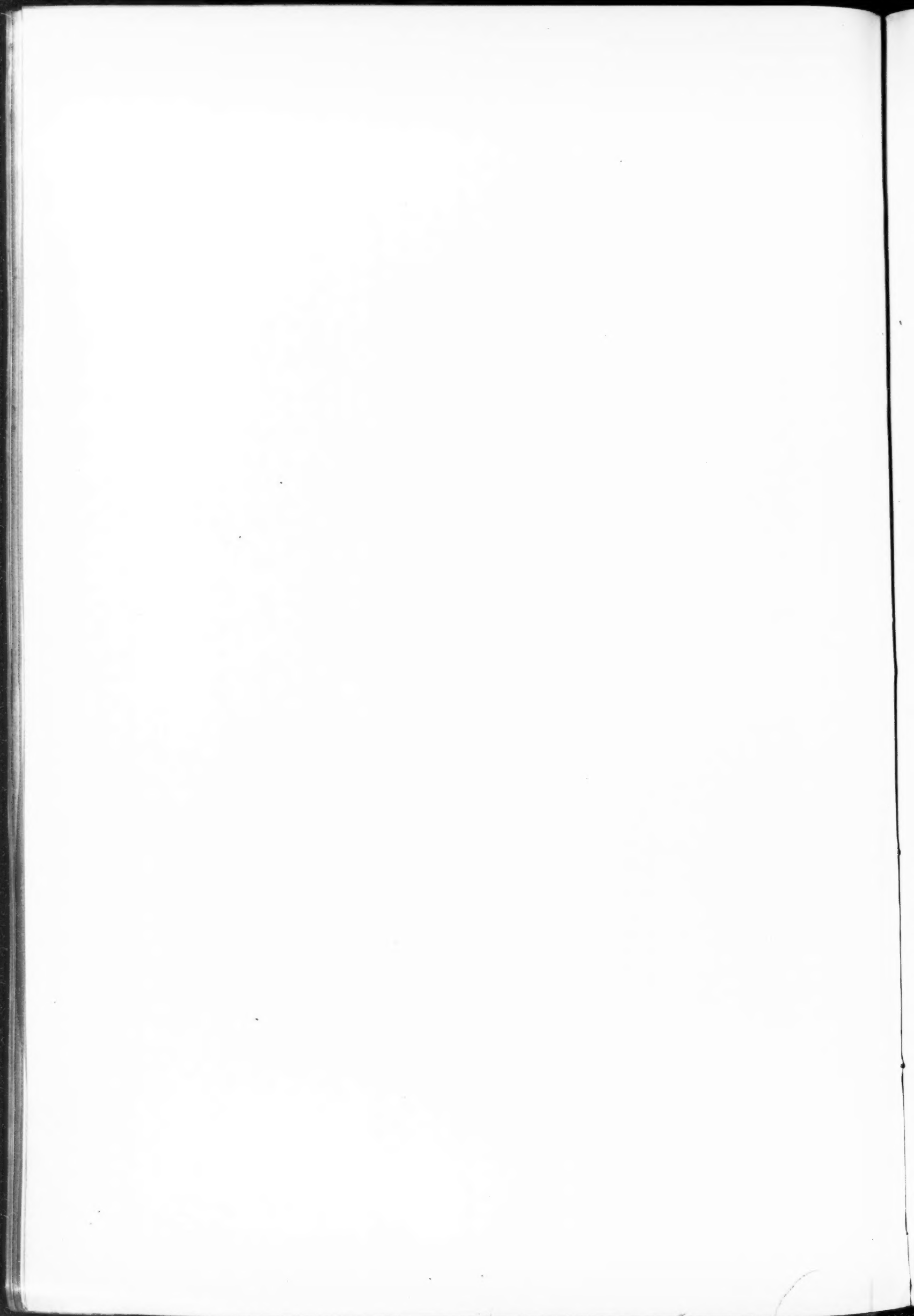
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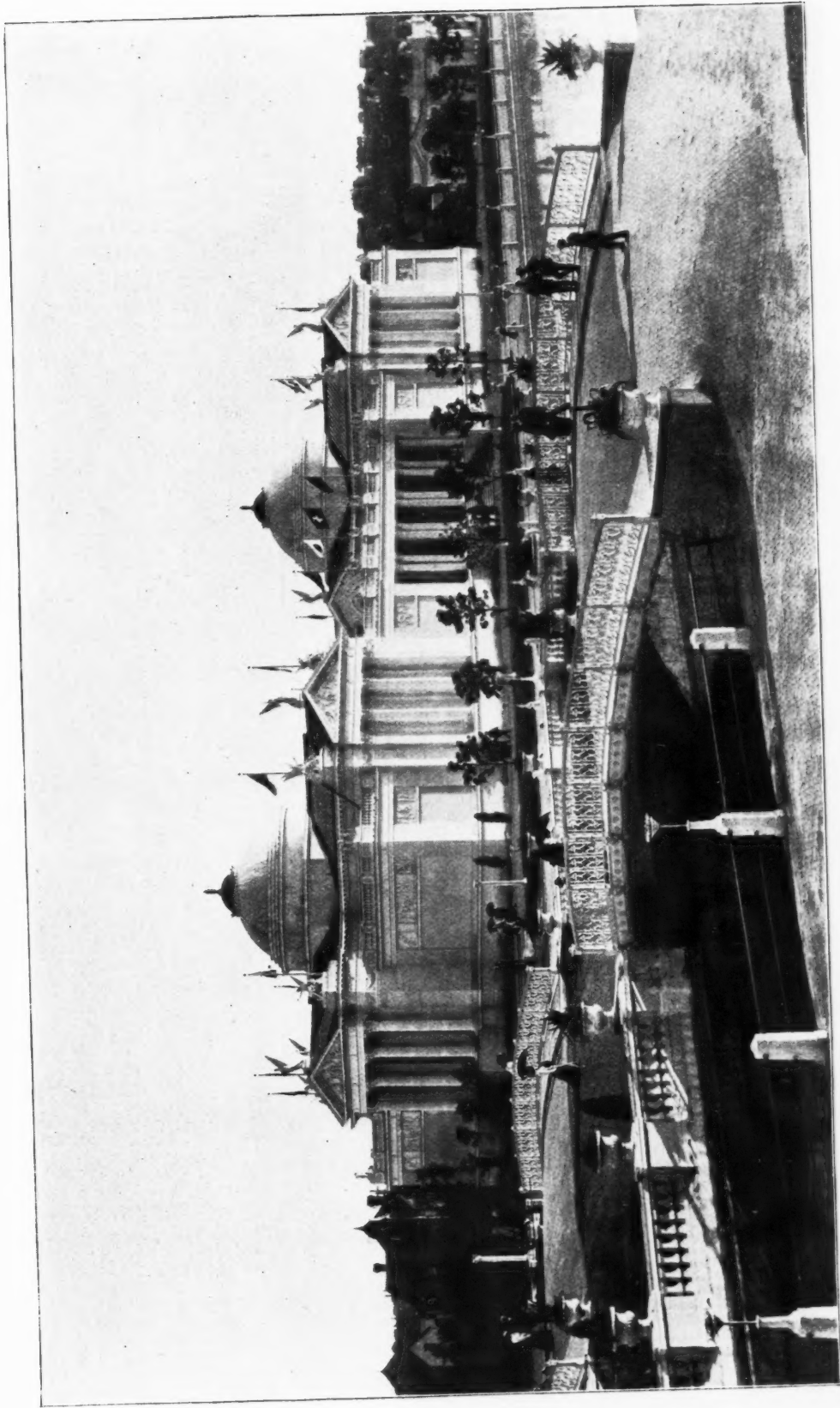
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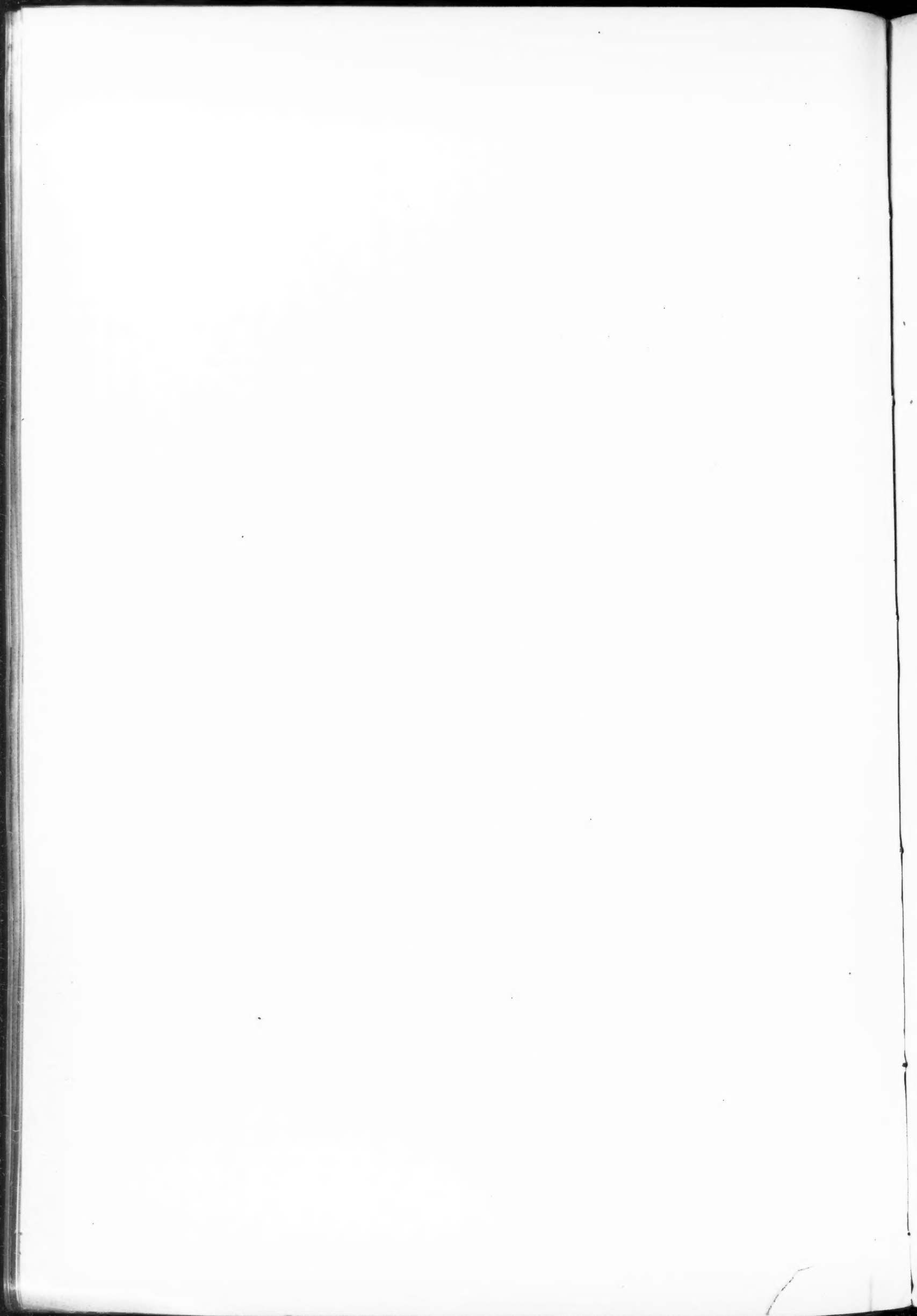
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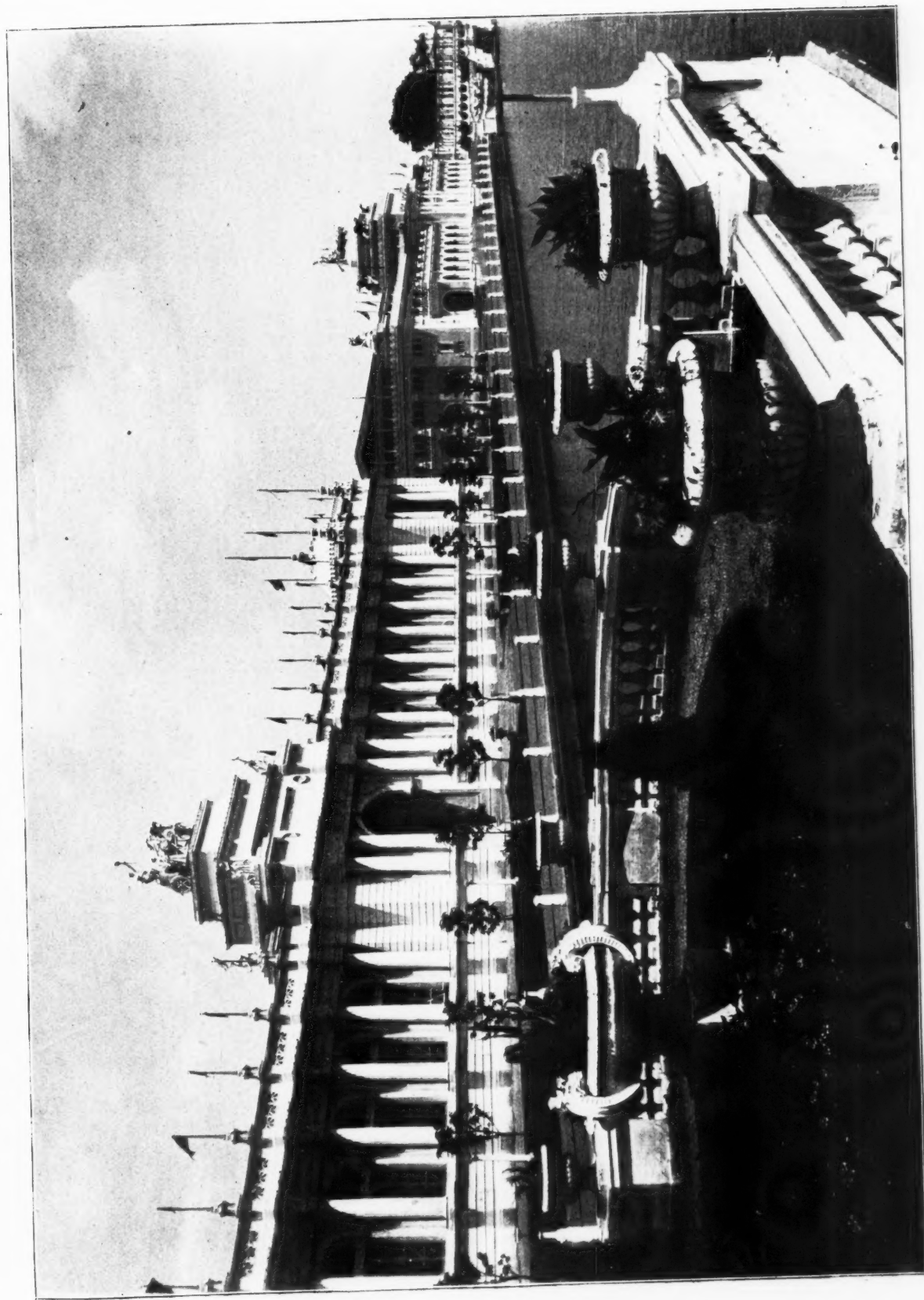




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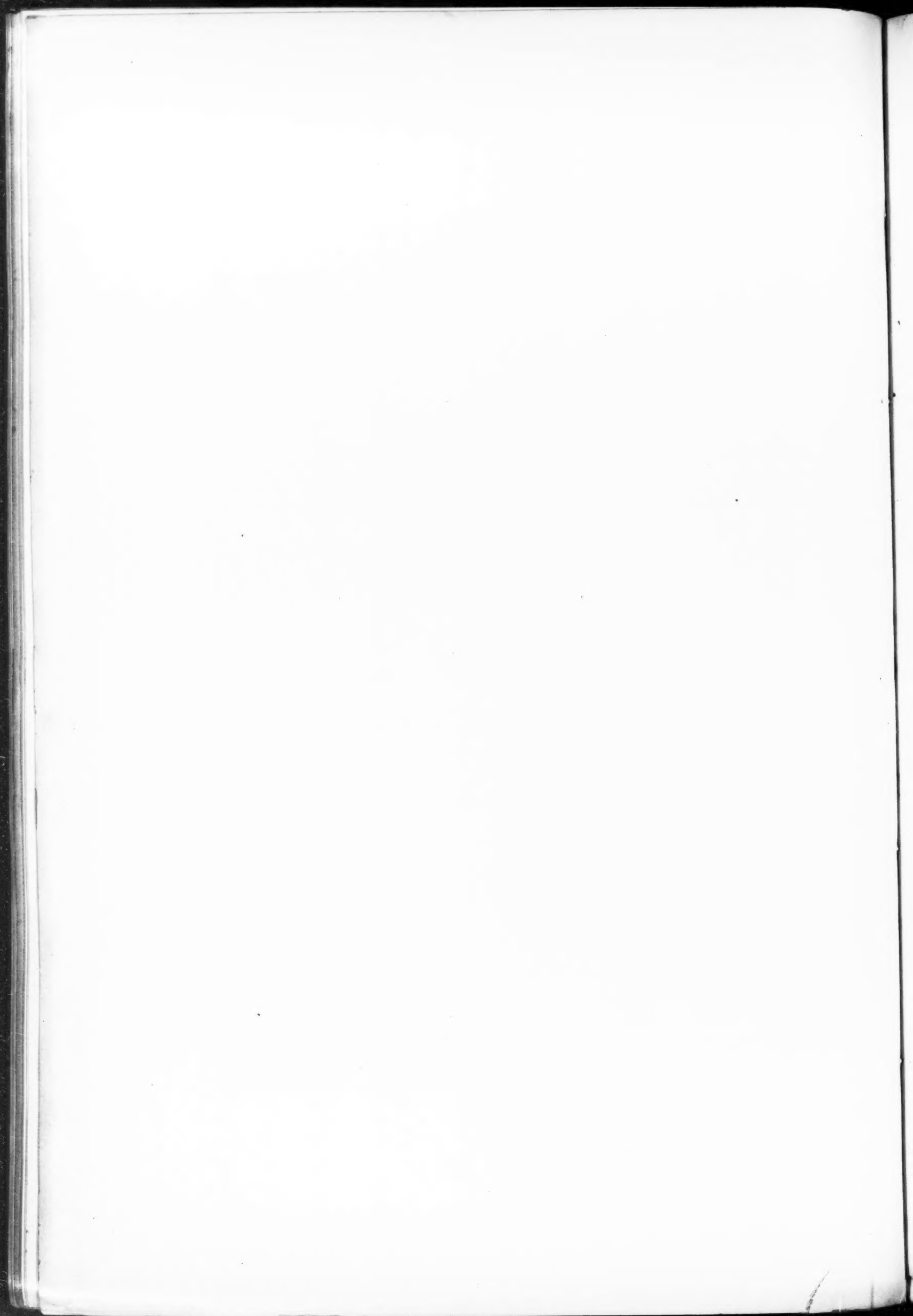




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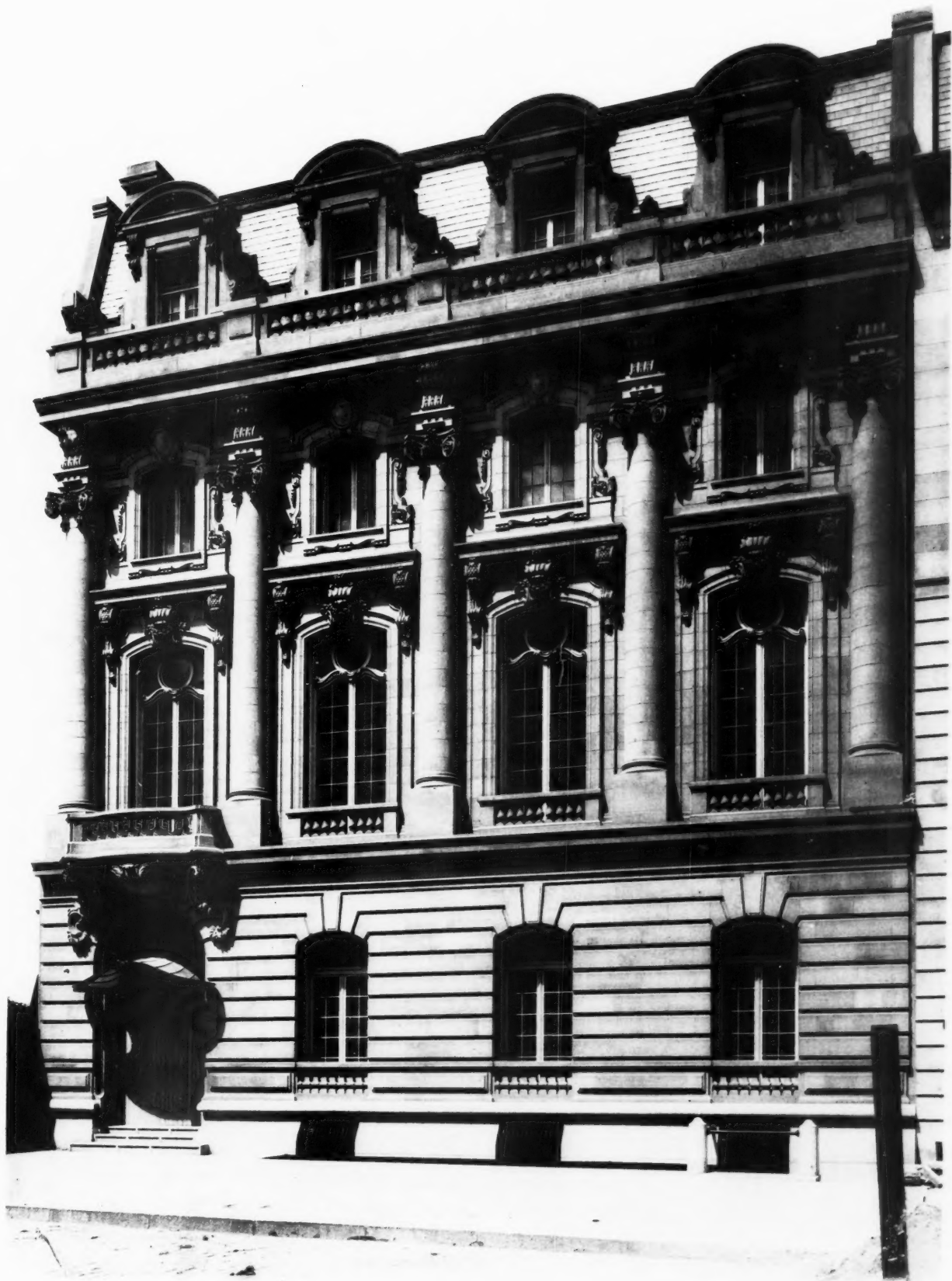


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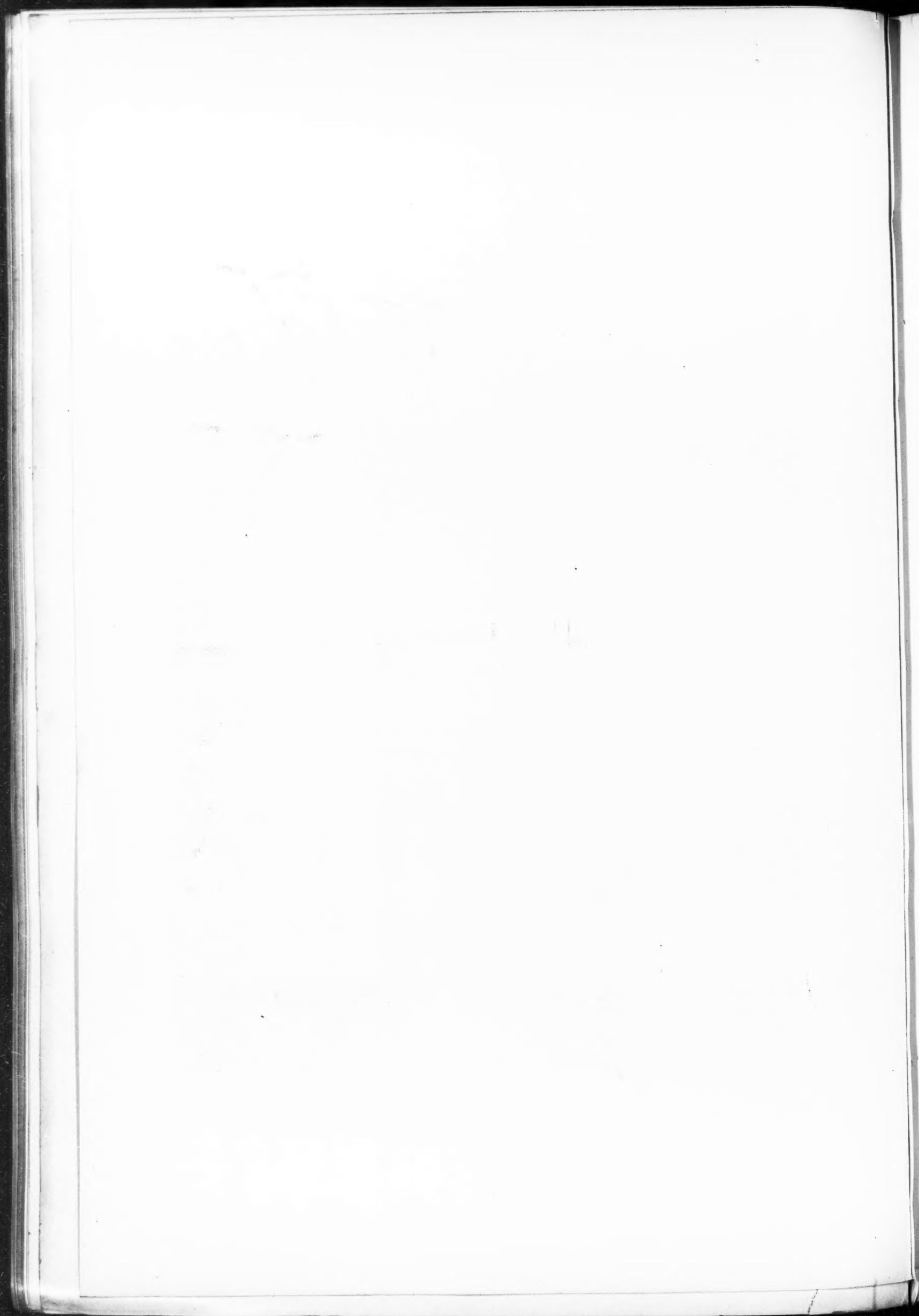
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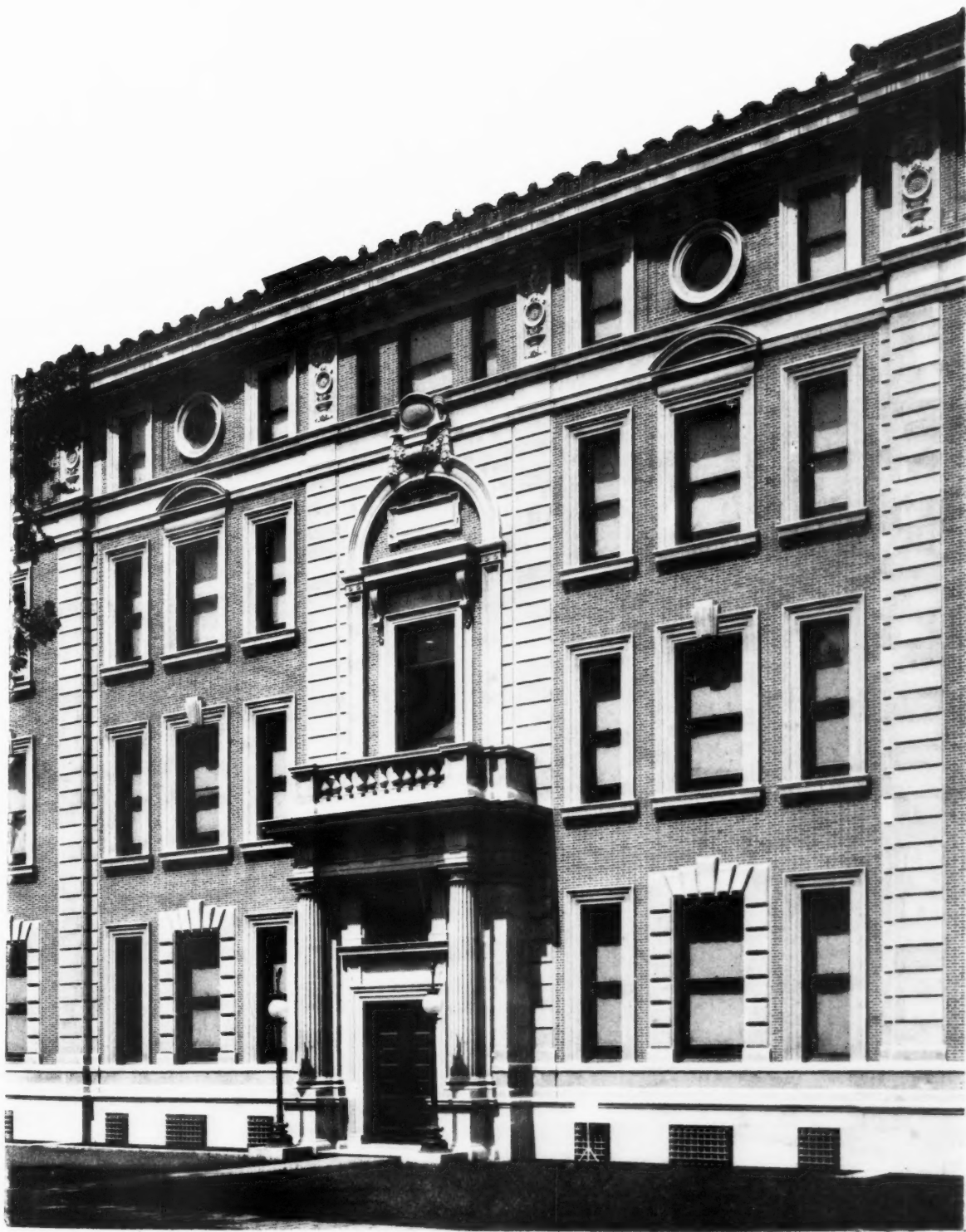
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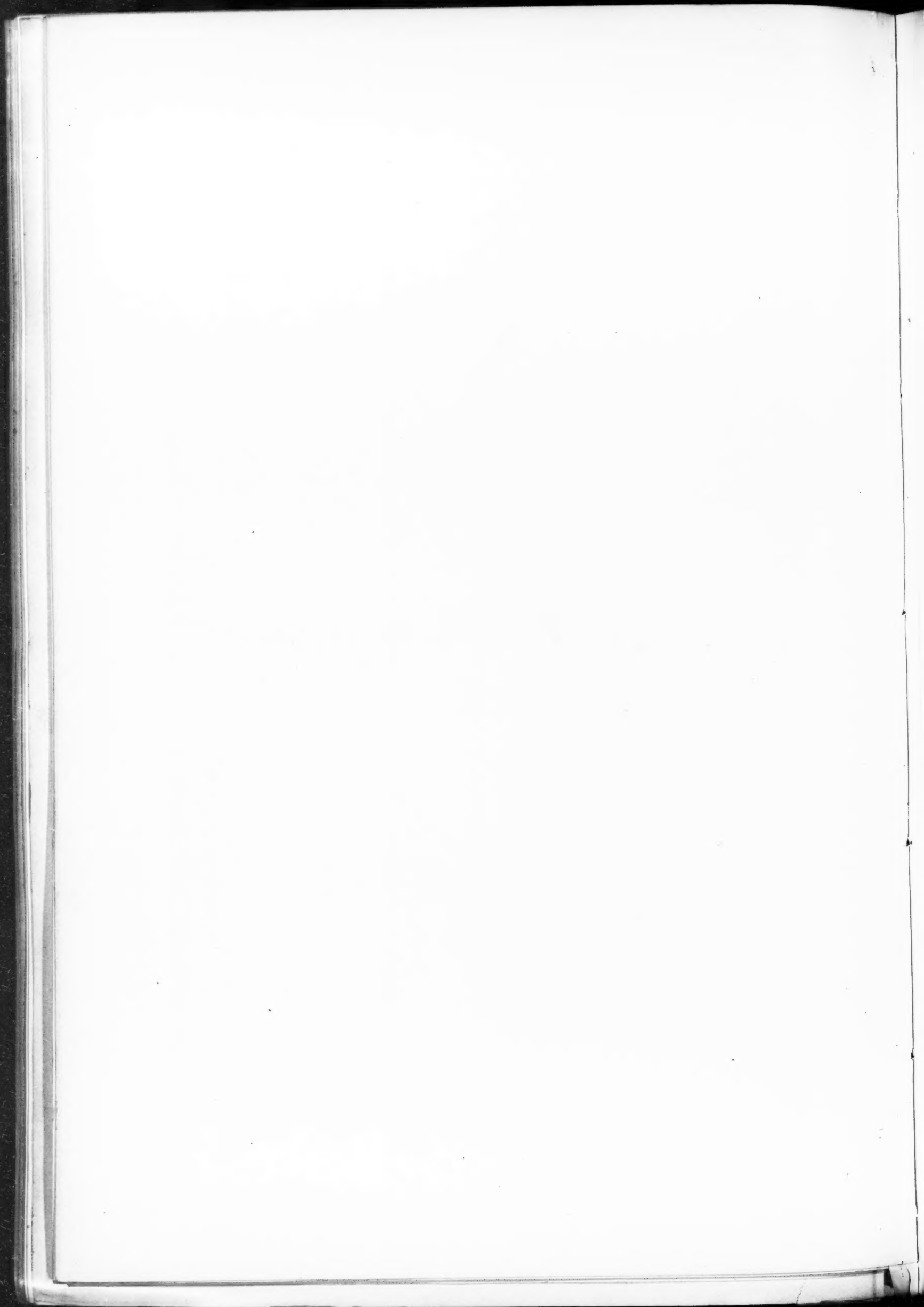




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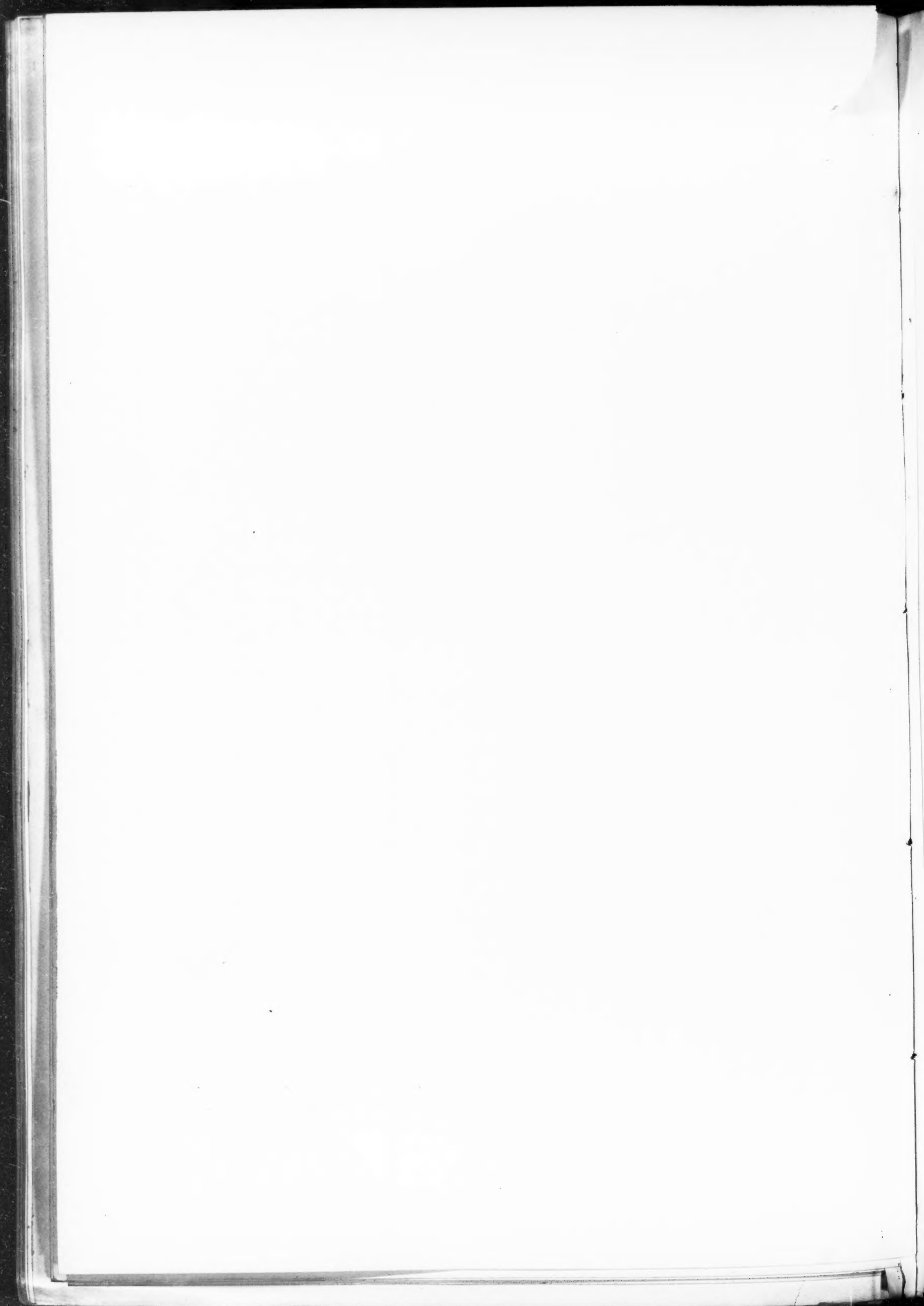


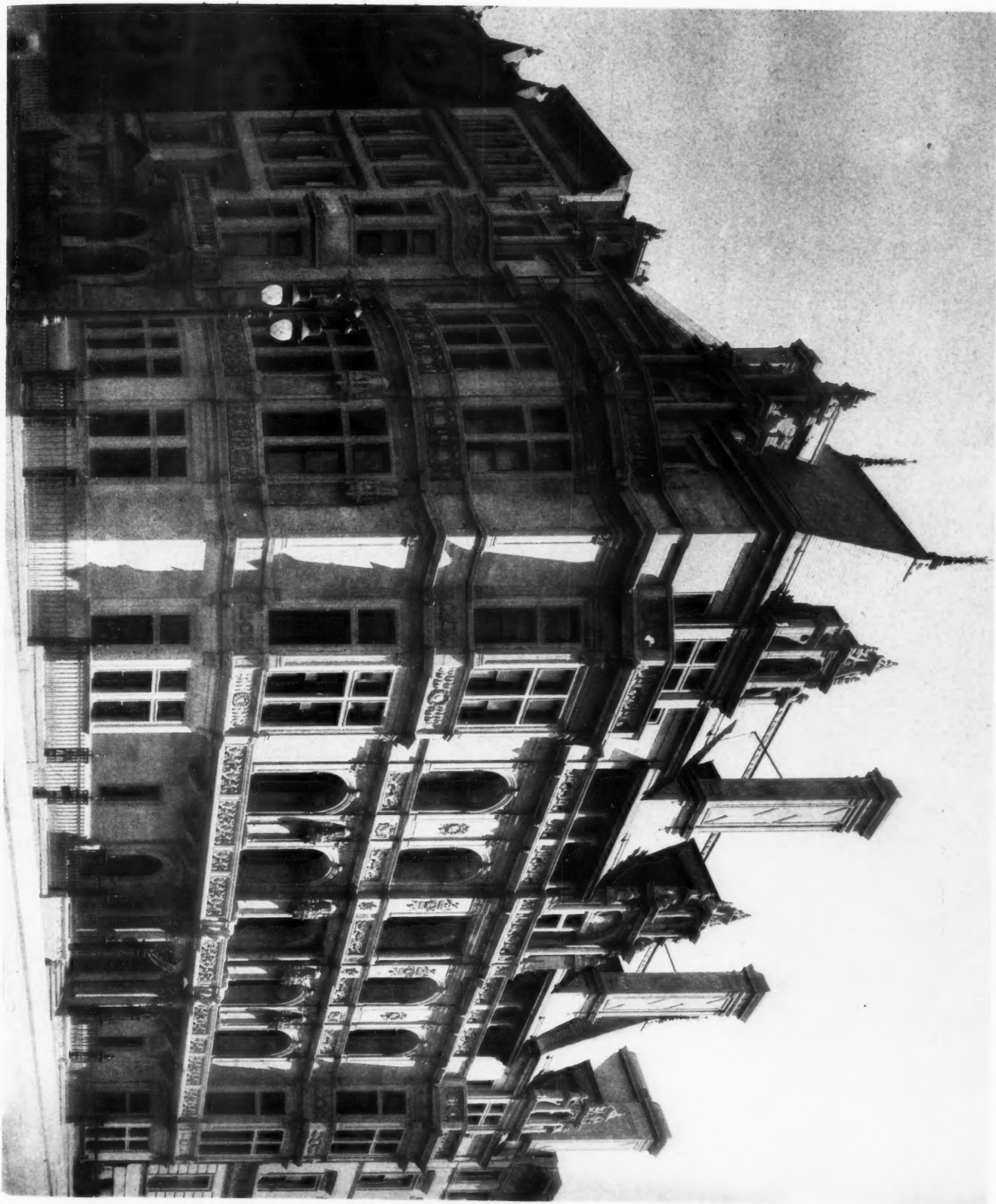


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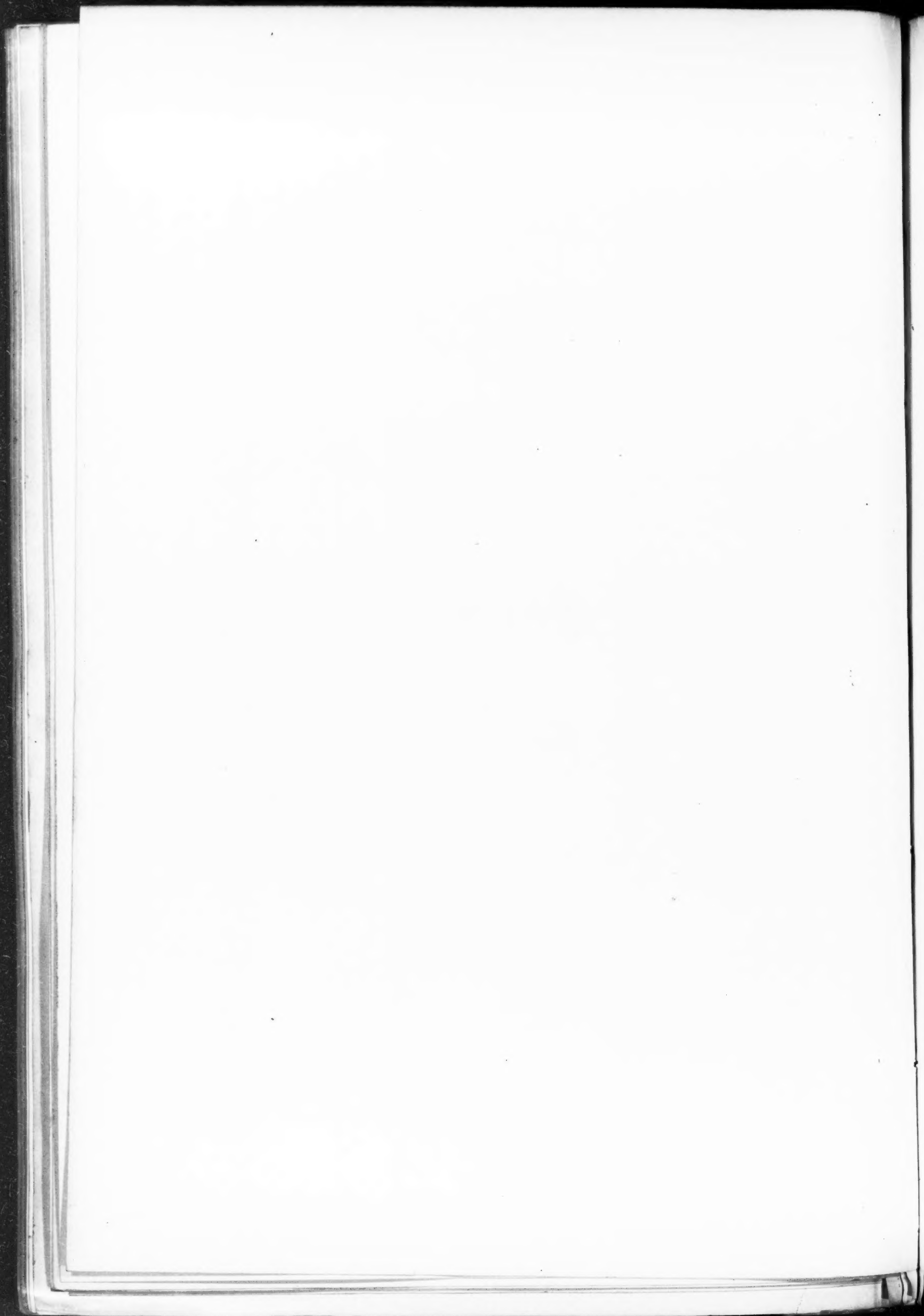
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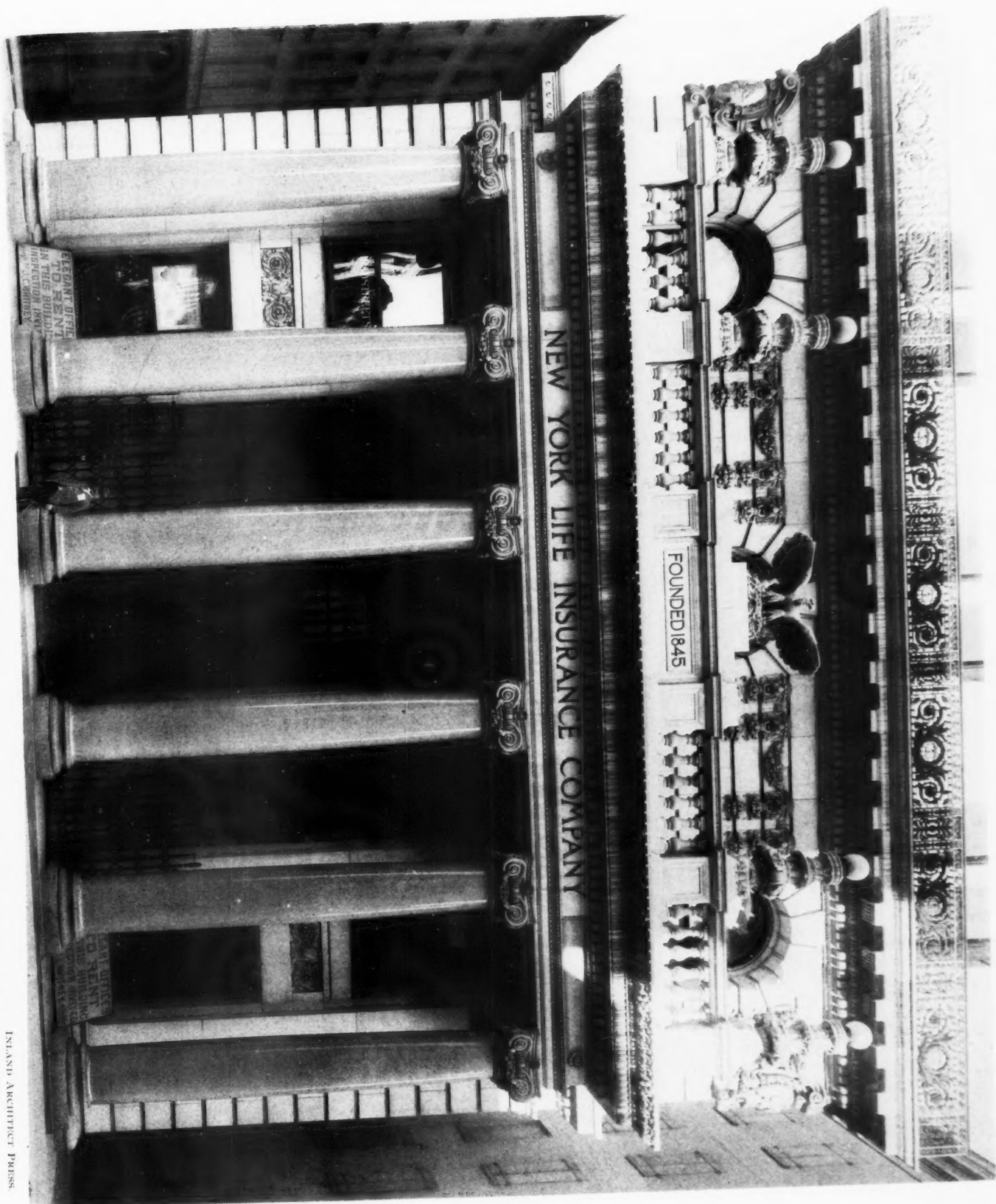




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