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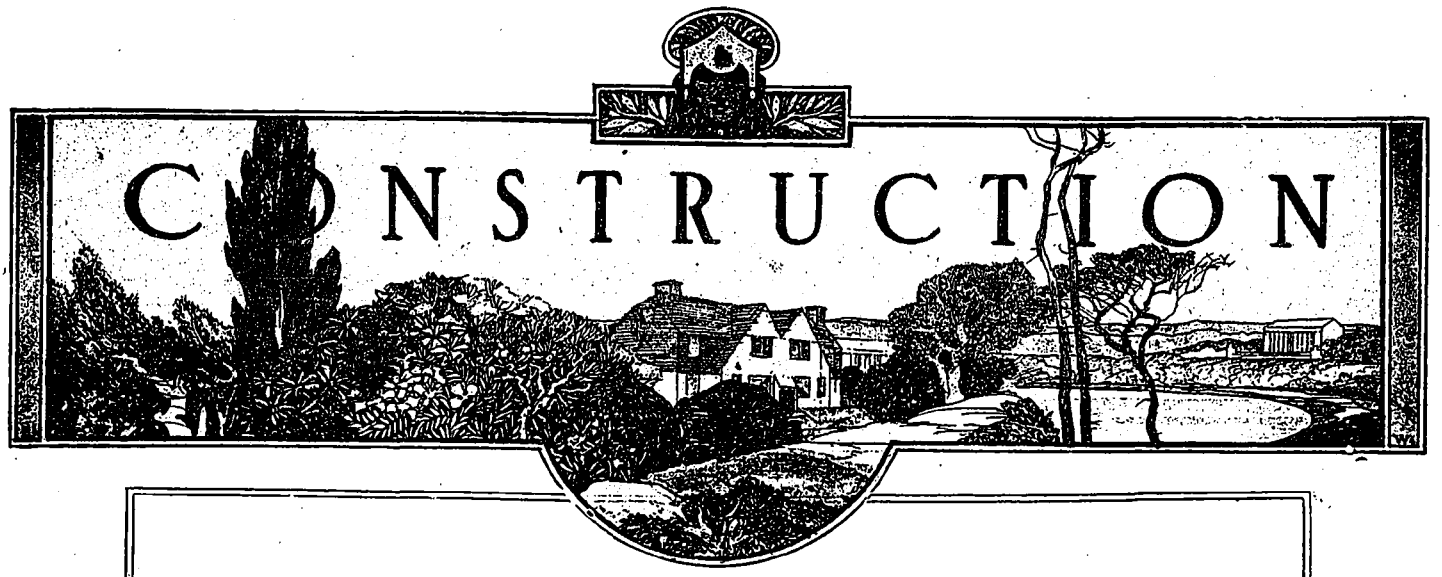

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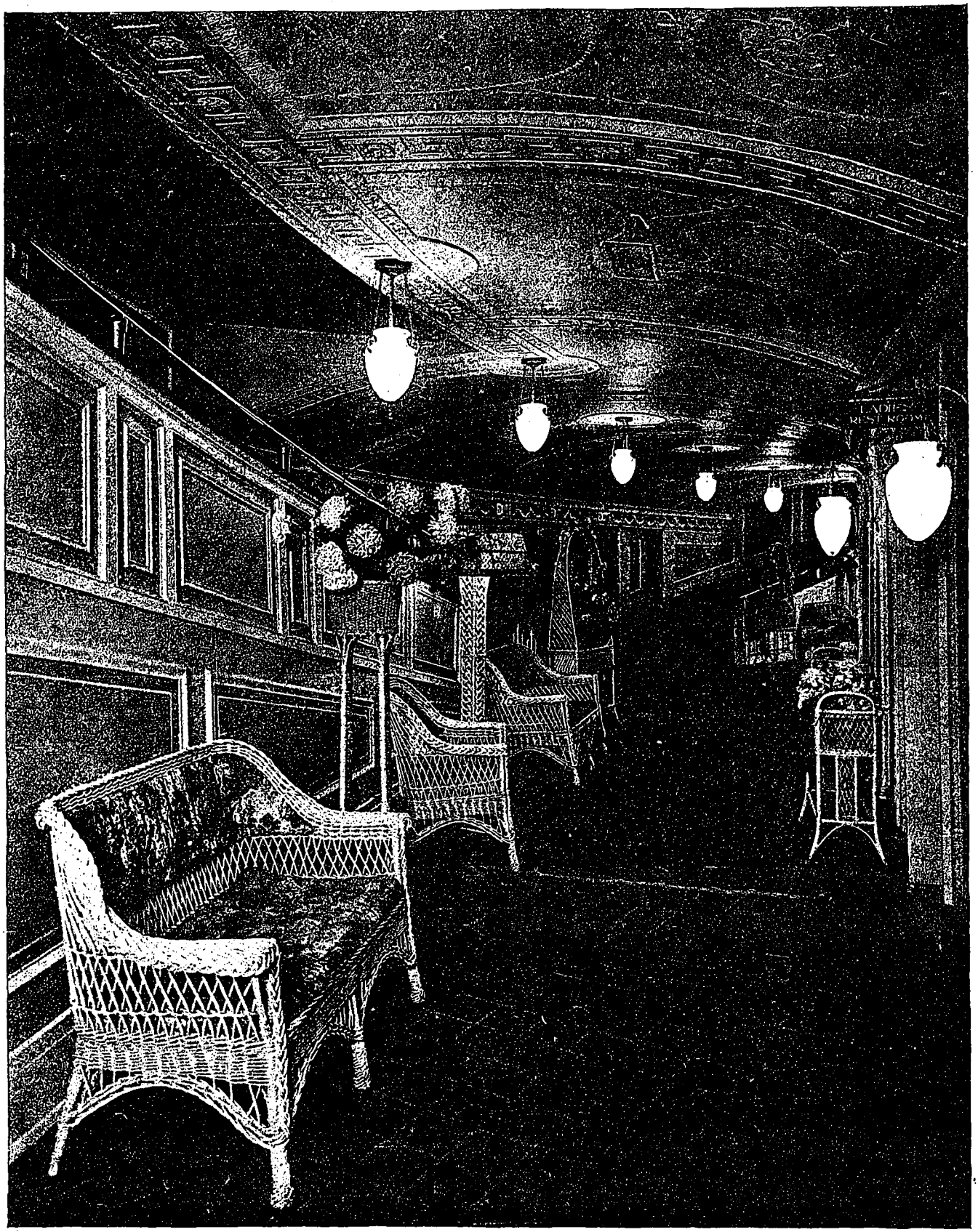


NEW ALLEN THEATRE,
TORONTO.

VIEW OF FOYER.

C. HOWARD CRANE, ARCHITECT.
HYNES, FELDMAN & WATSON, ASSOCIATED.

The New Allen Theatre, Toronto

C. HOWARD CRANE, Architect

HYNES, FELDMAN & WATSON, Associated

IN describing the new Allen Theatre it is necessary to dwell a little on the why and wherefore of operating a modern motion picture theatre in order to intelligently present the reasons for the unusual plans and layout of this building.

At the outset it can be said that this is a day of architectural specialties, and the planning of complicated buildings, such as theatres, has been taken up by certain architects as a separate branch of the profession, and every detail and angle entering into this type of building has been carefully studied out. In other words, experience is the best teacher, and it directs the architect through specialization in the development of each succeeding scheme of a particular class of building so as to obtain the best possible result. The success of a motion picture theatre depends, of course, on its location, the class of its attractions and the manner in which it is operated. Assuming that it is well located, and that it has the best attractions and is well managed, the fact that it is only fairly successful or entirely successful depends upon three things for which the architect is more or less responsible:

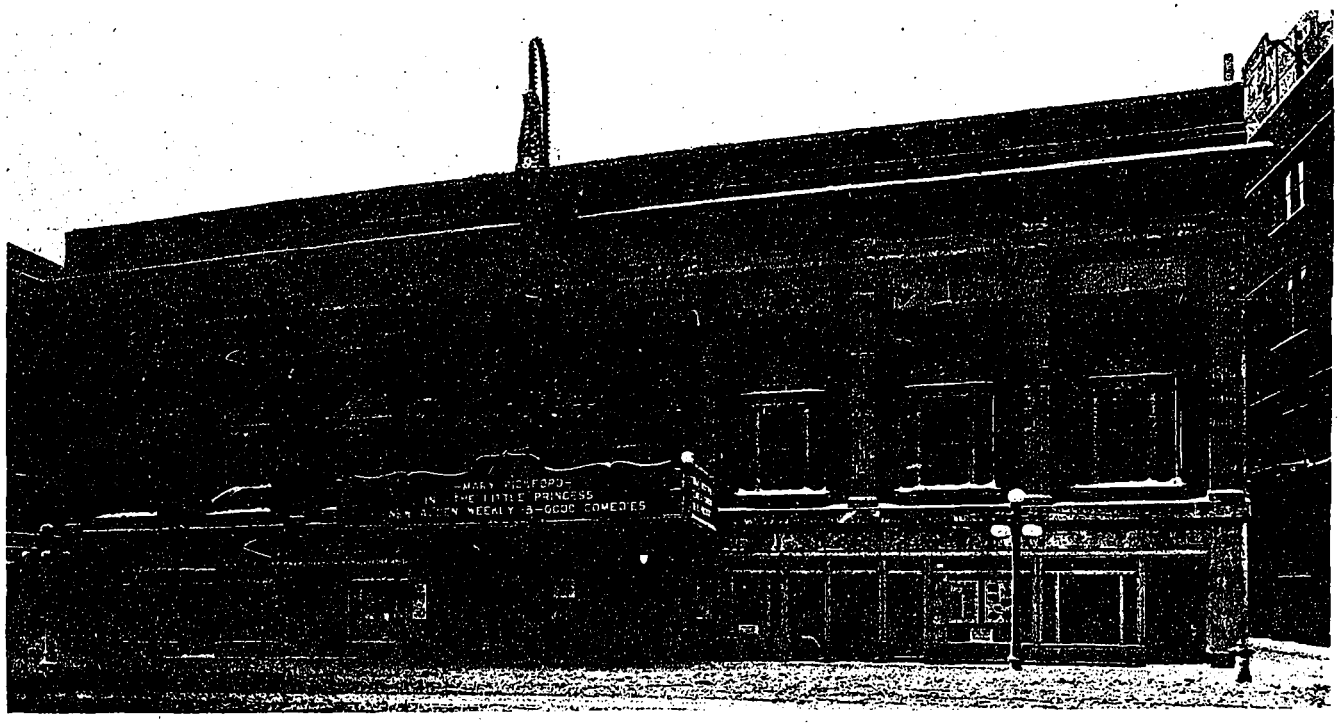
1. The essential of seeing that the rent expense is reduced to a minimum.

2. That as much seating capacity is obtained as possible.

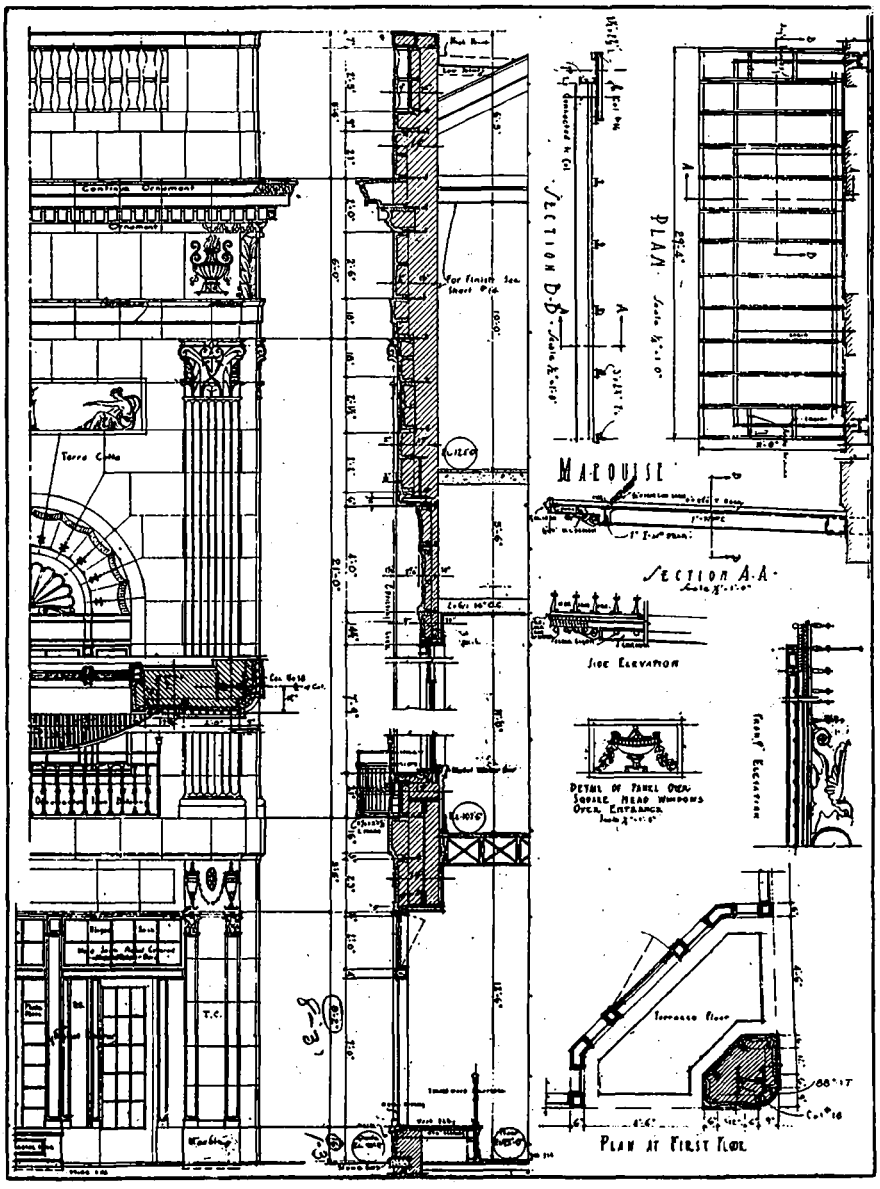
3. That the building is so planned that the smallest number of employees are needed, thus reducing the inevitable overhead.

Naturally the lease value or factor of rental for a piece of property such as a theatre is usually located on is extremely high. How to reduce this first big expense is to determine just how much space can be spared for stores and offices, which, of course, would be calculated to bring large returns, located as they would be adjacent to a theatre, bringing thousands of people to their doors each day. Arising at the

BOX OFFICE, NEW ALLEN THEATRE, TORONTO.



NEW ALLEN THEATRE, TORONTO.

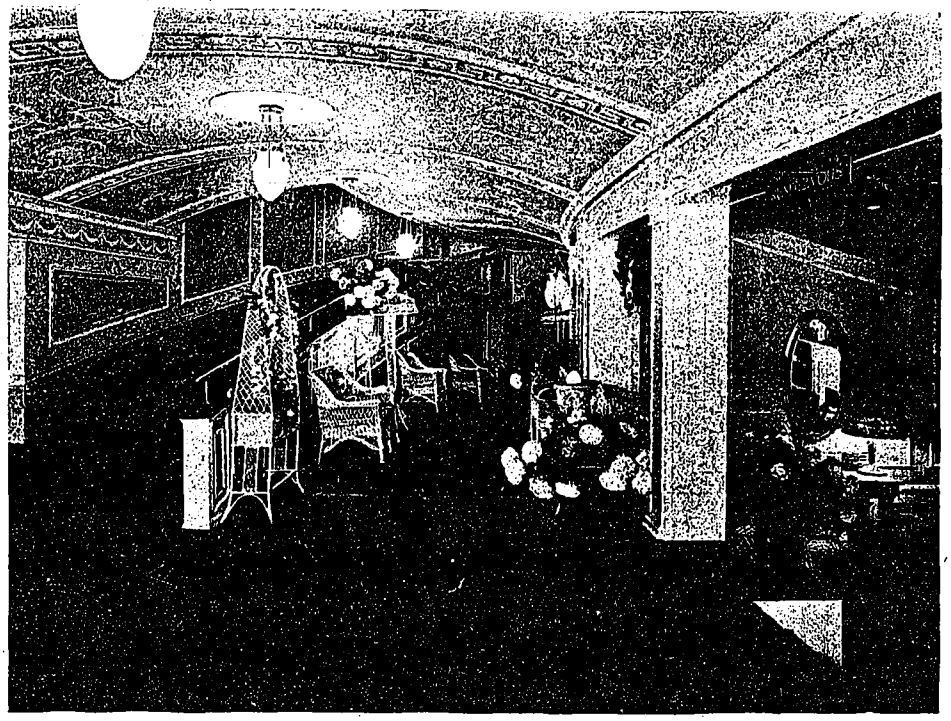


DETAIL OF EXTERIOR, NEW ALLEN THEATRE, TORONTO.

same time is the question as to how much seating capacity the theatre is going to lose on account of this space being taken off. In the ordinary planned theatre the loss of this space would be fatal, in that it would offset the advantage in revenue which is otherwise derived.

Again, there is the question of balcony seats, which, it is claimed, in a moving picture theatre are never desirable. It is said to be the experience of most managers that it is difficult to get people to go up into a balcony. A great deal of space is also lost in the really valuable space of the first floor in order to provide proper foyers and stairways. In addition to these objections the matter of a balcony entails an expense out of proportion to the extra revenue that it would obtain. The theatre would, of course, have to be made much higher to accommodate it, thereby entailing an item of cost which, added to the actual cost of the balcony itself, would mean a considerable additional investment. The larger investment the larger the rent, and as the additional seats thus obtained would give very little extra accommodation, and as these seats would be the cheaper ones, the revenue thus derived would not justify the expenditure.

The new Allen Theatre is, therefore, interesting as a successful solution of this problem. The scheme involves a somewhat entirely new idea, and it represents the first building of its kind in Canada as regards certain features of design. The accompanying plans and sections show how seven good sized stores and several spacious offices have been obtained without the loss of a single square foot of seating capacity, at the same time giving a theatre that, for fineness of sight lines and proper acoustics, leaves little to be desired. It both meets the question of low rent and solves the problem of obtaining a large seating capacity.



VIEW SHOWING INCLINE OR RAMP, NEW ALLEN THEATRE, TORONTO.

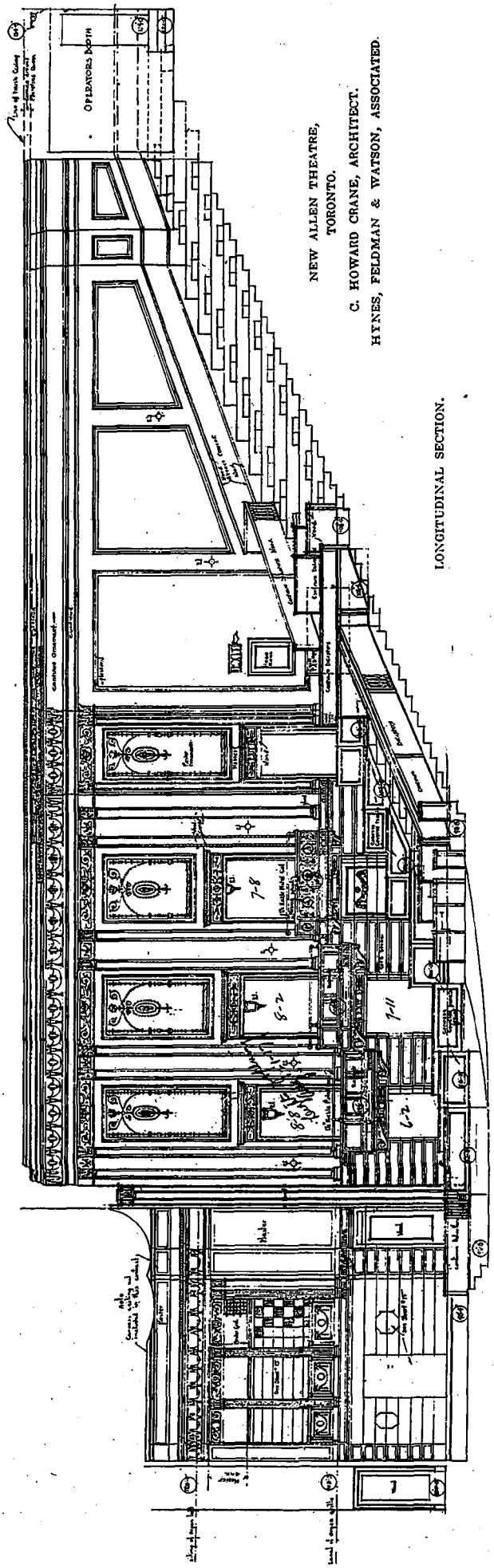
On entering the theatre you pass from the outer lobby into a spacious foyer off from which are ladies' and gentlemen's retiring rooms and toilets conveniently arranged, also check rooms and manager's office, while in the centre, directly opposite the entrance, is an attractive lounge, or "rendezvous," as it is called. This room is used by parties to meet in, or by people who wish to wait before entering the theatre, rather than to be seated while the feature picture is being shown. This space is luxuriously furnished, as is also the foyer, which gives additional space to patrons who are desirous of waiting for the beginning of a picture in case a film has already been partly run.

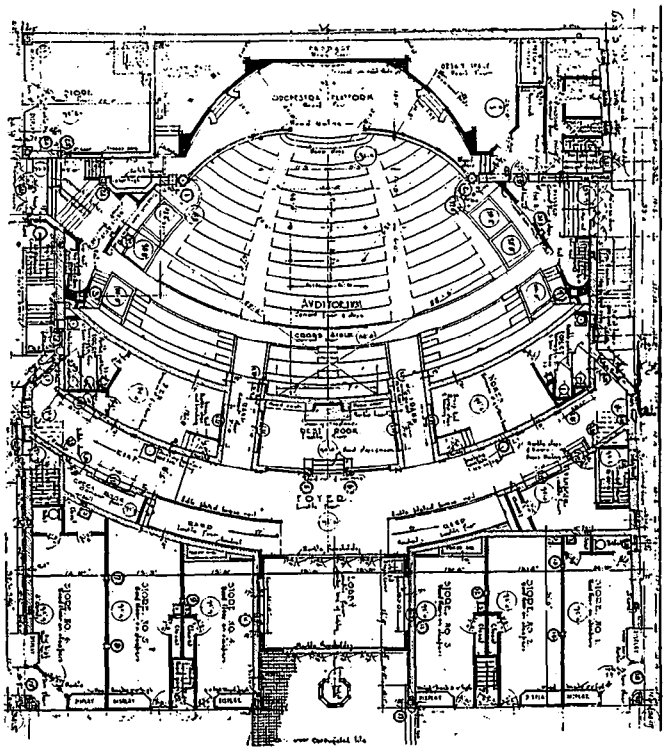
The furnishing of these rooms supplies no small part of the decorative scheme, and with such innovations as singing birds, beautiful plants and flowers, and the use of Oriental rugs, affords a charming, as well as a delightful approach to the auditorium itself. The entrance to the theatre proper from this foyer is obtained through archways into the lower portion, and by wide inclines on each side of the foyer to the upper portion. These four points of entrance lead to four separate and distinct portions of the auditorium, so that there is very little distance to be travelled by any one to reach a seat from any of these points. The confusion of people passing in and out constantly, as is usual in a theatre of this kind, is also reduced to a minimum by this arrangement.

The theatre itself is designed after the Adams style, which is very decorative, at the same time light and airy, and quite a change from the usual heavy, oppressive ornament that one is accustomed to see in buildings of this type. The amphitheatre arrangement of the seats gives an air of festiveness to the whole that is at once noticeable, as everyone is not only in fine view of the stage, but of each other as well.

The arrangement of the boxes and the loges is attractively done, and the furnishings in these have been carried out in harmony with the balance of the theatre. Although this theatre was not designed for vaudeville or plays, it has been

LOUNGE, NEW ALLEN THEATRE, TORONTO.



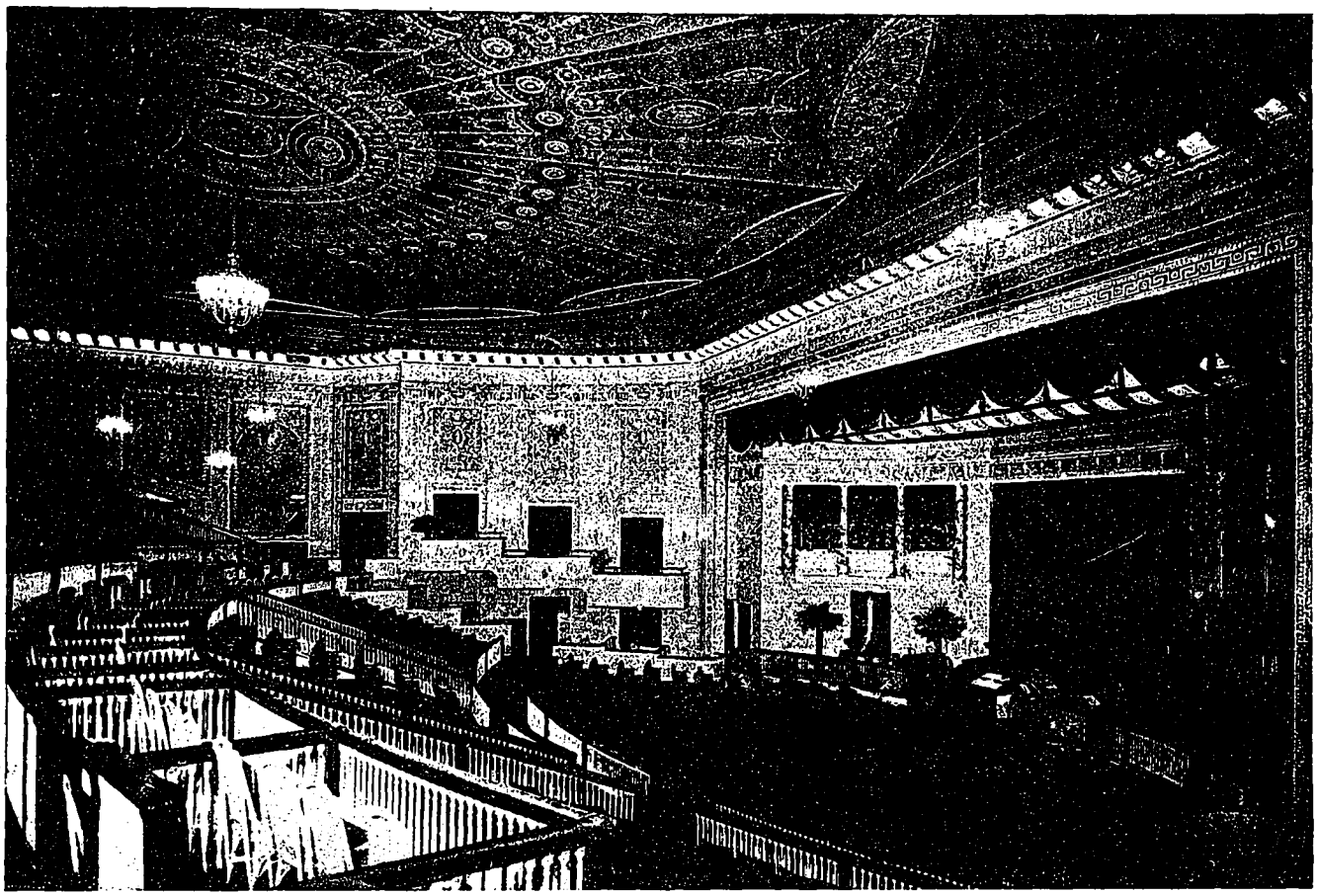


GROUND FLOOR PLAN, NEW ALLEN THEATRE, TORONTO.

built so that at any time it can easily be converted at very small expense. The future proscenium arch has been built in, as are also the back stage lofts and gridirons, and future dressing rooms. A stage setting of more or less permanent nature has been built on what would be the future stage, in such a way as to form a very attractive setting for the picture, and at the same time giving the theatre an appearance of greater size. Additional seats are also thus obtained, and the orchestra so placed that its presence is felt and appreciated more by the audience than were it to be placed in the usual orchestra pit. The decorative use of ferns and plants, and the terracing of the orchestra platform all tend to make this portion of the theatre extremely attractive.

One of the hardest things to accomplish in a modern motion picture theatre is the proper lighting of same; that is, to have at all times a sufficient amount of equal light all over the auditorium so that people can see their seats and walk about without groping, at the same time having the light so arranged that it does not affect the clearness of the picture. This has been very successfully accomplished in the Allen by a system of diffused lighting. That is, the light is diffused or directed in equal shafts in a downward direction in such a manner that no rays of light come in contact with the picture screen. This downward light illuminates perfectly the aisles and seats, and at the same time gives a warm, even glow over the entire auditorium.

Great care and study was also given the problem of heating and ventilating. A theatre used as constantly as this type must be well

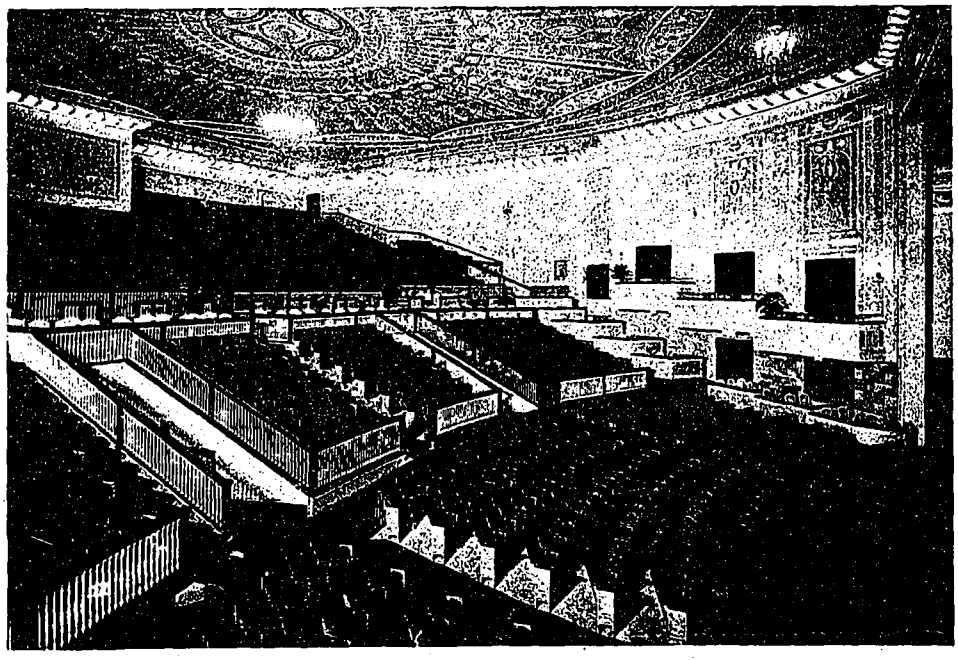


AUDITORIUM, TOWARDS STAGE, NEW ALLEN THEATRE, TORONTO.

ventilated. Ordinarily an audience in a poorly ventilated auditorium becomes so affected with the impure air as to become heavy and hard to amuse or interest, with the result that business is finally bound to suffer. It is not necessary to mention how important to the success of a theatre it is to have it properly ventilated, and especially cool, during the hot summer days. The best possible washed air system has been installed. One thing that a good washed air system of ventilating does for a theatre is that it keeps the draperies and decorating in a better condition, as all of the dirt and impurities are removed from the air before entering into the auditorium.

There are a great many other details that entered into the general scheme of things in the laying out of this successful theatre—comfortable seats, well spaced, proper exits and wide aisles, but it is also the little conveniences, like telephones, check rooms and clever furnishings which impress the patrons and give an air of coziness to the place. In a word, all of these things have been thought of and embodied in the Allen, to a degree which not only makes it the last word in the development of the modern motion picture playhouse, but which is bound as well to attract patronage to its doors.

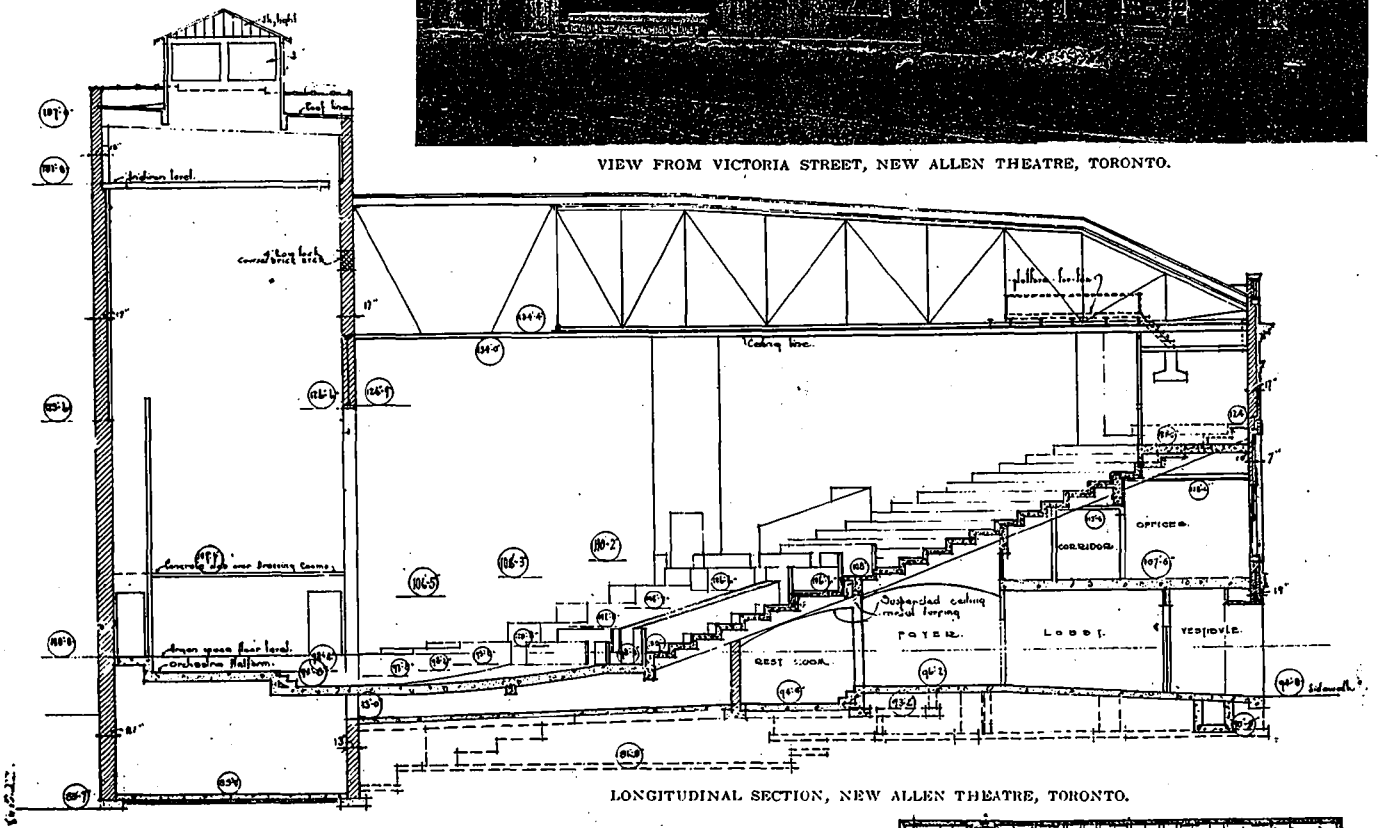
The use of old tracings for bandages has proved so successful that the Red Cross has



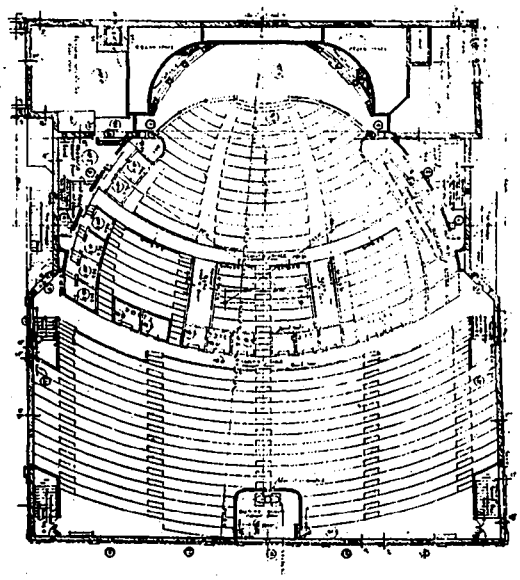
AUDITORIUM, UPPER SEATING, NEW ALLEN THEATRE, TORONTO.

asked its 3,000 chapters throughout the United States to co-operate in the work. Tracing cloth is a very fine quality of linen, and is easily made available for bandages by putting it through a laundry. Business concerns with drafting offices are asked to gather up their discarded tracings and send them to the nearest Red Cross branch. It is one of the new and economic uses which the war teaches.

VIEW FROM VICTORIA STREET, NEW ALLEN THEATRE, TORONTO.



LONGITUDINAL SECTION, NEW ALLEN THEATRE, TORONTO.

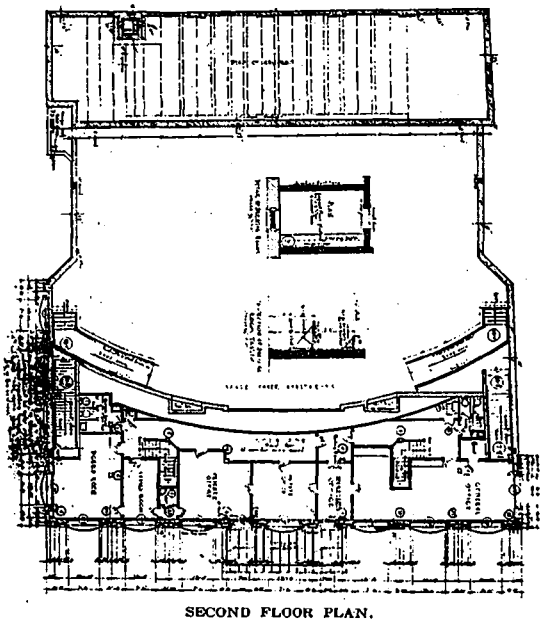


SEATING PLAN.

NEW ALLEN THEATRE,
TORONTO.

C. HOWARD CRANE,
ARCHITECT.

HYNES, FELDMAN & WATSON,
ASSOCIATED.



SECOND FLOOR PLAN.

Loew's Theatre, Montreal

THOMAS W. LAMB, Architect

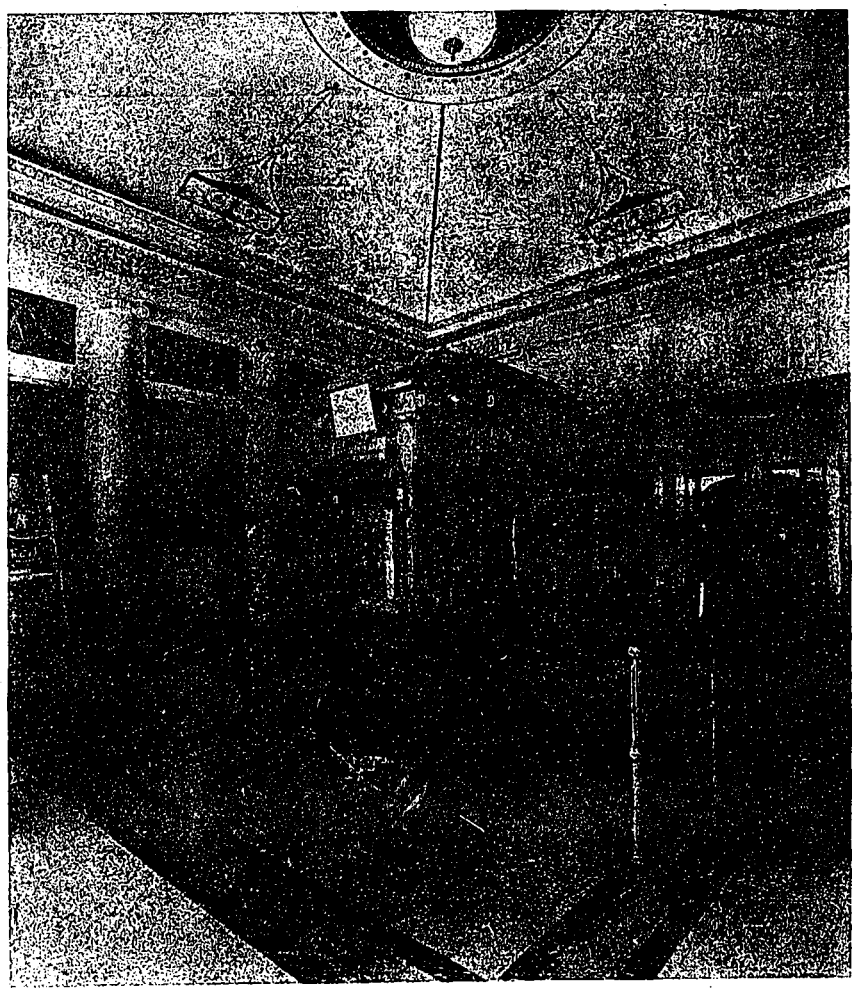
LOEW'S THEATRE, MONTREAL.

THE several theatres erected on the Marcus Loew circuit in Canada involve a feature of plan which is calculated to realize for the owner the very highest value on the basis of investment. The policy is to build a considerable distance back from the street from which the theatre is entered, with an entrance lobby or passage extending through to the auditorium. The advantage is that an extensive frontage of highly taxable property is avoided, while at the same time direct accessible means are obtained at a central down-town or retail shopping point. Moreover, this arrangement further solves the problem, owing to the limited frontage required, of securing a desirable location in a section where, even at a high offer for property, sufficient ground space for a site directly at the street line, would be difficult to obtain.

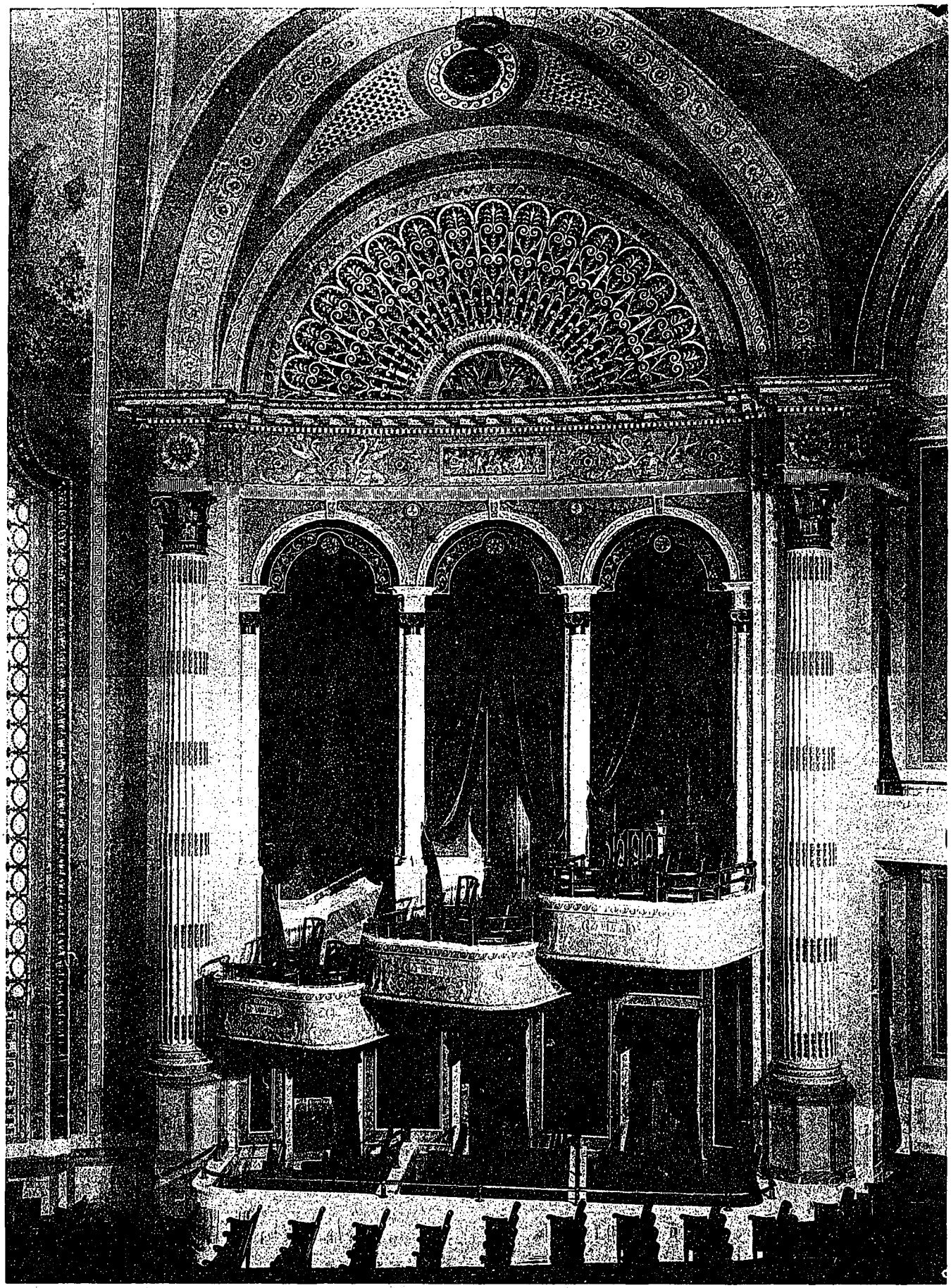
The new playhouse of the Loew Syndicate recently opened at Montreal is typical of the scheme usually adopted, having its main entrance on St. Catherine street, with an additional entrance on Mansfield street, and covering an area of over twenty-three thousand square feet. Under the circumstances mentioned, the plan dictates a condition which to an extent subordinates the exterior in the general architectural scheme; but this is done without in any way obscuring the character or purpose of the building.

From the main entrance one enters the lobby vestibule, passing through the outer lobby into the inner lobby, which serves to give an attractive introduction to the interior of the house. The walls are of Botticino marble, flanked with stately pilasters and enriched by two mural paintings. An illuminated central dome and vaulted ceiling springing from an enriched plaster cornice, and done in harmonizing colors, contributes to the splendid general decorative effect. Ascending the stairs of the main lobby, one enters upon an elliptical mezzanine promenade, from which a grand staircase of rich marble leads to the orchestra floor promenade below. The promenade is also accessible from the Mansfield street entrance by passing through the lobby, inner lobby and foyer at this level, where the ladies' rest room and gentlemen's smoking room are also to be found, and which forms a scheme that has been carefully considered to provide luxurious surroundings with every degree of comfort and convenience.

The auditorium proper is rich in its decorative character, showing a clear handling of the Adam style of architecture, and giving to the whole an atmosphere of dignity and refinement; the ornament of the ceiling being so arranged and designed in conjunction with the system of indirect lighting as to unite in producing both an aesthetic and practical result. Accommodation is provided in the orchestra for sixteen hundred people, and approximately fifteen hundred more can be taken care of in the balcony above.



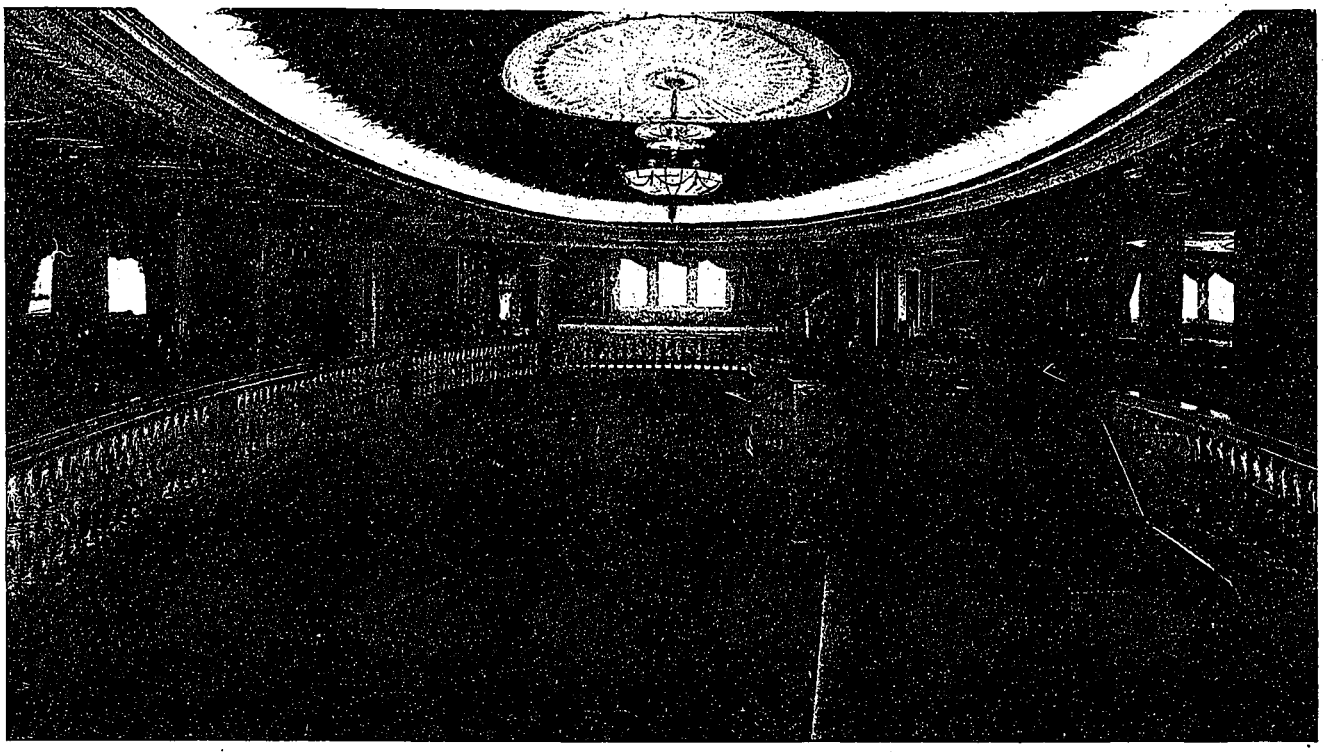
ENTRANCE, LOEW'S THEATRE, MONTREAL.



LOEW'S THEATRE, MONTREAL.

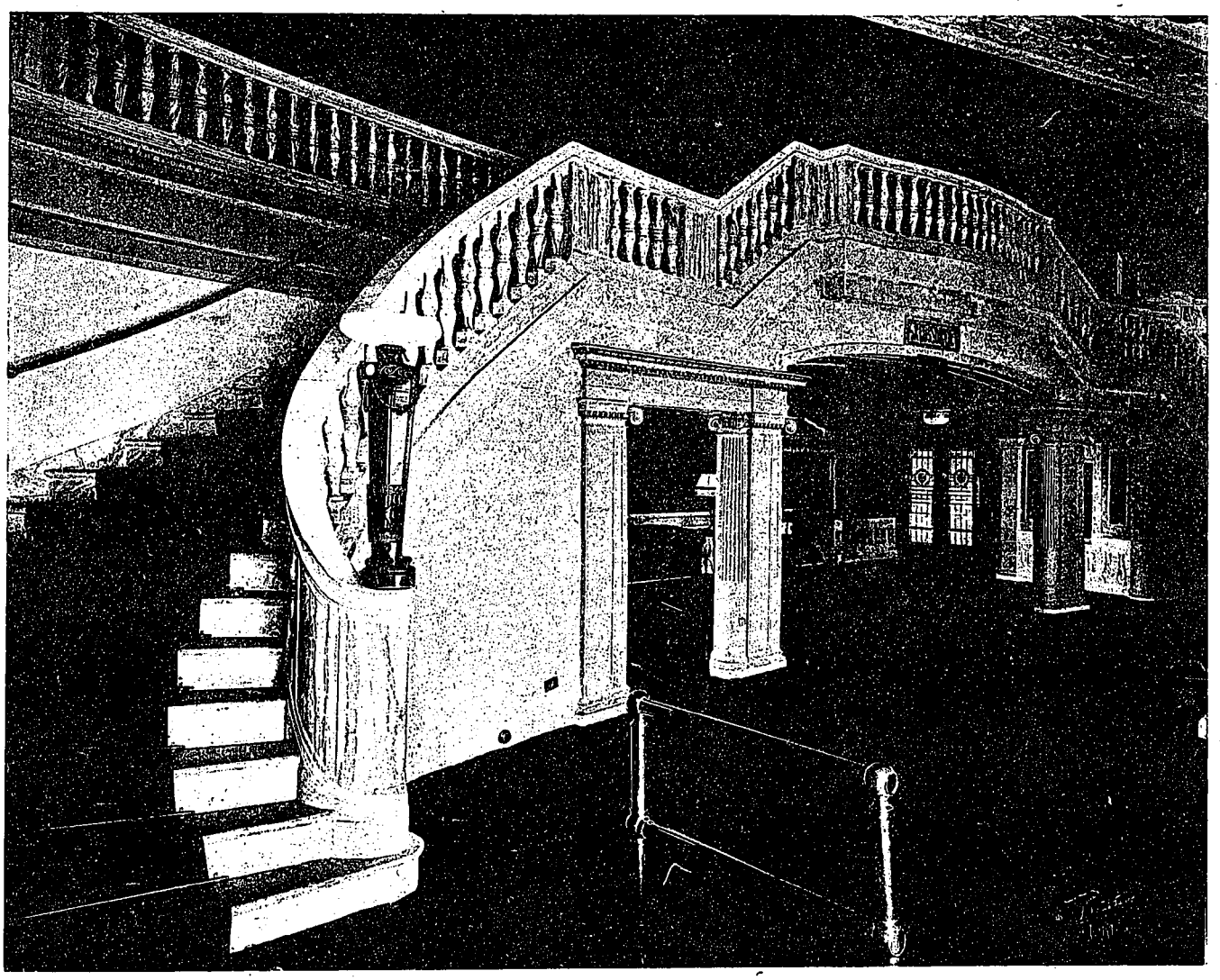
DETAIL OF BOXES.

THOMAS W. LAMB, ARCHITECT.

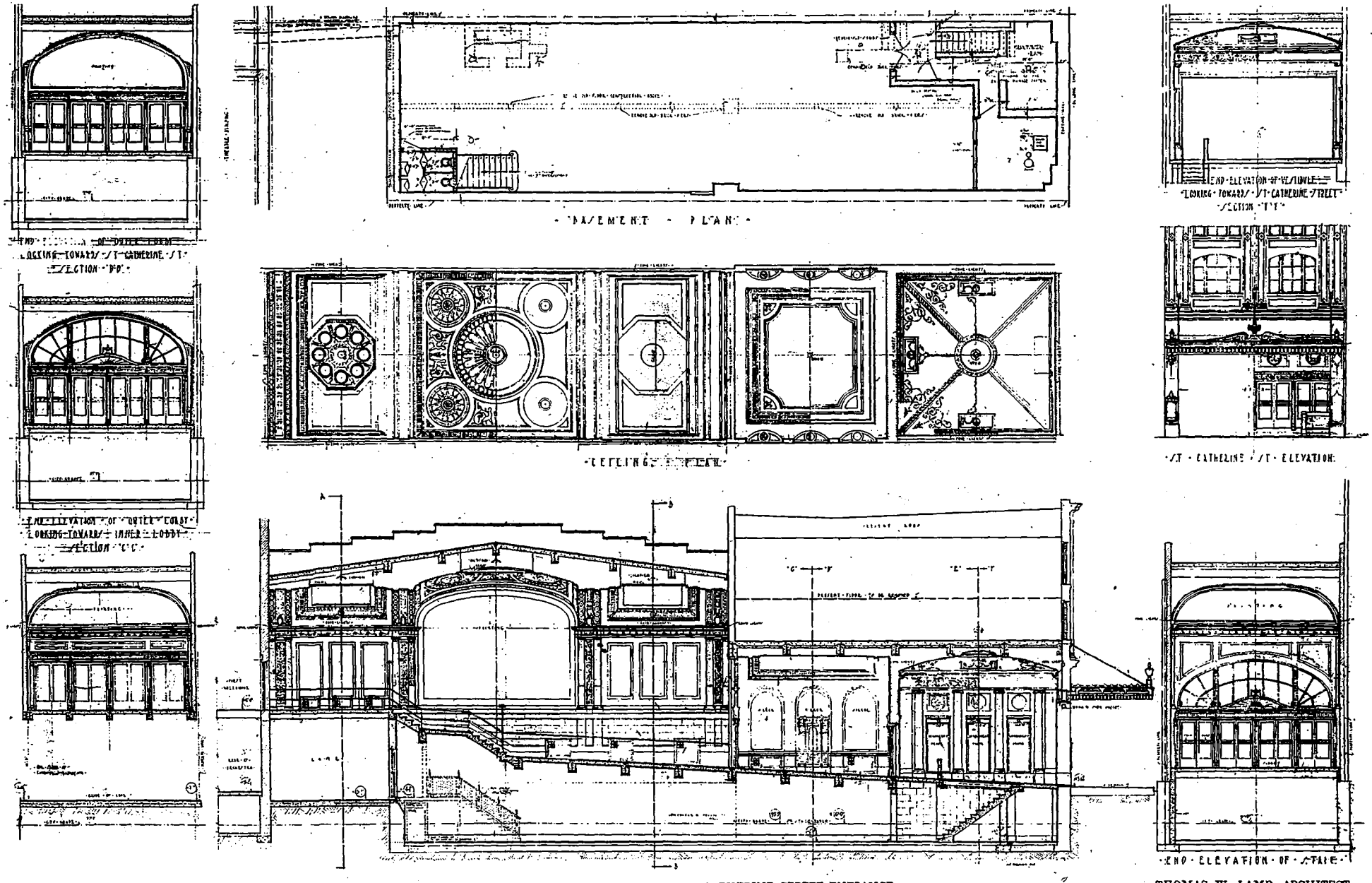


MEZZANINE PROMENADE, LOEW'S THEATRE, MONTREAL.

The mechanical equipment of the building includes the most approved appliances, and every device of this character which might add to the comfort of the patrons has been installed. The



GRAND STAIRCASE, LOEW'S THEATRE, MONTREAL. THOMAS W. LAMB, ARCHITECT.

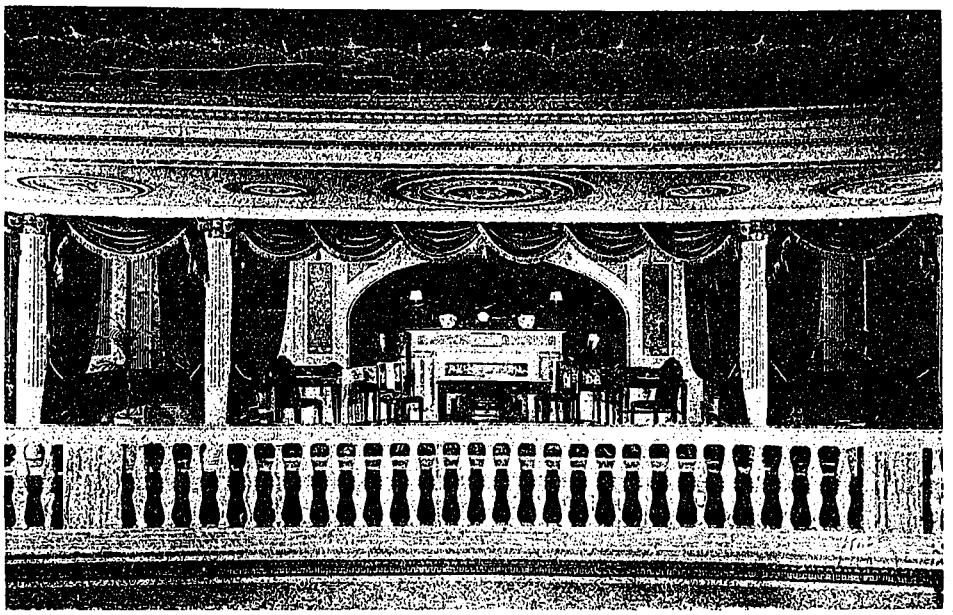


LOEW'S THEATRE, MONTREAL.

SECTION OF LOBBY AND ST. CATHERINE STREET ENTRANCE.

THOMAS W. LAMB, ARCHITECT.

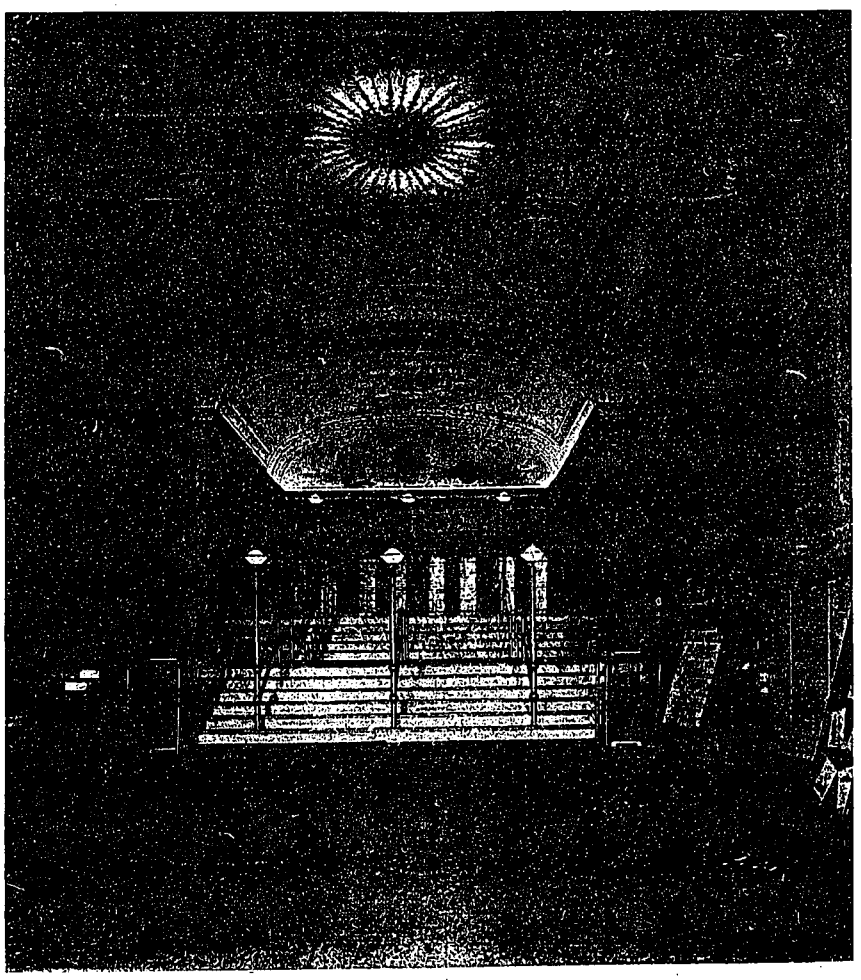
temperature of the building during the summer months is regulated by means of an up-to-date cooling plant, while a modern heating and ventilating system warm the structure when necessary, and furnishes a continuous supply of freshly washed and tempered air to all parts of the auditorium.



REST ROOM, MEZZANINE PROMENADE, LOEW'S THEATRE, MONTREAL.

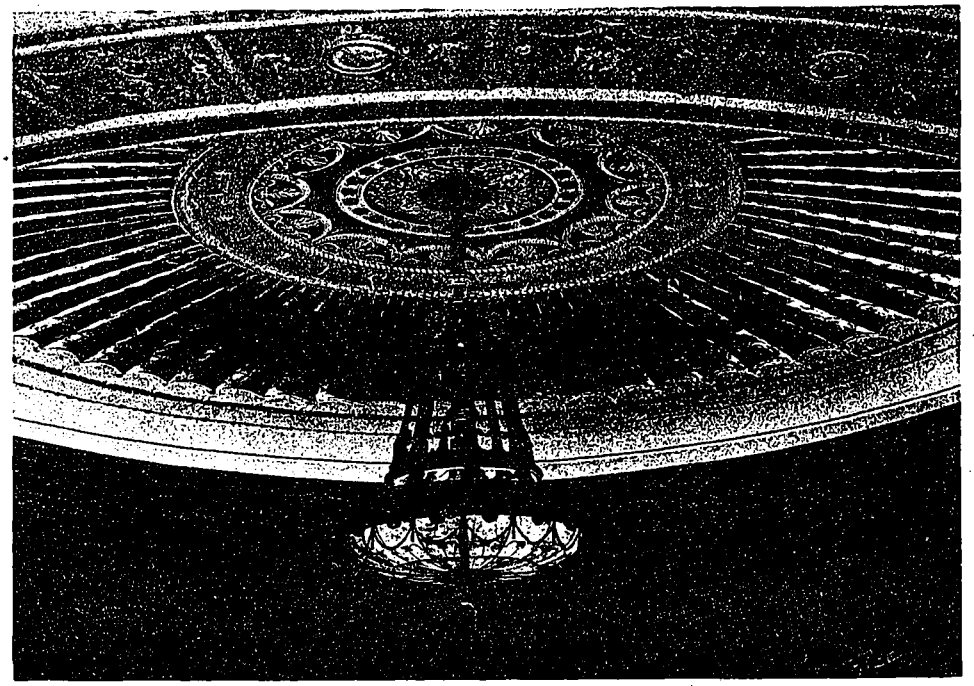
Scenery and Stage Decoration

Scene painting as we know it is the youngest of the arts. During the two hundred years or so that it has been practised, nine-tenths of it has been purely pictorial. Without, therefore, discussing the pros and cons of purely decorative and symbolic settings, I propose to consider certain phases of pictorial composition as applied to scenic design, my aim being to try to make it clear that the traditions that have developed during the past two centuries are so fundamentally applicable to the problems of to-day as to render it unnecessary and highly undesirable that they should be supplanted by a new set. A study of the various collections of paintings which include French and Italian works of the seventeenth and eighteenth centuries reveals a new point of view, particularly noticeable in France in the work of Claude, Watteau, and Hubert Robert, and in Italy in that of Pannini, Ghisolfi, Maglinolo, Carlevaris, Canali, Visentini, and, perhaps greatest of all in the dramatic power of his composition, Piranesi.



ENTRANCE LOBBY, LOEW'S THEATRE, MONTREAL.

In the works of these masters the picture has become a tableau. The frame is a proscenium through which we look out into a stage setting, theatrically arranged and readjusted in all its parts. The reduction of the relative size of the frame to secure the predominance of the important actors, groups, or objects (one of the most familiar expedients of the painter, both past and present), is no longer resorted to. The human figure is kept small in scale as compared with the total area of the picture, emphasis being secured by carefully arranged areas of illumination, and sometimes by violent contrasts of light and shade. So much emphasis has been laid upon the idea that these features of the later renaissance indicate artificiality and decadence that one is apt to overlook the fact that they also indicate a development of dramatic consciousness under which not merely persons, but trees and

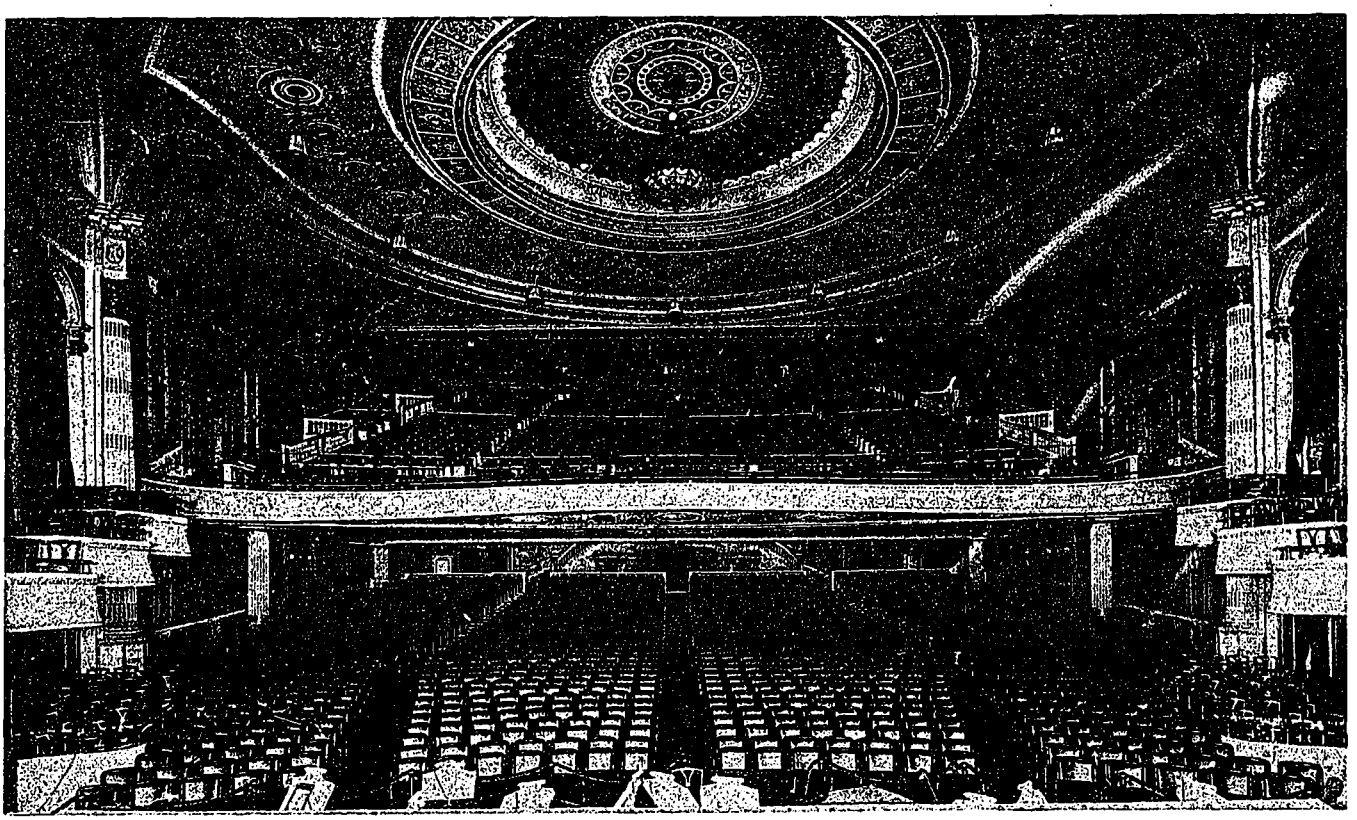


DETAIL OF CEILING, LOEW'S THEATRE, MONTREAL.

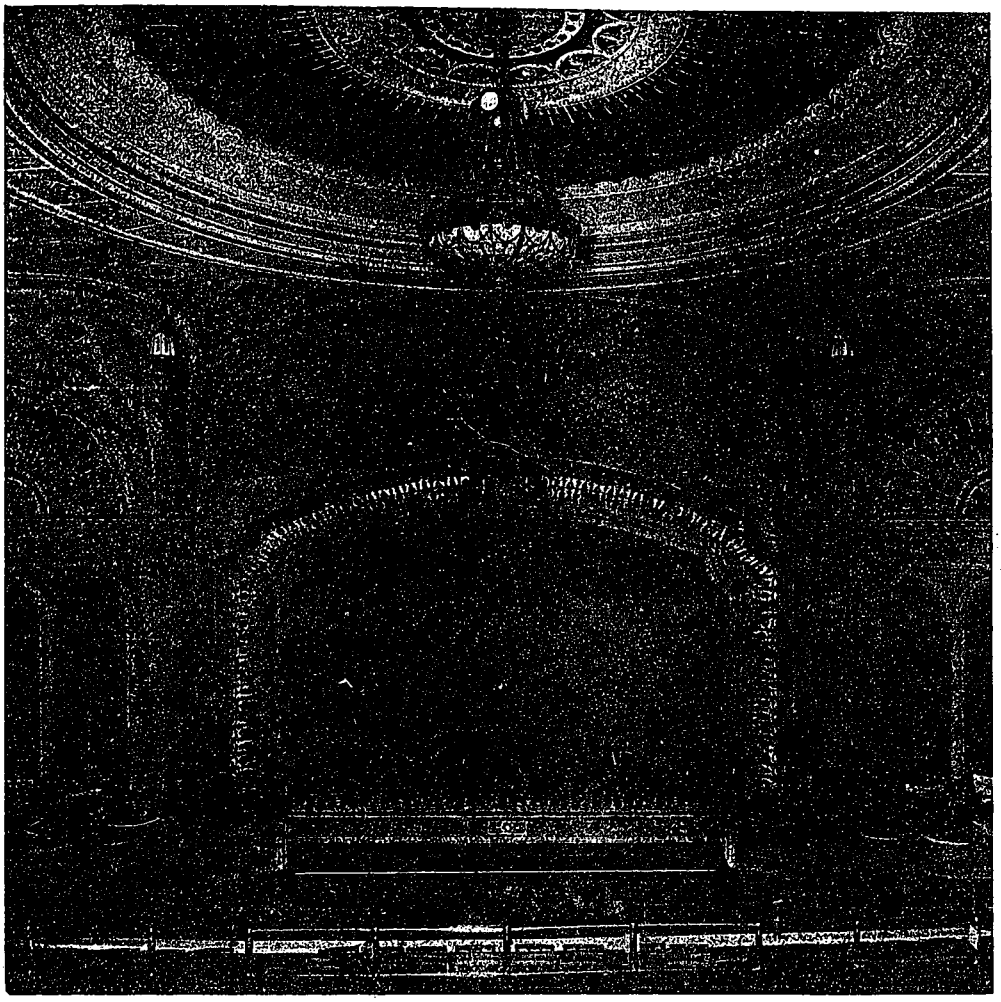
rocks, architecture and sculpture, mountains and rivers, valleys and lakes, were all brought into a studied relation, unreal and theatrical, if you like, but thoroughly in harmony with the theme, beautifully and sympathetically rendered and containing the elements that make for style in decorative art.

Certain of the works of these men who seem to me to have been in great measure the originators of the traditions which, even though they have come down to us in sadly mutilated form, are well worth the labor of picking up, piecing together, and going on with. Although the qualities which gave distinction to these "old masters" of scene painting have almost disappeared from scene painting, they are still present in many interesting and varied forms in modern pictorial art. The works of Corot, Boecklin, Gaston La Touche, Rene Menard, and Frank Brangwyn, would furnish inspiration for a whole generation of scene painters, whether in the field of poetic fantasy, vivid impressionism, atmospheric mystery, weird and somber imagery, gracious pastoral simplicity, or vigorous emphasis of reality. If the modern designer can arrive at a definite conviction as to the sentiment to be expressed in a given work, there is no lack of precedents and traditions as to how to achieve the thing he is seeking.

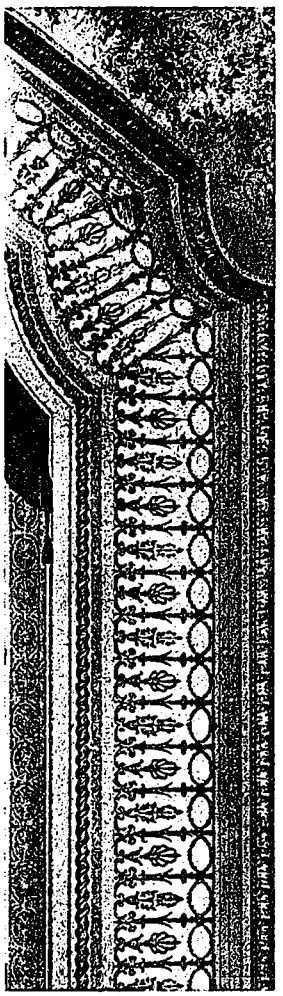
If scenic design were a matter of composing a single tableau, many of its difficulties would disappear, but a play, and often a single act of a play, is a succession of changing tableaux, some of them formal, static and climacteric,



AUDITORIUM, LOEW'S THEATRE, MONTREAL. THOMAS W. LAMB, ARCHITECT.

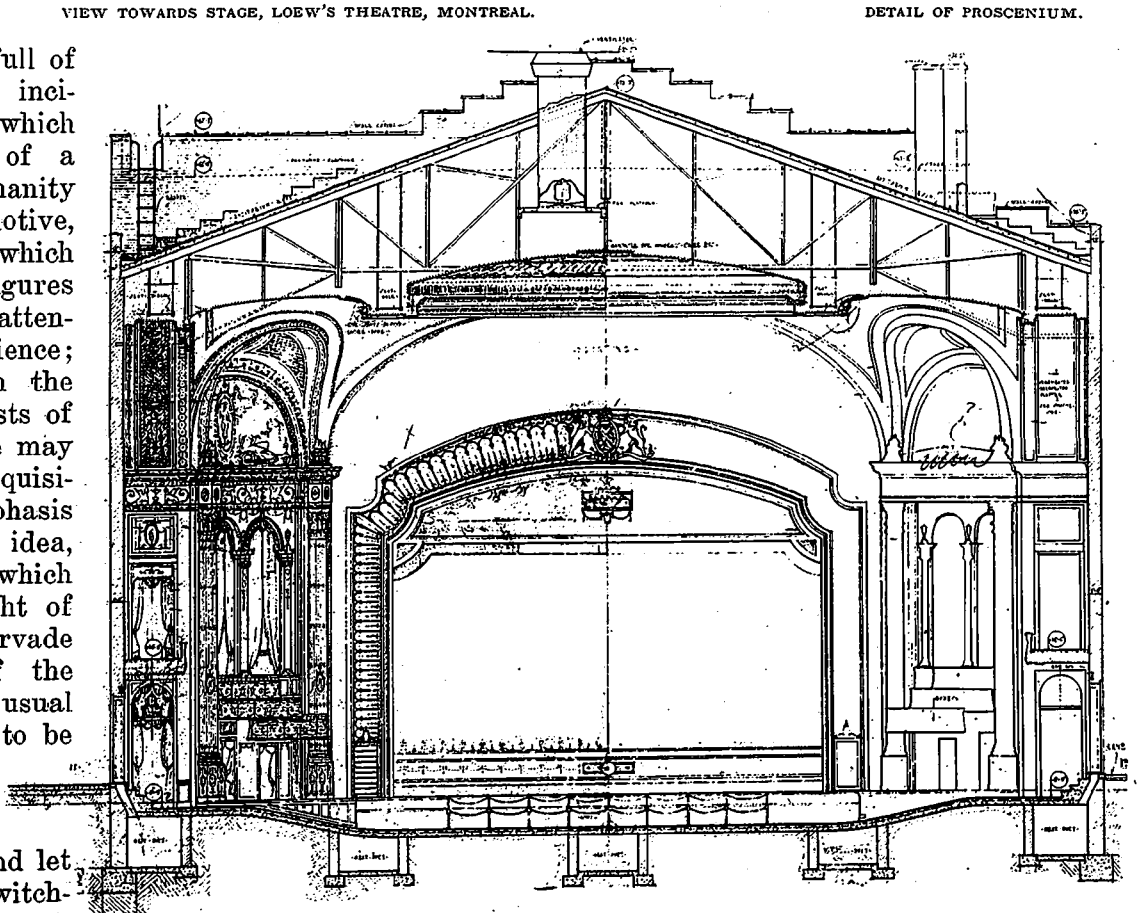


VIEW TOWARDS STAGE, LOEW'S THEATRE, MONTREAL.



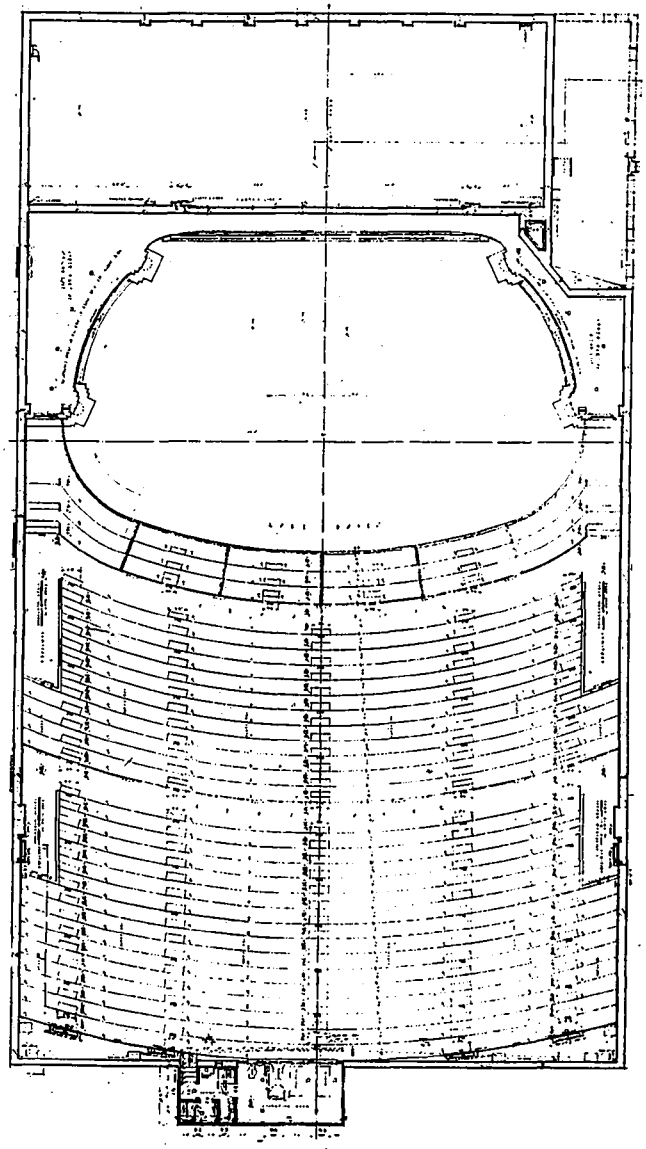
DETAIL OF PROSCENIUM.

others casual, full of movement, and incidental; some in which the grouping of a crowd of humanity supplies the motive, and some in which one or two figures must usurp the attention of the audience; some in which the greatest contrasts of light and shade may be called into requisition for the emphasis of the dramatic idea, and some in which the common light of day must pervade every part of the scene. The usual practice seems to be to design the scene for its most important moment, and let the man at the switchboard do the rest.

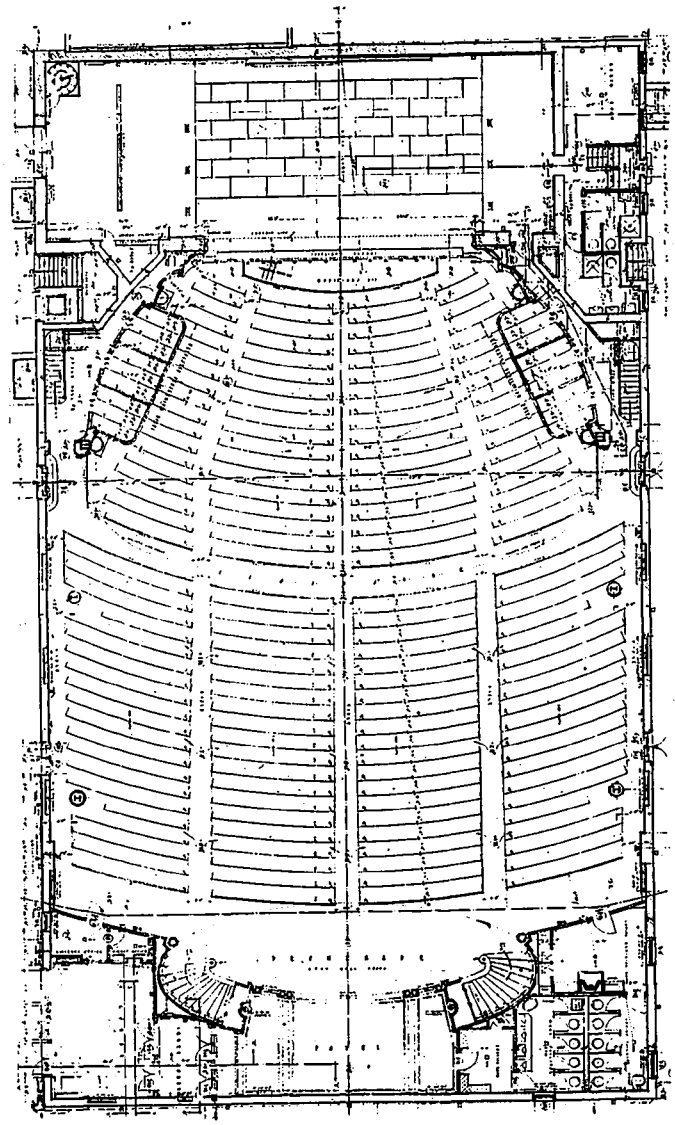


CROSS SECTION, LOEW'S THEATRE, MONTREAL.

THOMAS W. LAMB, ARCHITECT.



BALCONY PLAN, LOEW'S THEATRE, MONTREAL.



ORCHESTRA PLAN, LOEW'S THEATRE, MONTREAL.

This is why the average theatre-goer has ceased to expect real scenic beauty except at those rare moments when the attention of the audience is supposed to be concentrated upon some natural phenomenon, such as the rising of the moon over the garden, or the sunset in the Alps, and when the magic moment has passed the lights are shifted back onto the actors, and the play goes on with little thought of the scenic harmony, that might be a continuing sympathetic element, but is not.

My object is not to attempt to formulate rules, or to go into a detailed discussion of methods, but rather to stimulate an interest in scenic design, and its particular problems, among those whose artistic training in other fields should fit them to become leaders in the development of a saner, more truly modern and logical public opinion in these matters.

If we take as a basis the stage of the average theatre, our stage picture as viewed from the rear seats of the theatre becomes a composition framed by a rectangle of which the width is, say, about thirty-five feet, and the height is about two-thirds of the width. Viewed from that point the back drop fills the frame with little need of any borders or wings to mark the sides of the stage, but the rear seats are not the ones most desired, and from any point in the forward half of the theatre the exaggerated perspective caused by the fact that the back drop is almost twice as far from the observer as the proscenium arch, brings the proscenium arch too near to him to preserve its function as a picture frame, gives to the sides of the stage an importance in the composition relatively greater than that of the back drop, and necessitates the establishment of some features in the composition that will compensate for the loss of its natural frame.

When we consider this violence of the perspective due to the nearness of the majority of the audience to the actors and scenery, it becomes evident that the perspective should not be forced into still greater prominence, but, as far as possible, rendered unnoticeable. There is probably no error more commonly seen or more fatal to the integrity of the stage picture than the effort to make the stage appear larger than it is by a forced and unreal perspective. That

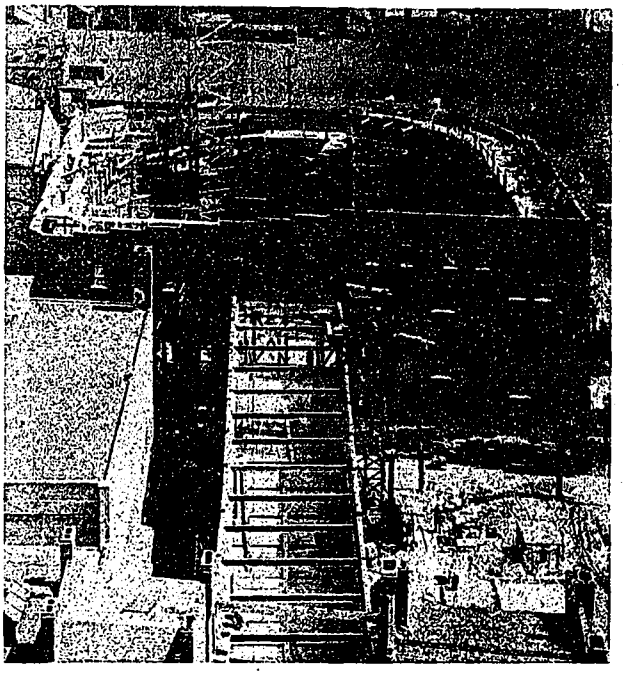
(*Continued on page* 56.)

Loew's Theatre, Hamilton, Ontario

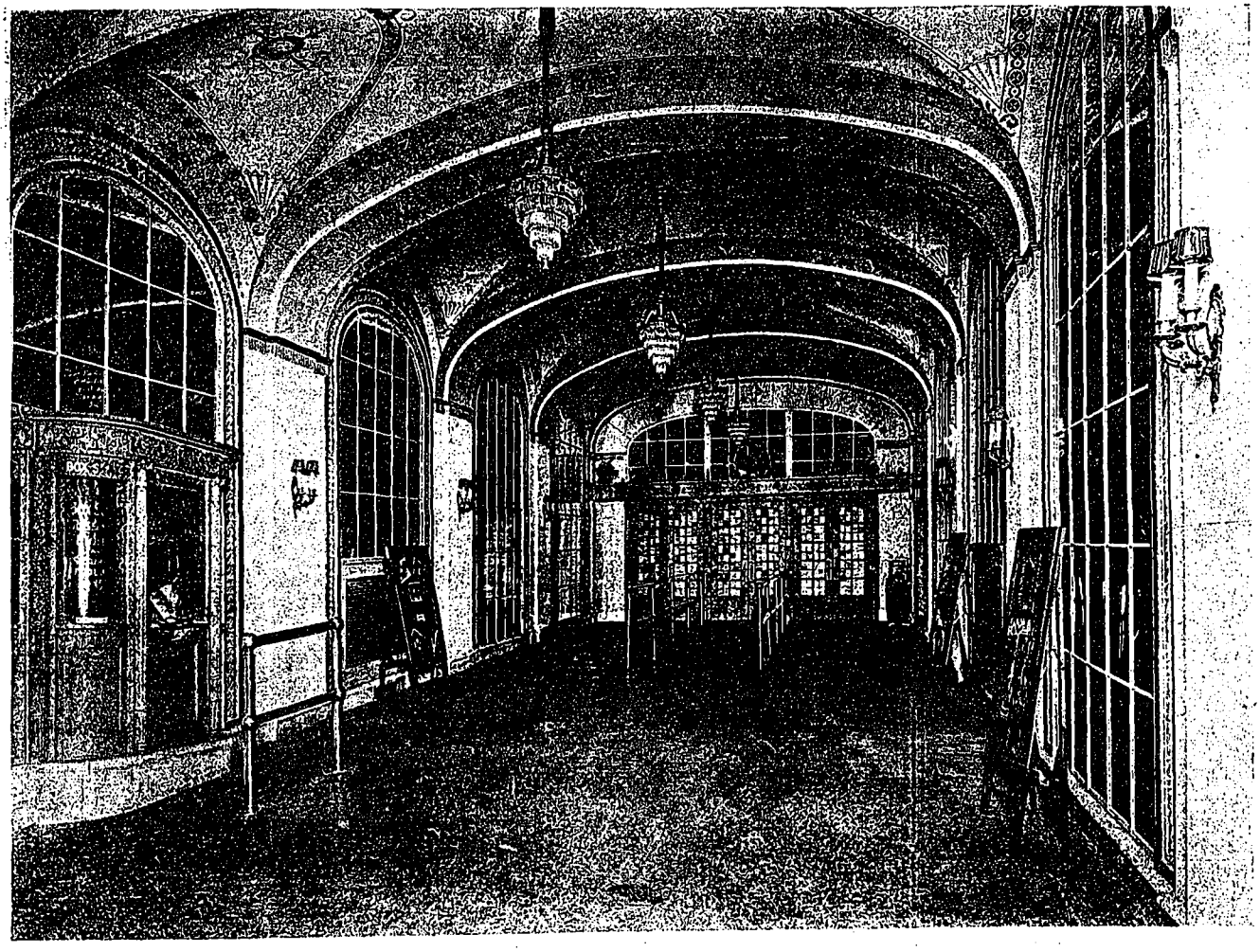
THOMAS W. LAMB, Architect

SITUATED opposite the Royal Connaught Hotel in the heart of the down town district, the new Loew's Theatre recently opened at Hamilton is indicated more by the street canopy and electric sign, than by any external architectural prominence. Like the play-houses on this circuit at both Toronto and Montreal, the exterior is of secondary importance to the interior architectural scheme, and merely serves as a street entrance running through to a rear auditorium. This feature of the general plan is illustrated in the accompanying progress view, which shows the entrance, or outer lobby, extending from the street to the building itself. The length of the lobby is one hundred and forty feet, by a width of only twenty feet, but the decorative treatment is such as to make it both distinctive and interesting in character. The walls are of Caen stone set in with mirrors in ornamental frames, and, together with the vaulted ceiling and decorative plaster work and rich colors of the mosaic floor, presents an attractive approach to the interior.

At the end the lobby connects with a spacious foyer situated on the mezzanine floor, and having as a feature a balustraded light well opening to the floor below. This foyer communicates

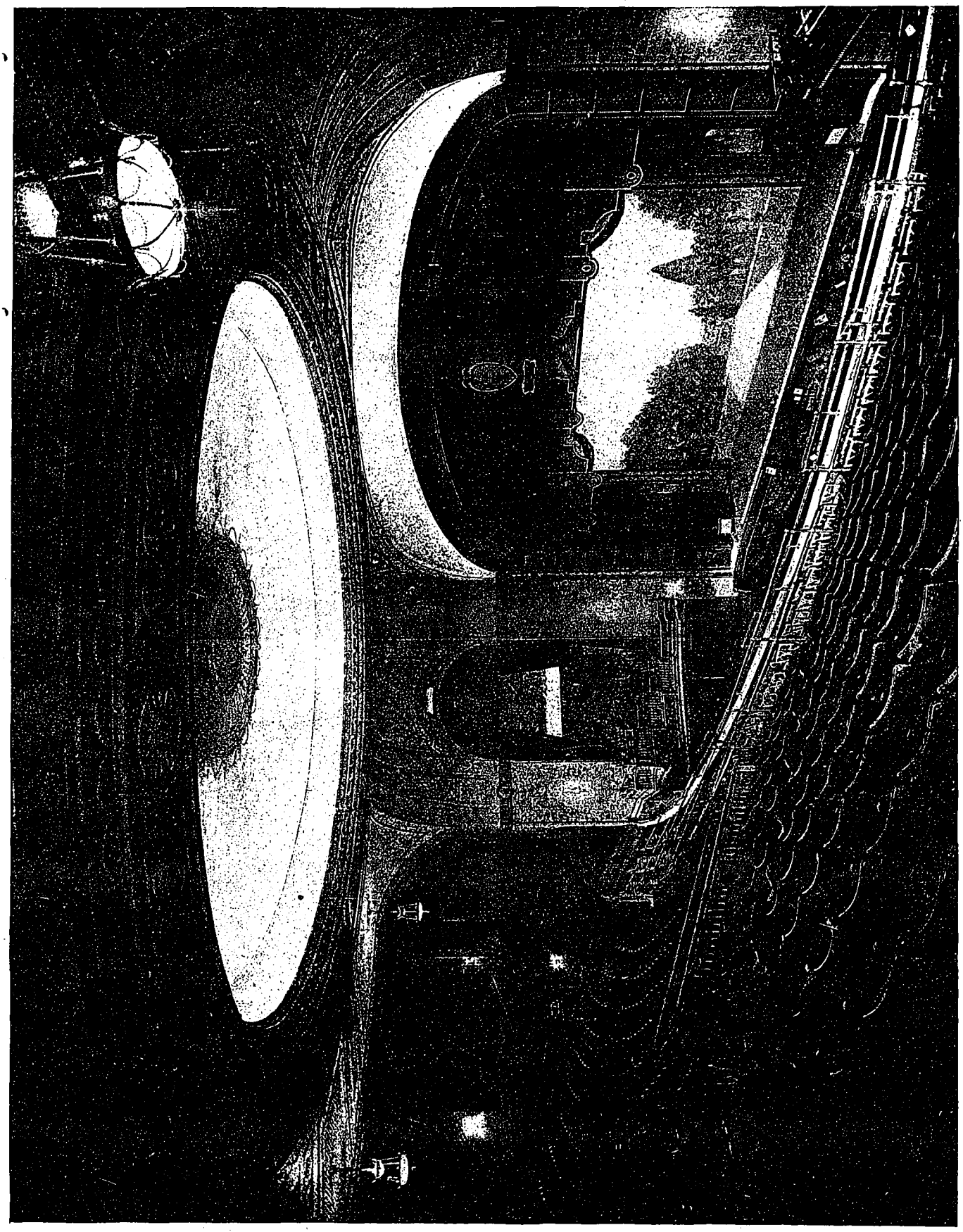


PROGRESS VIEW SHOWING APPROACH FROM STREET.

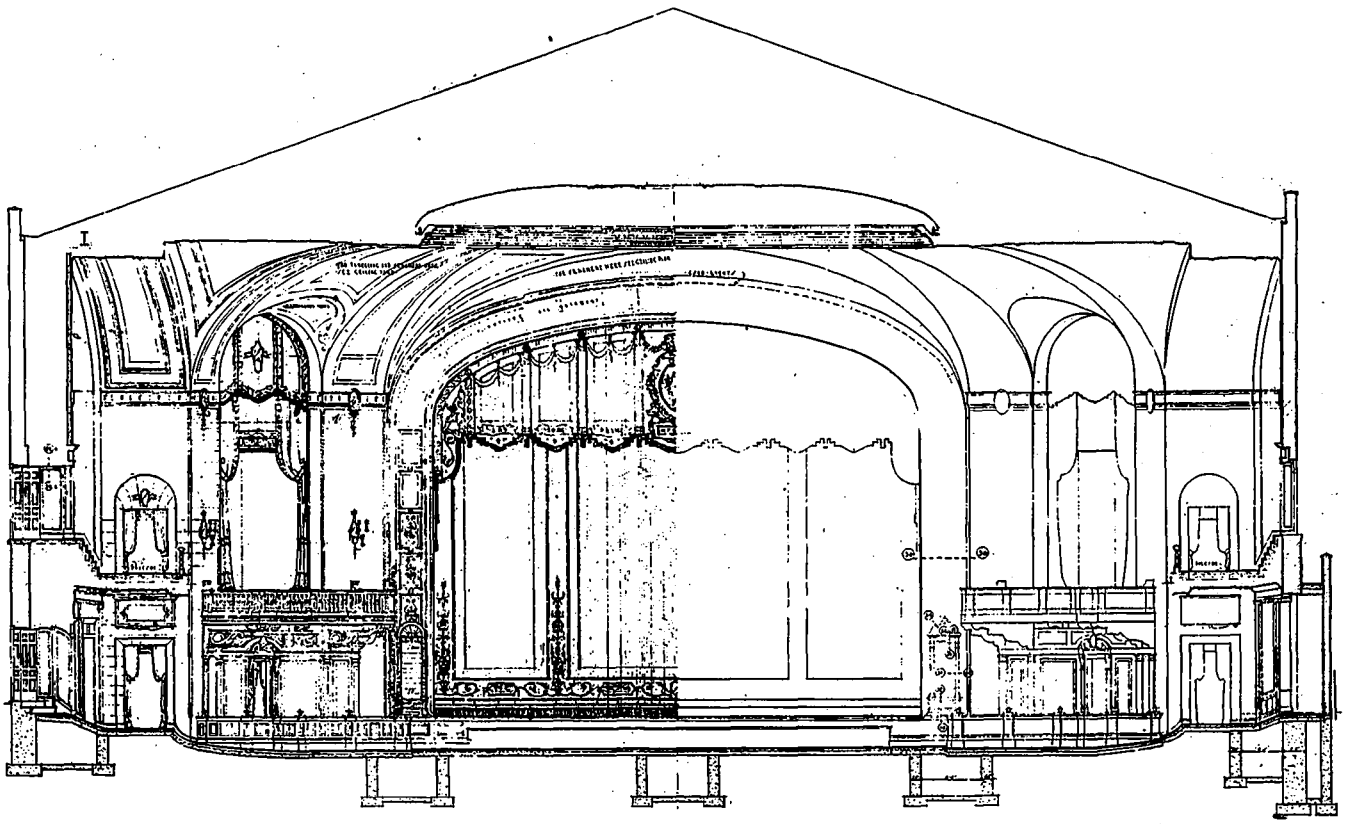


ENTRANCE LOBBY, LOEW'S THEATRE, HAMILTON, ONT.

THOMAS W. LAMB, ARCHITECT.



LOEW'S THEATRE, HAMILTON, ONT. VIEW OF AUDITORIUM. THOMAS W. LAMB, ARCHITECT.

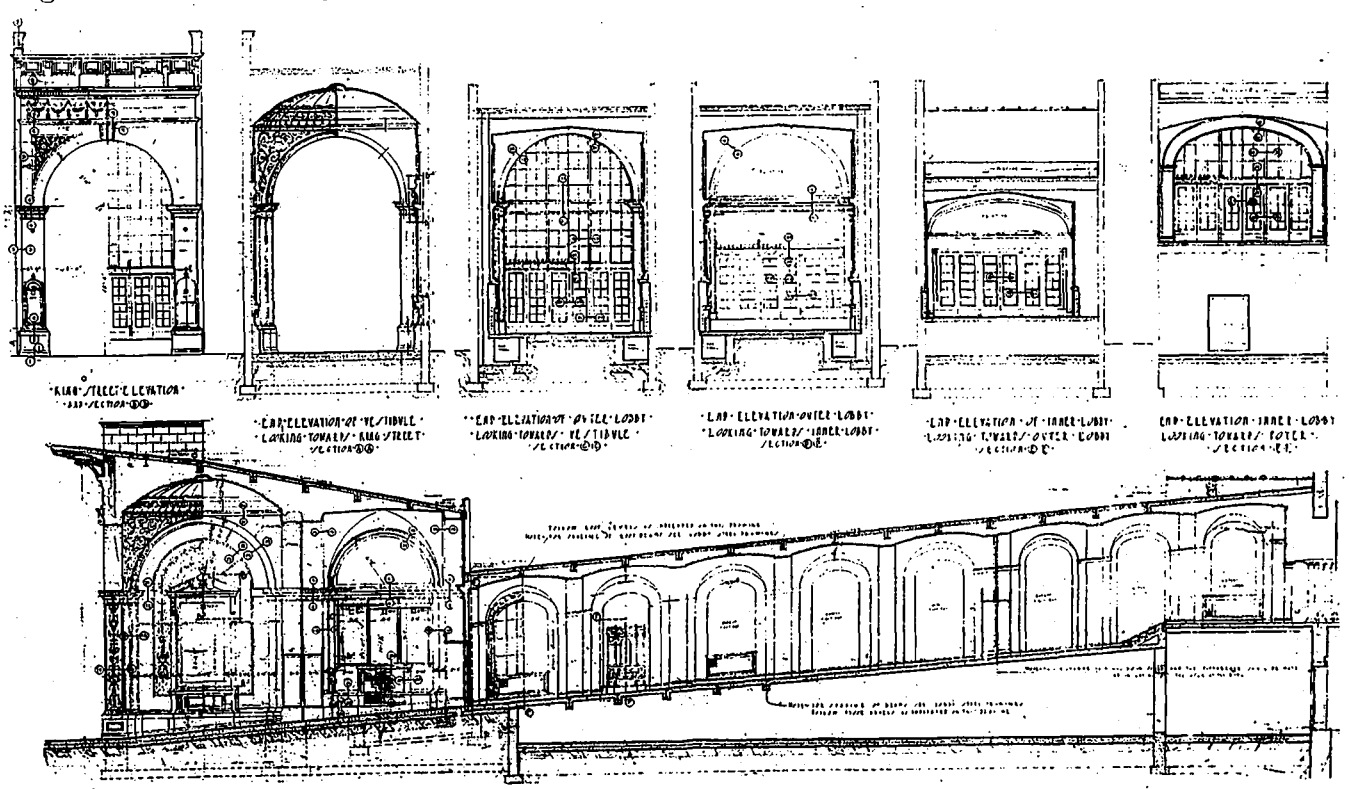


CROSS SECTION, LOEW'S THEATRE, HAMILTON, ONT.

ing as a feature a balustrated light well opening to the floor below. This foyer communicates with the orchestra and balcony with equal convenience of access to both the upper and lower parts of the house.

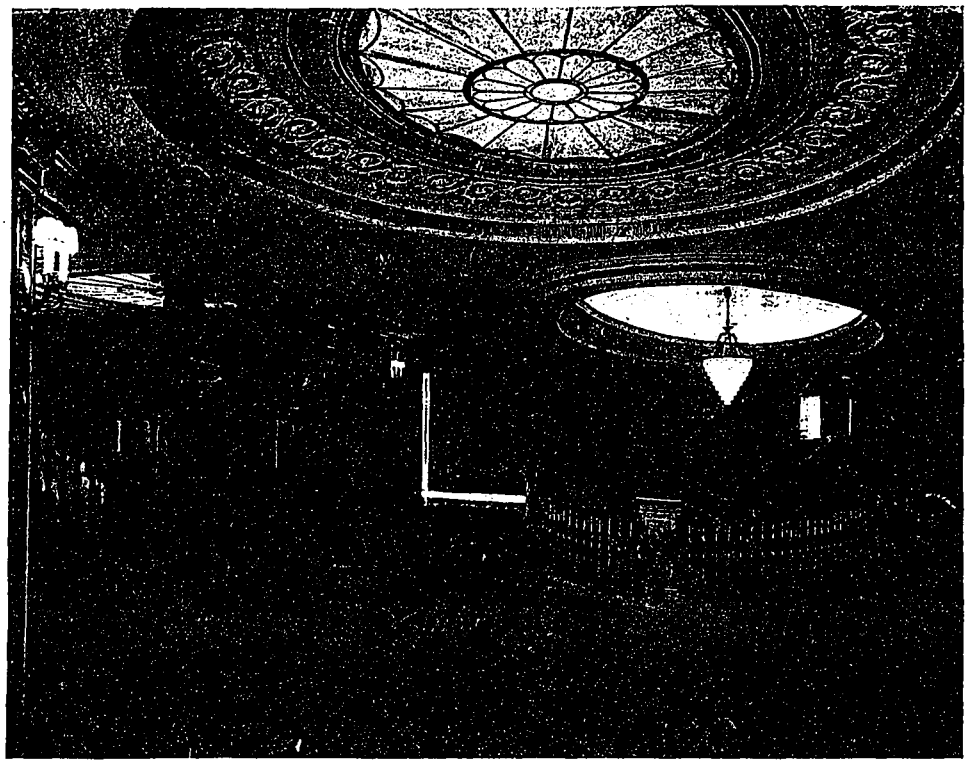
From the foyer, one passes down the grand staircase to the orchestra which is circular in form, with rich tapestries carefully worked into the design, and an immense domed ceiling having its ornament arranged and designed in conjunction with a system of indirect lighting. The treatment is in modernized Italian, intermingled with the Adam style, and so handled as to give the whole a luxurious and refined character.

The auditorium proper covers sixteen thousand square feet, and seating is provided for one thousand three hundred people in the orchestra, with accommodation for over a thousand more in the balcony above. Every feature which might contribute to the comfort and con-



SECTIONS THROUGH LOBBY, LOEW'S THEATRE, HAMILTON, ONT.

THOMAS W. LAMB, ARCHITECT.

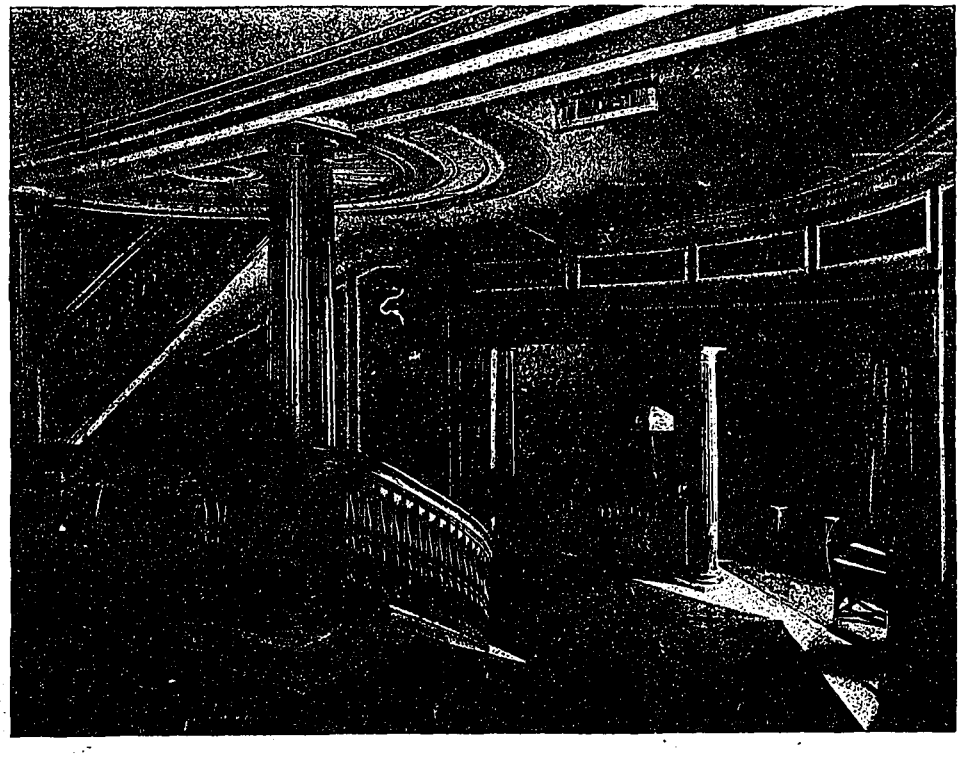


MEZZANINE FOYER, LOEW'S THEATRE, HAMILTON, ONT.

venience of the patrons has been provided, with special attention being paid to the system of heating and ventilating, which is in keeping with the most modern approved methods.

In addition to the main foyer, a secondary foyer and lobby give access to the theatre from King William street, with ample rest rooms, toilets and smoking-room adjoining, the arrangement and decoration of which shows the same care to detail that has produced such an excellent result of the aesthetic and practical in the general scheme throughout.

The necessity of desiging a building that would adapt itself to the irregular angles of the site presented an interesting problem, and has produced a plan which is somewhat unusual. The scheme is indicated in the accompanying floor plans which show a circular auditorium with a rather ingenious and compact general arrangement.



STAIRCASE TO ORCHESTRA, LOEW'S THEATRE, HAMILTON, ONT.

Scenery and Stage Decoration

(*Continued from page* 52.)

portion of the stage which is to be used by the actors should be treated in all its parts, from front to back, absolutely in scale with the living figures that are to occupy it. The adoption of this principle of scene composition results in establishing a very definite distinction between the foreground and the background, and greatly simplifies the problem of arranging a definite line of demarcation between the "practical" scene building of the foreground and the pictorial treatment of the background. If we once lose the sense of scale in a stage setting the loss is irreparable, and there is nothing that has so frequently caused us to lose it as the introduction of a middle ground, accessible to the actors, and used by them, but designed in a reduced scale as a transition between the foreground and the background.

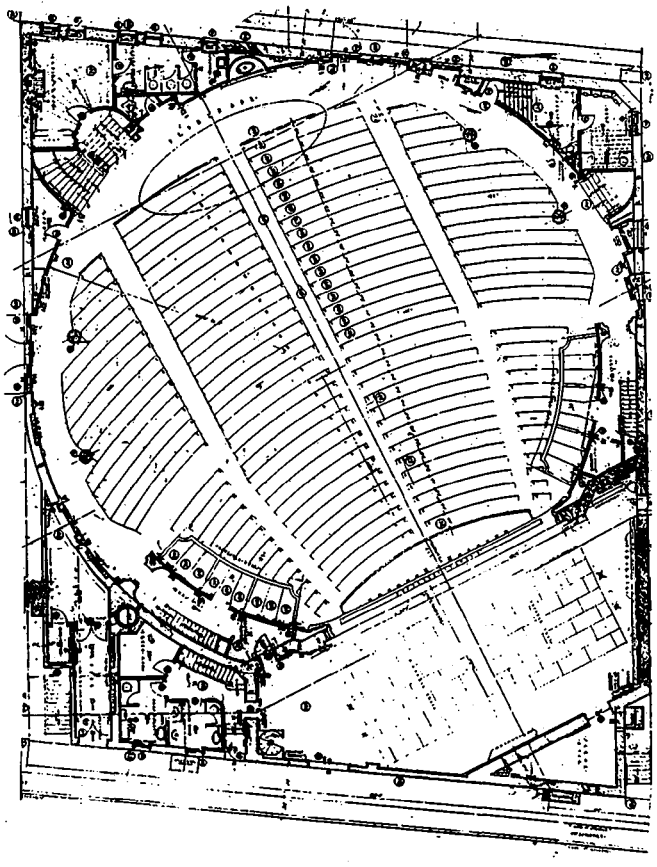
The greatest single problem of scenic design is the preservation of the relative importance of the actors as compared with the great space which comes within the field of vision. There are three distinct methods by which this can be accomplished —light, color, and pictorial composition. Light and color are most frequently relied upon, but to accomplish that result by these means frequently involves the sacrifice of other qualities which for the moment may be of more

REAR AUDITORIUM VIEW, LOEW'S THEATRE, HAMILTON, ONT. THOMAS W. LAMB, ARCHITECT.

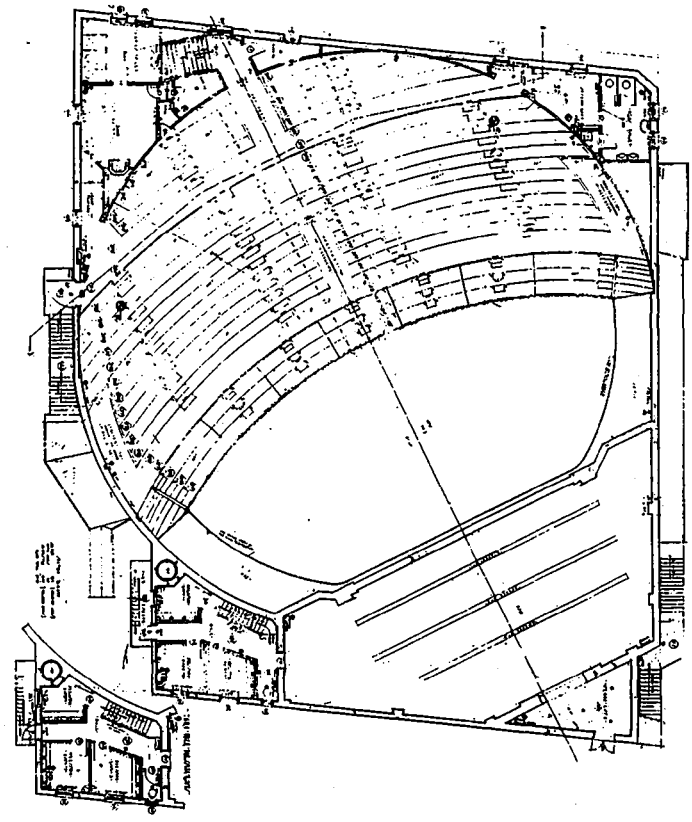
importance to the general effect desired, whereas, if it can be achieved definitely by the arrangement and massing of the composition, it will persist through all the changes of lighting, color and grouping of figures that the exigencies of the production may demand.

In connection with this point it should be remembered that the average size of a theatre and the consequent size of the stage (for the size of the stage is the direct resultant of the size of the theatre) is not determined by any sense of just proportion between the size of the stage and the performances to be given upon it, but is a severely practical matter dictated by the box office. It is probably no exaggeration to say that six out of every ten dramatic productions could be presented upon a much smaller stage than that used, with a marked improvement in the integrity of the performance. If there is one dominant characteristic of the modern play as compared with the older works, it is the intimacy of its conception, the extent to which the action centres in a few important personalities, yet a proper concentration of scenic interest is one of the rarest qualities in a modern stage setting, and when this quality is achieved it is apt to be by means of great empty spaces which are not mysterious and stimulating to the imagination, but merely blank. Right here the work of the eighteenth century is full of suggestion. When the decorator of that period wished to introduce a pictorial composition of great daintiness into a space so large as to be entirely out of scale with it, he created a vignette, a passpartous, a frame within a frame, thus merging the pictorial interest by proper graduations into an outer zone of greater simplicity, but neither empty nor devoid of interest, increasing the

LADIES' REST ROOM, LOEW'S THEATRE, HAMILTON, ONT.



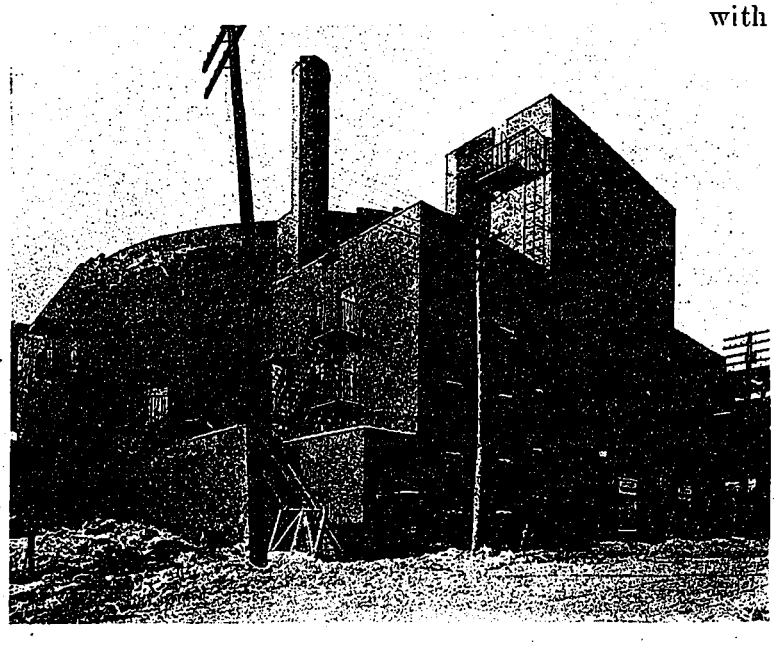
BALCONY PLAN, LOEW'S THEATRE, HAMILTON, ONT.



ORCHESTRA PLAN, LOEW'S THEATRE, HAMILTON, ONT.

importance of his picture and causing it to dominate an entire wall without enlarging its scale or losing the intimacy of its appeal. In scenic design this outer zone becomes of vast importance, especially to those in the front seats. It is the "tormentors," the "borders," the "wings," the "grand draperies," that are the most prevalent causes of trouble. If used intelligently they may become the means whereby the pictorial interest of the stage expands, and, as it were, envelopes the audience, or they may serve equally well the opposite function and carry the simplicity of the theatre walls in beyond the curtain line to meet and merge into the stage picture. In most cases they are an inharmonious element related neither to the theatre nor the stage setting, and their only excuse is the practical service they perform in masking the gridiron, border lights and stage walls.

I have spoken of the advantages of a small stage in preserving the proper dominance of the actors. During the past year or two there have been several interesting experiments in this direction, but those that I have seen have erred through the endeavor to compress too much material into the limits of the small stage, instead of using the reduced size as an opportunity to eliminate unnecessary things, and maintaining the full scale of the essentials that are preserved. In this matter the reform has to begin with the writer of the play. Playwrights seem deficient in the constructive imagination that is requisite to formulate stage directions that can be carried out with dignity and simplicity. Anyone who has ever been connected with the preparation of an elaborate production in which the directions of the playwright have been scrupulously followed, will remember the exodus of van loads of useless "truck" which takes place about the time of the final rehearsals, due to the simplification and elimination which is inevitable under competent management and stage direction, but which, if it had taken place at an earlier stage of the proceedings, might have imparted directness and vigor to the result, instead of leaving it meager and unfinished in spots. — *J. Monroe Hewlett, in "The American Architect."*



REAR VIEW, LOEW'S THEATRE, HAMILTON, ONT.

Heating and Ventilating of Theatre Buildings

By N. A. KEARNS*

ALTHOUGH the heating and ventilating of public buildings has always been a subject of paramount importance, it has only been in recent years that the public in general have taken any considerable interest in the heating and ventilating plants installed in these buildings. Perhaps this is due to the fact that designers of the mechanical equipment of buildings have endeavored to make their work as inconspicuous as possible, and it was only when the occupants of a building were blissfully unconscious of such things as atmosphere and temperature that the designers of the plant felt that they had scored a decided success.

The public have been educated by their visits to the higher grade theatres to expect some degree of comfort in the cheaper theatres, and no longer are they satisfied to sit in poorly heated and ventilated buildings.

It is in the choice of heating and ventilating equipments for these buildings that the information contained in this article may be of some value. All theatre buildings do not require the same equipment, and, in providing a method of supplying the necessary heat and pure air to the building, we must be in a position to know to what extent we are justified in spending money on such refinements as duplicate parts, air washers, coolers, humidity and temperature control, etc., etc.

It is not our intention to present in this article any of the formulæ generally used in the design of heating and ventilating plants, nor to take the position of advocating any one type of apparatus, but rather to give in a general way descriptions of the various installations found in well ventilated and heated buildings. It must be borne in mind that different types of theatre buildings require different designs of heating and ventilating plants. For instance—a moving picture house that is in almost constant use requires a ventilating system designed along somewhat different lines to that of a theatre used only for a few hours each day.

The requirements of a heating and ventilating plant in a theatre building are:

A temperature of 65 to 70 degrees Fahr. above zero in the coldest weather, and a fresh air supply of from 1,200 to 1,800 cubic feet of fresh air per occupant per hour, together with a relative humidity of 35 per cent. to 60 per cent., depending on the temperature of the air. The item of air supply depends on the method of distribution. With a uniform distribution of air, the lower figures may be used. The ventilating may be made an integral part of the heating system, or it may be installed as a separate unit, but the ventilating system should be so designed that it may be used for the purpose of heating the building in the spring and fall. No natural or gravity system for the successful ventilating of theatre buildings has yet been designed. It is therefore necessary to ventilate the building by means of fans. These fans may be installed as exhausters of foul air or as pressure fans driving fresh air into the building. Frequently a combination of pressure and exhaust fans are installed in large buildings, and generally this combination gives satisfactory results.

In the pressure or "Plenum" system, fresh air is drawn in through outside openings, preferably situated high enough to be above street dust. The air is drawn through a heater made up of pipe coils, or cast iron radiators with extended heating surfaces, where it is heated to the desired temperature and passes to an electric or steam driven fan that drives it on to the distributing ducts. These ducts may be in the form of plenum chambers having openings with mushroom heads situated under the seats, or the ducts may connect with flues in the side walls, or at such other convenient points as the conditions of the design may prescribe. If the fresh air enters the auditorium close to the floor, the exhaust openings may be situated in the side walls with ducts leading from thence to the exhaust openings in the roof, or the vent faces may be incorporated in the ornamental design of the ceiling. These vent outlets may be connected to an exhaust fan. The exhaust fan may be omitted where the theatre is not used for any considerable time at a stretch.

Where the air is used for heating the building it is necessary to drive the air into the audience room above the heads of the occupants, and draw the cold air out at the floor line. Some provision must be made for the returning of air to the point where the air is heated in the basement, so that when the building is unoccupied the same air may be used over and over again. This will effect a considerable saving in fuel, as well as providing a more rapid method of heating than could be secured by means of direct radiation only. The heat given by circulation seems to be more pleasant in its effect than that given by radiation.

The downward extraction of foul air does not work as well during the hot summer months as it does during the winter, so it is necessary to arrange a system of valves at the fan room and the return air ducts, so that the current of air may travel in a reverse direction to that dur-

* Heating and Ventilating Engineer with The Spencer Heater Company of Canada, Limited.

ing the winter months. This means that during the summer months the foul air is taken from the building at the ceiling line, and the fresh air is driven into the building at the floor line.

Some theatre buildings are heated and ventilated by means of direct-indirect radiators and an exhaust fan. The direct-indirect radiators are placed at intervals along the outside walls and these radiators are fitted with special bases to permit a varying amount of cold air to enter from the outside, the air being heated by the radiator as it passes to the auditorium. Foul air vents are located at the ceiling line for summer use, and a system of compensating valves, etc., provide for the closing of the ceiling vents when the floor vents are open, and vice-versa. The vent faces are connected to the exhaust fan situated in a small room in the space between the roof and ceiling. Although the exhaust fan may be proportioned with its connecting ducts, etc., to handle a fixed amount of air, it has generally been found difficult to control the quantity of air flowing through the opening at each radiator. Every opening in the building also allows air to leak through to the auditorium, thus making it almost impossible to control the supply or the temperature of the incoming air.

Cloak-rooms, closets, etc., should be connected to an independent exhaust fan entirely separate from the balance of the ventilating system in the building. The machine booth should have an outside air supply and a small exhaust fan that is directly under the control of the occupant of this room, as these men are generally better satisfied when they have the control of the heating and ventilating in this part of the theatre entirely in their charge. This is the only portion of the building where an employee outside of the regular boiler attendant should be permitted to touch the heating and ventilating equipment.

Referring back to the "Plenum" system of ventilation, we will take up the matter of the fresh air entry. This entry, as we have recommended before, should be situated above the dust line. It should be fitted with bird-proof screens, weather-proof louvres and doors for the closing of this opening. Dust may be removed from the fresh air by passing it through a dry cheese-cloth screen. This cheese-cloth is fastened to small sash convenient for handling. These sash are set in rabitted frames with chicken netting behind, to prevent the bagging of the cloth. A large area must be arranged for this form of filter, so that the velocity of the air passing through it will not exceed 100 feet per minute. A duplicate set of sash and screens must be always held in readiness, so that the screens may be removed and cleaned at frequent intervals. A filter made up of cheese-cloth in the form of bags may also be used instead of the sash filter described above.

Where a theatre building is situated in a district free from dust and smoke, filters or washers are not always required. Very often they are installed never to be used, so it is always advisable to consider this item carefully before specifying any type of filter. But where there is much smoke or dirt an air washer must be installed. There are several of these washers on the market, some of them being simply perforated sprinkler pipes, while others are fitted with special nozzles that make a spray that no air can pass through without being thoroughly washed. In washing the air during the winter months, it is generally the practice to heat the incoming air before it is washed to a temperature of about 54 deg. Fah. above zero, this being the dew point of 70 degree air at 59 per cent. relative humidity. The air passing through the spray chamber, becomes thoroughly humidified before it enters the eliminator, when it has any entrained water separated from it by the baffle plates. The air then passes to the secondary heater, where it is raised to a temperature of 70 degrees. The relative humidity of the air can be approximately fixed by the temperature of the air entering the spray chamber and by the installation of a differential thermostat, or a thermostat situated in front of the pre-heater and one in front of the secondary heater.

Air Heaters.—The heaters used for warming the air may be split up into sections or they may be built in one bank. Where air washers are used it is necessary to arrange a portion of the heater stack as a preliminary heater, so that there will be no danger of the washer freezing. Where no air washer is used the stack may be arranged in one bank, in three, four or five sections deep according to the temperature required. The width of this stack is controlled by the amount of radiation and the free air way required, the free air way being proportioned to the velocity and the quantity of the air passing through the stack per minute. The installation of these radiators requires the greatest amount of care. The first section condenses steam much more rapidly than the sections farther back and this often results in the condensation from the warmer stack backing up into the stack close to the fresh air entry. The matter of removing air from these heaters, is also another point of importance, for if the air is not entirely removed, it greatly reduces the efficiency of the heating surfaces. There must be sufficient radiation installed in these heaters to heat all of the air required without having recourse to high pressure. Engineers know that the transference of heat is more active with low than with high steam temperatures, and therefore with no form of radiator is it advisable to use steam at a higher pressure than is necessary

to obtain a circulation throughout the system.

Some attempts have been made to cool the air during the summer by using the hot blast coils as cooling surfaces, running city water through these coils. An arrangement of ice shelves may be built in front of the fan so that the incoming air may come in contact with blocks of ice placed on these shelves or pipe coils containing brine or other refrigerating liquids may be arranged as cooling surfaces. The cooling of the air by ice is a very expensive item, and when a cooling plant is installed, it is better to provide a small refrigerating machine with a brine pump attached, or to install so-called de-humidifiers. Ordinarily the air washer will reduce the temperature several degrees, but as a great deal of the discomfort of summer weather is due to excessive humidity, the ordinary air washer cannot always be used to advantage. The de-humidifier is a special form of washer. This is generally operated in two sets of sprays, one using cold city water and the other refrigerated water. With such an apparatus, any desired dew point or per cent. of relative humidity may be obtained. Air may be delivered as low as 39 or 40 degrees Fah. above zero.

Fan.—The supply and exhaust fans should be large enough to run at as low a velocity as is consistent with proper pressure conditions so that the noise of the fan will be reduced to a minimum. If the fan is placed on a well insulated base with galvanized iron ducts leading from the fan connected to the fan by flexible connections, there is no danger of noise in the building. Where fans are installed and are not giving satisfaction it is generally due to the fan being too small and having to be run at an excessive speed.

Direct Radiation.—Generally when a ventilating system is installed in connection with a pressure fan, direct steam radiators are used for heating purposes. In a theatre building, these radiators are generally concealed behind wrought iron grills. In the Allen Theatre, illustrated in this number of "Construction," the direct radiators are in the form of pipe coils with extended heating surfaces. With this type of radiation more surface may be installed in radiator recesses than with the ordinary type of cast iron radiator.

In placing radiation on the stage the comfort of the occupants of the front seats of the theatre must be provided for. This necessitates the placing of most of the radiation high up in the fly gallery and on the rear walls, but in addition to this there should be a certain amount of radiation placed on the floor of the stage or otherwise the performers coming from warm dressing-rooms will find the stage cold or rather it will seem to be cold although the thermometer may indicate that the stage is as warm as the rest of the theatre. The dressing-rooms being small, are generally too warm. It is for this reason that almost an excessive amount of radiation must be placed upon the stage floor.

Where direct steam radiation is used for heating the building the radiators are located along the outside walls, in the entry and at other places subject to the cooling effects of drafts, etc. The system of supplying steam to these radiators and returning condensation to the boiler may be any of the following:

The One Pipe: In this system the radiator has one tapping and that at the bottom. The steam is admitted into the radiator and condensation returns to the steam main through the same opening. The main is simply a complete circuit from the feed opening of the boiler to the return opening. The steam that is generated in the boiler passes up into the main and thence to the radiators. The condensation returning, flows by gravity to the return opening of the boiler. When the pipes are arranged with sufficient fall and are of ample size a fairly satisfactory system of piping may be obtained in this way. The one-pipe system is the cheapest form of pipe installation and for a building not requiring very long runs can be installed to advantage. The average journeyman is more familiar with this system of piping than with almost any other.

Some of the objections to the one-pipe system are: The radiators must be turned either all off or all on. If there is a full pressure on the boiler and the valve of a cold radiator is turned on, the condensation that is in the radiator meets the incoming steam and causes a hammering noise, which is annoying to the occupants of the room. The system of venting the radiators is generally by means of automatic air vents. These vents are fitted with expansion members so that the air can escape from the radiator, but steam expands this member and prevents the steam from escaping. In many of these vents, no provision is made to prevent the air from returning to the radiator. When the pressure drops the air rushes back into the radiator through the vent openings, and before the radiator is filled with steam again this air must be displaced. Some air vents are connected with an air line leading either to a hydraulic pump or electric pump in the basement, or to a free vent into the chimney. With a pump system there is a vacuum created in the radiator, and this means that steam will be generated in the boiler at a lower temperature than where the weight of the atmosphere must be displaced. In course of time the expanding element in the air vent becomes defective thus requiring adjustment. Some air vent manufacturers make these vents so that they cannot be opened by an unauthorized person thus making for a long and effective service.

The best air vent is none too good, and cheap air vents should never be used except on temporary work.

Two-pipe System.—In two-pipe pressure systems and also two-pipe vacuum systems, the installations are made, as the name would imply, by means of two pipes, one pipe supplying the steam and the other carrying away the condensation and in vacuum systems, also the air from the radiators. Some of these systems have the feed pipe at the top of the radiator and some at the bottom of the radiator. but in all cases the return pipe is at the lower end of the radiator, and opposite to the feed end. There are so many two-pipe systems on the market under different names and differing somewhat in principle, that an extensive explanation or even a slight mention of the same, is almost out of the question within the space that is at our disposal.

The two-pipe pressure system is generally installed with a valve at the feed and return. The venting of the radiator being effected by means of the ordinary type of air vents. With some systems the return valve is in the form of a trap, on the flotation or expansion principle. There are many thousands of installations of this type in use in connection with pumps as vacuum systems, also to a limited extent installed as gravity systems. For large installations these pump systems are highly recommended, but for small installations, where the services of a competent attendant cannot always be obtained, it is better to have some of the gravity system of steam circulation installed.

There are several modifications of the vapor and vacuum vapor systems on the market. All of these systems have their merits, but they are not *all* suitable for theatre work. In some of these systems, the chief specialty is in the return trap. These traps are placed on the return end of the radiator and fitted with a flotation or expansion member. The steam is admitted into the radiator at the end opposite to the trap. The air that is in the radiator is driven ahead of the steam and passes by way of the trap to the return line. The condensation also follows this same passage. When the steam strikes the trap, the trap closes, thus preventing the escape of steam to the return line. The air is vented from this line into the atmosphere and the condensation is returned to the boiler. If there is sufficient head-room for the boiler and this system is properly proportioned, it works well, but if there is not sufficient head, there is danger of the system finding a dead center and becoming inoperative.

There is also a system on the market that makes use of various sizes of feed valves, these valves being proportioned so as to admit only enough steam to the radiator to fill the radiator. The principle of this system is that the steam before it reaches the return end of the radiator is entirely condensed so that there is very little chance of steam entering the return line unless excess pressure is developed in the boiler. The return valve on the radiators in this system is simply a water-seal with a by-pass for air. The return valves connect to an air line in the basement. This line vents to the atmosphere and is also connected to the boiler below the water-level. The boiler when installed with this type of system must be equipped with a very sensitive automatic damper regulator, so that at no time will very much pressure be developed. Otherwise, the seal on the traps are blown out and steam enters the return line and escapes to the atmosphere.

There is also another system where the return end of the radiator is fitted with an elbow with a small check contained therein. The check prevents the return of steam or condensation to the air line from a radiator that may be turned off. This system, inasmuch as the return line vents to the atmosphere, is open. The end of the line is equipped however with an expansion member or controller, so that if steam enters the line when pressure is generated in the boiler the expansion member is closed and there is no danger of steam escaping from the system.

All of the systems mentioned as "vacuum vapor," work on the principle of the graduated valve. The valves must be installed in accordance with well defined rules. Otherwise the systems will not give satisfaction.

In some localities preference is given to hot water heating systems and there are certain outstanding merits of this system that can hardly be offset by any defects of the same. The principle defect of the hot water system is that there is so much water to heat that it is impossible to get quick response to firing. There is also danger from frost and the radiating surface must be much greater than with steam systems, but the quality of heat from hot water radiation is much more pleasant than from steam radiators. Where a fan system of ventilating is installed the radiators for heating the incoming air must be of steam. Direct radiation in the building however, can be in the form of hot water radiators by using a generator in connection with a steam boiler. Steam is supplied direct to the ventilating coils, this being the only place where steam is used as a direct heating medium. There is also a main connecting the boiler to the generator. This generator is made of copper tubes. The steam passes through these tubes and surrounding the tubes there is a body of water. The generator is supplied with a feed pipe to the radiators and a return pipe from the same. Many of these systems have been installed throughout the Dominion of Canada and are giving excellent results. The system of hot

(*Continued on page* 65.)

New Princess Theatre, Toronto

C. HOWARD CRANE, Architect
CHARLES J. READ, Associated

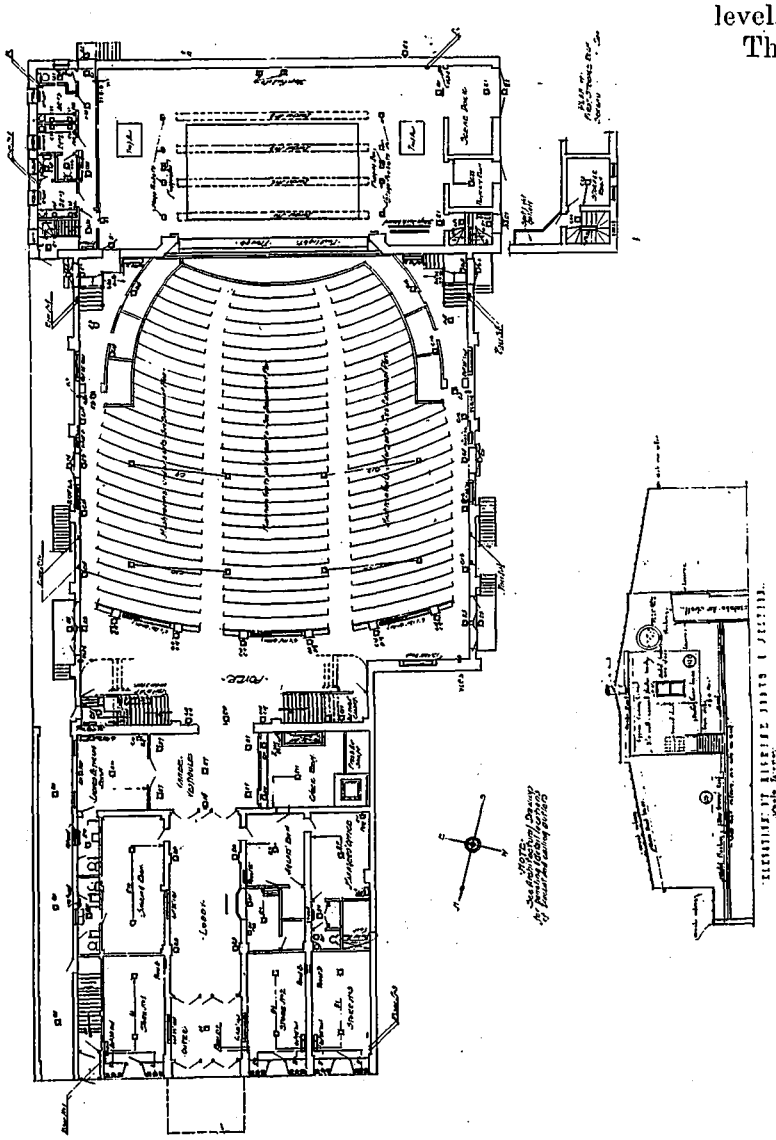
THE new Princess Theatre emerges from the charred ruins of its predecessor a much better playhouse than the building it replaces. It is much more attractive in decorative scheme, more luxurious in its furnishings, and better considered from the standpoint of convenience and comfort. In the reconstruction of the building, the somewhat uninviting aspect of the old theatre has disappeared. The old building was built a number of years back, and represented little of the modern thought and artistic feeling in theatre design. The new playhouse therefore presents an entirely different environment which its patrons will welcome, and which is more in keeping with the high-class plays and attractions the management offers.

In utilizing the former site the external dimensions of the building remain substantially the same, the main approach being from a marquise entrance through an outer lobby floored with tile and with walls and dados of marble. This lobby is seventy-two feet long by twenty-eight feet wide, with the box office and a large smoking room on opposite side and connecting at the end with the main foyer having the ladies' waiting room and check room adjoining.

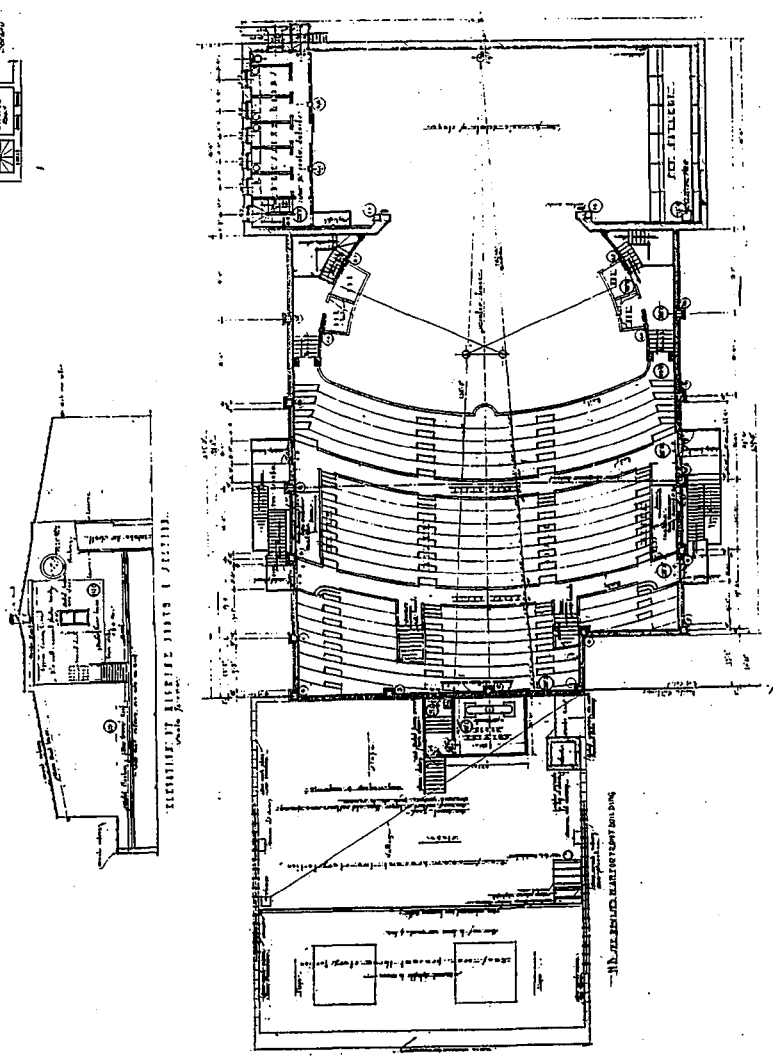
The auditorium which is approximately one hundred by eighty-two feet, is done in a scheme of harmonizing colors with a decorative ceiling treatment, a plaster enrichment with velvet draperies being used for the proscenium and boxes and simple ornament to define the panelling of the walls. Further decorative features consist of suspended ceiling lights and inverted globes set in circular ornament beneath the balcony, which together with the wall brackets give an evenly diffused light over the entire auditorium.

A stair-case on either side of the foyer leads to a mezzanine and from there to the upper portion of the balcony, the lower part being entered from ramps on each side at the mezzanine floor level.

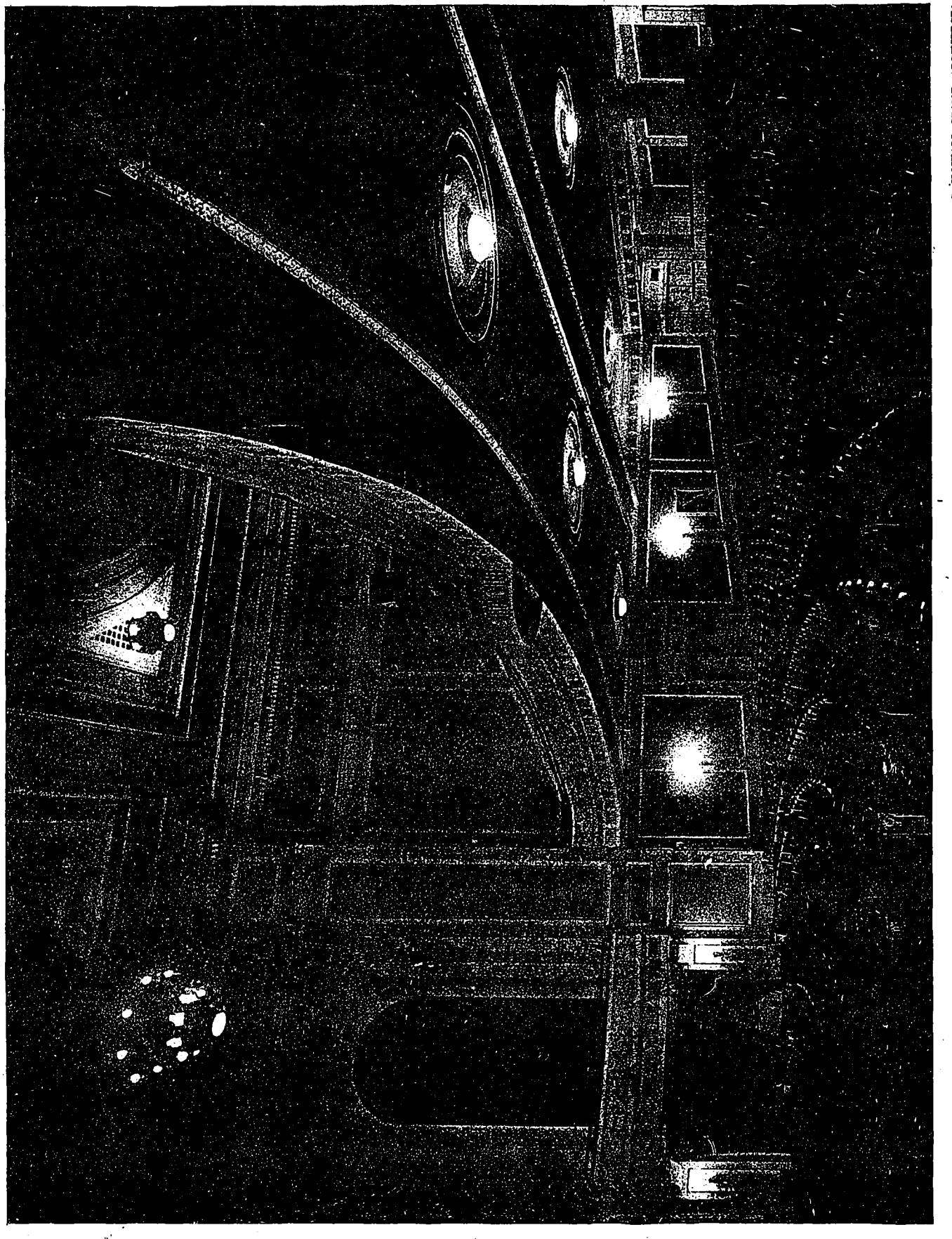
The balcony, which is seventy-two feet deep,



GROUND PLAN FLOOR, NEW PRINCESS THEATRE, TORONTO, ONT.



BALCONY PLAN, NEW PRINCESS THEATRE, TORONTO, ONT.



NEW PRINCESS THEATRE, TORONTO, ONT.

AUDITORIUM.

C. HOWARD CRANE, ARCHITECT; CHARLES J. REED, ASSOCIATED.

is carried by a steel girder weighing twenty tons and eighty-four feet in length, to which the load is transferred by steel beams. Additional support for the balcony is also provided by means of a smaller girder and two transverse girders by which the former is carried. The transverse girders are in turn each supported at one end by the main girder and at the other end by one of the steel columns. This does away with the necessity of supporting columns and gives an entirely unobstructed view from any part of the house.

ENTRANCE LOBBY, NEW PRINCESS THEATRE, TORONTO, ONT.

The auditorium, which includes ten boxes, gives total seating accommodation for approximately seventeen hundred people. The building is of steel and hollow tile construction with concrete floors throughout except in the entrance rotunda, where a hollow slab type floor has been laid with two inches of concrete above. The stage is of solid reinforced concrete construction except for a removable wood portion in the centre, this latter provision being necessary for certain stage productions. In addition to every precaution being taken to make the structure modern throughout, there are also excellent facilities as regards the matter of ready egress. Besides the main entrance there are ten exits, three of which are located on either side of the auditorium at the ground floor, and two on each side of the balcony opening onto steel fire escapes. All these exits are equipped with fire-proof doors and lead to open courts directly communicating with the street.

Heating and Ventilating of Theatres

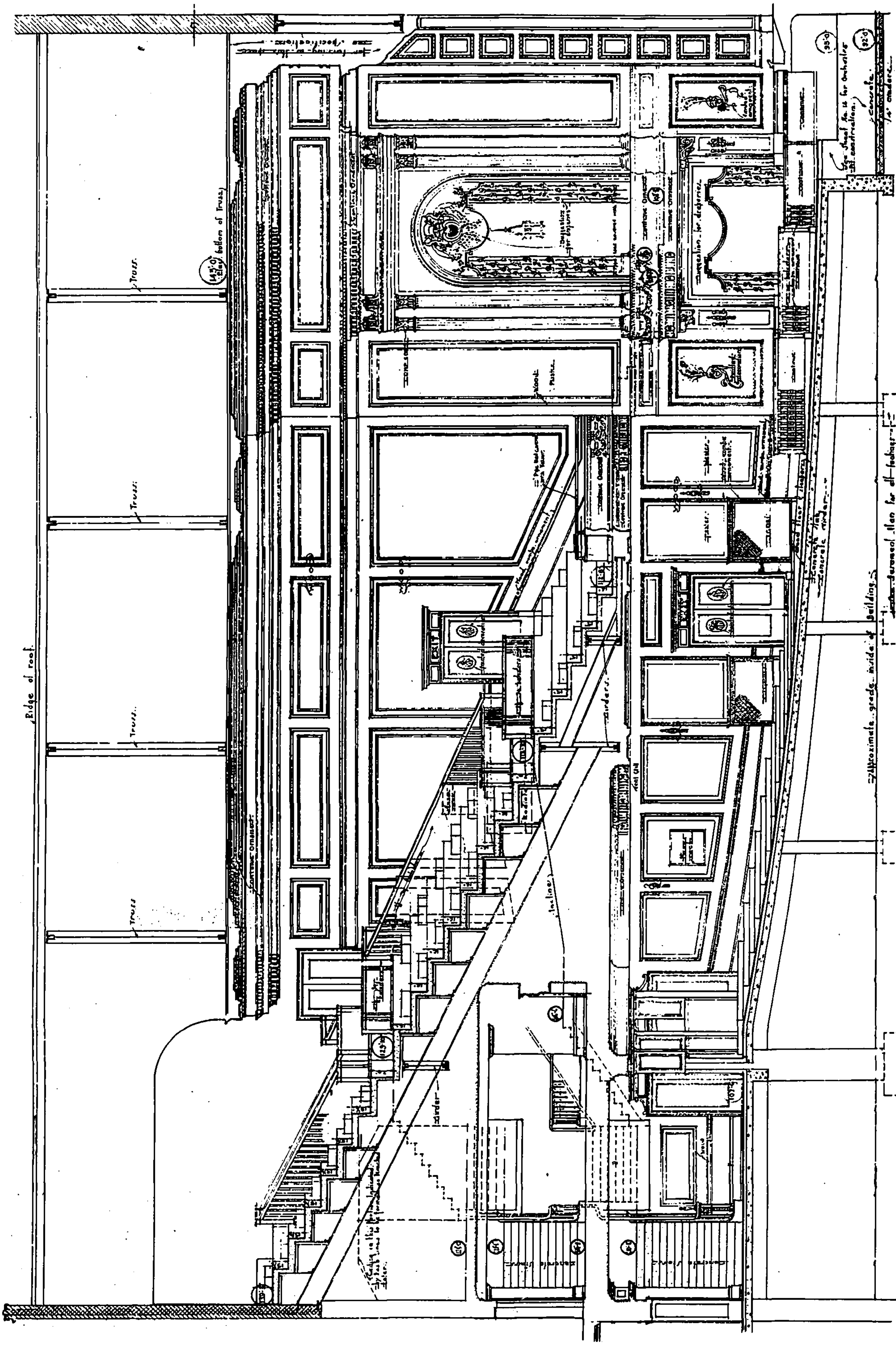
(*Continued from page* 62.)

water circulation in small buildings may be by gravity, but where the building is very large, it is necessary to instal a circulating pump. With a circulating pump, the size of the piping and radiators may be materially reduced from that used in connection with gravity systems.

In designing a heating and ventilating equipment for a building, care should be taken in the selection of an apparatus so that a break-down will not cripple the plant or discontinue the operation of the same. Reliability of service and economy of construction and operation, seem to call for a number of small units rather than one large unit, and a duplication of parts should be provided for wherever possible. Heating and ventilating systems in theatre buildings are not often in charge of mechanics. Therefore it is necessary to instal a system that will work under the most adverse conditions.

Boilers.—In selecting a boiler for a theatre building, many things should be taken into con-

FOYER, NEW PRINCESS THEATRE, TORONTO, ONT.

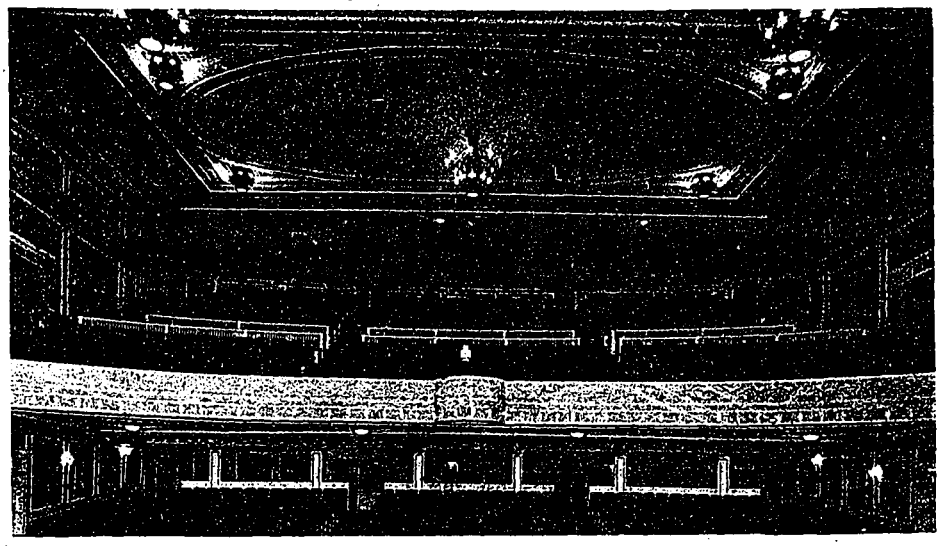


C. HOWARD CRANE, ARCHITECT;
CHARLES J. REED, ASSOCIATED.

LONGITUDINAL SECTION.

NEW PRINCESS THEATRE,
TORONTO, ONT.

sideration. It is worthy of note that a boiler that may be entirely satisfactory with some other type of building, would not be suitable for a theatre. There are various types of boilers on the market, many of them differing only in name, and not in construction. In general, it may be said that it is not advisable to instal a soft coal burning boiler in a theatre building, because even where these boilers are equipped with smoke-consuming devices, the dust caused by soft coal is a very objectionable feature. If the boiler is situated in a separate building at some distance from the theatre, the soft coal nuisance is not so evident as where the boiler is situated close to the building.



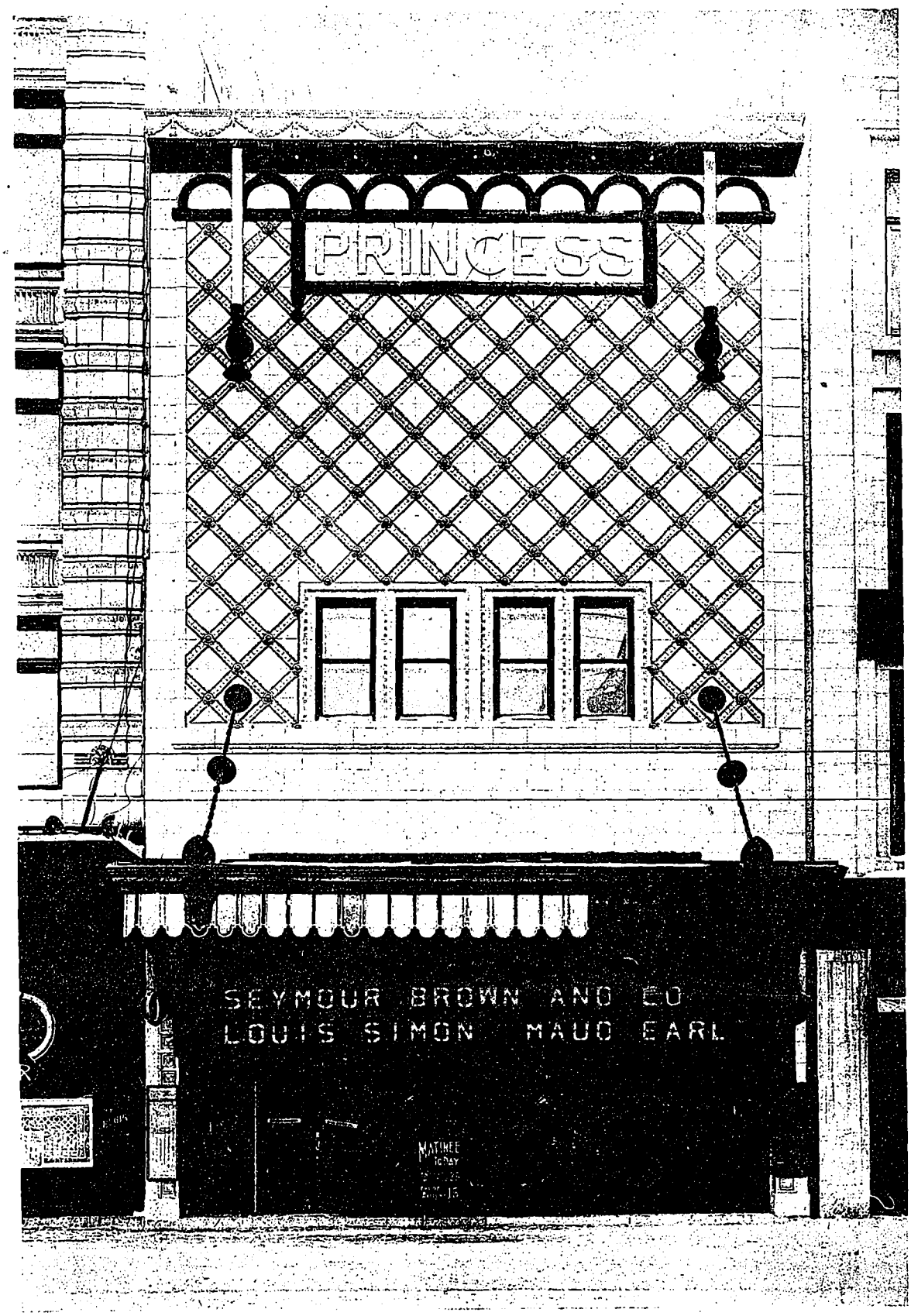
VIEW FROM STAGE, NEW PRINCESS THEATRE, TORONTO, ONT.

In an installation where the funds are sufficient, a water tube boiler should be installed. One square foot of heating surface in a water tube boiler is of much greater value than a square foot of heating surface in a return tubular or firebox boiler. All of the heating surfaces in a water-tube boiler are direct, whereas with a return tubular boiler, most of the heating surface is indirect. Boiler inspection concerns note that where accidents have occurred with water-tube boilers, it is only to the extent of the rupturing of a tube. Of course with low pressure work there is no great danger of violent explosions with any type of boiler, because the Government regulations set the safety valves at 10 pressure. Still, with a water-tube boiler the accident is only to the extent of a tube starting, whereas with a tubular boiler it may be that the whole boiler will be wrecked.

Automatic control of the temperature of the building is greatly to be desired. If the funds will permit of the complete installation, an automatic heat controlling system should be used, but here is one point where the designer cannot attempt to economize by eliminating certain features that are absolutely necessary, and unless the funds are sufficient to cover not only the control of the radiators in the building, but also the individual control of the fresh air supply, the money is thrown away in attempting to instal an automatic temperature controlling system. The control of the radiators should be on a thermostat controlling the fresh air supply. It is manifestly impossible to control the temperature of a room by the radiators only when air is coming into the building at a relatively high temperature.

A contractors' section, of which J. H. Garden is chairman and G. E. Mackenzie is secretary, has been formed in connection with the Calgary Board of Trade. Matters of interest to contractors are discussed and a central office is available where plans may be seen. It represents a progressive step which other Canadian cities might do well in following.

VIEW FROM BALCONY, NEW PRINCESS THEATRE, TORONTO ONT.



NEW PRINCESS THEATRE, MONTREAL. D. J. SPENCE, ARCHITECT.

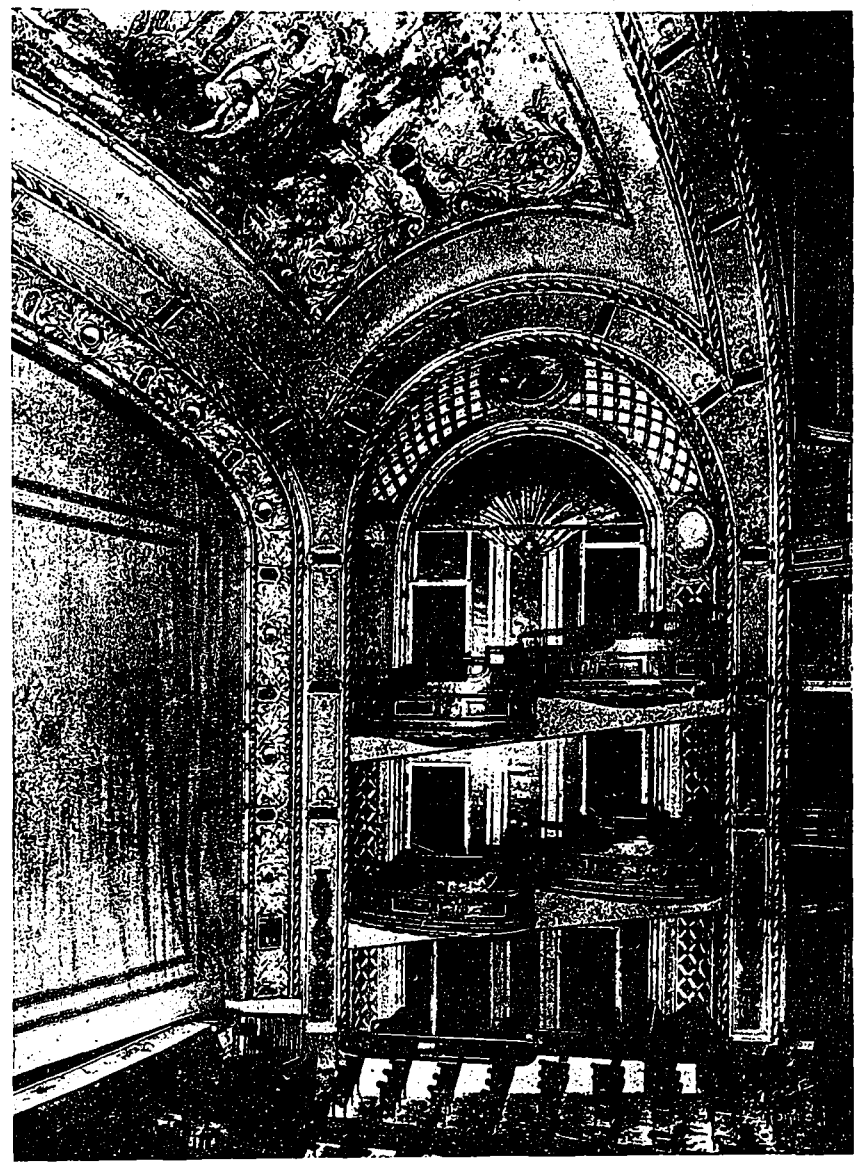
THE NEW PRINCESS THEATRE, MONTREAL

D. J. SPENCE, Architect

The accompanying views of the Princess Theatre, Montreal, give a very excellent idea of this playhouse as it appears in its rehabilitated form. The exterior exhibits a decidedly modern influence, and is a departure from the more or less orthodox treatment to which one is accustomed, the light terra cotta and style of the design being in marked contrast to the adjoining buildings and readily attractive to the passer-by.

The interior which follows the usual plan is conveniently arranged and comfortable in its furnishings and appointments. Considerable plaster ornament is used in the decorative scheme the motif of the facade being repeated in the arching and splay of the boxes.

The building has the best type of mechanical equipment and is well planned as regards exits. It was built to replace the old theatre of that name which has long been the home of the legitimate drama and the better class of musical productions. A special feature of the decorative scheme is a painting by F. S. Challenor, F.S.A., the well-known Canadian artist, which occupies the sounding-board over the stage, and depicts a woodland scene with semi-nude and draped figures typifying the spirit of music and enchantment.



DETAIL OF BOXES, NEW PRINCESS THEATRE, MONTREAL.

Anglo-French Town Planning in 1298

When Henry II. of England married Eleanor of Provence, the union brought certain French territory under his crown. In succeeding years Henry was continually struggling with Louis IX. for supremacy in Southern France, and both monarchs planned and founded new towns as bases for military operations.

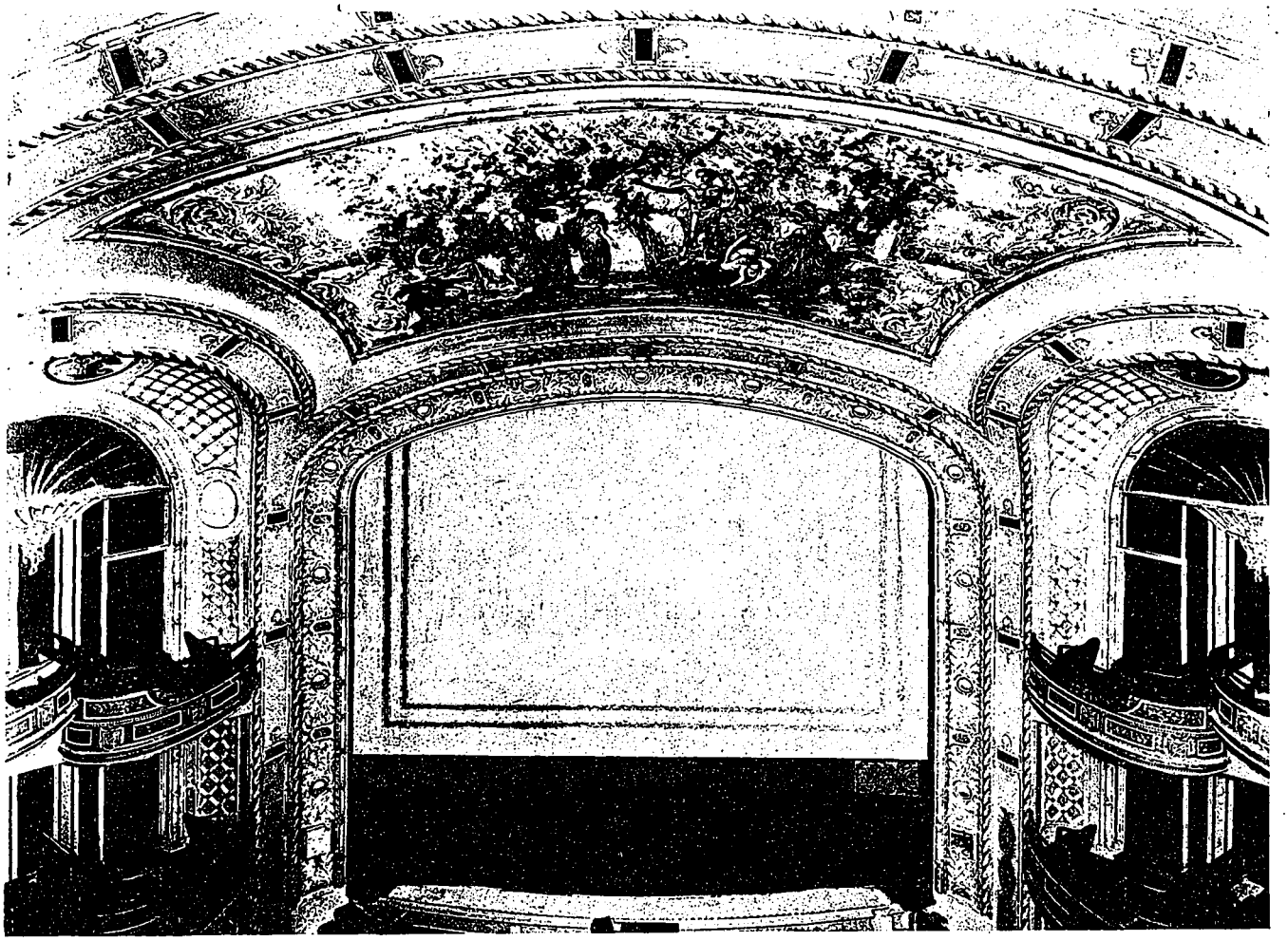
In 1298 Edward I. wrote from Bordeaux to London, asking the authorities to send them four competent town planners—"those who best know how to divide, order, and arrange a new town in the manner that will be most beneficial to us and the merchants."

Montpazier, in the department of the Dordogne, is said to be the best example of these towns—and others laid out by Edward were Libourne, Sauveterre, Monsegur and LaLuide.

In Canada, where the two peoples have enjoyed the entente cordiale and have intermarried and contributed to each other's genius and strength over so many centuries—with sundry and passing breaks caused by political ambition and not by racial animosity—may we not derive inspiration from the early Anglo-French town-planners of old France, and seek to "divide, order and arrange" our cities and towns in the manner that will be most beneficial to the commonwealth.—"Conservation of Life."

Meeting of Clay Products Association

A number of very excellent papers were presented at the annual meeting of the Canadian National Clay Products Association held recently at the Prince George Hotel, Toronto. These related principally to the technical side of the industry in reference to economy of production of clay products, and the discussions which took place at the well attended daily sessions showed an interested and wide awake spirit on the part



VIEW OF STAGE, NEW PRINCESS THEATRE, MONTREAL. D. J. SPENCE, ARCHITECT.

of the members in the affairs and objects of the Association.

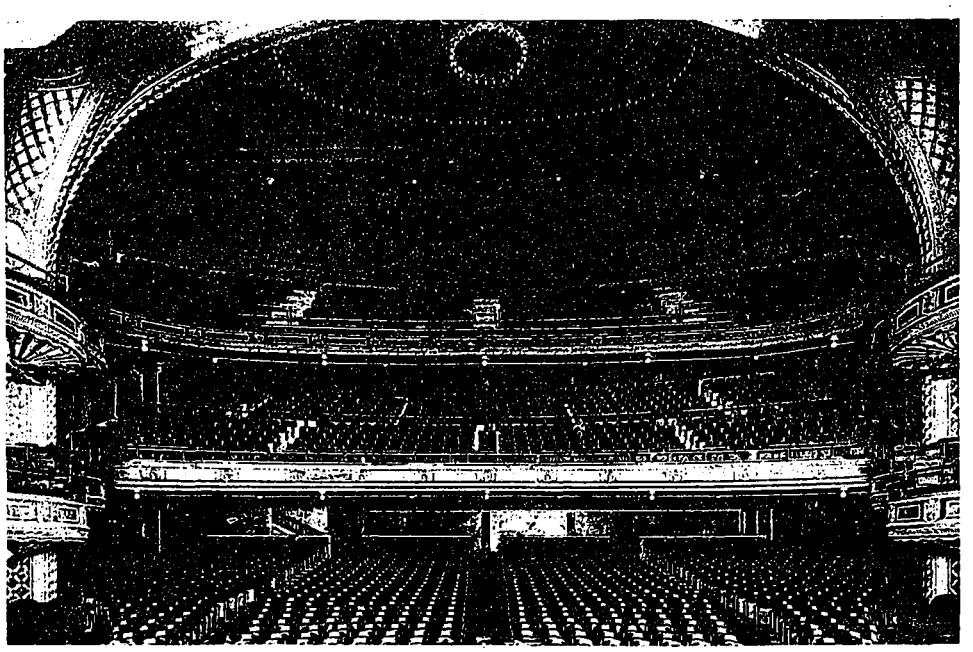
The Secretary-Treasurer presented an excellent report which showed a satisfactory working balance on hand. The annual banquet, as usual, was a big social success, and was presided over by Mr. Joseph Russell, M.P.P., with Mayor Church, Rev. A. Logan Geggie and Miss Margaret Davidson as the evening's guests.

The officers of the Association for the following year are as follows: Past President, A. F. Greaves-Walker, Baltimore, Md.; President, Thomas Kennedy, Swansea; 1st Vice-President, Wm. Burgess, Todmorden; 2nd Vice-President, Ryland H. New, Hamilton; 3rd Vice-President, G. Angus German, Toronto; Secretary-Treasurer, Gordon C. Keith, Toronto.

Councillors — Chas. B. Lewis, Toronto; John S. McCannell, Milton; J. Edward Frid, Hamilton; Walter Clark, Corunna; N. T. Gagnon, Montreal; T. H. Graham, Inglewood; Andrew Dods, Mimico; and Chas. A. Millar, Toronto.

Chairman Technical Education Committee — Millard F. Gibson, Toronto.

Chairman Entertainment Committee—Charles A. Millar, Toronto.



AUDITORIUM, NEW PRINCESS THEATRE,, MONTREAL.

CONSTRUCTION

A · JOURNAL · FOR · THE ARCHITECTURAL ENGINEERING · AND · CONTRACTING INTERESTS · OF · CANADA

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Modern Theatres

One hardly subscribes to the opinion of the Manitoba censor who would delete comedy from the movie and immure us with sober and tragic themes to bring us more in accord with the grim aspect of transpiring events. The active and healthy mind in fact demands a certain amount of diversion and entertainment to keep it at its best; and especially in distressing times such as the present whatever form of wholesome recreation and amusement the stage offers, serves to lure us momentarily at least from too deep a state of morbid realism.

Briefly, it is its great scope for variety as well as its purely educational side which makes the theatre a great institution and of sufficient civic importance to entitle it to the fullest architectural investment. Fortunately, the present adverse conditions have not altogether deterred its development, but rather has a number of noteworthy structures for this purpose been erected in Canada during the war. Several of the more recent of these are illustrated in this issue of CONSTRUCTION, and represent the legitimate drama, vaudeville, and the above phase of histrionic art, the movie. In part at least these subjects show a very clear grasp of the problems involved, and a understanding of the underlying principles of design to obtain an atmosphere of refinement and convenience and comfort in plan and furnishings. Certain of the schemes in fact strike a new note in theatre construction, not so much in the sense of something absolute new or revolutionary in character but in certain adjustments of plan and decorative treatment. The very character of these new playhouses will, undoubtedly, exert a stimulating influence on the popular mind. They will likewise prove a handsome source of revenue to the Government in the way of war tax which the people seem willing to pay, and are interesting to say the least, as indicating progress in modern theatre design.

P. Q. A. A. Annual Meeting

The annual election of officers for the Quebec Association of Architects has resulted as follows: President, Mr. J. A. Monette; 1st vice-president, Mr. J. A. LeBon; 2nd vice-president. Mr. D. Norman McVicar; secretary, Mr. J. Emile Vanier; treasurer, Mr. D. M. Miller; members of Council, Messrs. U. J. Asselin, A. Beaugrand-Champagne, Herbert Raine, G. R. Macdonald and L. A. Auger.

It was decided at the meeting to approach the Montreal Legislative Committee in reference to the long deferred building by-laws, with a view to having the new regulations passed and made effective. The acceptance of an invitation from the Board of Control to meet with representatives of that body to discuss matters of mutual interest was also approved and a committee appointed for that purpose.

Toronto Exchange Elects Officers

The following were elected officers for 1918 at the annual meeting of the Toronto Builders' Exchange held on January 21st: President, W. E. Dillon; past president, S. R. Hughes; vice-president, Walter Davidson; 1st vice-president, A. D. Grant; treasurer, John Aldrich; directors, Geo. Oakley, Chas. Bulley, Wm. Clark, Jr., E. Geary, Jas. Munro, Geo. Gander; auditors, Arthur N. Dancy, Jas. Barnes; secretary, D. J. Davidge.

In addition to a discussion of the Compensation Act and Lien Law and the transaction of general business, the meeting was also made the occasion of the presentation of a steamer trunk, club bag and purse of money to Mr. Geo. McSweeney, late secretary, who is now a member of the R. N. F. Corps. It was also decided to inaugurate a campaign to increase the membership and a committee consisting of Messrs. Jas. Munro, C. T. Penn, W. J. Nicholson, R. Falkiner, A. D. Grant, H. Feather, J. Scott and H. Jennings, was appointed for this purpose.

Owing to the fact that the entire building at the corner of Richmond and Simcoe Streets will be required by the Goodyear Company, the Exchange has been forced to vacate these premises and is now located on the second floor of the Land Security & Savings Building, at the south west corner of Adelaide and Victoria Streets where very central and desirable quarters have been secured.

Canadian Building and Construction News

BUSINESS BUILDINGS.

London, Ont.—The Italian Mosaic & Marble Company, Crown Tailoring Building, Toronto, have been awarded the contract for the tile work in connection with the new $100,000 Hydro Office & Sales Building, now in course of construction on Dundas street. L. B. Carrothers, London, is the architect.

London, Ont.—Architects Watt & Blackwell, Bank of Toronto Building, have completed plans for a branch building to be erected on Market Square for the Huron & Erie Loan Company, 442 Richmond street. Work on the building, which is to be a three-story structure, will start shortly. It will cost $30,000.

Ottawa, Ont.—A nine-story Government office building, to cost $1,000,000, is to be erected on the old Museum site on O'Connor street. Plans are now being prepared by the Department of Public Works, of which Hon. F. B. Carvell is Minister, and tenders will be called shortly. The old buildings on the property are being demolished.

Sudbury, Ont.—Plans have been completed for a three-story building, to contain stores and apartments, for P. Bertram, to replace the structure recently destroyed by fire. The building will be of brick construction, modern throughout, and cost $20,000. P. J. O'Gorman is the architect.

Toronto, Ont.—The following contracts have been awarded for a new restaurant building to be erected at the corner of Young and Wilton avenue for the Childs Company, Yonge and Richmond streets: Steel Reid & Brown, Esplanade East; plastering, R. C. Dancy, 153 Spadina road; glass, Hobbs Mfg. Co., 279 King street west; painting, J. McCausland & Son, 11 Nelson street. J. C. Westervelt, 36 West 34th street, New York City, is the architect. Work of dismantling the old building on site is now in progress. The new structure will cost $60,000.

CLUBS AND HOSPITALS.

Kitchener, Ont.—The Kitchener & Waterloo General Hospitals has been damaged to the extent of $4,000.

Lindsay, Ont.—Architect I. Hornsby has completed plans for improvements to the Great War Veterans' Association Club House. The building will be newly decorated and provided with electric fixtures, new furniture and modern bathroom facilities.

Toronto, Ont.—James, Loudon & Hertzberg, Excelsior Life Building, have completed plans for an addition to the National Cash Register Company's building on Christie street, which has been acquired by the Military Hospital Commission for hospital purposes. The new part will consist of a two-story addition, 220 x 40 ft., together with a wing 200 x 40. The construction will be of brick, steel and concrete, and the equipment will be modern throughout. McGregor & McIntyre, 1139 Shaw street, and the Dominion Bridge Company, Imperial Oil Building, have a joint contract for the steel work. It is understood that the other trades will be carried out by the staff of the Hospital Commission.

FACTORIES AND WAREHOUSES.

Chatham, Ont.—Work is in progress in rebuilding the factory of the Canadian Des Moines Steel Company, recently destroyed by fire to the extent of $15,000.

Fort William, Ont.—Tenders have been received for a shipbuilding plant, 220 x 200, to be erected for the Canada Car & Foundry Company.

London, Ont.—Work is in progress on general alterations to the warehouse of the London Shoe Company. Cost $3,000.

London, Ont.—The Utilities Board will erect a two-story brick addition, to cost $60,000, to the local Hydro station. L. B. Carrothers is the architect, and work is to start in the spring. The necessary machinery has been ordered from the Canadian Westinghouse Company, Hamilton, Ont.

Renfrew, Ont.—Work is in progress on the erection of a three-story grain elevator of frame construction for the Interprovincial Milling Company. M. J. O'Brien has the general contract. Cost $2,000.

Toronto, Ont.—The T. Eaton Company, Limited, 190 Yonge street, is contemplating the erection of a distributing warehouse in the west end of the city. Site not yet selected.

Toronto, Ont.—Tenders have been received for the erection of a two-story, 75 x 30, brick addition to the Cecilian Company's factory, corner of Defoe and Stafford streets. Oborn & Ellis, 22 College street, are the architects.

Toronto, Ont.—Architects Hynes, Feldman & Watson, 105 Bond street, have received tenders for a four-story, 56 x 135 ft. reinforced concrete warehouse to be built on Wellington street, near Portland street. A sprinkler system will be installed and the equipment will be modern throughout.

Toronto, Ont.—Operations are to start shortly on the new $1,000,000 warehouse to be erected at Bayside Park, for the T. Eaton Company, Limited, 190 Yonge street. The structure will be eight storys, 403 x 242 ft., and will be fireproof throughout. The necessary steel required for its construction is now being rolled, and the excavating of the site will likely be undertaken without delay. It is understood that two additional buildings of equal size will be built at a future date. Graham, Anderson, Provost & White, Railway Exchange Building, Chicago, Ill., are the architects, and Sproatt & Rolph, Ryrie Bldg., Toronto, associates.

MISCELLANEOUS.

Corunna, Ont.—Robt. Irvin, Sarnia, has the contract for a frame boathouse and garage to be built at this place for Geo. McCormack, London, Ont. Cost $5,000. W. G. Murray, Dominion Savings Building, London, is the architect.

Halifax, N.S.—The Public Works Department, Ottawa, has just closed tenders for the reconstruction of the steel roof in connection with the drill hall at this place.

London, Ont.—It is understood that the Marcus Loew Syndicate is contemplating the erection of a new theatre building at this place.

Brantford Township, Ont.—The Township Council will shortly erect two reinforced concrete bridges.

Ottawa, Ont.—The time for receiving tenders for rolled steel casements and bronze covered frames and sash, required in connection with the new Parliament Buildings, has been extended until March 18th.

Ottawa, Ont.—Tenders will be received until March 18th for the heating and ventilating equipment required in the reconstruction of the Parliament Buildings. Full information may be obtained from the general contractors, P. Lyall & Sons Construction, Ottawa.

Renfrew, Ont.—The British Explosives, Limited, is changing the power in its condensor plant from steam to electricity.

Saskatoon, Sask.—Tenders will be received by the Department of Public Works, Ottawa, until March 4th, for supply and installing a freight elevator in the Post Office, Saskatoon. Plans are on file at the office of Clerk of Works, Regina; Post Master, Saskatoon; Resident Architect, 802 Lindsay Building, Winnipeg, and at the above Department, Ottawa.

RESIDENCES.

Barryvale, Ont.—M. J. O'Brien, contractor, Renfrew, will build an additional story to his summer residence at this place. Cost $3,000.

Burlington, Ont.—J. B. Gillies, 55 Burton street, Hamilton, Ontario, is contemplating the erection of a large modern residence on the Lake Shore road.

Calabogie, Ont.—The Calabogie Light & Power Company will erect one detached and one double house for their employees, at a total cost of $9,000. M. J. O'Brien, Renfrew, Ont., is the general contractor.

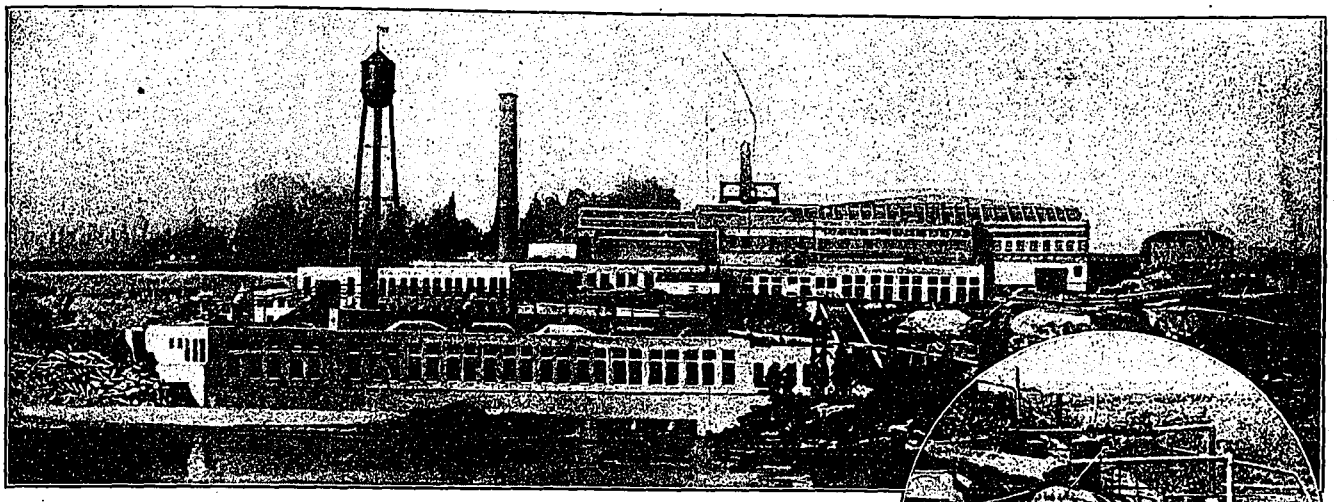
Eagle Lake, Ont.—The new residence being erected for Sir Sam Hughes, Lindsay, will be finished with stucco work in the spring. It is understood that the structure will be converted to club purposes. Furniture and equipment are still to be installed. Total cost $30,000. Col. Bob Lowe, Ottawa and Halifax, is the architect and general contractor.

SCHOOLS.

Cobourg, Ont.—Tenders have closed for the erection of an addition to the public school. It is understood that the work will cost in the neighborhood of $30,000. Chapman & McGiffin, 95 King street east, Toronto, are the architects, and H. Boggs, Secretary of the Board.

Lorne Park, Ont.—The Board of School Trustees (Mr. Addison, chairman) is contemplating the erection of a new school.

Toronto, Ont.—The Board of Education, 155 College street, is contemplating the erection of a twenty-nine-roomed school on Glengrove avenue, North Toronto. Work will start in the spring.



The photos above, taken after the great fire had passed through Iroquois Falls, give some idea of the terrific heat all around the Abitibi Pulp & Paper Co. plant. Note the bent and twisted steel rails and frame-work.

This Roof Helped Save 1600 Lives!

In the summer of 1916 a terrific fire swept 650 square miles of Ontario forests. It wiped out whole villages, bringing death and terror to thousands of people.

At Iroquois Falls the population of the town took refuge in the plant of the Abitibi Pulp & Paper Company, a modern building of reinforced concrete with steel window-sashes and a Barrett Specification Roof.

The building was wrapped in smoke and flame. The air was literally afire. Thousands of cords of wood in the adjacent yards blazed in the fierce sixty-mile-an-hour wind.

For nine hours they cowered there with windows and doors locked air-tight and fire-hose and sprinklers working, while the fire raged about them.

The insurance inspectors who arrived four days later stated in their official report that *the mill-buildings were brought through undamaged. The roof was in good condition and is still on duty.* It made an ideal, fire-proof, non-inflammable fire-blanket. Embers that fell upon it made the pitch soften and smoke, but did not ignite it.

Surely this is proof positive that Barrett Specification Roofs have great fire-resisting properties.

But that is only *one* of their many points of superiority. Barrett Specification Roofs cost less per year of service than any other permanent roof; they cost nothing to maintain; they take the base rate of insurance and, further, they are guaranteed for twenty years as follows:

A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request

Roofing Contrs.—Metal Shingle & Siding Co., Montreal.

Engineer—George F. Hardy, New York City.

General Contrs.—Morrow & Beatty, Ltd., Peterboro, Ont.

20-Year Guoranty

We are now prepared to give a 20-Year Surety Bond Guaranty on every Barrett Specification Roof of fifty squares and over in all towns of 25,000 population and more, *and in smaller places where our Inspection Service is available.*

This Surety Bond will be issued by the United States Fidelity and Guaranty Company of Baltimore and will be furnished by us *without charge.* Our only requirements are that the roofing contractor shall be approved by us, and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

Made in Canada

Barrett Specification Roofs Resist Fire

CATALOGUES and BOOKLETS

"RIBPLEX."

Among the expanded metal products widely used in building construction is "Ribplex," manufactured by the Berger Manufacturing Company, Canton, Ohio. This company, in putting forward the reasons for its use, claims that it is equally well adapted for roofs, floors, walls and partitions.

"Ribplex" is constructed with ribs, furnished to supply centering and reinforcement. By means of the network of strands between the supporting ribs a bond is formed, the ribs giving additional strength. For floors and roofs "Ribplex" is simply fastened to the framework by means of clips. It is claimed that "Ribplex" simplifies construction, cuts down weight, and saves concrete, time and money.

TESTING AND INSPECTING MATERIALS.

The matter of conducting laboratory tests and inspection as a measure to preclude the possibility of the use of defective materials, and to assure that all structural parts would be equal in strength to the loads and purpose for which they were intended, was considered of utmost importance in connection with the erection of the two theatres at Hamilton and Montreal for the Marcus Loew Syndicate, illustrated in this issue. All the essential materials entering into the construction of both these playhouses were examined and passed by the Canadian Inspection & Testing Laboratories, Ltd., of Montreal and Toronto, before finally being adopted. This concern, which specializes altogether in this work is splendidly equipped to give owners and architects the very highest laboratory service and engineering experience. They have conducted tests and inspections on a large number of the most important buildings erected in Canada within the past few years, and their work is represented, in addition to the two theatres mentioned, in the Regent and Loew's Theatres, Toronto; the Arena, Toronto; and the Orpheum Theatre, Montreal.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings Featured in This Issue

Allen Theatre, Toronto.

Brick, The Milton Pressed Brick Co.
Boilers, Spencer Heater Company of Canada, Ltd.
Carpets and Rugs, Robt. Simpson Co., Ltd.
Electric Fixtures, Wardell Light & Fixture Co.
Expanded Metal, Trussed Concrete Steel Co.,
Fire Doors, Douglas Bros.
Fire Escapes, Canadian Ornamental Iron Company Ltd.
General Contractors, Frank Farrington Co.
Glass, Toronto Plate Glass & Importing Co.
Glass (light globes), Canada Sale Co.
Hollow Tile, Dennison Interlocking Tile Co.
Hardware, Aikenhead Hardware Co., Ltd.
Heat Regulating System, W. J. McGuire, Ltd.
Interior Fittings, Wood Work, T. H. Hancock.
Marble, Canada Glass Mantels & Tiles, Ltd.
Metal Sash, Douglas Bros.
Ornamental Iron, Canadian Ornamental Iron Co.
Paints, Sanderson Pearcy Co.
Painting and Decorating, Goldberg & Jagmin
Pipe Organ, Hillgran, Lane Co.
Plumbing, W. J. McGuire, Ltd.
Plastering (ornamental), W. J. Hynes, Ltd.
Reinforcing, Steel, Trussed Concrete Steel Co.
Radiators, Vici Radiator Company.
Roofing, H. W. Johns-Manville Co.
Sheet Metal Work, Douglas Bros.
Seating, American Seating Co.
Stone, Peerless Artificial Stone, Ltd.
Structural Iron and Steel, Dominion Bridge Co.
Tile, Italian Mosaic & Marble Company.
Valves, Jenkins Bros., Limited.
Ventilating System, Spencer Heater Company of Canada, Ltd.

Loew's Theatre, Montreal.

Awnings (Iron), Metal Shingle & Siding Co.
Brick, National Brick Co.; Prairie Brick Co.
Boilers, Spencer Heater Company of Canada, Ltd.
Carpets and Rugs, Henry Morgan & Co.
Casements and Window Construction, also Doors and Window Trim, Traversy Bros.
Concrete Work, Atlas Construction Co.
Contractors (general), Atlas Construction Co.
Draperies, Robt. Simpson Co.
Electric Fixtures, McDonald & Willson, Ltd.
Electric Wiring and Apparatus, Edwards Electrical Construction Company.
Fire Alarm System, Dominion Gresham Guarantee & Casualty Company.
Fire Doors, Metal Shingle & Siding Co.
Fire Escapes, Dominion Architectural Iron Works.
Fire Extinguishers, Tremblay Bros.
Flooring (marble), Smith Marble Co.
Glass (plate), Pilkington Bros.
Glass, Luxfer Prism Co.
Hardware (jobbers), Durand Metal & Hardware Co.
Hardware (stage), J. R. Clancy.
Heat Regulating System, B. F. Sturtevant Co.
Heating Contractors, W. J. McGuire, Ltd.
Inspection, Canadian Inspection & Testing Lab.
Interior Decorating, Arthur Brounet.
Interior Woodwork, Traversy Bros.
Inter-phone System, Northern Electric Co.
Marble, Smith Marble Construction Co.
Organ, Warren & Sons.
Ornamental Iron, Dominion Architectural Iron Works, Ltd.
Paints (interior), McArthur Irwin Co.
Paints (waterproof), Standard Paint Co. of Canada.
Plumbing, Imperial Products.
Plastering, McNulty Bros.
Power Machinery, Air Compressors, Northern Electric Co.
Roofing, Metal Shingle & Siding Co.
Seating, W. J. Andrews Co.
Sprinkler Equipment, Canadian General Fire Extinguisher Co.
Structural Iron and Steel, Canadian Allis Chalmers.
Tile, Smith Marble & Construction Co.
Vacuum Cleaners, Spencer Turbine Cleaner Co.
Valves, Jenkins Bros., Limited.
Varnish, Guilbault, Ltd.
Vaults, Canadian Fairbanks-Morse Co.
Ventilating Contractors, W. J. McGuire, Ltd.
Ventilating System, Fleischer & Co.

Loew's Theatre, Hamilton.

Brick (plain), Milton Pressed Brick Co.
Brick (face), Port Credit Brick Co.
Boilers (Spencer Self-feeding), Adam Clark.
Brass Work, Beaver Brass Works.
Carpets and Rugs, G. W. Robinson Co., Ltd.
Casements and Window Construction, W. E. Dillon Co., Ltd.
Concrete Work, Canada Cement Co.
Curtain, H. W. Johns-Manville Co.
Electric Fixtures, Canadian Chadwick Metal Co.
Electric Wiring and Apparatus, M. J. Levy.
Expanded Metal, Trussed Concrete Steel Company of Canada.
Fire Hose, Dunlop Tire & Rubber Goods Co.
Fire Doors, W. E. Dillon Co., Ltd.
Fire Escapes, Canada Wire & Iron Goods Co.
Flooring, Long Lumber Co.
Furniture, Hoodless Furniture Co.; A. Souter & Co.
General Contractors, P. H. Secord & Sons.
Glass (plate), Consolidated Plate Glass Co.
Glass (art), Luxfer Prism Co.
Hardware, Belleville Hardware & Lock Mfg. Co.
Hardware (jobbers), Kent Garvin Co.
Hollow Tile, National Fireproofing Company of Canada, Ltd.
Inspection, Canadian Inspection & Testing Lab.
Interior Decorating, Arthur Brounet.
Interior Woodwork, Batts, Ltd.
Inter-phone System, M. J. Levy.
Marble, Canada Glass Mantels & Tiles, Ltd.
Marques, Luxfer Prism Co.
Organ, Warren & Son.
Ornamental Iron, Canada Wire & Iron Goods Co.
Painting, F. G. Roberts & Co., Ltd.
Plastering, Architectural Plastering Co.
Plumbing, Imperial Products.
Radiators, American Radiator Co.; Hamilton Stove & Heater Company.
Reinforcing Steel, Barnes & Peckover.
Roofing, F. W. Bird & Son.
Roofing Contractor, Thos. Irwin.
Seating, Wisconsin Seating Co.
Sprinkler Equipment, Purdy Mansell Co.
Stage Rigging, Wm. Camph.
Stone, Ritchie Cut Stone Co.
Structural Iron & Steel, Canadian Allis Chalmers Co.
Terrazzo, Italian Mosaic & Tile Co.
Vacuum Cleaners (Spencer Turbine Vacuum System), Adam Clark.
Valves, Jenkins Bros., Limited.
Vaults, Goldie & McCulloch Co., Ltd.
Ventilating System, Sheldons, Ltd.
Wall Coverings, Robt. Simpson, Ltd.
Window Trim, Batts, Ltd.

Princess Theatre, Toronto.

Brick, Don Valley Brick Works.
Boilers, Spencer Heater Company of Canada, Ltd.
Carpets and Rugs, Robt. Simpson Co., Ltd.
Cement, Canada Cement Co.
Electric Fixtures, McDonald & Wilson, Ltd.
Expanded Metal, Trussed Concrete Steel Co.
Fire Doors, Douglas Bros.,
Fire Escapes, Canadian Ornamental Iron Co., Ltd.
Furniture, Robt. Simpson Co., Ltd.
General Contractors, Frank Farrington Co.
Glass, Toronto Plate Glass Co., Ltd.
Hardware, Vokes Hardware Co., Ltd.
Heat Regulating System, Spencer Heater Company of Canada, Limited.
Interior Wood Work, Wm. Halliday.
Marble, Canada Glass Mantels & Tiles, Ltd.
Paints, Sanderson Pearcy Co.
Plumbing, W. J. McGuire, Ltd.
Plastering, E. J. Curry.
Plastering (ornamental), Balmer & Blakely.
Reinforcements, Steel, Trussed Concrete Steel Co.
Radiators, Steel & Radiation, Ltd.
Roofing, Canadian H. W. Johns-Manville Co.
Seating, Canadian Office & School Furniture Co.
Stone, George Webb.
Structural Iron and Steel, Hunter Structural Steel Co.
Tile, Italian Mosaic & Tile Co.
Valves, Jenkins Bros., Limited.
Varnishes, Sanderson, Pearcy Co.
Ventilating System, Spencer Heater Company of Canada, Ltd.

Princess Theatre, Montreal.

Brick, La Prairie Brick Co.
Carpets and Rugs, Guelph Carpet & Worsted Spinning Mills, Ltd.
Casements and Window Construction Metal, R. MacFarlane and Co.
Casements and Window Construction, Geo. W. Reid & Co.
Electric Fixtures, Robt. Mitchell Co.
Electric Wiring and Apparatus, Van Wagner-Linn Co.
Escalator and Hoists, Otis-Fenson Elevator Co., Ltd.
Fire Alarm System, Dominion Signal Co.
Fire Escapes, F. A. MacKay.
Fire Doors, Geo. W. Reid & Co.; McFarlane & Co.
Furniture, Globe Furniture Co.
General Contractors, John Hayman & Sons.
Hardware, James Walker Hardware Co.
Heat Regulating System, Darling Bros.
Inter-phone System, Northern Electric Co
Marble, James Walker Hardware Co.
Ornamental Iron, F. A. MacKay,
Painting, Chas. Goodal,
Plumbing, Thos. O'Connell.
Plumbing (fixtures), Jas. Robertson Co., Ltd.
Plastering, McNulty Bros.
Reinforcements, Trussed Concrete Steel Company.
Roofing, Geo. W. Reid & Co.
Sprinkler Equipment, H. J. Vogel Co.
Tile, James Walker Hardware Co.
Terra Cotta, Atlantic Terra Cotta Co.
Terra Cotta (supplied by), David McGill
Valves, Jenkins Bros., Limited.
Ventilating System, Sheldons Limited.

Loew's Theatre construction Hamilton, Ont.

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Railways

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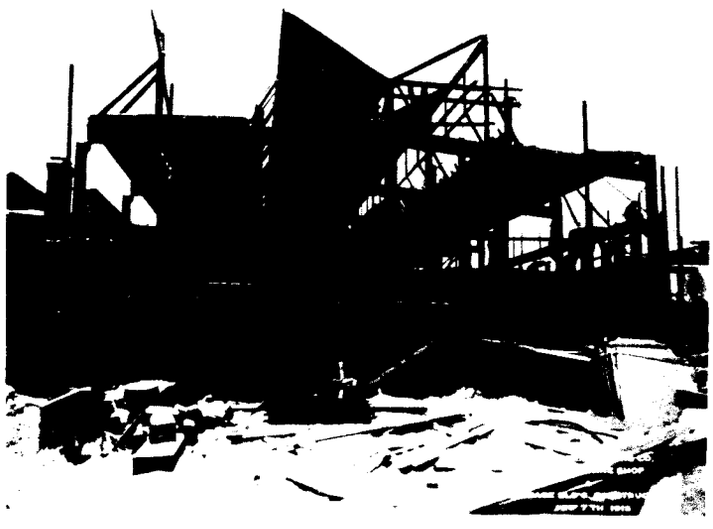

Bertram lathe shop. Dundas, Ont. Length, 324'-0", completed in 30 working days.