...CATIONS OF THE
... BRITISH FIRE PREVENTION COMMITTEE.—No. 157.
...ued by the Executive.

A REPORT

ON THE

FIRE

AT THE

EMPIRE PALACE THEATRE EDINBURGH

ON

May 9th, 1911

WHEREBY

TEN LIVES WERE LOST

BY

ELLIS MARSLAND
District Surveyor
General Honorary Secretary

and

MAX CLARKE, F.R.I.B.A.
Member of the Executive.

LONDON, 1911.

PUBLISHED AT THE OFFICES OF
THE BRITISH FIRE PREVENTION COMMITTEE
(*Founded* 1897—*Incorporated* 1899),
8 WATERLOO PLACE, PALL MALL

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Two Shillings and Sixpence

OBJECTS OF THE COMMITTEE.

The main objects of the Committee are:

To direct attention to the urgent need for increased protection of life and property from fire by the adoption of preventive measures.

To use its influence in every direction towards minimizing the possibilities and dangers of fire.

To bring together those scientifically interested in the subject of Fire Prevention.

To arrange periodical meetings for the discussion of practical questions bearing on the same.

To establish a reading-room, library and collections for purposes of research, and for supplying recent and authentic information on the subject of Fire Prevention.

To publish from time to time papers specially prepared for the Committee, together with records, extracts, and translations.

To undertake such independent investigations and tests of materials, methods, and appliances as may be considered advisable.

The Committee's Reports on Tests with Materials, Methods of Construction, or Appliances are intended solely to state bare facts and occurrences, with tables, diagrams, or illustrations, and they are on no account to be read as expressions of opinion, criticisms or comparisons.

The Committee is not responsible for the views of individual authors as expressed in Papers or Notes, but only for such observations as are formally issued on behalf of the Executive.

COUNCIL

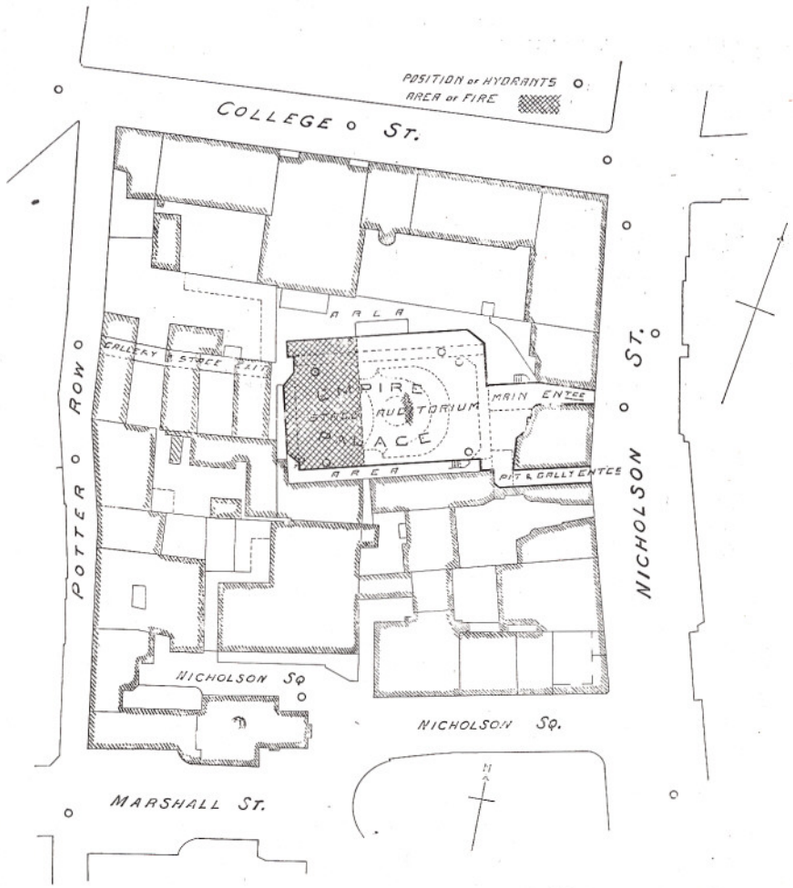


Fig. 1. Plan of the site and surroundings of the Theatre.

NOTE

The report of the fire contained in this Red Book demonstrates that the evolution of a safe theatre has proceeded on satisfactory lines.

Although there are points in the planning which might be improved, it is a matter of congratulation that a fire occurring in a large variety theatre with a full house should have resulted in the audience escaping without any loss of life, and it speaks well not only for the precautionary arrangements in the auditorium, but also for the mental coolness of the audience that confusion and panic were avoided which otherwise would have been a cause of the greatest possible danger, and if those on the stage had sought the safety exits immediately the fire occurred no lives here need have been lost.

Dressing rooms in the vicinity of the flies are to be deprecated, especially temporary or improvised ones, which Nos 9 and 10 appeared to have been.

Also an opening not closed by a door leading to the stairs to the dressing rooms was a regrettable omission in this case.

The feature of a modern theatre equipment still requiring considerable attention is the fire resisting curtain, both as to its design, construction and fixing.

Regarding the Committee's arrangements in connexion with this fire and the issue of this report two members of the Executive visited the ruins on May 13th, 1911, photographs already having been previously taken at the request of the Committee on the morning after the fire. Technical particulars and information were freely accorded to the Committee by their local member, Firemaster A. Pordage, as also by the Burgh Engineer of Edinburgh, Mr A. H. Campbell, and the Clerk of the Dean of Guild, Mr David Lyon, to whom the thanks of the Committee are tendered.

A plan of the general location of the theatre was kindly provided by Messrs Chas. E. Goad & Co. Ltd, and the sketch plans were taken from "Modern Opera Houses and Theatres," issued in 1898, and revised to show some of the later alterations and more plainly indicate points of importance in connexion with this fire.

ELLIS MARSLAND.
MAX CLARKE.

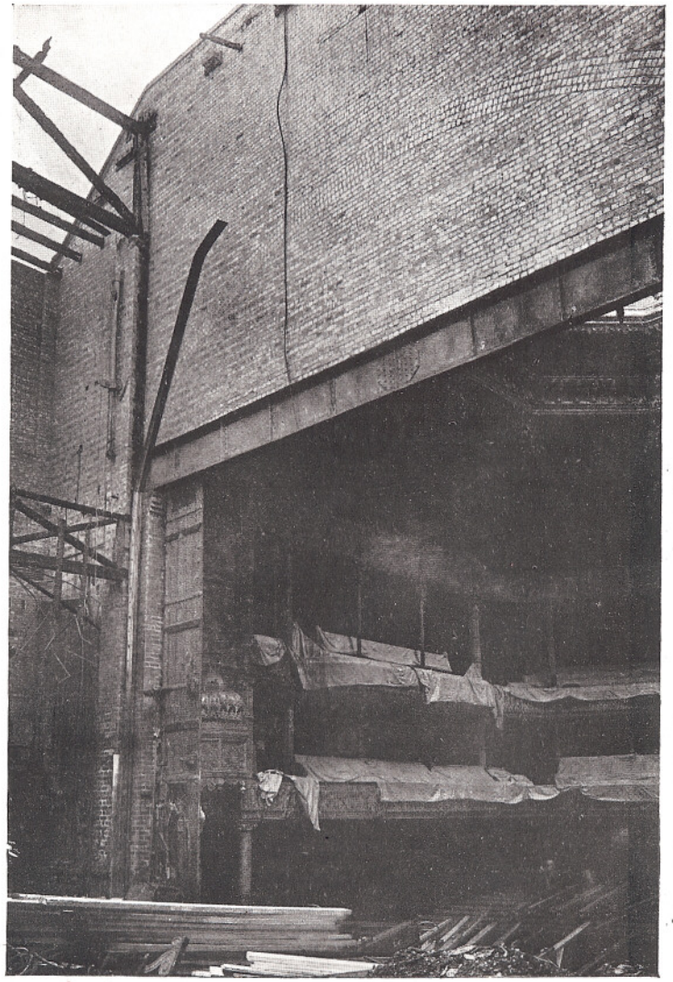


Fig. 2. View of the Proscenium Opening and Wall, showing one of the Guides in which the Safety Curtain ran.

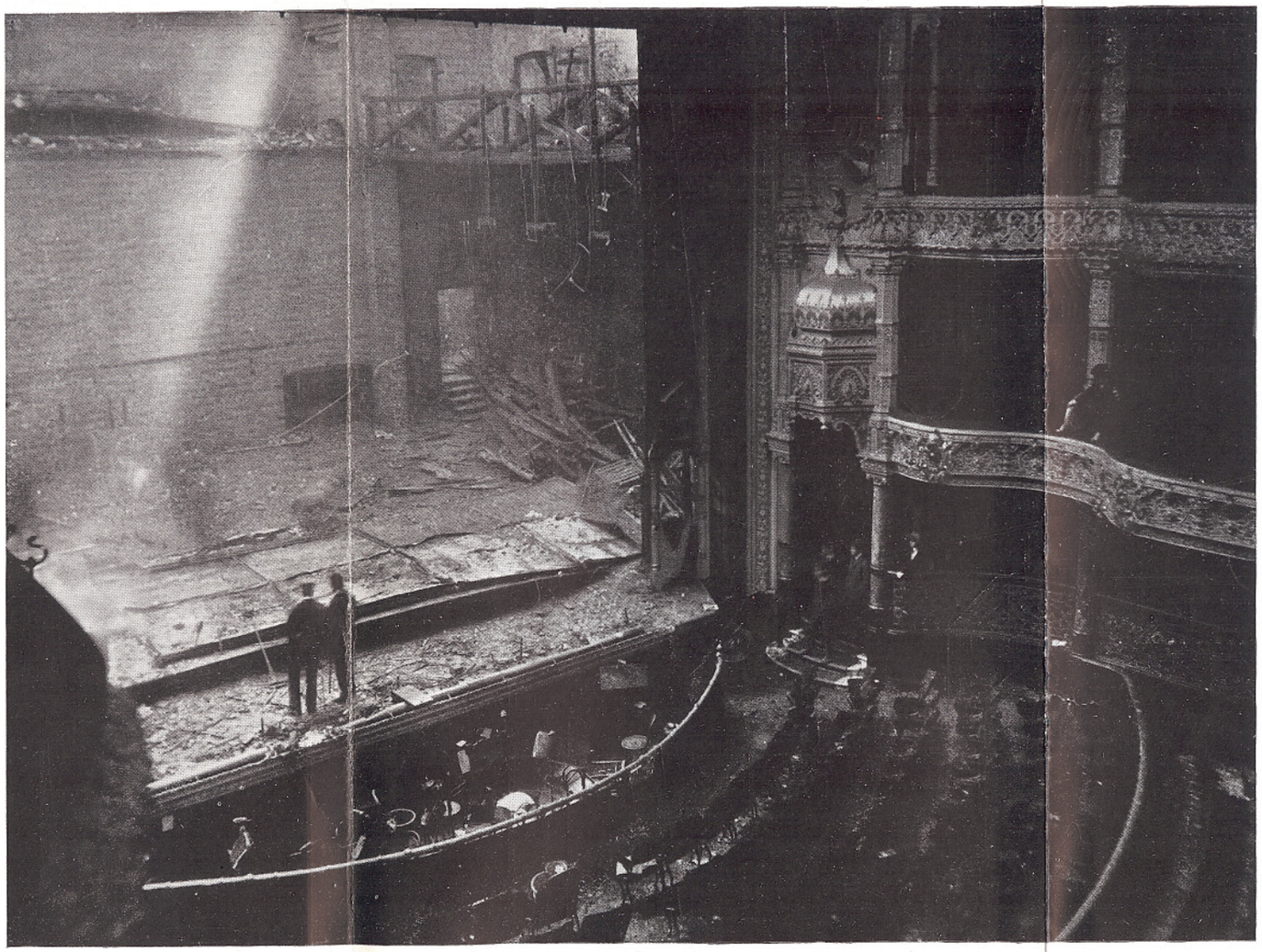
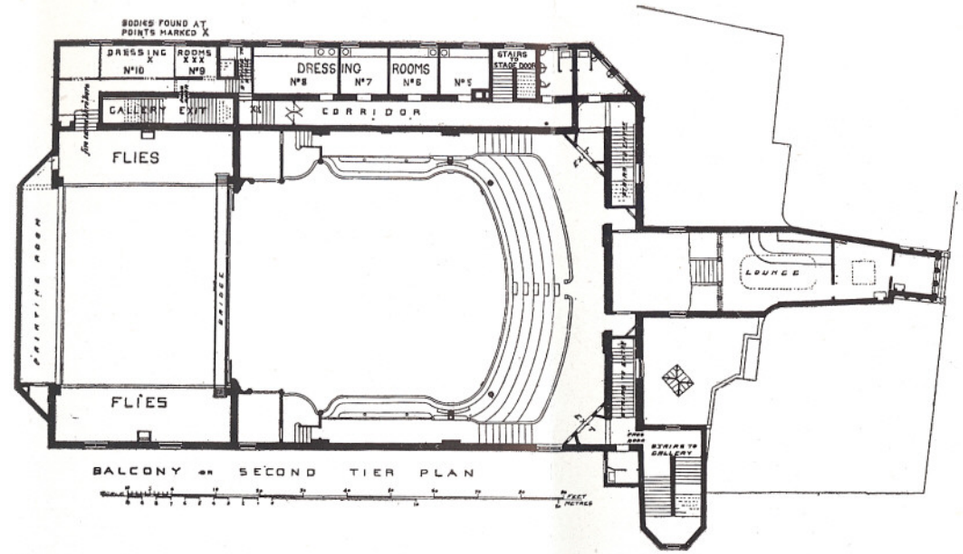
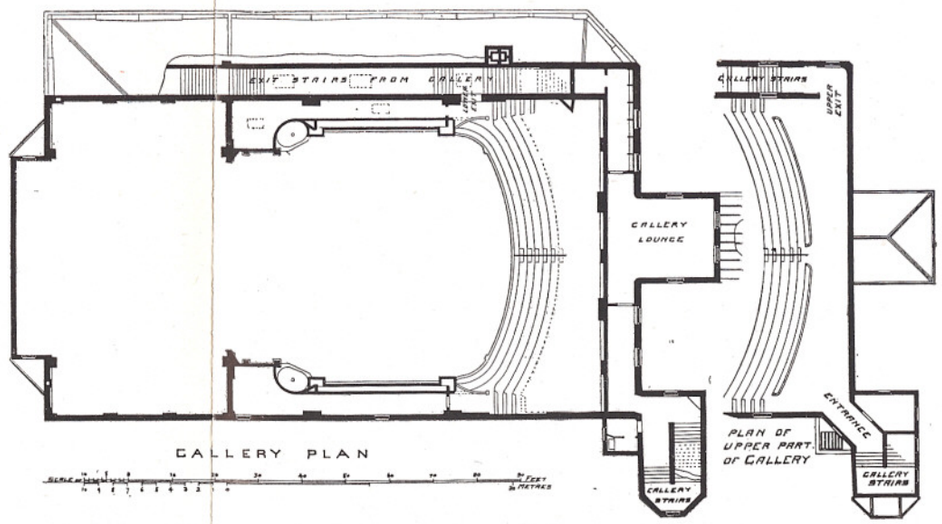
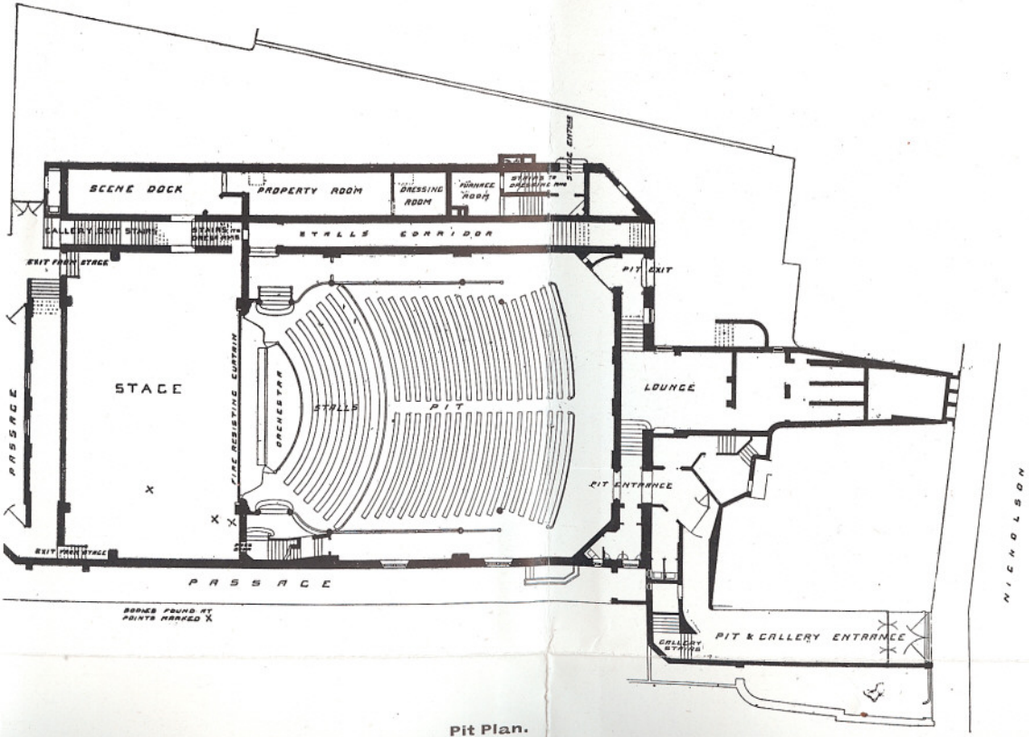


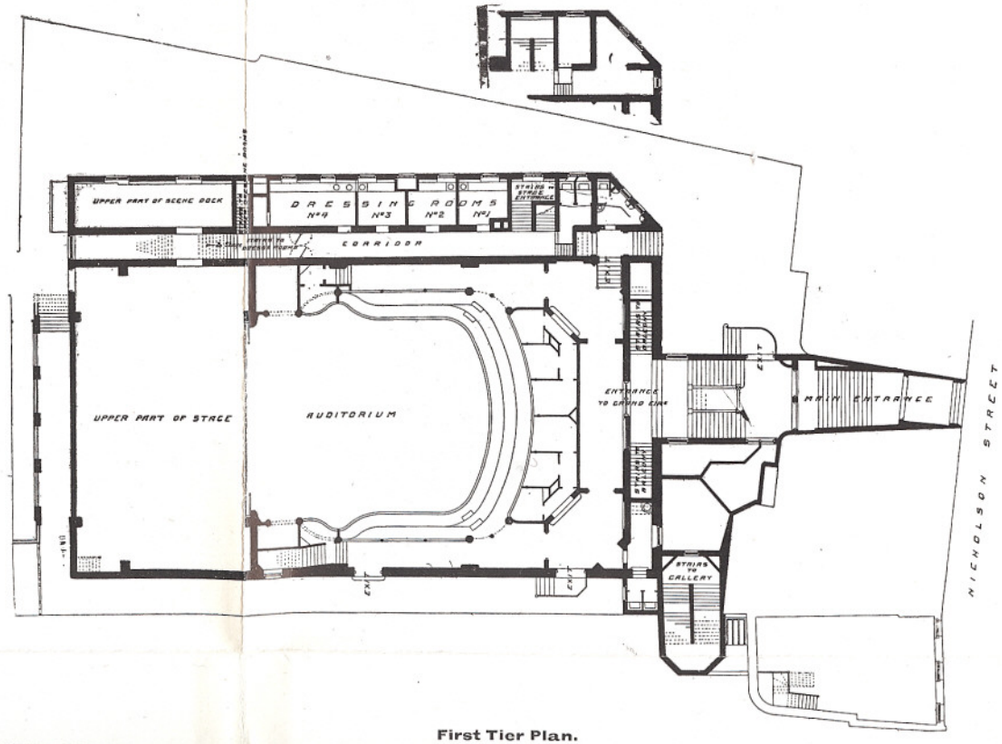
Fig. 3. View of the P. Side of Stage from the Auditorium showing the collapsed Safety Curtain and the Stage Exit Door.







Pit Plan.



First Tier Plan.

Figs 4 and 5. PLANS OF THEATRE.

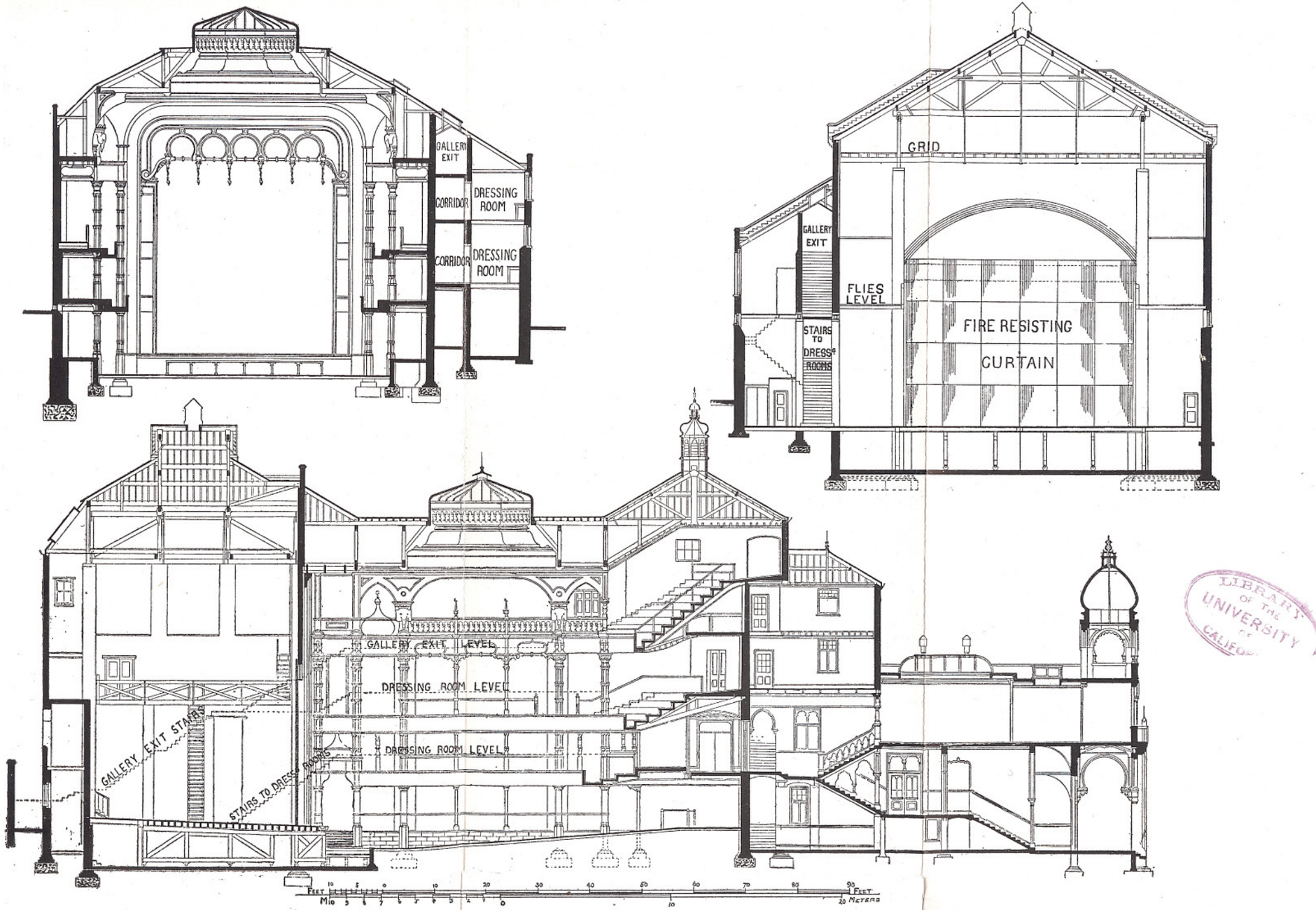


Fig. 6. LONGITUDINAL AND TRANSVERSE SECTION THROUGH THEATRE.

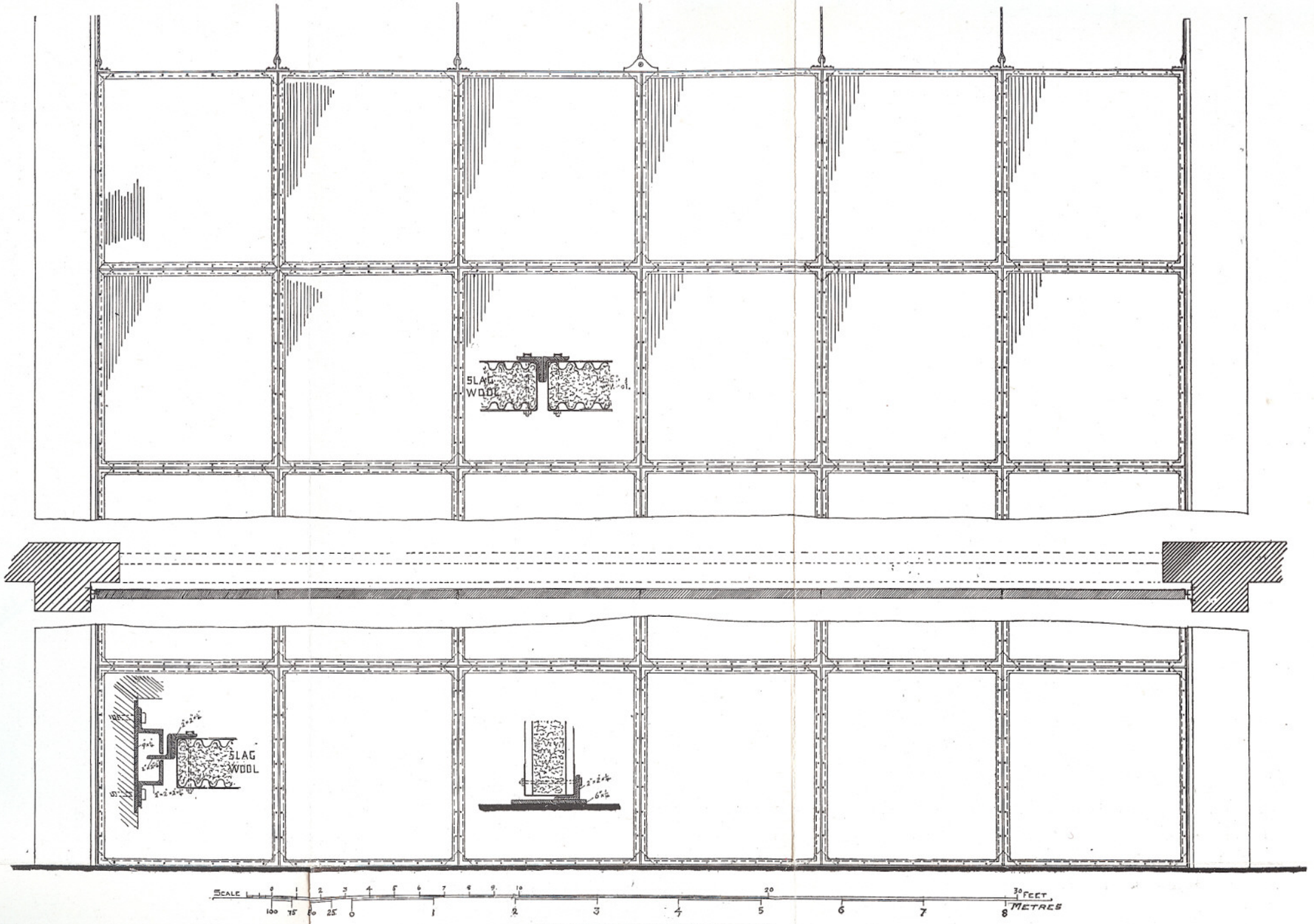


Fig. 7. DETAILS OF SAFETY CURTAIN.

A REPORT

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The building was known was situate in the centre Nicholson Street on the East Square on the South, and Co entrances and exits were in supplementary exit in rear, under some tenements into

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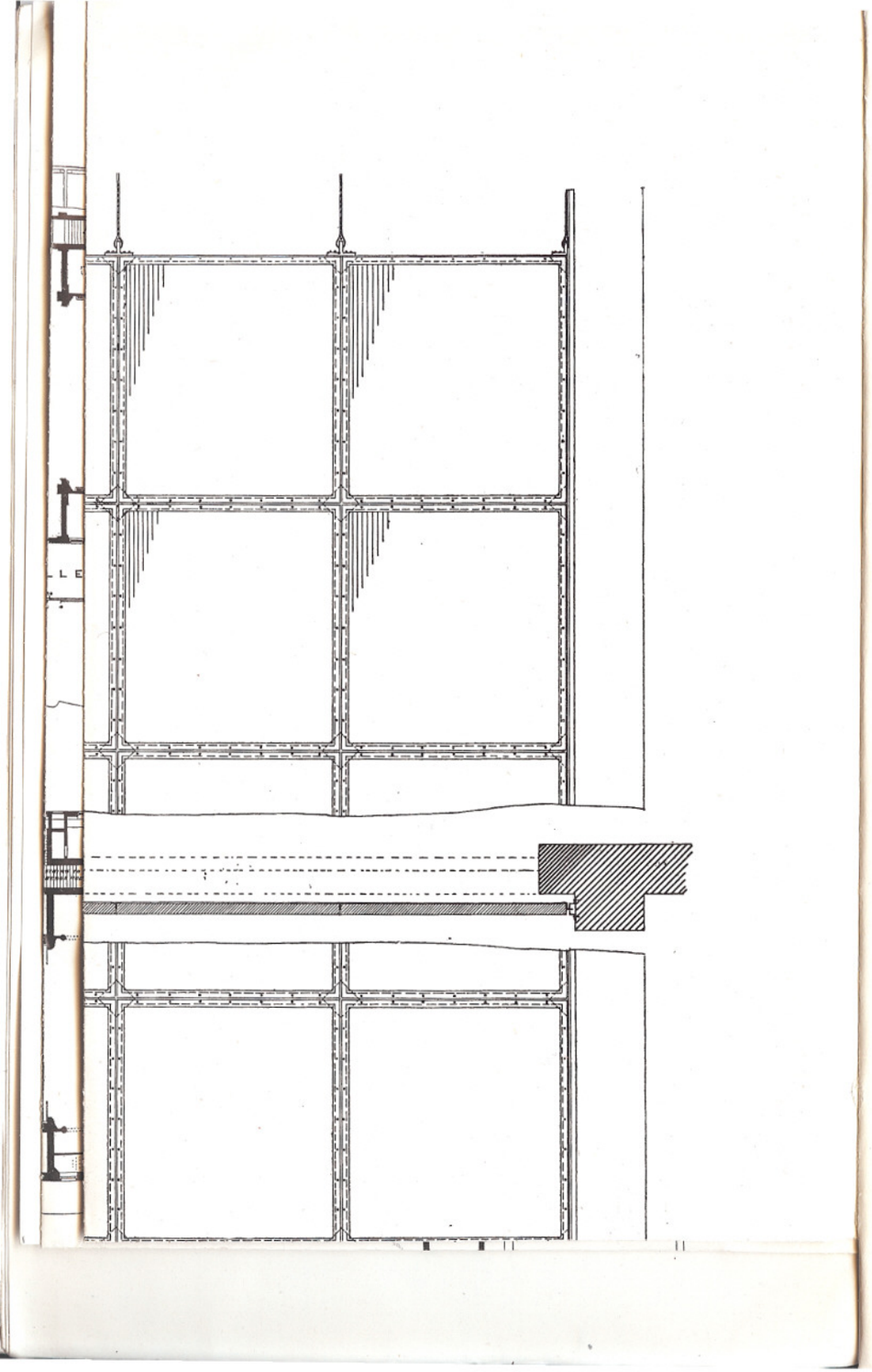


A REPORT ON THE FIRE

OF

MAY 9th, 1911

AT

The Empire Palace Theatre Edinburgh

BY

ELLIS MARSLAND
District Surveyor, General Honorary Secretary

and

MAX CLARKE, F.R.I.B.A.
Member of Executive.

THE BUILDING

The building was known as the Empire Palace Theatre, and was situate in the centre of a block of property bounded by Nicholson Street on the East, Potter Row on the West, Nicholson Square on the South, and College Street on the North. The main entrances and exits were in Nicholson Street, and there was a supplementary exit in rear, from the gallery, into a passage way under some tenements into Potter Row (*see Block Plan*). *Fig.* 1

The stage entrance was on the north side. There were also two exits from the rear of the stage on the west side into the passage leading into Potter Row.

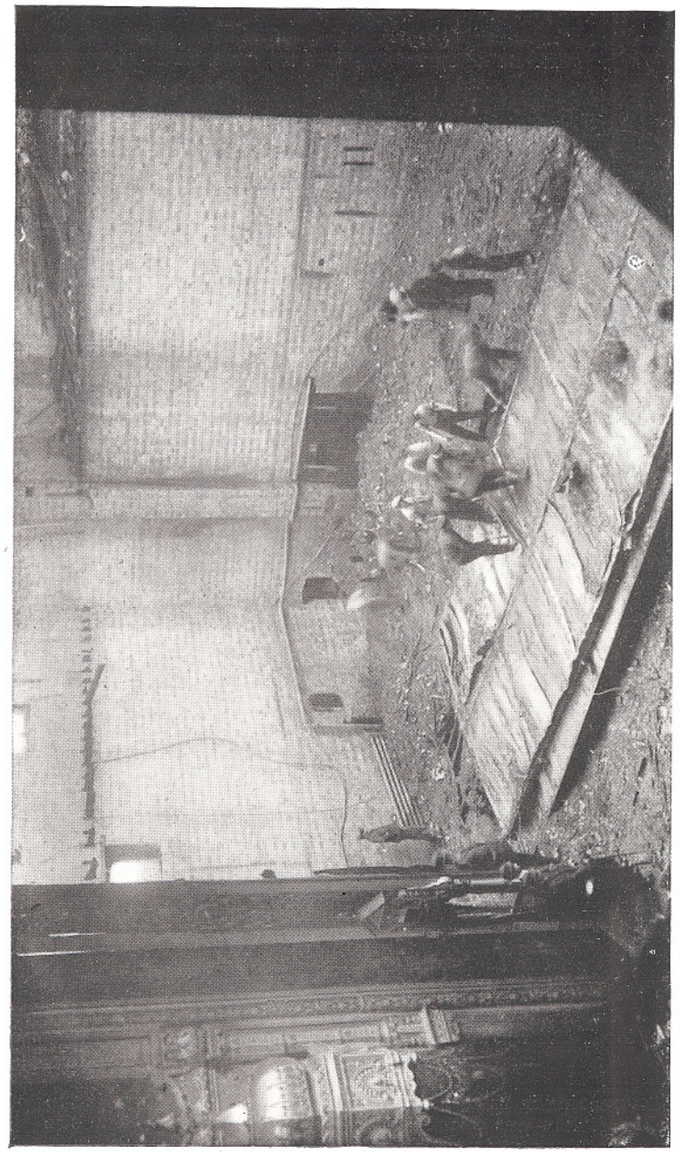
The general arrangement of the theatre with the entrances and exits is shown upon the Plans and Sections. (*Figs.* 4 to 6.)

The general construction was of brick, the staircases and corridors being of fire-resisting material. The roofs of stage and auditorium were of timber. There was a circular open lantern in the roof of the auditorium and this was covered by an iron and glass sliding roof.

The opening from the stage to the dressing-room staircase was 5ft. 6in. (*1.676m.*) wide and 20ft. (*6.096m.*) high, and also served as entrance to the scene store and property room at the stage level, and was without a door.

THE CURTAIN

The opening in the proscenium wall separating the stage from the auditorium was closed by a fire-resisting curtain. The size being about 44ft. wide and 32ft. high (*13.411m.* × *9.753m.*).



THE EMPIRE PALACE THEATRE, EDINBURGH.

Fig. 8.—View showing position of the safety curtain after its collapse, also the O.P. corner of stage and the exit door. *p.* 8.

It was formed of 2 × 2 × ¼in. (*0.051m.* × *0.051m.* × *0.006m.*) framed angle iron, and was divided into 24 compartments, which were filled in with panels 4in. (*0.102m.*) thick, constructed with corrugated sheet iron on each face and filled in with slag wool. (*See Fig.* 7.)

On the two vertical edges of the curtain frame a 2 × 2 × ¼in. (*0.051m.* × *0.051m.* × *0.006m.*) angle iron was riveted, and this ran in a groove formed of 2 × 2 × 2 × ¼in. (*0.051m.* × *0.051m.* × *0.051m.* × *0.006m.*) **Z** irons fixed ½in. (*0.012m.*) apart and bolted to a 9 × ¼in. (*0.229m.* × *0.006m.*) plate, thus forming a runner in which the angle iron on the vertical sides of the curtain ran. The curtain was suspended by wire ropes at 6 points and ran over pulleys fixed to the proscenium wall, three on each side, to which were attached the counterweights. The curtain was raised and lowered from the centre point of the top rail of the frame by a wire rope which was conveyed to the winch on the P. side of the stage. There was also an automatic attachment for lowering the curtain at the stage exit at the N.W. corner.

LOCATION AND PROGRESS OF FIRE.

The fire occurred on Tuesday, May 9th, 1911, a few minutes past 11 p.m. and started on the P. side of the stage, alleged to be caused by the fusing of an electric wire in connexion with a temporary lantern used in a scene entitled "The Lion's Bride." This ignited the draperies and hangings of the scene just at the conclusion of the performance.

The lantern in which the fire started was of oriental design, made of wood with gelatine transparencies of various colours. The lantern was lighted by seven 8-c.p. lamps. The lantern and all the electric lights and wiring were the property of the Lafayette Company and were plugged on to the Theatre Company's mains. The whole of the scenery was the property of the Lafayette Company, and no one can say authoritatively whether it was treated with fire resisting solution or not.

Futile efforts were made to extinguish the fire by the use of the appliances on the stage. The drop curtain, which was on the stage side of the fire-resisting curtain was first lowered, and subsequently the fire-resisting curtain. This could not be lowered to the stage level owing to its being fouled by the drop curtain, which had been blown by the draught beneath it, and it became fixed about 2ft. 6in. (*0·076 m.*) above the floor.

The smoke and flames from the stage drew into the auditorium by this means and some damage was done.

The "call" was received by the Fire Brigade at the Central Station at 11.20 p.m., from a fire alarm point opposite the theatre in Nicholson Street and the flames were issuing from the door in rear of the stage when the brigade arrived.

The fire was particularly fierce owing to the inflammable nature of the stage fittings and effects.

The fire was blackened out at 12.15 a.m., but continued to smoulder during the night.

The fire-resisting curtain remained in position 18 mins. after the fire started, then it drew out of the guides, fell inwards towards the stage and doubled up horizontally in the centre. (*See Fig.* 8.)

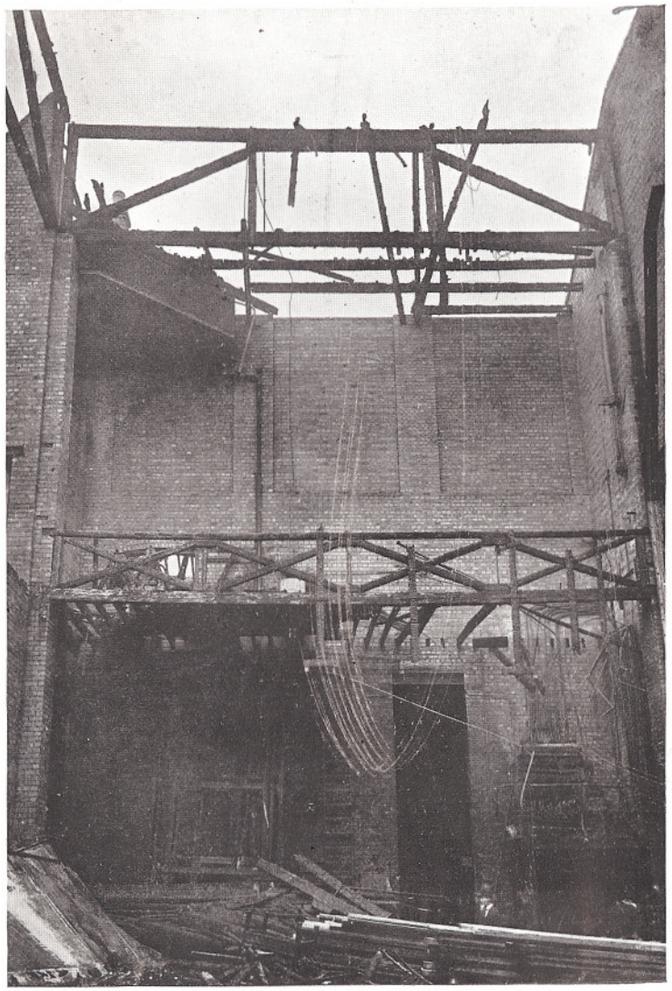


Fig. 9. View of the P. side of Stage, where the fire started, showing the opening leading to Dressing Rooms Stairs, also the Flies and the door from same through which the fire passed and attacked Dressing Room No. 10.

During the fire the wind was in the east, blowing over the roof of the auditorium towards the stage.

LOSS OF LIFE.

Ten lives were lost. Three were suffocated on the stage and partly consumed. Three were found suffocated in the temporary dressing room No. 9, adjoining the entrance to the flies on the P. side, and one in the adjoining dressing room, No. 10 (*See Figs.* 10 and 17). Two were suffocated on the staircase leading to the upper dressing rooms on the west side of the swing doors across the corridor (*See Fig.* 12), and a flyman was injured by jumping from a window in the flies on the O.P. side into the court below, and subsequently died of his injuries. The death roll also included a lion and a horse.

The three bodies found in No. 9 dressing room were apparently suffocated by the smoke and fumes, as they were not affected by heat, as the contents of the room and the match-boarding and painted canvas lining were practically intact, although the roof was burned off. (*See Fig.* 10.)

The whole of the audience of about 3,000 people safely reached the street through the various exits and no casualties are reported.

LOSS OF PROPERTY.

Damage to Building.

The Stage.—The Stage and contents above the stage floor were completely destroyed and the roof off, and there are holes burnt through in portions of the stage floor. The iron plate girder over the proscenium opening, which was unprotected, is in position, and a little buckled. The 9in. (*0.228m.*) brick filling from the top of the girder to the underside of the 14in. (*0.356m.*) brick arch spanning the proscenium opening is slightly bulged. The 14in. (*0.356m.*) wall over the arch is very little damaged. The proscenium wall on the O.P. side is cracked in a diagonal direction, the top of the crack being nearest the proscenium opening, and then it takes a downward course towards the external wall.

The Auditorium.—The stage front is not burned; many of the electric lamps in the float light are intact.

The orchestra rail is intact, and the curtain to same is only burned in places.

The backs of the orchestra stalls are burned more or less, the front row worst, and the damage decreases towards the back.

The hangings of the private boxes on the P. side are very much burned and nearly all gone.

The paint work to the decorations on the tiers at the sides of the proscenium is scorched and burned off in some places. The decoration on the fronts of the circles are hardly damaged at all.

The ceiling is damaged, but not badly burned. In the central lantern, over which is the sliding roof, the fire came over the proscenium wall and burned a portion, and the iron sliding roof has been destroyed.

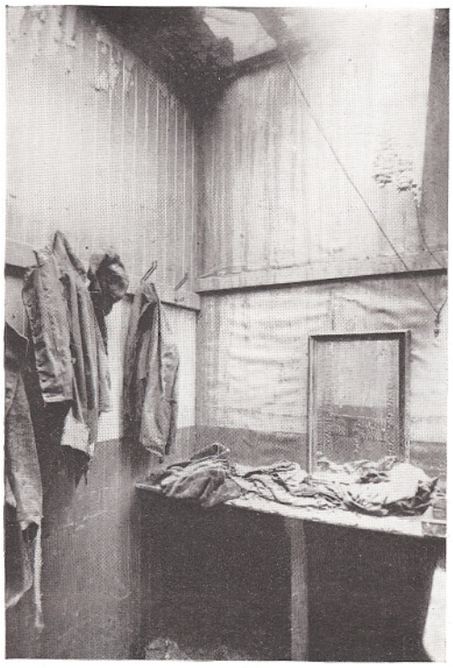
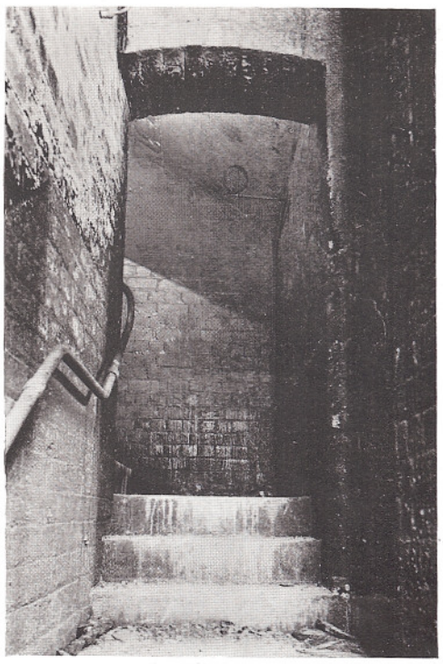


Fig. 10. Interior of Dressing Room No. 9, where three bodies were found.



(*a*)

Fig. 11. Stairs down from Second Floor Dressing Rooms on to Stage. Two bodies were found on the landing on level of (*a*), *p. 12*

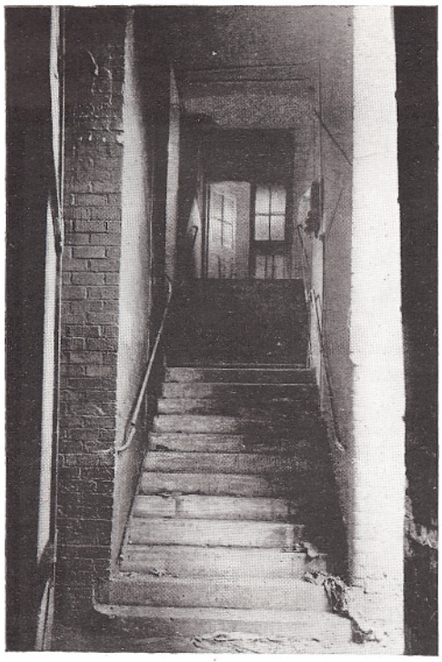


Fig. 12. Stairs from Stage level up to First Floor Dressing Rooms, the opening to the left, half way up, leads up a narrow staircase to the Second Floor Dressing Rooms.

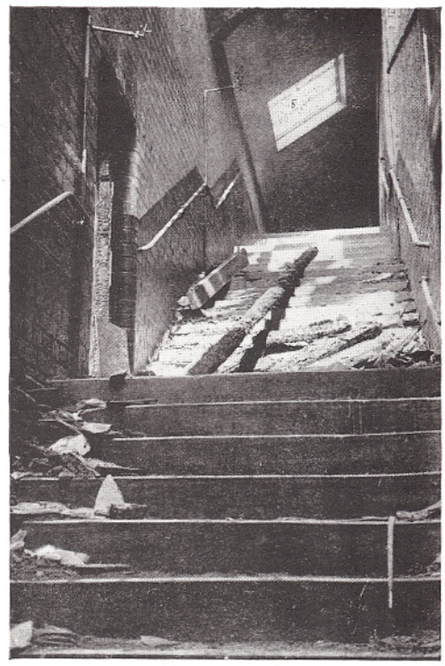


Fig. 13. Stairs from Gallery Exit to Potter Row, showing Pass Door on left to Dressing Rooms Nos 9 and 10. also to P. Flies. *p. 13*

APPENDIX A.

THE ENQUIRY.

SUMMARY OF EVIDENCE.

Being extracts from the Notes of Evidence at the Public Enquiry held in the Sheriff Court-house, George IV Bridge, on Thursday, June 15, 1911.

Mr. Renton, Procurator Fiscal, conducted the enquiry on behalf of the Crown.

GEORGE MILLER SINCLAIR (Stage Manager).—Mr Lafayette began his engagement on Monday, 1st May, and it was to last for two weeks. Before he entered upon the engagement he communicated with me and mentioned the arrangements he might make. Everything went on satisfactorily until the night when the fire occurred. The class of plant which he brought with him was of the same nature as the plant generally brought by artistes of that kind; he had good stuff. It is usual for artistes in the same position to bring their own plant with them, both scenery and fittings. He brought a very considerable quantity of scenery and also electric fittings. The General Manager, Mr Spinks, was in charge of his arrangements, and his electrician was Mr Merwick. We have an electrician in the employment of the Theatre, Mr Cawood, and the electrical arrangements, so far as regards the supply of plant, were in the hands of the Theatre Company. The second part of the performance given by Mr Lafayette consisted of an entertainment known as "The Lion's Bride." The model in Court gives a good idea of what the audience would see. To the back is represented the lion's cage. There was a curtained roof which swung from a grid, and immediately below that canopy there was a hexagonal lantern, about 2½ feet in height and about 15 inches in diameter. Holes had been bored in it, which were covered with some gelatine material to allow the light to come through. Inside there were seven little electrical lamps. The electricity to that lantern was fed from the prompt side by means of a wire connected with the switch on the Theatre side, and fitted into the top of the light. That was supplied by the Empire Company and was attended to by Mr Merwick. There were a number of other electric lights on the stage as shown on the model, and there was some candelabra with wax candles sticking into them. I am satisfied the fire had nothing to do with any of those fittings that were on the stage. "The Lion's Bride" Act commenced at twenty minutes to eleven. It lasted twenty-five minutes. The first thing that attracted my attention to anything being wrong was a woman shrieking. I was at the side of the stage on the prompt side where I have a box of my own. It was about ten minutes past eleven. Lafayette had completed the act. The whistle had been blown and the tableau curtain had been lowered. I did not know that anything was wrong until Merwick came off the stage, knocked off the lever of the iron curtain and let it down. The iron curtain was a thing that came down and completely separated the auditorium from the stage. When Merwick pulled the lever the curtain at once began to descend. At that time two of the men in the employment of the Theatre named Gilbert and Wilson were standing upon perches operating a limelight on each side. If the curtain had been allowed to come down in the way it was originally set off, these men would have lost their lives. I consequently arrested the descent of the curtain in order that they might escape, and after that

I continued to allow the curtain to come down. It did not come full down to the stage. When I arrested it, it would be about 12 feet down. By that time it was on the buffers and after that it came down slower. The back door must have been open, because the draught blew the tableau curtain forward about 2 feet 6 inches, and that helped to stop the iron curtain from coming down all the way.

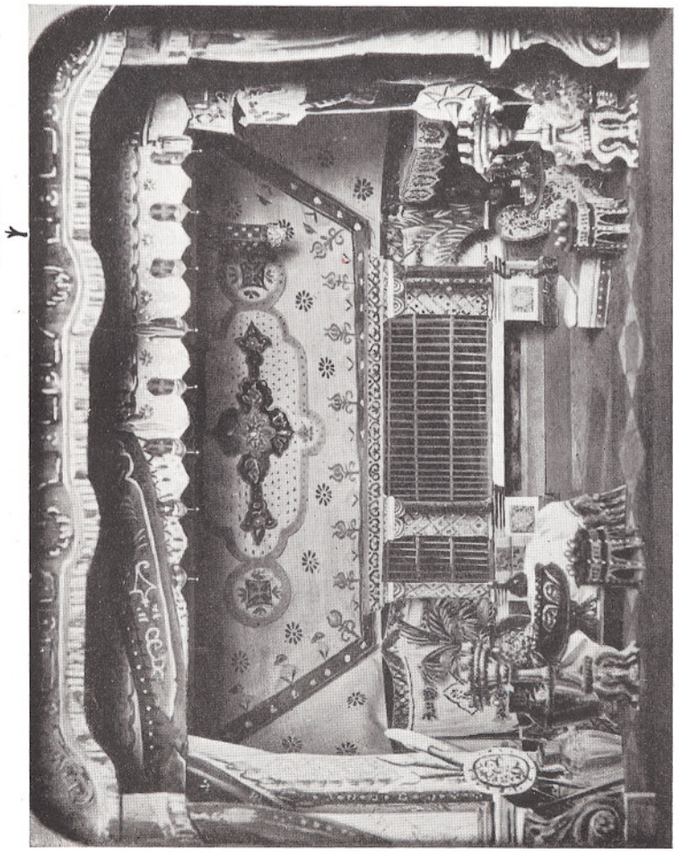


Fig. 14. View of the Scene (reproduced from a model).

Question. Can you say, from your own knowledge or anything you saw, whether the fire had originated in any way in connexion with the lantern?

Answer. I don't know whether it did; it originated at the prompt side,

because I could not see it until I looked. I had the curtain in my hand before I looked round to see what was wrong. The lights went out not immediately, but very shortly after the fire. I suppose that the heat upon the stage melted the fuses. The supply of electricity to the stage was partly from a different source from that which supplied the auditorium. The lights in the auditorium went out some time afterwards too. In point of fact all the audience got out in perfect safety, and there was no panic that I saw. Very shortly after the fire broke out, the Fire Brigade came upon the scene. When the curtain came down Mr Fountaine came round, and he and I went to the front and played upon the curtain. We have a special fireman named Kendal attached to the Theatre. He was at the back of the stage. Immediately on the fire breaking out, he took steps with the local men to do what he could. So far as I know, all the hydrants connected with the water supply were working satisfactorily.

The Empire Stage is more than usually large as stages go. I don't think it was unduly crowded in any way on the occasion in question. It was pretty full, but it has been as full before. Kendal played his hose through the back door on to the fire, until he was driven back by the heat. The outside door on the O.P. side, which leads to Potter Row was also open; some one put his back to the panel and burst it open, and some of the Artistes got out that way. I had a key for the pass doors, and the manager had also. In my opinion it would be wrong to leave these doors open unless there was a man at them. The pass door on the side where I was is not locked, because I am almost always there; when I leave it, it is locked. These doors are fireproof and serve the same purpose as the iron curtain. Lafayette had been once at the Empire before, and on that occasion everything went right. His stage properties were quite of a usual and ordinary nature. They had been subjected to a fireproofing process, but of course nothing is absolutely fireproof. On the night of the fire I never left the stage until it was absolutely necessary for my own safety. I was in my little box on the prompt side when the electrician went to lower the iron curtain. I stopped the curtain coming down, because the position of the men who were working the perch lights was a rather dangerous one. If these perches are to serve any purpose, there is no other place where they could be put; they have to be there at the front. The iron curtain when it was started to be brought down worked quite easily. It had been down that night already at the end of the first house. It lacked a little of its momentum by having been made to stop. There was one hydrant on each side of the stage on the stage level, one in the prompt sides, and one in the cellar. There was a hose attached to each. These were all in good working order on the night of the fire. The size of the hose was 3 inches, and there was a small 1½ inch hose on the stage to each side as well, independently of the 3 inch one on to the same hydrant. The wire which fed the lantern was new, got specially for Lafayette's performance, and supplied by the Empire Theatre Company. I don't suppose the stage lights lasted more than three or four minutes. I think they would be in long enough after the fire started to allow of those who were on the stage to escape, if they had gone straight to the open air, and had thought nothing of their properties or of other people. I believe about three minutes elapsed from the time I noticed the fire until I got through the pass door into the auditorium, because I thought of going to the back first. The same time was available for the other occupants of the stage. In my opinion, if all the people on the stage, whenever they saw there was any danger, had at once made for the available exits, I think they could all have got away quite easily.

The Theatre was not fitted with any kind of automatic arrangement in the event of fire, except fire alarms. There were no sprinklers. The arrangements for Lafayette carrying out his performance were not the same as in every other case; all my people had to leave the stage.

It was left solely in charge of his men and myself. His performance in no way interfered with the general arrangements for introducing the electric light. The absence of my men from the stage did not increase the difficulty of dealing with the fire; they were at hand to be called when wanted.

They were behind the stage and accessible in a minute.

It was one of Lafayette's requests that my men should leave the stage, and that was carried out, with the exception that I, as Stage Manager, and Kendal remained.

PROFESSOR HARVEY LITTLEJOHN (Police Surgeon).—I saw the remains of all the bodies which were found at the Empire Theatre, and examined them before they were removed from Edinburgh, except in the case of the man who died in the Infirmary. It was quite plain that in all the cases except three they had died by suffocation—they were comparatively slightly burned. The others were very much burned, but the great probability is that they died in the same way—that they were first of all overcome and rendered unconscious by the fumes, and afterwards the flames attacked them. In my opinion, they had not suffered at all. It would be a proper general description of the cause of death to say that they were suffocated or burned.

ADAM HORSBURGH CAMPBELL (Burgh Engineer).—A Theatre of this kind requires to be licensed annually, and the Justices require to be satisfied that all the arrangements are quite satisfactory. I made an inspection on Tuesday, 2nd May, this year. I believe that the Theatre had been inspected annually by my predecessor prior to that date, and had always been passed with a view to being licensed. As a whole, I considered the arrangements satisfactory. There were, of course, points of detail that were objectionable, and I noted them, with a view to calling the attention, through the Justices, of the Management to these matters; but taking it generally, I saw no reason to disagree with the action of my predecessors in considering the arrangements satisfactory for licensing purposes. Suggestions have occurred to me, in view of what I have seen owing to this fire, in which improvements can be effected in future. I am entirely satisfied with the auditorium. In regard to the stage, I suggest a more effective disconnexion between the stage and the dressing rooms.

E. WARD BUSSEL (Scenic Artist).—I reconstructed the lantern which has been referred to. It was an old lantern and was considered very good. I mended the woodwork and canvassed it over with glue and canvas to make it more strong, and then I had to see the electrician carry out his work. The lantern was made of wood, hexagonal, and was possibly 30 inches high by 15 inches in diameter. At each end there was a round hole a foot in diameter, so that there was a good current of air through. The boarding of the body of the lantern would be a quarter of an inch thick. In the canvas and wood I bored thirty-six holes—six on each side—about three inches in diameter, to give the idea of a perforated lantern all over. These holes were covered with gelatine. Each side had a large piece of gelatine that covered the holes nailed on. That is the kind of stuff that is usually used for that purpose I believe. It would be possibly one-sixteenth of an inch thick. We got that in London. It was supplied as new. The effect was to cause the light from the lamps to shine through. Inside the lantern there were seven electric lamps hanging by cords. It was not I who had to do with the fitting in of these; I had an order from Lafayette to see the electrician do it. The electrician was a Mr Slivers, who preceded Mr Merwick. The lantern hung from a grid and was attached by a rope. There was a ring and hook of five inches, and three feet of iron rod before you came to the lantern; there were three of these iron rods going up, and then one rope from that. In that way there would be a little play given to the lantern swinging back and forward when it was being raised up. I believe the electric current which fed the lantern was led in at the top of the lantern. I came to Edinburgh

with Lafayette and was present in the Theatre on the night when the catastrophe occurred. The lantern on that occasion was swung just below the canopy roof, as shown in the model. I prepared this model at the request of Moss' Empire Company, and it illustrates as near as possible the position of the scene at the time the fire broke out. It shows the lantern swinging just below the canopy towards the prompt side. The lantern was fed by a light wire proceeding from the prompt side. I was in the flies at the prompt side when the fire broke out. I had occasion to look at this very spot through the manager being sent up to ask me how the scene should be rearranged, as it was not quite correct. That called my attention to this very cloth, and I explained how I intended it to be hung, and he said it would be seen to in the future. I was still looking at the cloth, and I saw the glow of the lantern through the cloth. I was there for a few minutes, when I noticed a small pale blue and yellow light running up a wire as it were.

Question. Was that the wire by which the lantern was being fed? *Answer.* I should take it to be so. The other wire was inside the lantern. It struck me that I had seen the same thing in the Waverley Market, and I said " That will be a fire if it is not attended to," and while looking I noticed a very brilliant light underneath the cloth, and I said, " that looks like a fire." I called " Fire " over the fly rail, and said " Drop the curtain," but I hardly expected anyone to hear owing to the noise of the drums. By that time the flame was coming up through the ceiling cloth. There was a good deal of inflammable material in the shape of curtains, and so on, which would very quickly go on fire. I noticed the two midgets, and one of them—I think it was Alice—said " Save me." I took them out into the passage, and when I came back I noticed that the flames were right up touching the bottom of another scene that was overhanging the lamp. That was on fire in a very few seconds, and then it began to return down again, and it ran along the grid both ways and came down again. I went to the hydrant thinking I would have a try at it. I found it was a bit stiff, and I did not get it moved. I ran half across the bridge, but by that time I was afraid to stay any longer, and I came back again. By that time the fire was all over and the smoke was descending. I am certain there was no other light of any kind in connexion with the canopy through the lantern. I don't know whether there were any lights on the lion's cage. I don't think there were any of the Theatre lights in use that night other than the footlights. The material given to me by Lafayette was supposed to be fireproof and supplied as such. Scenery of this kind is supposed to be fireproof woven, but of course there is nothing fireproof with a good light underneath it.

Question. From the description you have given of the lantern and the manner in which it was hung, do you think there would be any risk of those lighted electric lamps coming in contact with the gelatine windows? *Answer.* It is quite possible, according to how the lantern was hanging or swinging. If they were hanging straight they would be 1½ or 2 inches from the gelatine windows. The cords to which the lamps were attached were hanging loose, so there might be a little swing in that way.

At the nearest point the lantern was about two feet from the cloth which came over the cage. The top of the lantern was bound to be three feet from the junction of the cloth. So far as I know, the electric fittings and joints inside the lantern were all in order. So far as my work of supervision was concerned, I found them in order. I saw the light run up the wire that came from the prompt side. I cannot say whether it is the case that that wire came over from the prompt flies almost at a right angle. It left the flies at a right angle. There was no asbestos shade on the lantern. Not more than two or three minutes elapsed from the time I noticed the fire until I escaped altogether; the place was then unbearable. There was plenty of time for anyone who was on the stage to get away. When I heard that Lafayette

had not been seen I went into the building, but was advised to go no further. I went round to the stage door, and the whole place was in a blaze. I was at the hydrant not more than a few seconds. I found the hose there all properly coiled. It was very stiff—it seemed damp. I tried the hose before I tried to turn on the hydrant. I have noticed in many places the pipe has been slung by a small piece of twine and hanging up and down, and in the case of a rapid fire you turn a lever and it is on, but when you have to uncoil a quantity of pipe it occupies time. I did not meet anyone when passing along the flies to my knowledge. I naturally thought they were all away. If the children had remained with me they would have been saved too.

I am sure it was gelatine and not celluloid that was over the holes. It is similar to what I use for sketching for engraving work, and it is like very fine glue. Gelatine does not burn easily. I did some work for the Coliseum, and it was tried and found quite safe. I don't think the fire could have been caused by the lamps themselves striking against the gelatine windows.

SAMUEL LLOYD (Managing Director of the Glasgow Olympic Theatre of Varieties).—There were about thirty-four persons in Lafayette's Company. He had also a lion, a horse, and two performing dogs. It was one of his rules that during his illusion only his own Company should be on the stage, with the exception of certain members of the Theatre Company who were necessary for safety purposes. I was in the auditorium at the time the fire broke out. The first thing that attracted my attention was an extraordinary light just at the top of the lamp—a light that had not been there previously when I had seen the performance. I could not form any opinion as to what caused the light. It got at once in contact with the canopy, and all the scenery would go very quickly. I called out to the Manager to rush round and see that all the audience doors were open. I then attempted to get round to the stage to see if I could render assistance, but I was prevented owing to the crush from the exit doors. I did not actually get on to the stage. Immediately after the fire broke out an attempt was made to lower the curtain. I afterwards identified the body of Lafayette himself. His body was found close to the O.P. door which leads to the auditorium. The body of another man, Scott, was found close beside him. Lafayette's body was subsequently found in the basement immediately below. I think he must have dropped through. That was the side on which he kept his horse, and he also had a table there. Judging from that, the inference seemed to be that he had gone there perhaps for the purpose of trying to save his horse, and had been caught by fire, and he had then tried to get through the iron door that leads to the auditorium. I know that was locked. It is kept locked to prevent any of the audience from getting on the stage. I also identified the bodies of the little midgets and of Baines. I saw them in the corridor. It is quite customary for scenic artists to use the gelatine material that was used in connexion with the lantern here. I don't think gelatine would burn. It is quite different from celluloid. Even if any of the lamps had come in contact with the gelatine I think it was not the least likely to take fire. The material would shrivel up. Being shown the connecting wire which was feeding the electricity, that is the kind of stuff generally used for the purpose, varying in thickness. I have no knowledge of the kind of wire that was inside the lantern itself.

I usually have the pass doors from the stage to the auditorium unlocked; if they have to be locked I have a man stationed to be ready in case of emergency.

With regard to fireproof draperies the fireproofing is useful to protect against a small amount of flame, but I am afraid it is useless as against a strong flame and great heat. That is as far as science has gone as yet.

It is not usual in the construction of Theatres to have the dressing rooms entered from the flies.

The dressing rooms here did not open from the flies; they opened off the corridor. It would have been insane to put the dressing rooms opening off the flies. The exit from the flies is for the use of the flymen only.

EUGENE CAWOOD (Electrician).—I superintend the electric arrangements connected with the Theatre. Part of the lighting of the

Fig. 15 View of the O.P. side of the stage showing the iron pass door to auditorium and the curtain counterweight.

auditorium is independent of that of the stage. I supplied the cable required by Mr Lafayette's electrician. Merwick had brought with him his own electrical fittings. The flexible cable with which I supplied the electricity to the lamp was perfectly new. I had got it in on the Thursday or Friday before that. It is insulated with india-rubber,

and there is taping on the outside. That is the usual kind of construction. In order to feed the lantern there was a connexion from the prompt flies—a plug into a pilot. I am now shown a socket and plug, which represents something like the idea. Supposing this was the socket and plug at the prompt side, the cable was put into it and carried from that to a similar plug on the top of the lamp. It was Merwick who fixed in the cable at his own end. The cable passed over the fly rail and went right down through an iron ring and into the plug on the top of the lantern. It passed down the side of the canopy and through the ring on the top of the lamp. I made the connexion on the side of the flies—not at the lamp. The connexion on my side was quite satisfactory. I am satisfied that the plug was fitting correctly and everything in order. I was at the Switch-board on the prompt side when the fire occurred. The first thing that drew my attention was a woman crying out " Fire." By that time the whole of the canopy was on fire.

Question. From your experience as an electrician and your knowledge of electricity, can you express any opinion as to how this fire might have originated, assuming it occurred in connexion with the lantern? *Answer.* The only thing is that there might be a faulty joint inside the lantern. Suppose you have a faulty joint, the joint is apt to heat up and the light might travel along. That is to say, the electricity is not getting its ordinary course, and a fusing takes place at the faulty joint. If that were so, the india-rubber would be fused and it would spread up. If any fusing occurred with my connecting cable the same result would happen.

This cable was only used for " The Lion's Bride." It had been used at the four previous performances. I consider the cable was quite sufficient to carry the electricity. The wires were properly insulated, and in accordance with the carrying capacity of the wire and the lamps to be fed. The cable from the flies was taken over the fly rail and right down to the lamp. It did not touch the suspending rope at all.

There were seven lamps of 8 candle power. I think there was no risk whatever in using that cable.

Question. Is there any better quality of flexible wire that could be used for the same purpose? *Answer.* If it was a heavy light, but for such a light light there is no occasion for using heavier stuff. The City Engineer does not come to supervise at the beginning of any engagement.

I do not consider that Lafayette's installation was particularly elaborate.

SYDNEY MERWICK (Electrician to Lafayette).—When I came on duty I found this particular lantern all wired and completed. As to whether that was satisfactory wiring or not, I cannot say now. So far as I could judge, it appeared satisfactory. I should say it was thicker than the particular wire exhibited here. There were seven lamps attached of 8 candle power. I kept our own fittings directly connected with the show, and Mr Cawood supplied me with a cable to conduct the electricity to my lamps. In my opinion, the cable which he used was quite satisfactory for the purpose. I knew it was a new cable. It was properly attached to the lantern. So far as I could judge everything was quite safe. We had been using that lantern at different performances in different Theatres for some time, and it was working quite satisfactorily. There was nothing to suggest any danger of any kind. I was in the rear of the stage at the time the fire broke out. I did not observe where it first broke out. Immediately upon observing it I went across and pulled the lever for the iron curtain. I did not know that two of the employees were in danger from the curtain. All the fittings, so far as I could judge, were in sufficient order, and the arrangements were carried out in the way that is usually done in a Theatre of the kind.

I consider that the cable here exhibited was quite a suitable cable for seven lamps of 8 candle power.

FRANK NEWINGTON (Electrical Engineer to the City of Edinburgh).—I have charge of all the electrical arrangements in connexion with the supply of electricity to the City. I have had about 23 years' experience of electrical matters. I have been present and heard the evidence given to-day. It is quite possible that if the insulation of the flexible lead supplying the lamp had been damaged, a short circuit would occur between the positive and the negative wires, which would lead to fusing and heat. That would be quite sufficient to ignite the insulation. The insulation is composed of rubber, which is inflammable and would burn quite readily. In order to produce fusing, the insulation of both wires must be damaged at the same point. There is always a risk of that where you use flexible wire, and there is a chance of it coming against a sharp edge if it is roughly used. This wire appears to be new wire and satisfactory enough for the purpose. The same thing would occur if any unknown defect occurred in connexion with the wire inside—if two wires got together from any defect, fusing would take place. If the fire occurred through the electrical apparatus, that is the only theory that occurs to me.

Question. You heard the evidence about the gelatine. Have you any knowledge of the class of stuff that is sold as gelatine? *Answer.* I don't think it could be gelatine. Gelatine is a substance which melts at quite a low temperature, at somewhere about 100 degrees, and I don't think it would be at all suitable for use for this purpose. It would melt at lower temperatures than it would be subjected to. Probably gelatine is a Trade term or Theatre term for the substance which is used for the purpose of transparent illumination, and is composed of celluloid. From experiments we have been making if it was celluloid, I think we need not look further for the cause of the fire; the heat from an incandescent lamp will readily ignite the celluloid. I certainly think that a flexible wire of this sort here is not suitable for rough usage and it should be more heavily protected from the outside. I think it must be roughly handled in a Theatre where it is very quickly erected.

If it was taken down and securely put away that would be all right. I have had no occasion personally to visit the Empire Theatre in connexion with the electric installation.

Question. With reference to the lamp, if it was made of extremely inflammable material would it not have gone on the first occasion it was made use of? *Answer.* That would depend upon whether the lamp touched the material. If the material was inflammable I should say that the lamp never touched it before.

I think the wire should be more heavily braided. I would not suggest that it need be so strong as what is used in shipyard engineering. As Burgh Electrical Engineer I have now to be satisfied as to the apparatus in the Theatre from time to time. I received instructions two or three weeks before the fire, in view of the Licensing Court in May, to examine all Theatres and satisfy myself that the apparatus was in good order. Between the date of the instruction and the occurrence of the fire my department made no inspection of the Empire.

Question. Would it be convenient for your department to undertake the supervision of all temporary installations such as are erected in a Music Hall or Theatre by a Company of artistes? *Answer.* No, it would not be practicable. In the case of temporary lighting of a shop or other concern we like that it should be notified to us and inspected, but it does not follow that it is done. It might be desirable in all cases, but I don't think it is necessary.

If this change of electric lighting consisted in putting in a plug with a flexible wire attached to it, and that flexible wire led to another plug in the lantern, there is not the least danger in that if the installation is sound. If an accident happened to the installation after an inspection was made, no amount of inspection would stop it. It is only radical changes in the method of lighting that we go and inspect—alterations of the permanent work.

CHARLES BROOK FOUNTAINE (Local Manager).—I was present on the night of Tuesday, 9th May, when the fire occurred. It broke out between 10 and 15 minutes past eleven. I was in box No. 5 along with Mr. Lloyd at the back of the circle. I first observed a light or kind of flame flickering to the stage from the side where the lamp was hung. I could not form an opinion as to whether the wire of the lamp was on fire or not. I went round to the stage with the intention of giving an order for the fireproof curtain to be run down, but that had already been done. I stood on the stage and saw the curtain stopped and released again. I went through the pass door and gave instructions for the band to play "The King," and then I had to give attention to getting the public out. All the electrical arrangements were working quite satisfactorily that night. As far as I know they were carried out exactly the same as they were carried out on other nights in connexion with Lafayette's performance, and as is usual in performances of this kind generally. There was nothing whatever to excite any fear of danger.

From the time I noticed the fire until I came back to the auditorium about a minute and a half elapsed. I have no doubt that if all the people on the stage had made for the exits the moment they noticed the flame they would have all got out.

JOHN DUNBAR (Undertaker).—At the time the fire broke out I was in the auditorium at the end of the boxes and dress circle. I saw a little flicker up at the top of the curtain and then a ball of fire coming down. The fire spread rapidly among the scenery. I went to the iron door on the O.P. side.

Question. Did you hear somebody trying to get out? *Answer.* Not the first time, but the second. I afterwards saw there the bodies of Richards and Scott, and identified them. They had evidently been cut off at that point. Lafayette's body was found immediately below the same spot.

From the time I noticed the fire until I came back the second time and heard those voices, two or three minutes elapsed.

JAMES MURRAY (Flyman).—I was at the flies on the O.P. side. The now deceased Neilson, Watt, and Joss, and other two men were assisting me. Neilson was in charge of the flies. I was at the back end of the flies, and towards the close of the performance I saw a flame bursting out amongst the scenery. At that time, or shortly after that, some one shouted to cut the lines. That was done, and the effect was to allow the burning scenery to fall on the floor, with the view of getting the first stamped out. I got up on the bridge and out through the gallery door. Watt and Joss were away before that.

If all my companions had taken the same road that I took they would have escaped.

HENRY HENDERSON (Stage Hand).—When the fire broke out, I was working an arc lamp on the O.P. side. The first thing that attracted my attention to anything being wrong was fire breaking out at the top of the lantern. I was standing right underneath it. I shouted that the lantern was on fire. I did not see the deceased man Richards at that time; the last time I saw him was three or four minutes before that. He was standing in front of me, and the fire had not broken out at that time. I made my escape by a door on the O.P. side which leads to the basement, and got out by a door which leads to Potter Row. There was nothing in connexion with what I was working at that had anything to do with the fire.

DAVID GRANT (Staff Hand).—I was attending to the shifting of the scenery from time to time, assisted by another man, who was there that night. The artistes' exit had been barricaded by scenery by Lafayette's orders. Immediately after the fire broke out I removed that, so it offered no obstruction at all. There was nothing to hinder the free exit of the artistes. I gave assistance to Kendal in operating the hydrant. Immediately after the fire broke out he opened the scenery

door. It was opened for anybody to get out before they were cut off by the fire.

JOHN GILBERT (Limelight operator).—On the night this fire occurred I was operating a limelight on the prompt side. About a quarter past eleven I saw the iron curtain coming down. It was stopped to enable me to escape. I got out at the stage door—the hall door, where the hall porter is, through the ladies' dressing room passage. I stayed a while on the stage until I found it was time to get off,

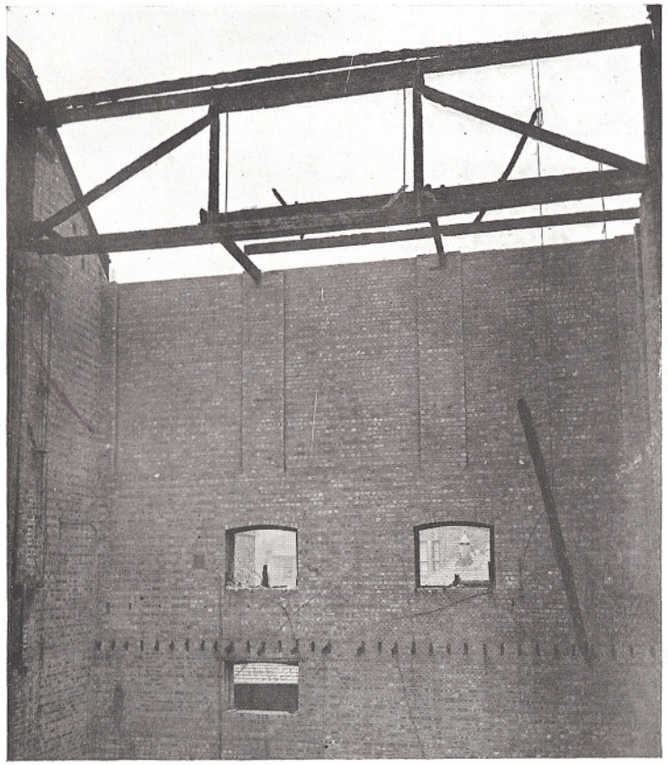


Fig. 16. View of the O.P. Side of the Stage, showing the windows, from one of which the flyman dropped to the area below.

because it was full of smoke. I advised some of the women to go out the same way, and some of the men came and helped them. Some of the artistes were still on the stage running hither and thither in excitement. They seemed to be trying to save their stuff or something.

ALBERT KENDAL (Fireman).—It was part of my duty regularly to examine the water apparatus at the Theatre. I did so on the night this fire occurred about 6 or 6-15. I found that everything was correct. On the stage itself there were two hydrants, one on the prompt side and one on the O.P. side, one in the flies and one in the band-room.

All these were working satisfactorily on the night of the accident. I was standing with my back to the hydrant on the stage when I noticed a flare of fire. Immediately I saw it I got the hose out and put water on the fire and did my best. I went to the back door and pushed it open with the assistance of one of the stage hands. It opened quite easily. Very shortly after that the Fire Brigade arrived. I cannot say when the fire was got out, because I went to the Infirmary with my hand, which had been injured.

The hydrant on the prompt side was in working order. It was not stiff to work; any ordinary man could work it quite easily.

ARTHUR PORDAGE.—I am Firemaster in Edinburgh. I make periodical inspections of all the theatres. I had made an inspection of the Empire Theatre on the Thursday week previous to the fire. I can say as the result of my inspection that all the fire apparatus in connexion with the Theatre was in perfect working order. I arrived at the Theatre on the night of the fire two or three minutes after the fire broke out. Every step was taken to put it out, and it was blackened out by a quarter past twelve. Assisted by my firemen I made a search with a view of finding bodies. A body identified as that of Joss was found in No. 10 temporary dressing-room, Baines in No. 9, and Wheelan and Watt on the stair.

I got a quarterly report from Lieutenant Cormack, my district officer, dated 22nd March, 1911, with reference to the Empire Theatre, and he reported that everything was very satisfactory. I got a further report on 2nd May when he found all in good order. I have made experiments with fireproofing material. I have never come across any material which would resist anything in the nature of a conflagration.

Fig. 17. View of the remains of Dressing Room No. 10.

APPENDIX B.

ATTENDANCE OF FIRE BRIGADE.

The following particulars have been kindly provided by Firemaster Pordage, of Edinburgh, as to the manner in which his brigade received the "alarm" and attended the fire:—

Automatic Fire Alarm.—The automatic fire alarm system was fitted under and over the stage, the bars and cloak rooms, but not in the body of the auditorium.

The call came in on the alarm and dropped the shutter, but failed to register the necessary code confirming the shutter. The recorder at the theatre had been "out of order," and was under repair on that and the previous day.

Theatre Fire Call.—The "call" was received at the Central Fire Station from a fire alarm opposite the theatre in Nicholson Street. More engines are sent on to theatre and other prominent risks than to an ordinary call.

The attendance consisted of six steamers, two hose tenders, ladder and hose van, and 58 men.

The audience was almost out of the theatre by the time the Brigade arrived, the last of them were still coming out of the circle and amphitheatre, mostly ladies who had fainted being carried into cabs.

The nearest station, i.e. Central Fire Station, is 1,100 yards distant, the next 1,400 yards.

NOTE.—*The Firemaster's Sketch Plan of the position of fire engines attending the fire is presented on the page opposite and indicates the lines of 16 in., 9 in., and 6 in. water mains available for hydrant work and engines, as also the lines of hose brought into operation.*

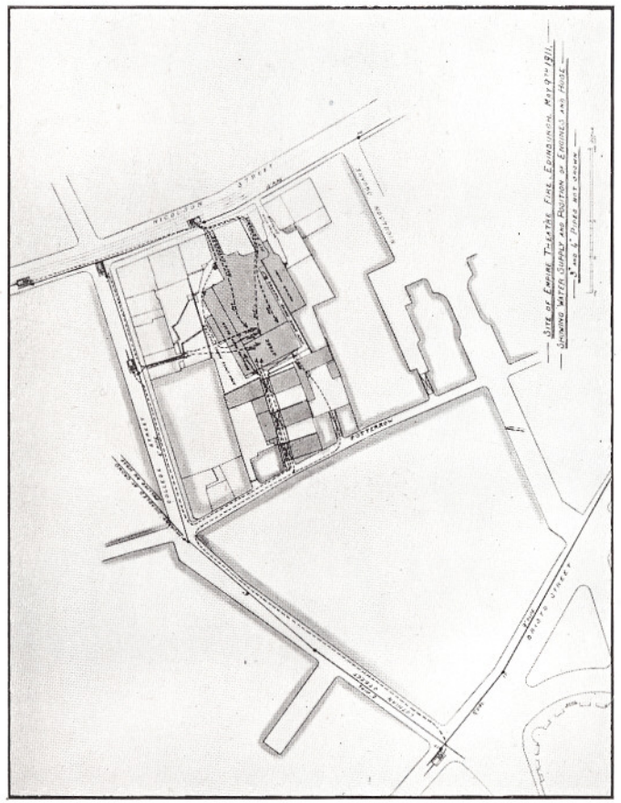


Fig. 18. The Firemaster's Sketch Plan indicating position of fire engines. (*Note water mains and lines of hose.*)

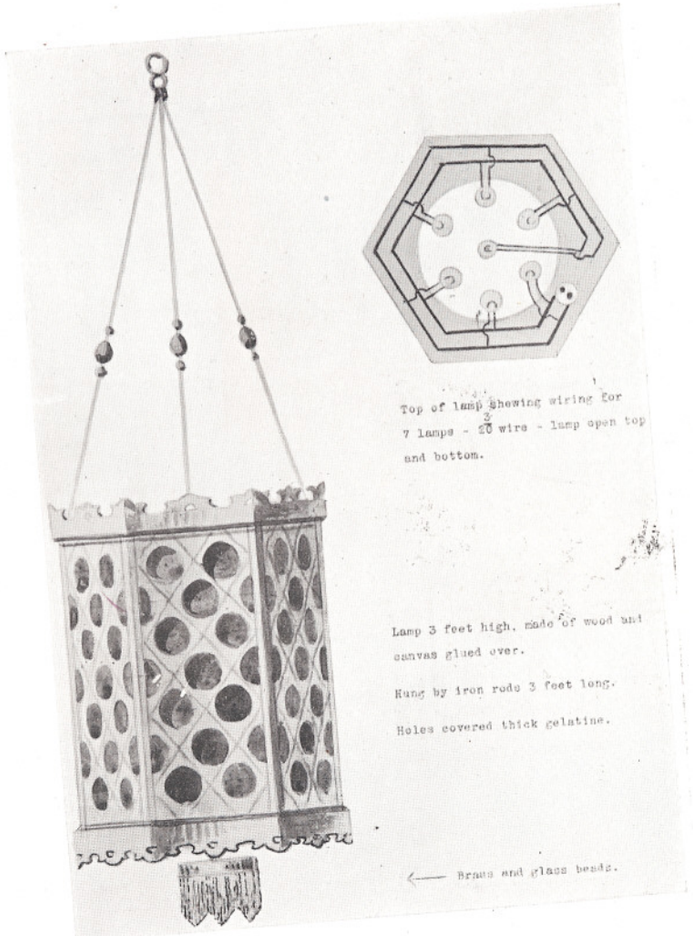


Fig. 19. Detail Drawing of the Lamp.

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