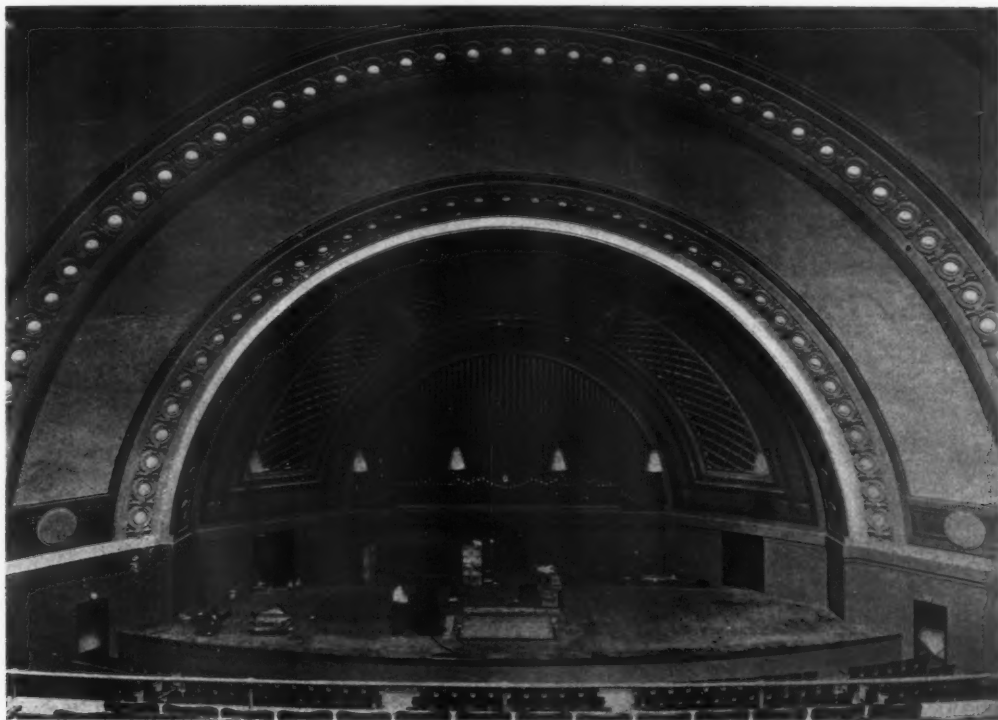


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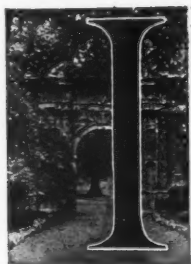
NUMBER 1963



THE STAGE

THE ACOUSTICS OF THE HILL MEMORIAL HALL UNIVERSITY OF MICHIGAN, ANN ARBOR

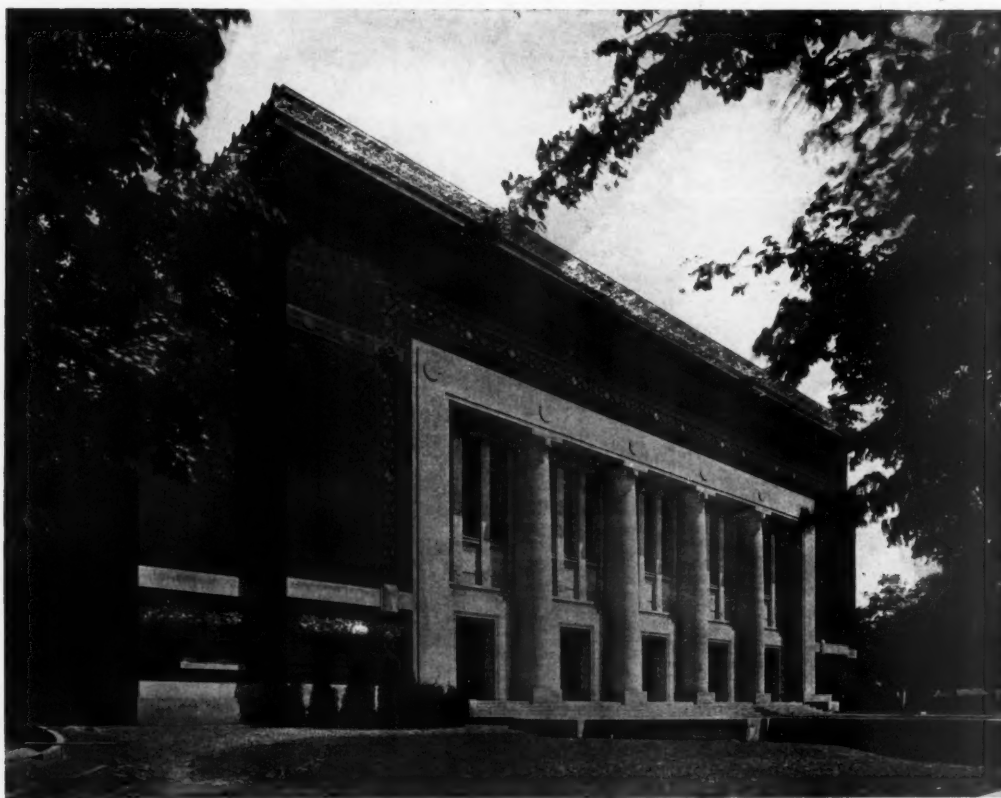
By J. T. N. HOYT



IN DETERMINING upon the general shape of an auditorium to contain five thousand seats, the problem of acoustics was, by far, the most important and troublesome. Halls of this capacity are generally of the convention hall or exhibition hall type with a flat first floor and single gallery extending along both sides and across one end, the platform being at the opposite end. The acoustics of this

type are generally indifferent if not absolutely bad, and it would moreover have been entirely unsuitable for the purposes for which the Hill Auditorium was to be designed. The design was therefore practically limited to two types, one being the Greek theatre and one being the megaphone type upon which most of our ordinary theatres are designed.

The original Greek theatre was semi-circular in form with a stage or platform along the diameter of the semi-circle. That portion of the auditorium floor immediately in front of the stage had a very slight in-



HILL MEMORIAL HALL, ANN ARBOR, MICH.
MR. ALBERT KAHN, ARCHITECT. MR. ERNEST WILBY, ASSOCIATE

clination. Outside of this smaller semicircle the floor rose very rapidly to such height as necessitated by the number of rows of seats required. There was no roof on this theatre. There is an excellent example of this type of theatre at Berkeley, California. This type has, however, not been used for an entirely enclosed building except for a very much smaller capacity than that of the Hill Auditorium.

A number of preliminary studies were made of this type of theatre, the result of which was that it was abandoned entirely. The principal objections to it were that the large and high ceiling would be almost certain to cause echoes as it was not considered feasible to successfully treat the ceiling by means of absorbing material so as to eliminate such echoes. Even if the general surface of the ceiling could have been so treated it would have been impossible to treat in the same manner the large ceiling opening which would have

been absolutely essential for light. There was another objection to this type of theatre, that a speaker is obliged to turn continually from right to left in order that part of the audience on either side at the ends of the stage platform can hear his voice. This is a very objectionable feature in the present University Hall.

A third objection was, that, there being no projecting galleries, it was impossible to obtain the required capacity of hall in a building of reasonable horizontal dimensions.

The type adopted was therefore the same as used in the ordinary theatre except that the design was necessarily on a very much larger scale and therefore subject to conditions which do not obtain in a theatre seating from fifteen hundred to two thousand persons.

The chief differences between this problem and that of the usual theatre were:

First, in the ordinary theatre the side

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walls and ceiling alone are sufficient for sound deflecting surfaces. The area of the proscenium opening is of no value for this purpose. In the Hill Auditorium it was necessary to use not only the side walls and ceiling but also all of the wall and ceiling surfaces at the sides and to the rear of the platform. If this had not been done, a large part of the audience would not have received deflected sound but only the direct sound of the speaker's voice. It was not feasible to have a theatre or opera stage in this auditorium.

Second, the width of the platform of the Hill Auditorium as compared with the width of stage in an ordinary theatre could not be increased in proportion to the greater number of seats although it would have been very desirable to have done so. The reason for this was that the proper convergence of side walls and ceiling toward the

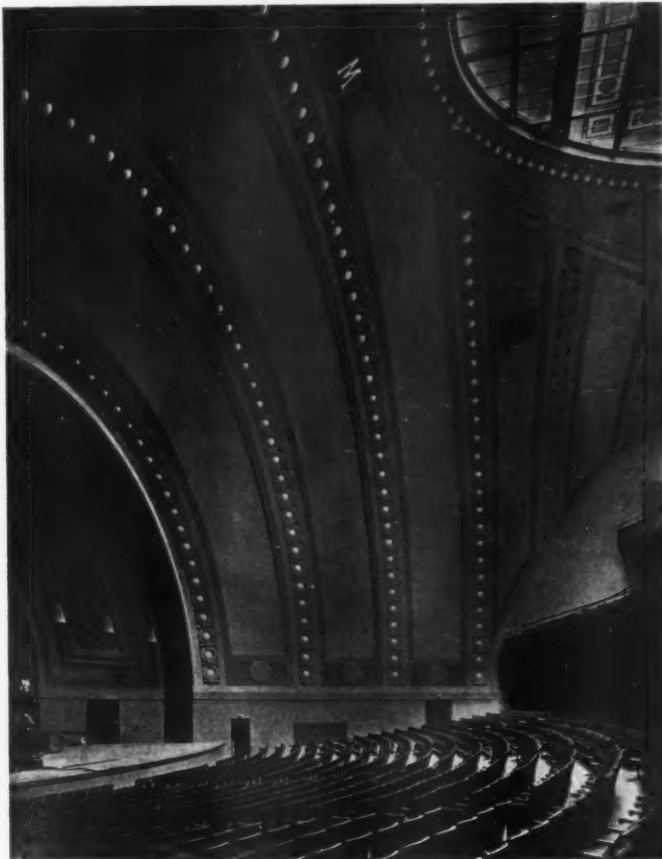
platform could not be obtained with a wider platform than the one adopted, and echoes would have resulted due to the speaker's voice being deflected from the side wall near the stage to those sitting on the opposite side of the hall. In this connection, it may be noted that the orchestra in the May Festival being on an extension of the platform to the front of the regular platform, were not in the most advantageous position for the acoustics of the hall. The same is true of the soloists and the two speakers who took part in the ceremonies.

The preliminary investigation in regard to the acoustics included the visiting of various halls in different cities and a search for available printed data. None of the halls visited, however, were found to be of anywhere near the capacity desired for the Hill Auditorium, the largest one being the Cleveland Hippodrome seating somewhat

less than thirty-five hundred persons. An interesting feature of this part of the investigation was that the actual number of seats in several halls, as shown by box-office records, was far less than the published or supposed capacity. In search for available printed data the most satisfactory and recent articles on the subject were found to be a series by Mr. Hugh Tallant. These were printed in the *Brickbuilder* from May to December, 1910. These articles proved to be of invaluable assistance in the acoustic problem and after the general type of the hall has been determined upon and a number of preliminary studies made of the same, Mr. Tallant was retained as consulting acoustic engineer. To him is due a large share of the credit for the successful acoustics of the hall.

The principal requirements for proper acoustics are loudness, distinctness and tone.

Loudness: The voice of the speaker must be loud enough to be heard in the farthest



DETAIL OF INTERIOR

part of the auditorium. Loudness, however, varies greatly with different speakers and it is therefore necessary to make an approximate assumption. This assumption is that the direct sound of a speaker's voice can be heard within fifty feet. Beyond this distance, it is necessary to reinforce the direct sound with reflected sounds.

Sound is reflected from a surface in the same manner as light. A person standing so as to receive the direct rays of the setting sun will often receive one or more reflections from the window panes in various buildings, and the light where he stands is thus intensified. In the same manner, a speaker's voice is re-inforced by sounds reflected from the interior walls and ceiling of a building.

In general, each person in the auditorium receives one direct sound and one reflected sound except that a large part of the gallery receives one direct sound and two reflected sounds. The second reflected sound in this case is received from the flat ceiling. It is, of course, desirable that the gallery should receive an additional reflected sound since the seats there are further away from the speaker than those in any other part of the house.

The sufficient loudness at the farthest seat depends upon the loss of intensity due to the distance from the speaker. The intensity of the direct sound decreases as the square of the distance from the speaker. The same is true of the reflected sound in its path from the speaker to the reflecting surface. In the path from the reflecting surface to the hearer the reflected sound does not decrease in intensity when reflected from a double curved surface, as such a surface tends to prevent the sound from spreading. This is why the ceiling and side walls were designed in the shape of a paraboloid of revolution instead of a parabolic cylinder which is usual in the case of an ordinary theatre. In explanation of this difference it may be said that in the parabolic cylinder the walls are vertical but a horizontal section of the walls is a parabola. Owing to the distance of the farthest seats from the speaker sufficient intensity could not have been obtained with one direct and one reflected sound from a flat or single curved surface.

Distinctness: It has been shown that the greater part of the audience hears by a combination of direct and reflected sound. In order that the hearing shall be distinct, it is necessary that both direct and reflected sounds received by any one person shall arrive at his ear within a time period not exceeding one-fiftieth of a second. Any reflected sound arriving at exactly one-fiftieth of a second after the direct sound will cause confusion in the distinctness and any reflected sound arriving at any further interval will cause a distinct echo. The question of distinctness is therefore principally one of the velocity of sound. The velocity of sound is about 1,130 feet per second for a temperature of seventy degrees or seventy-five feet in one-fiftieth of a second, within which latter period of time the reflected sound cannot be distinguished from the direct sound. In order to avoid indistinctness or echo, it is therefore only necessary that the path of the reflected sound shall not exceed in length the path of the direct sound by more than seventy-five feet. In practice, this difference is taken at seventy feet in order to have a safe margin. This part of the problem is therefore one of graphics. The reason for the previous statement that the side walls and ceiling of the ordinary theatre were sufficient for reflecting surfaces, is now apparent, for the hearer in the ordinary theatre may easily receive one direct sound and two reflected sounds without indistinctness. Thus, the hearer at one side of an ordinary theatre might receive a reflected sound from the side wall on his own side and a second reflected sound from the side wall on the opposite side.

In the case of the Hill Auditorium, however, the side walls are too far apart to permit the reflected sound from one side wall to be received by a hearer on the opposite side of the hall. Anyone who has seen the interior of the Auditorium will easily appreciate that the path of the reflected sound would exceed the path of the direct sound by very much more than the limiting seventy feet, and therefore, as previously explained, the greater part of the hall is limited to one reflected sound.

A few words may be said in regard to the character of the surfaces from which the sound is reflected. It is assumed that the

sound is not diminished in intensity when reflected from hard plastered surfaces. It may be noted that the rear walls, *i.e.*, the walls behind the seats, are padded. This is for the purpose of preventing sounds being reflected from these walls back into the auditorium and thereby producing echoes. This padding is partly extended along the rear part of the side walls. It is also assumed that the audience absorbs all of the direct sound in the same manner as a properly padded wall.

Tone: This may be defined as a certain quality given to the sound of a speaker's voice or to music by means of resonance or reverberation which prevents the sound from being flat or lifeless and is in reality a prolongation of the sound. An extreme case of sound without tone would be in an enclosed room without furniture or other fittings and in which the walls, floor and ceiling were so thoroughly padded as to absorb all of the reflected sound. In such a room the hearer would receive only direct sound.

Resonance and reverberation are often used synonymously, but in this instance are better to be regarded as distinct, although producing under certain conditions, practically the same results. Resonance may be defined as prolongation of sound due to sympathetic vibration of elastic materials. Reverberation may be defined as prolongation of sound due to continuous reflection of the sound from non-absorbent surfaces.

In a hall, the entire surfaces of which are not padded, there is a certain amount of reflected sound, the exact direction of which cannot be ascertained in advance for the reason that it is not possible to construct any hall so as to follow the exact lines of the acoustic diagram. There are always a number of uneven surfaces, projecting moldings, exposed portions of the floor or empty seats between which sounds will be reflected

continually until they die out entirely. This causes reverberation and within limits, adds a desirable quality to the sound.

In a hall of this capacity, however, the reverberation is likely to be so prolonged as to be disagreeable and the end to be obtained is to reduce the reverberation to a minimum by care in the design of the reflecting surfaces.

The use of resonance to give proper tone involves separate provision for every use to which an auditorium is to be put, and in this case it was thought best to limit the use of resonance to the design of the platform. The construction consists of a concrete slab above which there is an air space of about six inches. Above this air space a wooden floor was constructed consisting of joints and flooring. This construction thus acts as a resonator.

In securing proper acoustics, it is also essential to prevent any exterior sounds from penetrating and causing confusion. To provide against this contingency, the exterior wall, where the same also forms the wall of the auditorium proper, consists of a solid brick wall, a four-inch air space and a four-inch hollow tile interior wall. The roof of the building is covered with tile which prevents the sound of rain falling upon it from penetrating to the interior.

While the general principles and acoustics as above outlined are simple in theory, the application of these principles to a hall of this size involving the design of the reflecting surfaces and the materials of construction so as to consider the proper acoustics of every seat in the hall, is a work of great magnitude and involves opportunities for errors which might easily have become fundamental under these circumstances. It was only after numerous trials with varying dimensions that the results desired were obtained.

The results sought have been realized and demonstrated during the recent festival.

THE CURRENT ARCHITECTURAL PRESS

The *Journal of the American Institute of Architects*, for June, is practically a Town Planning and Housing Problem issue, and is largely made up of material presented at the Fifth National Conference on Town Planning held in Chicago last May.

A very readable feature of this issue, and one that supplies information of value, is a department of Book Reviews, contributed by members of the Institute.

The usual report of Institute business and the proceedings of the various chapters, reported very fully, are interesting as indicating the activities of the organization in all sections of the country.

Continuing in its July issue the policy apparent in recent issues of accenting the non-technical phases of architecture, the editors of *The Architectural Record* have prepared and presented for the education of the layman a very interesting series of articles describing and illustrating Philadelphia, old

(FROM THE INTERNATIONAL STUDIO)



TEMPERA PANEL, BY FRANK BRANGWYN, A.R.A.

and new. While none of these will perhaps present much, if anything, that is new to the man in practice, they may serve to revive interest in buildings and scenes that are replete with historic association, particularly an article by Coston Fitz-Gibbon on "Architectural Philadelphia, Yesterday and Today." In common with New Orleans, Charleston, New York and Boston, Phila-

delphia presents much good material of architectural interest to the trained architectural observer who searches its alleys and byways. Mr. Fitz-Gibbon has looked about him with intelligence and discrimina-

(FROM THE BRICKBUILDER)



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tion, and his article and the accompanying illustrations present a record of interesting landmarks, some of which will undoubtedly soon be taken down to provide room for newer, and less interesting structures.

The Brickbuilder for June, presents in its text, continuation of the various serial articles running in this publication, details of which are to be found in our index to Current Architectural Press on other pages of this issue.

Mr. F. R. Watson writes on "The Use of Sounding Boards in Auditoriums." It appears that whatever is to be said on the

(FROM ARCHITECTURE)



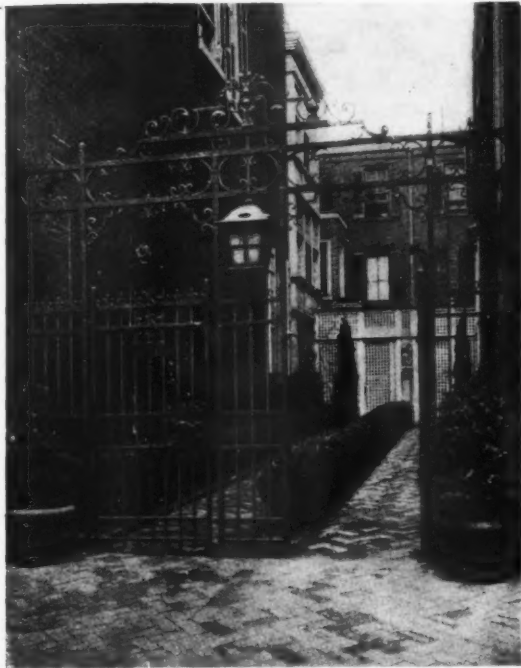
GRACE CHAPIN HALL, WILLIAMS COLLEGE
MESSRS. CRAM, GOODHUE & FERGUSON, ARCHITECTS

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subject of architectural acoustics must be largely a review and discussion of Professor Sabine's very thorough research, as is the case in the present instance.

The illustrations in this issue present the usually well-selected examples of brick and

(FROM THE ARCHITECTURAL RECORD)



COURTYARD ENTRANCE TO OFFICES OF WILSON EYRE, ARCHITECT, PHILADELPHIA

terra cotta construction. A house on Park Avenue, New York, Mr. John Russell Pope, architect, is a further good example of this architect's work in designing and planning stately urban houses.

A library at Plainfield, New Jersey, Messrs. Wilder & White, Architects, a school at Ridgely Park, W. W. Rasmussen and Ernest Sibley, associated architects, and a Garage Building in Brooklyn, designed by Mr. William A. Boring, are all good examples of the development of modern brick work in texture and architectural design, and will repay careful study.

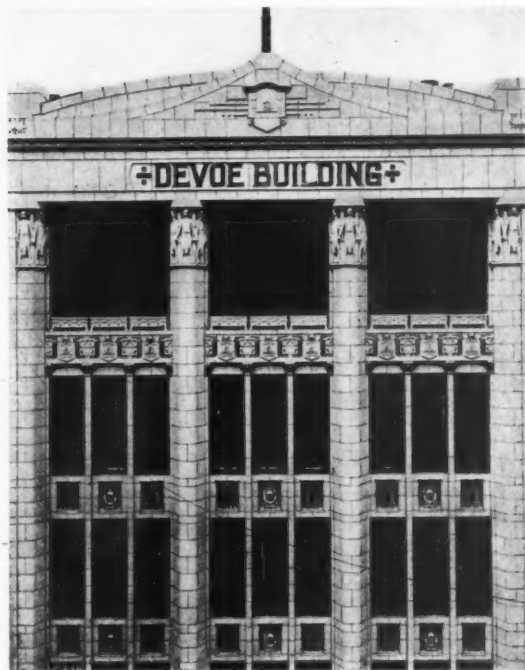
The pictorial possibilities of labor are well shown in the reproduction in *The International Studio* for July of a series of panels by Frank Brangwyn, A. R. A., painter for the offices of Lloyd's Registry in London. The

panels are executed in tempera, a medium that has been recently revived, and which affords excellent opportunities in mural painting. At the present moment the panels are at the Ghent Exhibition, where they have received the approval of competent critics. It is gratifying to note that the best exponents of the mural painter's art are beginning to realize the latent artistic possibilities in the various activities by which we are surrounded and are choosing them for subjects, in place of the hackneyed and less pleasing allegorical types that heretofore seemed to limit the choice of selection.

Reviews of late exhibitions in this country and Europe are to be found in this issue together with reproductions of the best of recent work in painting, sculpture and craftsmanship.

The Architectural Review for April, while tardy in its publication, endeavors appar-

(FROM THE WESTERN ARCHITECT)



DEVOE BUILDING, CHICAGO
MESSRS. HILL & WOLTERS DORE, ARCHITECTS

ently to make amends by presenting a number of 145 pages devoted to modern hotel construction. The main interest in this issue is undoubtedly in the series of well

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written articles. The illustrations, at least those of hotels possessing any architectural merit, are already with few exceptions familiar to readers of architectural magazines by reason of their having been many

(FROM THE BRICKBUILDER)



HOUSE, PARK AVENUE, NEW YORK CITY
MR. JOHN RUSSELL POPE, ARCHITECT

times published. Their grouping in this way, between the covers of a single issue, presents an easily accessible means of reference on the subject of modern hotel construction, and for that reason this number is valuable.

Full details of articles and the subjects illustrated will be found in the accompanying index in this issue of THE AMERICAN ARCHITECT.

An article in the July issue of *The Western Architect*: "A plea for the ideal," accents the higher mental plane of professional work and shows the value of possessing ideals, even if they may not be always realized. It is, we believe, the experience of most men who seriously pursue ideals. that "it is better to travel hopefully than to arrive." It is the zest of effort that stimulates more than actual attainment of ideals.

It is this spirit and only this, that makes the game of life worth playing. We commend Mr. Barnett's article.

The principal subject illustrated in this issue of the *Western Architect* is the DeVoe Building, Chicago, Messrs. Hill & Woltersdorf, Architects. This building is interesting as showing the tendency towards treating terra-cotta as a structural material.

Some recent Chicago apartment houses by Mr. Edwin Seipp and Mr. F. R. Schock, a brick house in Minneapolis by Bertram & Chamberlin, associated with Carl A. Gage, and a well designed Y. M. C. A. building in San Francisco, Mr. George W. Kelham,

(FROM THE ARCHITECTURAL REVIEW)



PALACE HOTEL, SAN FRANCISCO, CAL.
MESSRS. TROWBRIDGE & LIVINGSTON, ARCHITECTS

Architect, are noticeable features of this issue.

The principal subject of current interest, illustrated in *Architecture* for July is Grace Chapin Hall, at Williams College, by the Boston office of Messrs. Cram, Goodhue & Ferguson. This is a well conceived adaptation of Georgian motives to the require-

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ments of a collegiate building with due regard to environment. It has been illustrated in a thorough manner and is entirely worthy of the space accorded to it.

The New York Municipal Building by McKim, Mead & White, is also illustrated

(FROM THE ARCHITECTURAL REVIEW)



FAIRMOUNT HOTEL, SAN FRANCISCO, CAL.
MESSRS. REID BROS., ARCHITECTS

in this issue, but as this subject has been pretty thoroughly exhausted by the architectural press, its presentation now, while not lacking in interest, does not present anything new. The serial article on the Law of Architect, Owner and Contractors is resumed in this issue.

BLUE MAHOE FROM THE WEST INDIES

ONE of the best known trees in the West Indies is the blue mahoe or Imahagua azul (*Paritium elatum*).

It is generally quite abundant in all moist woods, especially near the coast, where it is the most common tree yielding wood not only for fuel, building, and cabinet making, but also best for cordage. Though such fiber is at present unimportant as an article of commerce, it is of great value to the people of the West Indies, for agricultural and domestic purposes, as it is possessed of extraordinary strength.

The blue mahoe tree attains a considerable size. In Cuba, where it reaches its best development, it frequently grows to a height of from forty to sixty feet and from two to three feet in diameter. While it

thrives best in moist lowland, it is found frequently on the highest mountains in Cuba, Porto Rico, and Santo Domingo, and for this reason is often referred to as mountain mahoe. The wood produced on the uplands is generally considered to be of a better quality than that from trees grown in lowlands, because it is invariably harder, more durable, and has deeper bluish color.

This grade is sometimes sold in the market as maltese wood. In very dry localities it is usually a small tree, with a short crooked stem and useful only for fuel. In more favorable situations the trunks grow straight, though seldom more than twelve to eighteen feet clear length.

The sapwood is narrow and nearly white; the heartwood is greenish blue turning brownish with age. The wood is hard, heavy (from forty-five to forty-nine pounds per cubic foot), strong, tough, and very durable in contact with soil and air. It is very close and straight-grained, seasons well without warping or splitting, is susceptible of a very high polish, and presents a beautiful appearance. While it cannot be said to resemble any of our native woods in color, it remotely favors the darker grades of black walnut. When it is varnished and rubbed down, faint, narrow, transverse lines, such as are sometimes seen on fine violin bows, appear, giving the wood a beautiful appearance and distinguishing it at once from black walnut.

The wood is used chiefly in making furniture and interior finish, for which purposes it is admirably adopted. Some of the finest residences in Cuba are finished in blue mahoe. It is also excellent for all parts of wheels of carts and carriages, shafts, frames of carts, for agricultural implements, gun stocks, tennis poles, cricket stumps, and, on account of its great durability in water, it is used in boat building and for making water troughs. In Cuba it is used for the springs of the peculiar two-wheeled vehicles called "volante." Another more or less important use for mahoe is for making fishing rods. While it does not possess the strength of that of good ash or hickory, it is stronger than the cedar which is often used for this purpose. It yields a good fuel and excellent charcoal.

The blue mahoe has been exploited for a good many years, and the supply is now

somewhat limited, though the timber can always be obtained in moderate quantities in all the timber centers in the eastern States. There is a good demand for this wood among furniture makers, but the local requirements and uses to which it is put, together with the limited supply of the timber, make the amount available for export often rather doubtful. In Cuba the prices range from \$100 to \$150 per thousand board feet. It can be bought in the New York markets for less than \$200 per thousand feet.

DELHI AND THE INDIAN CRAFTSMAN

THERE seems to be but little danger of the new Delhi being rushed up with unseemly haste. It is true that the Government of India have almost decided upon the site; but, as if to atone for this precipitancy, they have made an arrangement which promises to act as a very efficient check on rash speed. They are, we are told, "steadily adhering to the policy of encouraging indigenous talent." Before encouraging it, however, they have to find it. Studios are to be formed, where will be welcomed "any Indian craftsmen who may show himself by practical work to be able to assist in furnishing decorative details for important buildings. Opportunity will be afforded in this way for indigenous artistic talent to find expression, and to be trained to further development in adaptation to modern Indian requirements." Certainly one is at a loss as to exactly how long it will take to develop an indigenous artistic talent, but there exists a vague general impression that the process might be somewhat languorous; in which case the new city is not likely to be built—or, at all events, decorated—with indecent haste. Of course, the idea is not at all new. Sir W. B. Richmond, in training his mosaic workers for St. Paul's, was following Italian precedent. But in these cases the workers were taught by some master of the crafts. Presumably this is to be so in Delhi, with the difference that there, probably, the masters will be under a great obligation to learn as well as to teach, in the ductile spirit of Chaucer's curate. With all this reciprocity, if the teachers are to be

Europeans, the adaptation of indigenous artistic talent to modern Indian requirements should result in a new blend of East and West which may chance to be no less curious than beautiful. From the considerably more than a million native builders it should certainly be possible to draw a fair percentage of artistic craftsmen, from whom their teachers will have much to learn; and the fate of Indian craftsmanship will turn on the European capacity for assimilating and applying the knowledge. The position is as interesting as it is critical.—*Architectural Review* (London).

RECENT LEGAL DECISIONS

LIABILITY FOR PLANS ORDERED

In an action on a contract for architect's services the defendants stated to the plaintiff that they wanted plans drawn for houses to be built on land they had purchased and an agreement engaging the architect to draw the plans was signed in the name of a corporation not in existence by one of the defendants as its president. The architect drew the plans and obtained the approval of the city departments. Neither the defendants nor the corporation ever got to the property. It was held that the plaintiffs were both liable though only one of them signed the agreement, both having ordered the work to be done and the fact that title had never been obtained for the property did not affect their liability, nor did the fact that the architect did not obtain the approval of the city departments until after he had been told to go no further with the plans. The agreement signed, however, must be disregarded for all purposes except, possibly, as fixing the rate and time of payment to the plaintiff.

Hauser v. Falk, 133 N. Y. Supp. 438. (J. S.)

ARCHITECT'S AUTHORITY TO BIND OWNER BY REPRESENTATIONS

A building contract provided that the building should be constructed according to plans and specifications of an architect under whose direction the work was to be done and whose decision as to the construction of the plans and specifications should

(Continued on page 60)

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EDUCATING THE CRAFTSMAN

IN a very able report read by Mr. Ralph Adams Cram, Chairman, before the Convention of the Institute last December, the Committee on Education emphasized the necessity for a higher and broader education of craftsmen if they are ever to become thoroughly valuable assistants to architects.

With no other incentive apart from the reward that always follows enthusiasm in the creation of the beautiful or the refinement of the commonplace, craftsmen in America have labored quietly and patiently until the results of their efforts are beginning to be appreciated, but that they have not always been intelligently directed is equally apparent.

Craftsmen of the fifteenth and sixteenth centuries left a vast record of achievement. Museums have much of it and collectors are tireless in their search for veritable examples. In earlier days, architects were at the mercy of craftsmen. They still are, with the difference pointed out in the report referred to, that the work of the early craftsmen generally redeemed the work of the architect and as is generally acknowledged, often glorified it. Today, the archi-

tect must needs take what he can get for the sake of escaping what may be worse.

Craftsmanship in this country has received its main encouragement from manufacturers, who, in co-operation with architects and designers in other professions, have sought to impart as far as the skilled labor at their command would permit, suggestions of artistic expression to articles of general utility.

We believe the future growth and expansion of good craftsmanship rests largely with architects. Their insistence on the accurate execution of their designs will necessitate greater skill and a more fully developed artistic knowledge.

It is logical therefore to assume that schools for craftsmanship should be under the patronage and largely under the direction of men in the architectural profession who must needs rely on their students for the satisfactory execution of their designs.

Reports delivered in conventions are more often either so academic or purely theoretical discussions of certain problems that their reference to appropriate committees is but the first step toward entombment and oblivion. In the present instance the suggestions of the Committee on Education, if properly carried forward, would work so large a measure of good, we are hopeful that they will be pressed by the Institute to practical accomplishment.

The full report of the Committee was printed in *THE AMERICAN ARCHITECT*, issue of January 8, 1913, wherein is set down the various well considered plans whereby it is hoped to work the reforms so strongly urged.

THE MUTILATION OF WORTHY ANCIENT BUILDINGS

IN an editorial in a recent issue of *The Builder* of London, protest is made against the mutilation of ancient buildings of architectural merit by the removal and re-erection in modern buildings of panelling, wainscoting and other interior fittings. It is maintained that any artistic merit this woodwork possesses is dependent largely on the purpose for which it was designed to furnish or adorn a particular room, and that its rebuilding in another

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interior robs it of most of its artistic value and all of its historical interest.

The spoliation of historic buildings in Italy to satisfy the demand for "antique" fittings for modern homes became so grave a matter that the government of that country enacted laws a few years ago that were intended to abate the destruction of old and important structures. *The Builder* suggests similar legislation in England.

With few exceptions we have no old buildings in America from which it would probably be considered worth while to remove the interior woodwork, but there are nevertheless a number that are surrounded by tradition that should make

them safe from the hand of the despoiler. We can imagine, for example, the storm of protest that would be aroused by a suggestion to remove and sell any part of Independence Hall or of Faneuil Hall. While these buildings are the property of the cities in which they are located and therefore safe, there are others that are equally interesting and of sufficient architectural merit to warrant their safeguarding, that are not equally well protected.

Fortunately the various chapters of the Institute are keenly alive to the importance of guarding these structures from vandal hands and we have every reason at present to expect their preservation.

RECENT LEGAL DECISIONS

(Continued from page 58)

be final. No alterations were to be made except on the written order of the architect, the amount to be paid therefor to be stated in the order. The contract price was \$9,300, subject to additions and deductions provided for, and was to be paid by the owner to the contractor only on the architect's certificates in stated amounts as the work progressed. A dealer in building materials furnished a large quantity of materials to the contractor. He subsequently brought an action of trespass on the case against the owner, claiming to have lost his right to a lien because of misrepresentations of the architect as to when payments would be made. It was held that the architect had no authority to make representations as to payments on the building which would bind the owner in tort for misrepresentation.

Michigan Lumber Yard v. Blesch, Michigan Supreme Court, 131 N. W. 1105. (J.S.)

RIGHT OF RECOVERY FOR EXTRAS

Where a builder is ordered to make changes from the original contract plans, which are really extras, or to do work in some way connected with the original contract but substantially independent of it and the circumstances are such that the owner must know that the execution

of such orders will cause extra labor and expense to the builder not contemplated by either party in the original contract, he is liable to compensate the builder therefor in the absence of some express provision in such original contract to the contrary.

Sabin v. Cameron, Nebraska Supreme Court, 133 N. W. 422. (J. S.)

EFFECT OF FAILURE TO EMPLOY ARCHITECT

In an action for the value of carpenter work performed, the complaint was dismissed because no architect's certificate was furnished. On appeal this was reversed. The architect testified that he gave no certificate because his work was finished when he drew the plans and specifications; that he refused to supervise the work; that he never examined it; that he could not issue a certificate without going to the job, and unless he was paid for doing so; and that he would not do it, because it was a small job and he did not care to look after a lot of small contractors he knew nothing about. The agreement contemplated that the defendant should employ an architect, whose duty it would be to pass upon the question whether the work was performed according to contract. When an owner fails to employ such architect, the contractor is not obliged to furnish a certificate.

Feldman v. Goldblatt, 133 N. Y. Supp. 945. (J. S.)



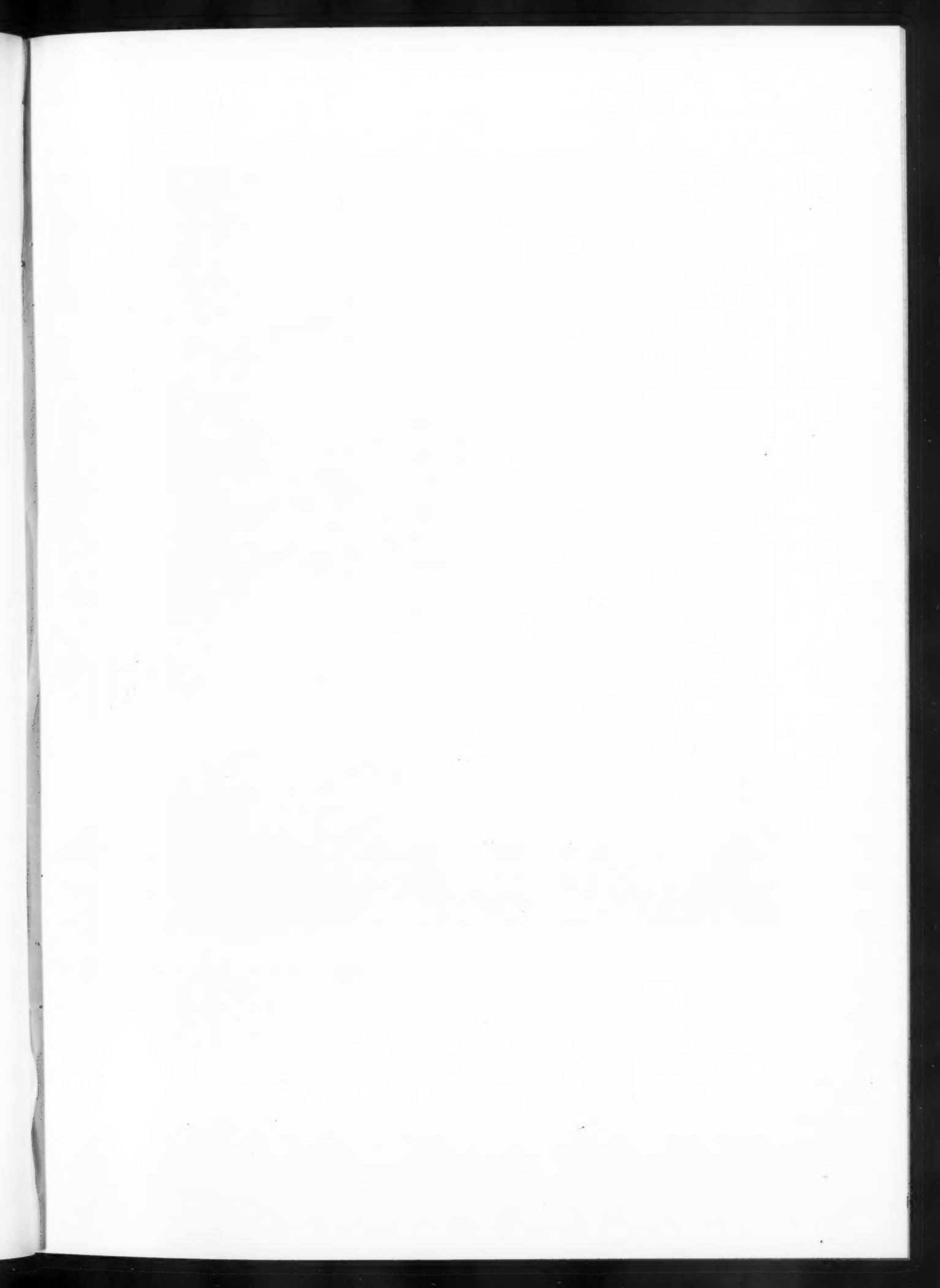
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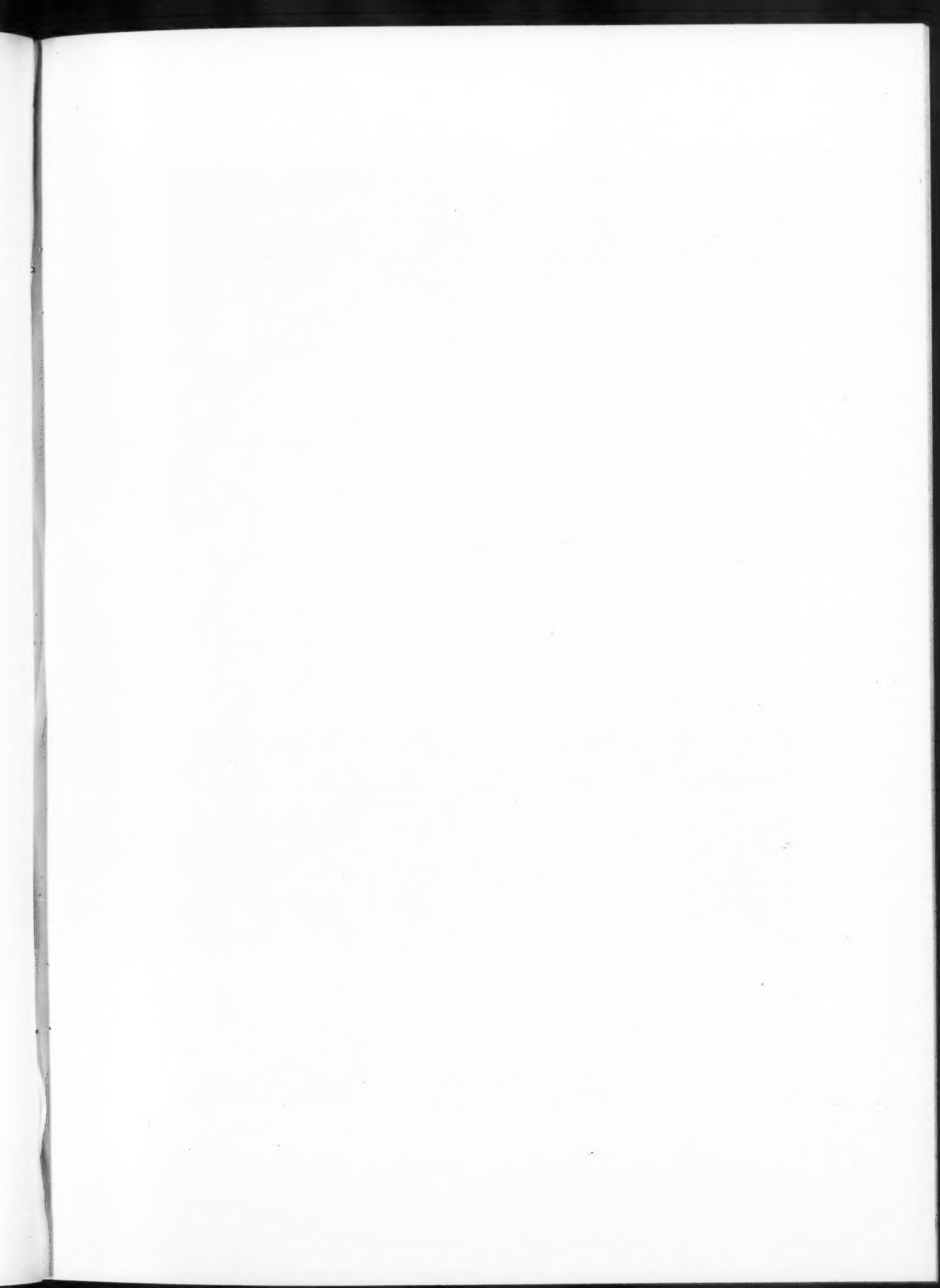
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LOBBY

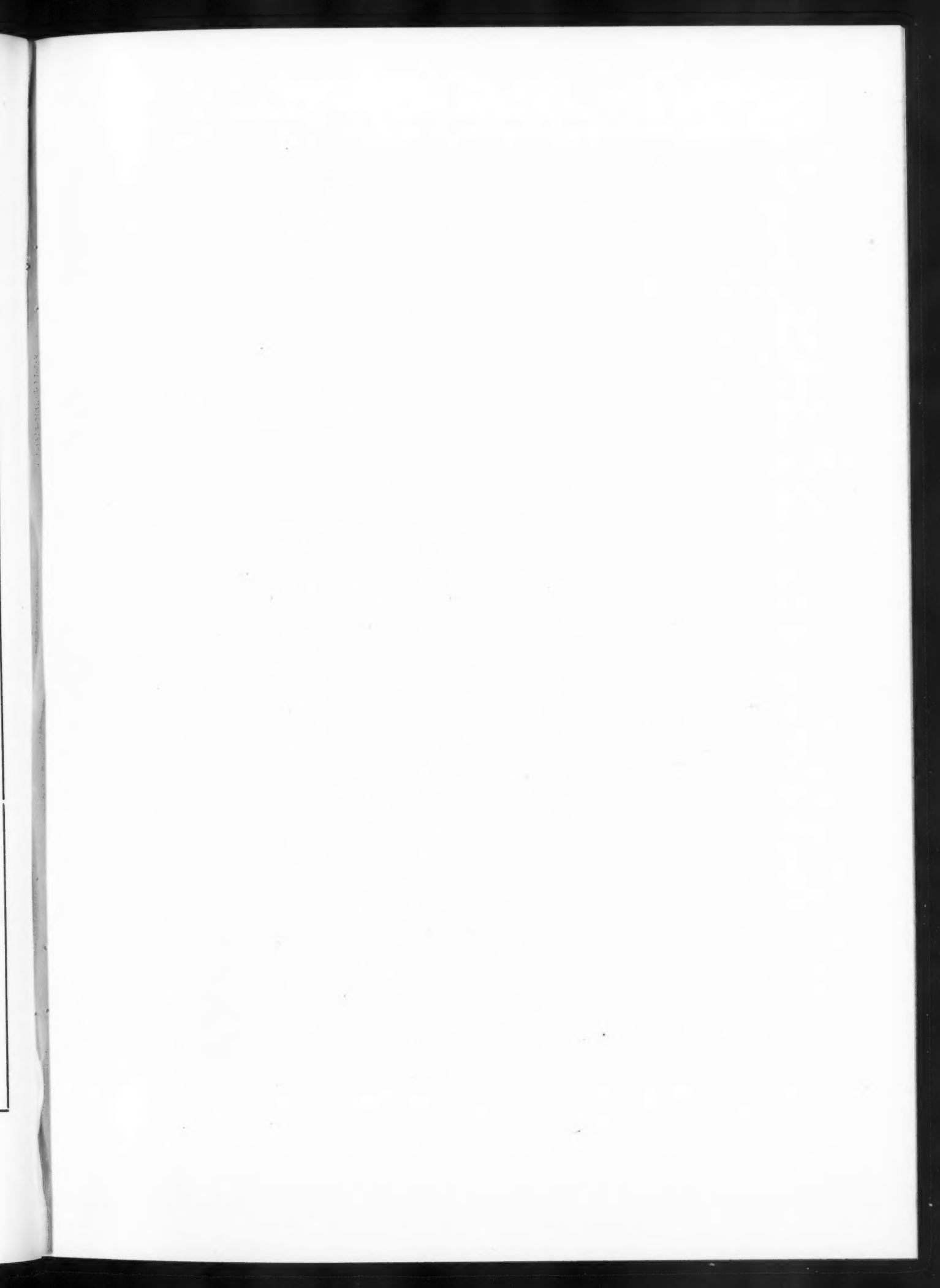
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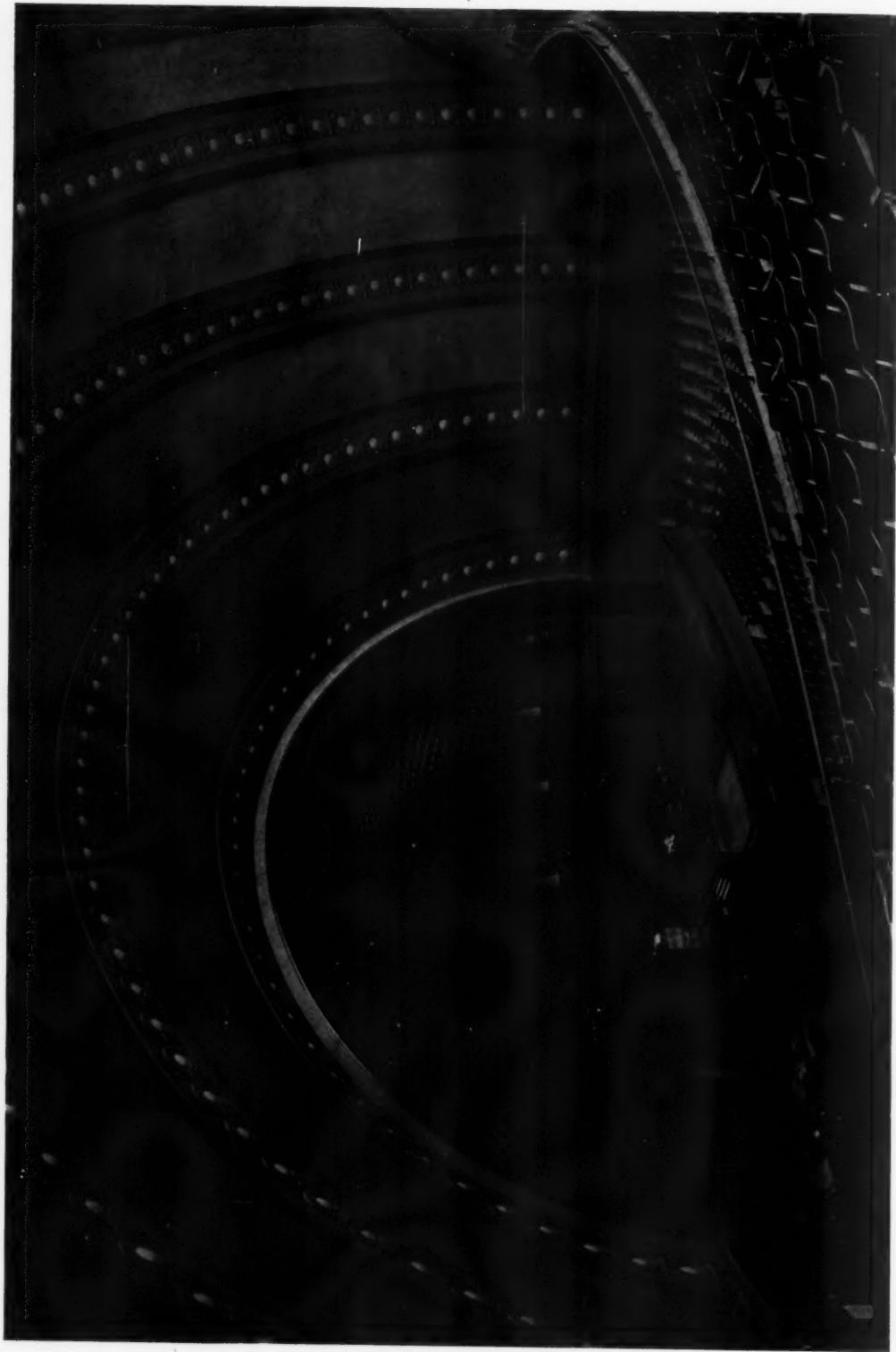




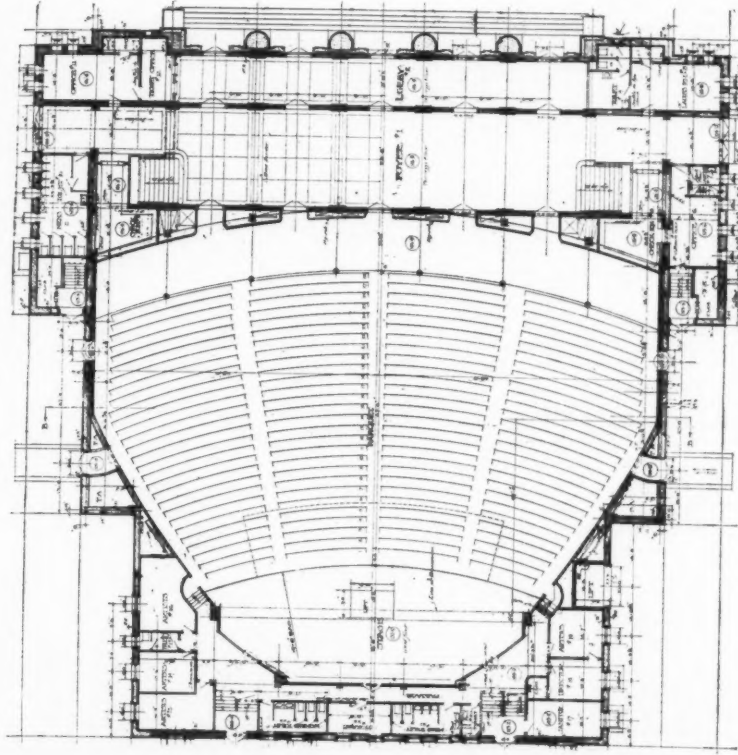
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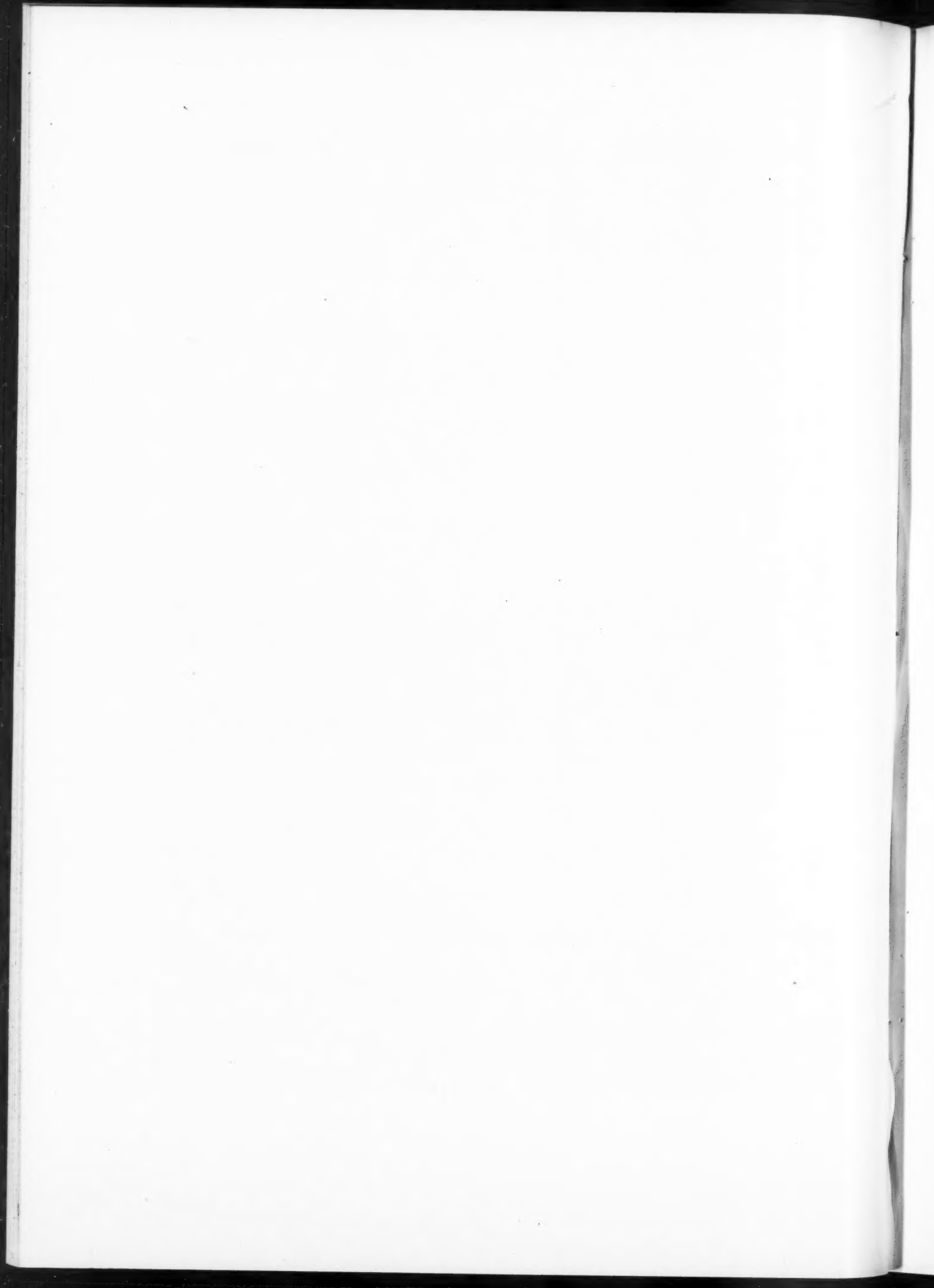
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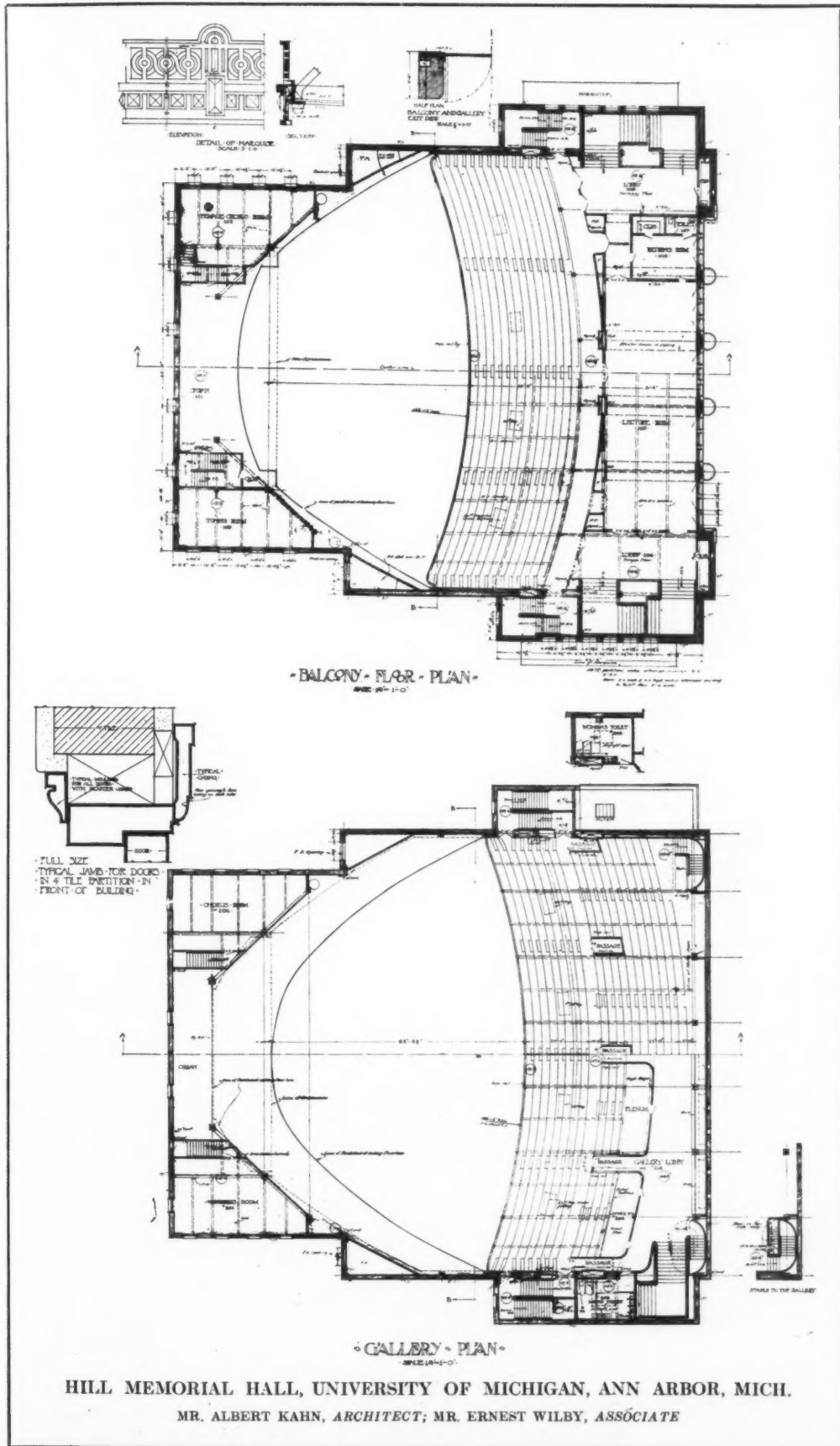


MAIN FLOOR PLAN

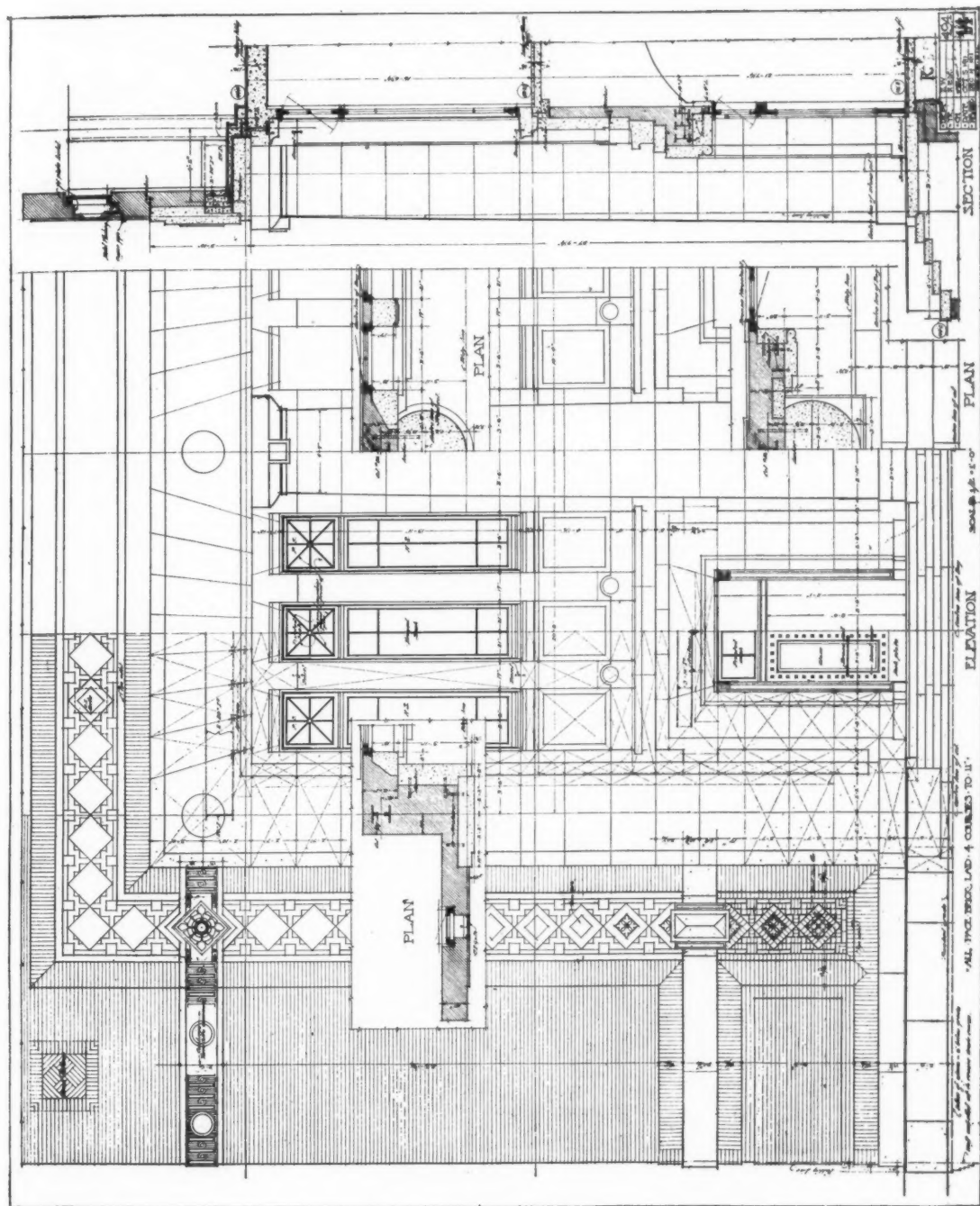
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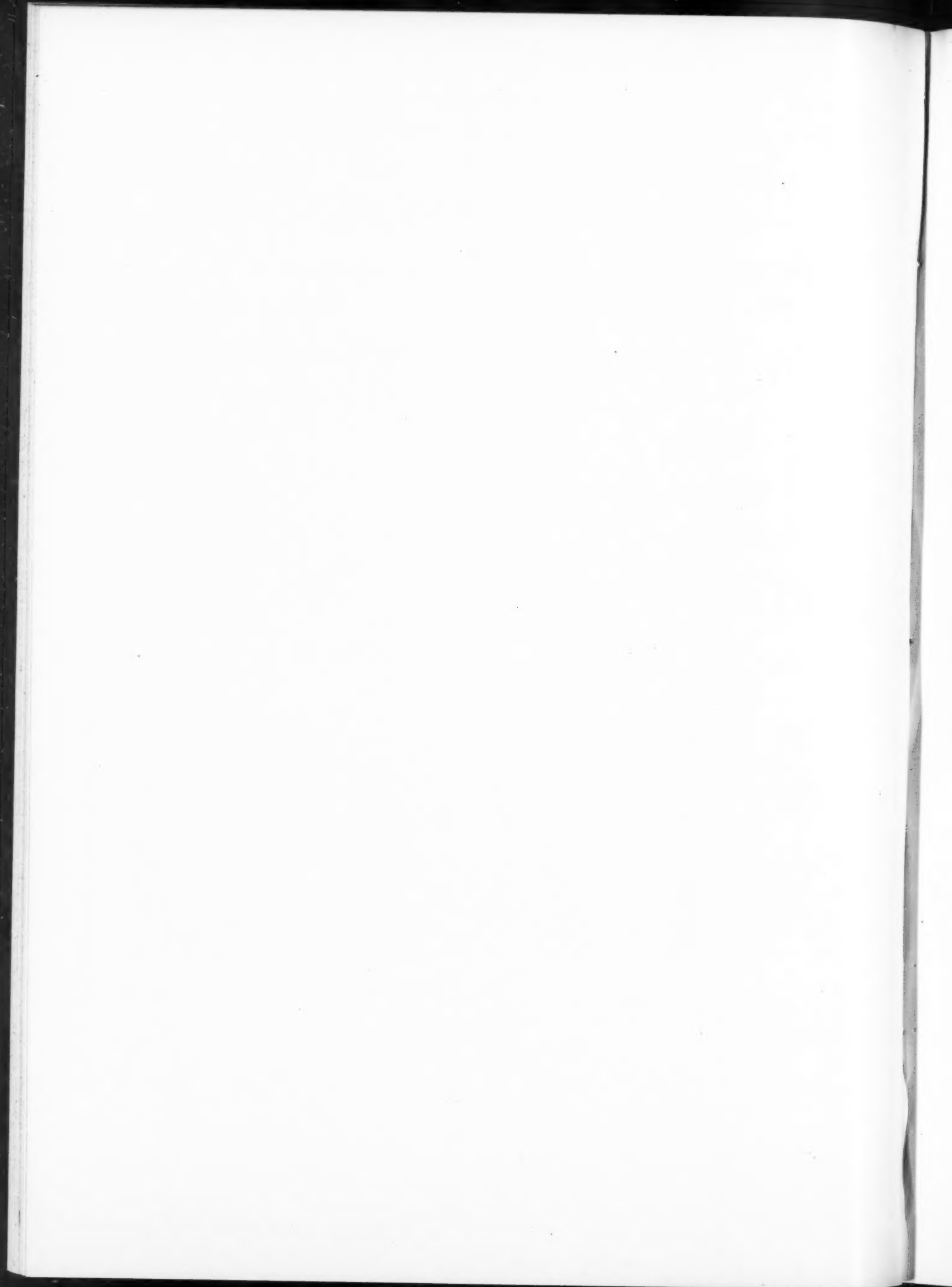


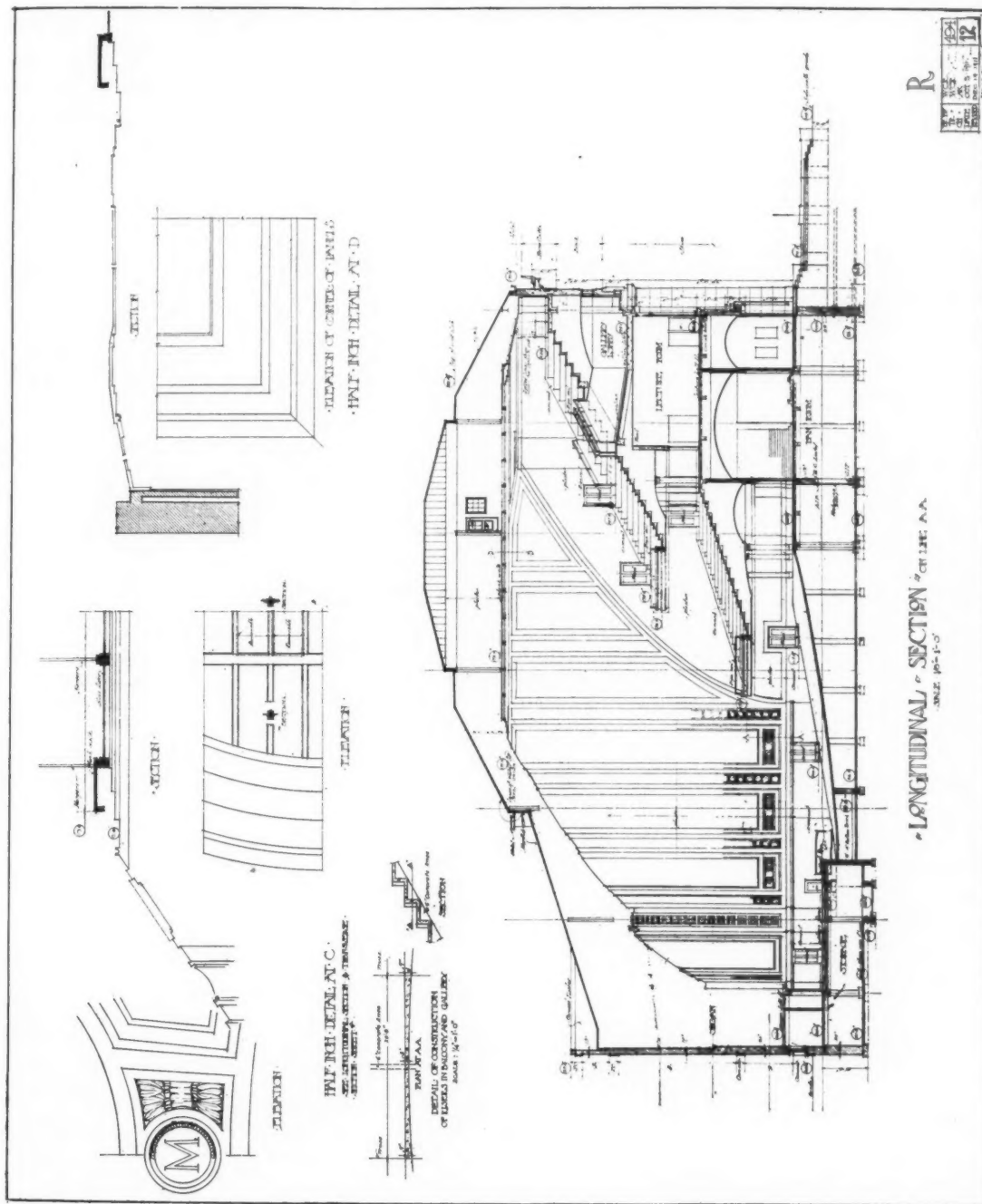






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CURRENT NEWS AND COMMENT

LIMITING HEIGHT OF BUILDINGS

The following is a partial list of the restriction as to heights of buildings enacted by cities and towns in the United States:

Baltimore—Fireproof buildings limited to 175 feet, and non-fireproof buildings to 85 feet.

Boston—Two and a half times the width of the street, the maximum being 125 feet.

Buffalo—No height greater than four times the average of least horizontal dimensions of the building.

Chicago—An absolute limit of 200 feet.

Cleveland—Two and a half times the width of the street, with maximum of 200 feet. Recesses or setbacks to be counted as added to the width of the street.

Denver, Colo.—Not to exceed twelve stories, and those more than 125 feet to be fireproof.

Jersey City, N. J.—No building or structure except a church spire shall exceed in height two and a half times the width of the widest street upon which it stands.

Los Angeles—A limit of 150 feet.

Newark, N. J.—Not to exceed 200 feet, but warehouses and stores shall not exceed 150 feet.

New Orleans, La.—The height at the street line shall not exceed two and a half times the width of the street which the building faces. Setbacks are to be counted as added to the width of the street.

Paterson, N. J.—Warehouses and stores must not exceed 100 feet in height.

Portland, Ore.—All buildings except churches are limited to 150 feet.

Scranton, Pa.—The limit is placed at 125 feet.

The present agitation of the subject in New York will undoubtedly lead to similar restrictions here in the not distant future.

A LETCH FOR LININGS

To be for once in a way completely in agreement with a protestation of the Society for the Protection of Ancient Buildings is a pleasure that, as in the most recent instance, is too often marred by the depressing character of the occasion. Mr. A. R. Powys, the secretary of the Society, invites attention to a process of despoliation of our ancient buildings which has recently become common—namely, the practice of stripping them of their wainscoting or wall-panelling. He is apprehensive of fresh instances in which "rare Elizabethan, Jacobean and Queen Anne panelling is to be gutted, and the spoils are to be shipped to the United States." Of the two methods of protesting against such vandalism—that of pungent invective and that

of argumentative persuasion—Mr. Powys has chosen the blander treatment. He does not heap scorn on the vandals, but gives a series of excellent reasons why they should cease from their vandalism. One of these shall here suffice—"that the greater the decorative value of a suite of panelling is in the place for which it was designed, the more it has to lose in a modern setting." This is the right kind of appeal; but its effect on the blatant acquisitiveness of the moneyed magnates of the United States is not likely to be instantaneous. It is the best thing that can be done, however; and sweet reasonableness may, in some few instances—those in which the desire to acquire venerable or beautiful objects is *ipso facto* a sign of grace—result in that more effectual conversion, in which the love of the venerable or beautiful shall become more pure and platonic—shall not seek the selfish satisfaction of possession. But the larger hope lies in the general spread of real culture in the United States, as signalled by its admirable essays in architecture; for this, in course of time, may supersede the spurious taste which leads to so many regrettable incidents; and by-and-by, society, so far from envying and applauding the despoiler, shall condemn his bad form, and he will be effectually frowned down. In the meantime, failing the greater stringency and inclusiveness that would mark a really effective Ancient Monuments Preservation Act, there is nothing to do but to keep on pegging away in the effort to mitigate barbarism in general, and in particular, this latest and most irritating phase of it—the letch for linings.—*Architects and Builders Journal*.

NATIONAL FIRE PROTECTION ASSOCIATION

The proceedings of the seventeenth annual meeting of the National Fire Protection Association, held in New York City during May, 1913, have been published and form a dignified volume of almost four hundred pages.

This association is one of the most important of those that seek to conserve the public good and has accomplished a large measure of valuable results in safeguarding life and property. In fact, the present high efficiency of fire-protection methods is due largely to the efforts of this society as a body and the representative men that constitute its membership. Results are always the true test of effort. It is therefore possible to compute the progress of this movement by comparison of figures, and these show with each succeeding year a diminution of fire loss, and, what is of greater importance, a decrease in loss of life due to fires.

The efforts of this and similar organizations with

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the co-operation of national, state and municipal governments are each year more effective and we may now look forward hopefully to a time, not so far distant perhaps, when our building laws will be so drawn as to make the fire loss insignificant in comparison with the present total.

The papers read at this annual meeting cover every phase of fire protection and will be found replete with suggestive and reliable data.

CINCINNATI, O., COURT HOUSE COMPETITION

The jury of award in the competition for the Cincinnati, Ohio, courthouse have announced their decision.

Messrs. Rankin, Kellogg & Crane, of Philadelphia, received the first prize, which carries with it the commission to execute the work. The second choice of the jury was the designs submitted by Mr. A. Lincoln Fechheimer, of Cincinnati.

Estimated cost of the building is \$2,500,000. The jury of award was composed of Prof. James Knox Taylor, Prof. Paul P. Cret and Mr. H. Van Buren Magonigle. Prof. Warren P. Laird, of the University of Pennsylvania, was the professional advisor to the Courthouse Commission.

RECENT IMPORTANT ACCESSIONS BY THE METROPOLITAN MUSEUM OF ART

A valuable triptych by Adriaen Isenbrant, from the collection of Dr. Friedrich Lippman, of Berlin, has been acquired by the Metropolitan Museum of Art, New York. The central panel depicts the Holy Family. The Adoration of the Kings is on the left wing, and on the right is the Flight into Egypt. The three panels are bound together decoratively by continuous lines of landscape background. The quality of the coloring is exquisite. The wings are painted on both sides, the backs having grisaille paintings of the Annunciation and the Visitation. Isenbrant was a pupil of Gerard David.

A beautiful allegorical sketch for a ceiling by Tiepolo has been acquired by the Metropolitan Museum. The figures are concentrated around the edge, forming a framework for the sky, in which are flying figures of Cupids and birds. The sketch was formerly in the possession of the Osnaga family of Padua.

American paintings just acquired by the Metropolitan Museum are an "Autumn Landscape" by Jervis McEntee and a "Camp Meeting" by Worthington Whittredge. They were purchases from the Borden collection.

CONVENTION OF ILLUMINATING ENGINEERING SOCIETY

The dates selected for the annual convention of the Illuminating Engineering Society in Pittsburgh, September 22 to 26, have proved to be particularly fitting, inasmuch as at that time the city will be celebrating the 125th anniversary of Allegheny County and will be decorated accordingly. Visitors will be able to see Pittsburgh in holiday attire and witness many special illuminating features.

Although not prepared at this time to announce the entire program, the following papers, it is stated, have been secured:

"The Use of the Photo-Electrical Cell in Photometry," by Prof. T. R. Richtmeyer, of the department of physics, Cornell University; "Characteristics of Enclosing Glassware," by V. R. Lansing; "The Quartz Mercury Vapor Lamp and Its Applications," by W. A. D. Evans, of the Cooper Hewitt Electric Company; "The Fontune Lamp as a Working Standard," by Messrs. E. G. Crittenden and A. H. Taylor, of the Bureau of Standards, Washington, D. C.; "The Neon Tube Lamp," by M. Georges Claude, of Boulogne, France.

In addition to these, Mr. Roscoe Scott, of the Nelite works of the General Electric Company, Cleveland, Ohio, will deliver a lecture on the "Evolution of Illuminants."

PERSONAL

Messrs. Bohnard & Parsons, architects, Cleveland, Ohio, announce that they have opened new offices in the 1900 Euclid Building.

Mr. J. B. Harman, architect, Lancaster, Pa., announces that he has opened an office in the Breneman Building, where he will practice his profession. He desires to receive manufacturers' samples and catalogues.

Mr. C. D. Cooley, architect, Pittsburgh, Pa., and Mr. F. C. Fisher, architect, Philadelphia, announce that they have formed a copartnership for the practice of their profession, with offices in the Century Building, Pittsburgh, Pa. They desire to receive manufacturers' samples and catalogues.

Mr. L. N. Flint, formerly with Lang & Witchell, architects, Dallas, Tex., announces that he has formed a copartnership with Messrs. Griffith & Curtis, architects of Dallas and Paris, Tex., under the firm name of Griffith, Curtis & Flint, with offices in the South Western Life Building, Dallas, and at Paris.

INDUSTRIAL INFORMATION

In this section will be found information concerning late catalogues issued by manufacturers of building materials, fixtures or equipment. Also under this head will be printed, from time to time, certain data relative to new devices or methods of construction considered to be of interest to architects. Architects are invited to make use of THE AMERICAN ARCHITECT'S Catalogue Files and Information Department whenever they can do so to advantage. Any assistance we can render or information we can furnish in this connection will be freely given.

HARDWARE SPECIALTIES

A number of monographs issued by the Russell & Erwin Mfg. Co., New Britain, Conn., are artistic methods of directing attention to a few of the various lines of ornamental hardware made by this company. The evidences of skilled craftsmanship shown in the design and construction of these goods are apparent, and the range of selection is so very wide that architects will have no difficulty in selecting a style or pattern that will harmonize with any design employed in the modern building.

The monographs will be forwarded on application.

WHITE LEAD

The Dutch Boy Painter is the name of the "house organ" of the National Lead Company, of 111 Broadway, New York, a publication devoted, it is stated, to the interests of good painting.

The necessity for a pure white lead as a basis for paints is conceded. The National Lead Company present many arguments, based on purity, thoroughness of manufacture and economy of use in favor of "Dutch Boy Painter" White Lead, and these, with illustrations of recent important buildings where this lead has been used, are set forth in the magazine referred to, which will be sent to architects on request.

LEAD PENCILS

Every architect and draftsman knows the value of a good pencil, and how he regards with regret the lessening length of one that has been found to be all he could desire, as he is not sure that the next one, even if of the same number, will be equally satisfactory. The quality of evenness—every pencil of a given number or grade being exactly alike—is the subject of much description in a large catalogue recently issued by L. & C. Hardtmuth, 34 East Twenty-third street, New York.

This catalogue illustrates the different grades of pencils made and sold under the trade-mark name of Koh-i-noor, and describes the various special purposes for which they are manufactured.

In addition to the complete line of pencils, the catalogue further illustrates various drafting room accessories. It may be had on request.

WOOD STAINS

A pamphlet prepared by the Glidden Varnish Company, 636 West Thirty-fourth street, New

York, for distribution among architects, has affixed to it a number of wood panels, each one treated with a different color of Glidden's Endurance Wood Stains.

There can be no doubt that the prevailing tendency to "flat" effects in the finishing of woodwork in interiors is one that will endure, and it would seem that in the large number of combinations that are possible with these stains, that architects will be able to select a color scheme that will harmonize with practically any decorative interior treatment.

This company are also makers of concrete finishes, and direct particular attention to a French Caen stone finish, a so-called "velvet" finish and a white enamel for concrete surfaces. The special lines referred to are described in a series of pamphlets to be had on request.

INTERLOCKING RUBBER TILE

A pamphlet, with illustrations in color, issued by the Goodyear Tire & Rubber Company, New York and Akron, Ohio, presents in an interesting way a number of recent installations of interlocking Rubber Tiling in important buildings.

The essentials of a well constructed floor are, it is claimed, that it should be durable, fireproof, resilient and sanitary or non-absorbent. All these the makers state are to be found in floors laid with these tile, with the added desirable feature of artistic effects of pattern and color. The illustrations referred to above range through such types of buildings as churches, court rooms, hospitals and sanitariums, theater lobbies and other buildings, especially those where traffic is heavy. This pamphlet will be mailed to architects on request.

CAST IRON PIPE

The Central Foundry Company, whose main offices are at 37 Wall street, New York, with foundries and branches in principal cities, have prepared for free distribution an attractive pamphlet entitled, "Universal Cast Iron Pipe."

The object sought in the preparation of this pamphlet is to afford to users of cast iron pipe, such information as will result in a clearer knowledge as to the method of selection and installation of this material.

The pamphlet has been carefully written, and each article, it is stated, is a record of observation and experience by men specially trained in their respective fields of work.

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"BAKELITE"

"Bakelite," as described in a pamphlet recently issued by the General Bakelight Company, 100 William street, New York, is a substance, which, it is claimed, in its different forms offers the advantage of hard rubber, lacquer or celluloid and in some respects excels the advantages of these products.

Of the many forms of the adaptation of this material that are at some length described in this pamphlet, the one that will more directly interest architects is the impregnation of wood with Bakelite, rendering it, it is stated, harder and more resistant to chemical and physical influences. The application of this material, it is further stated, makes the wood a good insulator of electricity and enables it to withstand moisture and the insidious influence of dry-rot. The best results, according to the statements made, are obtained when the mixture is applied to woods of a porous character, which, when treated, can be successfully used for tanks and vats and such other uses where wood is subjected to the direct attack of acids, electric currents and other destructive agents.

Further information will be supplied upon request to the makers.

FIRE PROTECTION FOR INDUSTRIAL PLANT

The Gamewell Fire Alarm Telegraph Company, 30 Vesey street, New York, have issued a pamphlet describing systems of fire protection for industrial plants, of which they are the originators and manufacturers. These systems comprise automatic fire detectors, signals in the building where the fire originates, and also the prompt signaling to the local fire department. These safeguards and others, fully described in the pamphlet, which may be had on request, are important in connection with modern perfected fire protection. The systems of fire detection and prevention, here described, act, the makers state, automatically and with certainty and would therefore afford a reasonably sure protection to the buildings in which they are installed.

STAINED GLASS

Recent important examples of the work of the glass painter and decorative artist are interestingly shown in a pamphlet illustrated in color, issued by Heaton, Butler & Bayne, Fifth avenue and Thirty-seventh street, New York. This firm are producers of stained glass, mosaics, church decorations and memorial brasses. A record of the various edifices in this country and abroad wherein their work has been installed is practically a list of the more important ecclesiastical structures erected in recent years.

An interesting section of this pamphlet is that dealing with some remarks on the permanency of glass painting. Proofs as to the enduring character of this work as executed by this firm are clearly set

forth, and the contention made that when skillfully executed, painted glass is practically imperishable.

The pamphlet referred to may be had on request.

EYE COMFORT SYSTEMS

The National X-Ray Reflector Company, 235 West Jackson Boulevard, Chicago, have enlarged their line of reflecting bowls, adding a complete line of luminous bowl fixtures. These bowls present a softly luminous effect, relieving the ceiling of the effect of "spottiness" sometimes conveyed by opaque bowls, but, it is stated, this luminous effect in no way interferes with the indirect lighting effect sought.

It is along these lines that the Curtis portable lamps made by this company are constructed. While the principles of indirect lighting are strictly maintained in the construction of these lamps, the shade is made luminous by means of a few small auxiliary lamps, and it is claimed the dark effect of the shade entirely relieved.

These various accessories for indirect lighting are described and illustrated in a pamphlet which may be had on request.

"ALCA" LIME

A well written pamphlet, illustrated with numerous examples of many important buildings of recent erection, and descriptive of the merits of "Alca" lime, has been prepared for free distribution by Charles Warner Co., Wilmington, Philadelphia, New York and Boston.

This pamphlet aims to present in an attractive way the claims of the makers as to the predominant quality of durability of "Alca" lime.

There can be no doubt that for many years, and up to the beginning of the nineteenth century, progress in the making of cementitious materials was almost at a standstill. The enduring qualities of the lime-built structures of the ancients is shown by the fact that many have survived the stress and storm of many centuries. To learn the secret of this ancient lime and to incorporate their lesson into a modern product has, it is claimed, been the work of the makers of "Alca" lime.

These facts and much other interesting information will be found in the pamphlet referred to, which may be had on request.

AMERICAN CLAY MAGAZINE

The American Clay Magazine, published by the American Clay Machinery Company, Bucyrus, Ohio, serves the twofold purpose of directing attention to modern clay working machinery as well as the dissemination of information as to fireproofing methods.

This publication is issued monthly and may be had by architects on request.



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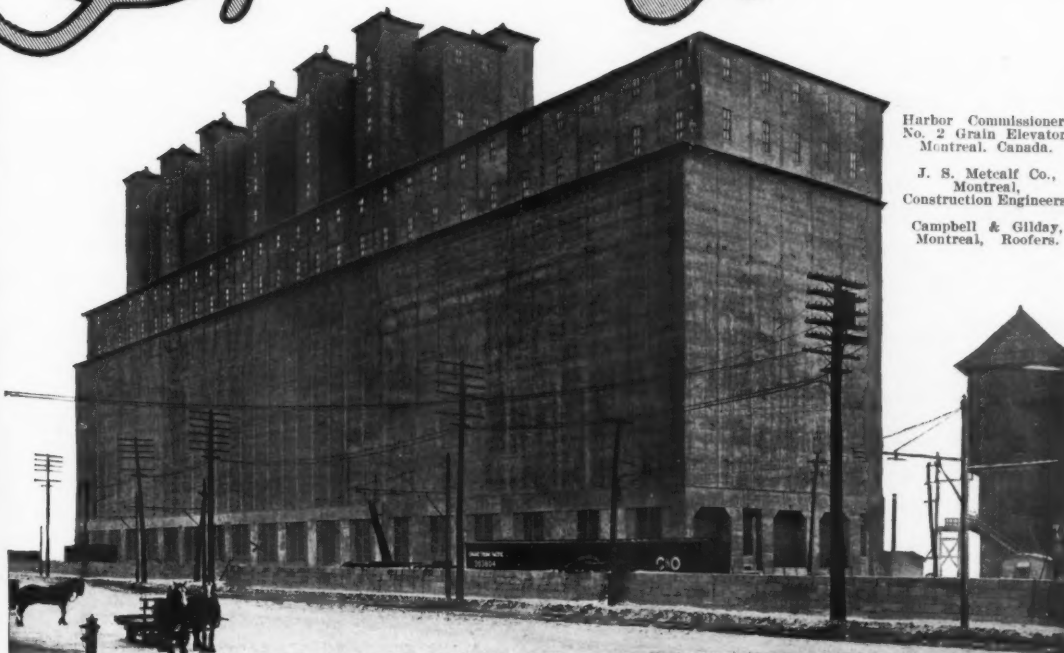
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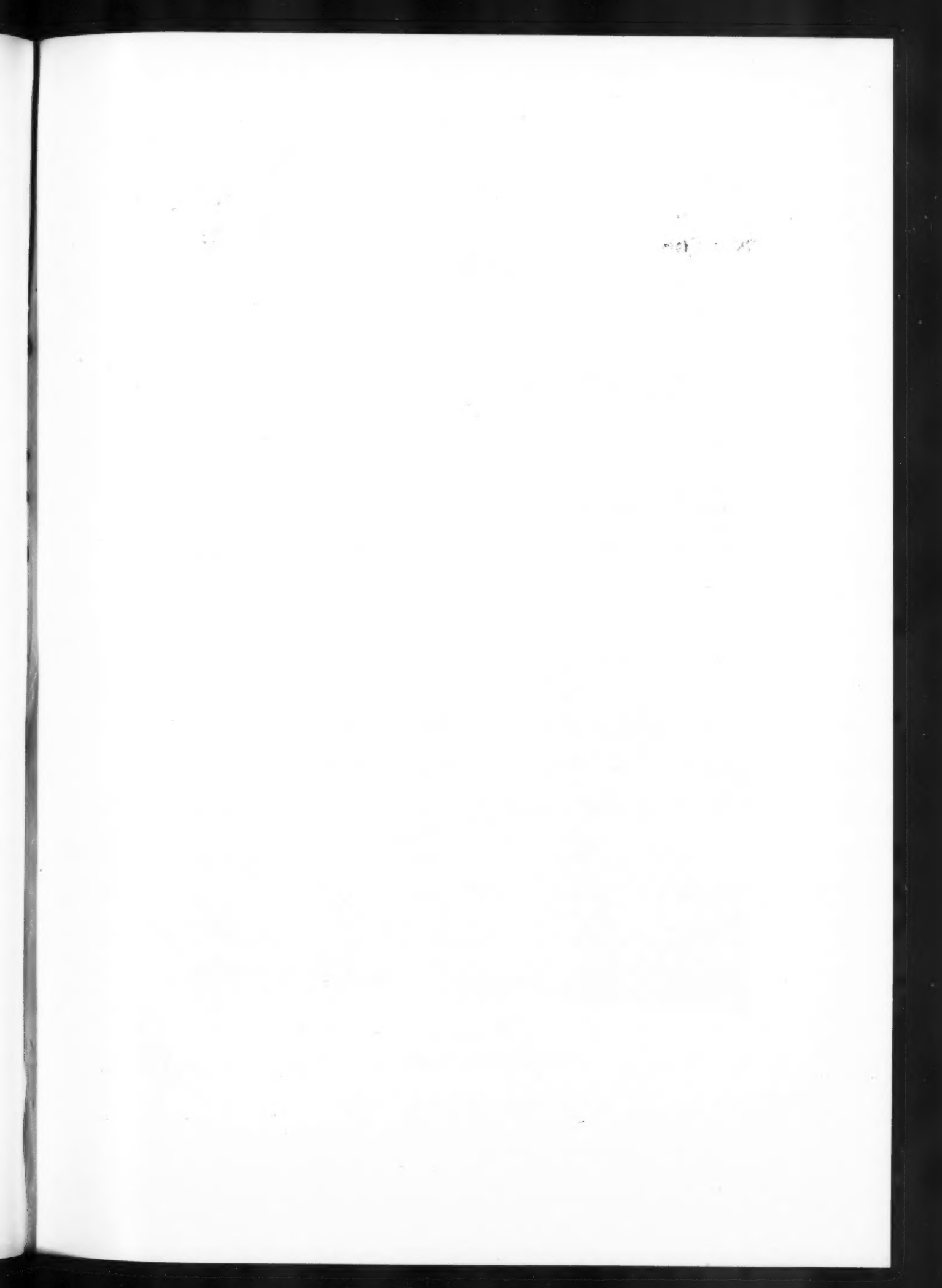
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