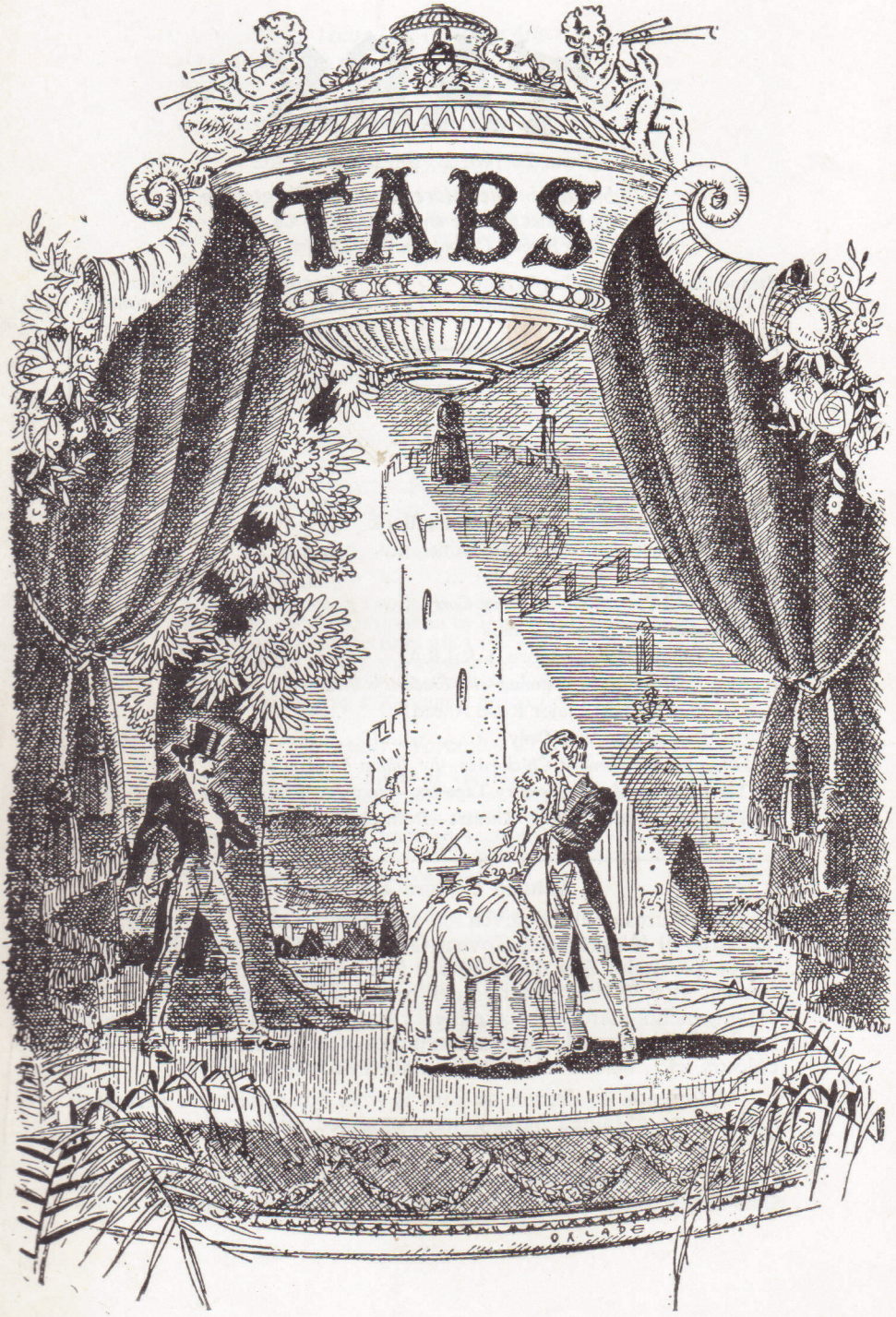

Volume 20, No. 2 September, 1962

TABS

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Ontario

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Autumn Lecture Programme

These lectures will be given at our Head Office Demonstration Theatre, 29 King Street, Covent Garden, W.C.2, and will begin at **7 p.m. precisely.** The doors of the Head Office showrooms will be opened at 6.30 p.m. (30 minutes before each demonstration). The arrangements there will make it easy for members of the audience to try for themselves all the common pieces of equipment, " Cinemoid " colours, etc., before taking their place in the theatre.

Admission to demonstrations is free, but tickets are necessary and can be obtained by sending a stamped addressed envelope to 29 King Street.

As the capacity of the theatre is limited to 100, it is important that tickets are returned for re-issue if they cannot be used.

Thursday, October 4th

" Light on Stages "
Recorded Lecture No. 3. Stephen Joseph, Percy Corry and Frederick Bentham. Discussion afterwards to be conducted by Frederick Bentham.

Tuesday, October 16th

" Planning and Lighting the Stage "
Recorded Lecture No. 2. Percy Corry and Frederick Bentham. First showing of new edition with discussion conducted by Percy Corry afterwards.

Thursday, October 25th

" Lighting the Scene "
Recorded Lecture No. 1. William Lorraine and Frederick Bentham. Discussion afterwards to be conducted by Brian Legge.

Thursday, November 1st

" Optical Effects "
Grand Jamboree staged by members of the Technical Department and the experts from Hire Department.

Wednesday, November 14th and 21st

" Lighting Control "
Technical lecture in two parts (not bookable separately) with slides and demonstrations by Frederick Bentham and L. W. Leggett. The lectures will cover both the history of control in the theatre and developments, such as the new Junior 8. The new Silicon Controlled Rectifier will be demonstrated using a 30-channel production model.

Tuesday, November 27th

" Planning for New Forms of Theatre "
Talk by **Stephen Joseph.** Mr. Joseph, who is well known for his work in theatre in the round, will also be dealing with other forms of open stage, such as those at Chichester and the Mermaid. He will in particular talk of enterprises to suit a very restricted budget.

December 8th at 2.30 p.m.

" Saturday Afternoon Course on Stage Lighting "
A talk and demonstration. The first half will deal with lighting equipment and its use. Tea and biscuits will then be provided and the second half will be devoted to dimmers and control and the lighting rehearsal. The course will be conducted by Frederick Bentham and members of the Technical Department.

Recorded Lectures

Both Recorded Lectures No. 2 and No. 3 have been revised during the summer. In the case of No. 2 the result is an entirely new edition.

Very few of the previous slides are used and the tape is new from start to finish. The object here has been to provide a lecture which is equivalent of the booklet *Stage Planning*, 1962. The lecture falls into two parts, the first part being by Percy Corry on the actual planning of a proscenium (picture frame) stage and hall, and the second part by Frederick Bentham, who deals with the lighting for it using the latest equipment.

Recorded Lecture No. 3 has been revised to take into account the productions at the Chichester Festival Theatre. Messrs. Joseph Corry and Bentham met together and discussed the implications of this theatre and this section replaces that part which originally dealt with the Stratford Ontario Theatre and the Minneapolis project.

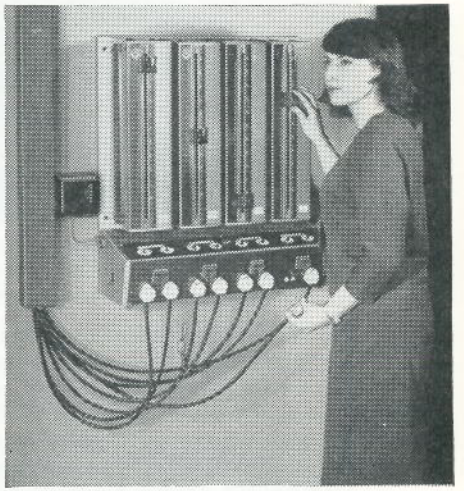
There are now therefore three Recorded Lectures, No. 1 being " Lighting the Scene," No. 2 " Planning and Lighting the Stage," No. 3 " Light on Stages." Each of these lectures is issued free, complete with a set of over sixty slides and magnetic tape, the sole provision being a registration fee of one guinea, which goes in the case of the first two to the Actors' Orphanage and in the case of the last one to the Association of British Theatre Technicians (A.B.T.T.). Full particulars can be had on application to Head Office.

Stephen Joseph's New Planning Book

More and more interest lies in the planning of theatres other than the picture frame type and we have felt that our *Planning the Stage*, which incidentally has just been issued in its sixth edition for 1962, dealing with one form of theatre leaves a gap. To fill this and to make people aware of the potential of other forms of theatre, we have asked Stephen Joseph to write the companion booklet. This is known as *Planning for New Forms of Theatre* and is issued free on application. There are thirty-two pages with diagrams and photographs and Mr. Joseph sets out to establish the claims for the end stage (Mermaid type), the three-sided stage (Chichester type), and theatre in the round (his own theatre). As will be well known, Mr. Joseph is the Director of Studio Theatre Limited, which performs regularly each summer season in the Library Theatre, Scarborough, and which tours the country at other times, performing in Newcastle-under-Lyme, Southampton, Dartington Hall, and Hemel Hempstead. The value of this booklet is that it is written by a man who understands from experience working in the open stage medium and who is not just theorising. And furthermore a man who understands the difficult problem of reconciling minimum expenditure to theatre productions. If for no other reason the open stage has great claims for attention in that it is inherently when on a small scale a less expensive way than the proscenium theatre of enabling a reasonably sized audience to see a production.

A Dimmer Board for Everyone

In the average hall, school or community centre, at the best, there will only be a limited number of stage lanterns and the majority of these will have to be used throughout the production. To change the area of emphasis or the apparent direction of the lighting from one scene to another, individual intensity control of each source of light is necessary, but even a simple slider dimmer to each circuit can rarely be afforded in these circumstances. Up to now the only inexpensive solution has been a Junior HA switchboard which allows each lighting circuit to be switched full-on, off, or on through a master switch and which has provision for a few slider dimmers. With half as many dimmers as circuits, and ingenuity on the part of the operator, any circuit can be dimmed, but the total number of circuits that can be dimmed *simultaneously* is limited to the number of dimmers. As other circuits will almost certainly be switched full-on, a simultaneous fade-in or fade-out is not possible. This is often dramatically necessary and is of increasing importance today as there may not be a curtain to mark the end of a scene or to denote the passage of time or change of locale. A simultaneous fade is possible with the new Junior 8 Lighting Control which now replaces the HA series. In addition, it has all the facilities of the old design without the complications of dimmer leads and pairs of switches. The all-important dimmers are no longer desirable additions to be acquired or hired as funds permit, but are an integral part of the new design.



Another valuable feature is that all control channels terminate in plugs and sockets so that the lighting load circuits can be arranged according to the operational needs of each production; they also allow the few special circuits peculiar to one scene to be plugged up only when required instead of each needing a separate control channel.

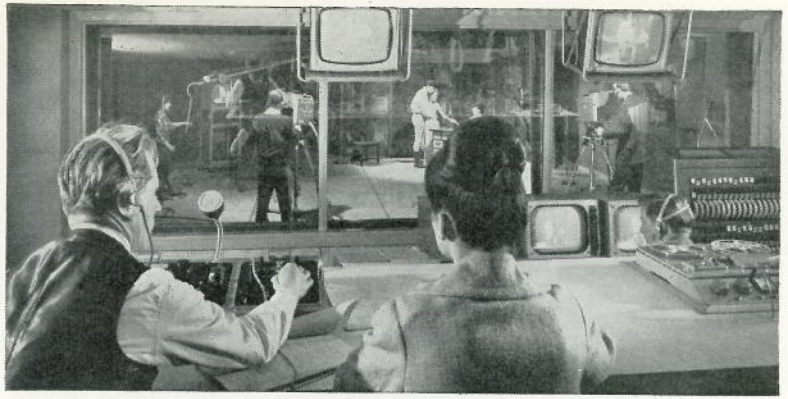
The new Junior 8 is smaller, and is less expensive than its predecessor, and it is *really portable*, so that if the local hall does not have a stage switchboard, an amateur society can bring its own.

Above and opposite: The Royal Scottish Academy of Music's Television Studio.

TELEVISION

We do not often allow the precious theatre space in TABS to be used on television, but the establishment of a school of television production in the Royal Scottish Academy of Music warrants more than a mention. Here in Glasgow is the first school in Britain where a course covering all aspects of television production can be taken. The studio is, as the photographs show, well equipped with Strand lighting and a Strand remote control board. This school serves as a reminder that nowadays television provides an additional outlet for those who are attracted to the queer marriage of lighting and drama. There is already a far greater affinity between television lighting and the theatre than between such lighting and the cinema. The main cause of this affinity is, of course, the use of stage type switchboards with dimmers to give immediate control of lighting as far as the lighting man is concerned. Obviously the likeness to theatre lighting will be increased when colour television comes. In one way the television lighting designer scores over his equivalent in the theatre because every production is for one night only and therefore he can, and usually does, work his own switchboard and effects. He is in direct contact with his lighting which obviously is out of the question in most cases in the theatre where a production has to repeat night after night, often for an incredibly long run.

As an example of what happens in the large production television studio, we show below a photograph of the lighting control



recently supplied by Strand Electric to NDR Hamburg. The control, many features of which will be familiar to those who know our larger theatre controls, operates 240 dimmers from the lighting director's station. In fact the lighting control operates two studios simultaneously, though these can be worked as separate entities. Each studio has a system of hanging bars carrying Strand Fresnel spots, pole operated from the floor for focus, tilt and pan together with the other soft light and profile projectors and optical effect projectors, such as the Patt. 93 and 123 respectively. To feed these hanging bars each studio has 500 circuits and these pass through a telephone jack type patching panel to be controlled from the clutch-operated transformer dimmers. The whole of the lighting installation and much else besides was handled by Strand Electric's German agent, Diedr. Buschmann, Scharrnstrasse 4, Braunschweig.

N.D.W.R. Hamburg, Television Lighting Control.

RICHMOND PRESERV'D

by Percy Corry

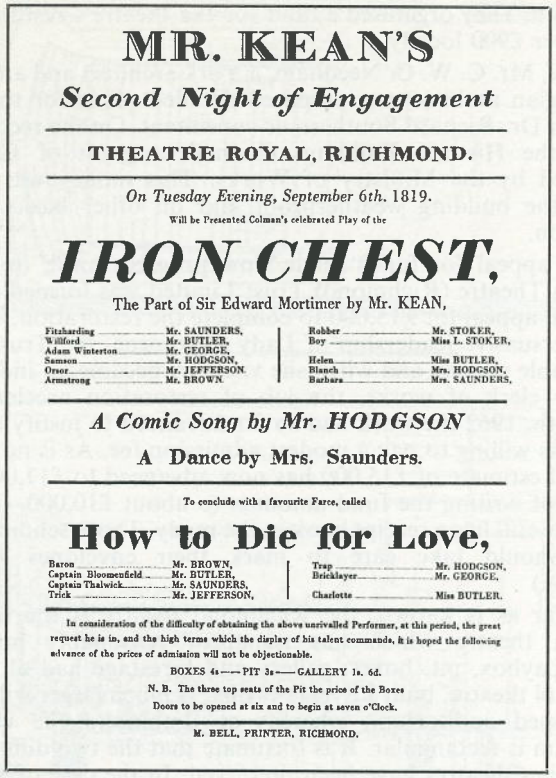
If any have assumed that the Lass of Richmond Hill who is extolled in song was a three-star barmaid in Surrey, they should know that she was, in fact, a Yorkshire lass. Her home-town was the Richmond that is in the North Riding, a truly ancient borough which celebrated the 850th anniversary of its enfranchisement in 1943.

Each year, thousands of tourists are attracted by the beauties of Swaledale and the historical features of Richmond. There are the ruins of the castle, founded by a Breton aristocrat, one of those who were rewarded by William the Conqueror for services rendered in suppressing the Saxons in 1066. The tower of a Franciscan abbey, founded in 1258, still stands and there is a restored Norman church. An enormous market square with an 18th century obelisk is surrounded by picturesque expressions of provincial England's architectural history. At the foot of a narrow hill leading from the market place, delightfully named Fryer's Wynd, is a priceless possession which has miraculously escaped demolition: it is referred to in the town's records as a " proper theatre ". It was built in 1788 by one Samuel Butler, actor-manager of a company of strolling players: he was granted a building lease by the Corporation at a rent of £5 a year, plus taxes, for 21 years. The theatre opened on September 2nd, 1788 with a performance of " Inkle and Yarico " by George Colman the Younger. This comic opera was claimed to have been a London success of the previous year. It is evident that provincial theatre publicity also has a long history.

Mr. Butler is reputed to have been a very strict manager, with a special regard for punctuality and exactness. He was certainly successful, as between 1788 and 1805, in addition to the theatre at Richmond he built similar ones at Harrogate, Kendal, Ripon, Northallerton and Beverley. It was in 1788 that an Act of Parliament freed provincial players from the illegality of their activities. An Act of 1737 had forbidden them to play " for hire, gain or reward " unless granted a royal patent: obviously, another attempt to emphasise the sanctity of amateur status!

In 1808 a youthful Edmund Kean began his career as a member of Butler's company, playing " the walking gentleman harlequin " and singing comic songs, for a salary of 15*s.* 0*d.* a week. In 1819 he returned to Richmond as a guest star on terms which pushed up the prices of admission (see old play-bill opposite).

The lease to Samuel Butler (and after his death, to his wife and son), was renewed until 1830. Kemble, Macready, Mrs. Siddons, Jane Wallis, and other stars of the period appeared **at Richmond** and in the other theatres of the Butler circuit. In 1830, the Butler régime in Richmond was ended and from then until 1841 the theatre opened only at rare intervals for short periods, under various



MR. KEAN'S

Second Night of Engagement

THEATRE ROYAL, RICHMOND.

On Tuesday Evening, September 6th. 1819.

Will be Presented Colman's celebrated Play of the

IRON CHEST,

The Part of Sir Edward Mortimer by Mr. KEAN,

Fitzharding	Mr. SAUNDERS,	Robber	Mr. STOKER,
Wilford	Mr. BUTLER,	Boy	Miss L. STOKER,
Adam Winterton	Mr. GEORGE,		
Samson	Mr. HODGSON,	Helen	Miss BUTLER,
Orson	Mr. JEFFERSON.	Blanch	Mrs. HODGSON,
Armstrong	Mr. BROWN.	Barbara	Mrs. SAUNDERS,

A Comic Song by Mr. HODGSON

A Dance by Mrs. Saunders.

To conclude with a favourite Farce, called

How to Die for Love,

Baron	Mr. BROWN,	Trap	Mr. HODGSON,
Captain Bloomenfield	Mr. BUTLER,	Bricklayer	Mr. GEORGE,
Captain Thalwick	Mr. SAUNDERS,		
Trick	Mr. JEFFERSON,	Charlotte	Miss BUTLER.

In consideration of the difficulty of obtaining the above unrivalled Performer, at this period, the great request he is in, and the high terms which the display of his talent commands, it is hoped the following advance of the prices of admission will not be objectionable.

BOXES 4*s*.—PIT 3*s*.—GALLERY 1*s*. 6*d*.

N. B. The three top seats of the Pit the price of the Boxes

Doors to be opened at six and to begin at seven o'Clock.

M. BELL, PRINTER, RICHMOND.

managements. It is recorded that certain members of the Council sought to close the gallery which, they claimed, had become the resort of bad characters and a source of great disorder and immorality: evidently, the " gods " were too blatantly human. The last recorded performance appears to have been in October 1841, after which the theatre seems to have been unused until 1848 when, after some alterations, it became an auction room above and a wine vault below. Subsequently the premises were used as a corn chandler's warehouse, a furniture store and ultimately a salvage depot. Fortunately, in spite of the alterations and additions which included flooring over the sunken pit at stage level, the main features of the theatre remained intact. In 1943, during the anniversary celebrations, the building was cleared of its wartime junk, given a lick of paint, and made to serve once more as a theatre for a special production. It was then recognised that Richmond had something unique and the Corporation authorised Richard Southern to make a detailed examination of the building and to investigate its history. David Brook, who was Town Clerk at that time, and William Fairbrother, who is the Borough Treasurer, adopted the scheme with tremendous

enthusiasm. They organised a fund for the theatre's restoration and raised over £900 locally.

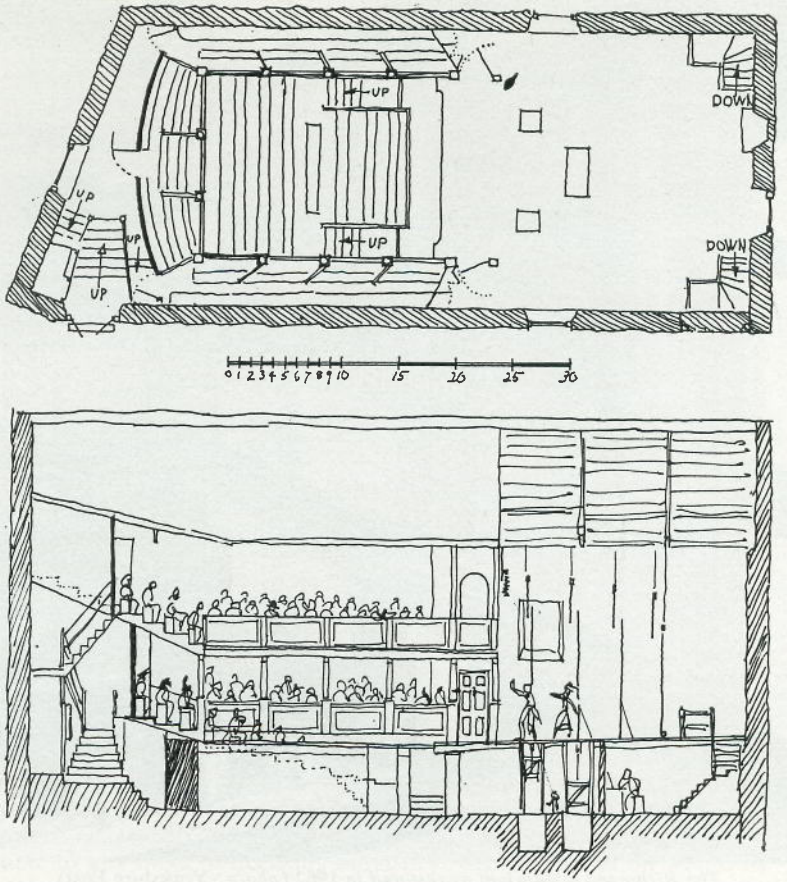
In 1949, Mr. C. W. C. Needham, a York architect and an authority on Georgian architecture, prepared detailed plans for the restoration, with Dr. Richard Southern as consultant. On the recommendation of the Historic Buildings Council, a grant of £2,000 was authorised by the Ministry of Works. This money was spent on making the building weatherproof and on other basic structural restoration.

The appeal for funds made slow progress until, in 1960, the Georgian Theatre (Richmond) Trust Limited was formed and made a national appeal for £15,000 to complete the restoration. Under the vitally persuasive leadership of Lady Crathorne, the Trust has had considerable success and when she virtually became an indefatigable honorary clerk of works, the job of restoration accelerated. On August 4th, 1962 the work had so far advanced to justify inspection by tourists willing to pay a modest admission fee. As is not unusual, the initial estimate of £15,000 has now advanced to £17,000, and at the time of writing the fund amounts to about £10,000. (The Lady Crathorne still has a receipt book at the ready. Those sending cheques to her should take care to mark their envelopes *Richmond, Yorkshire.*)

As far as is known, the Richmond theatre is the only small Georgian theatre which has remained reasonably intact. The original paybox, pit, boxes, gallery and forestage had all survived. The Bristol theatre, built 22 years earlier, is much larger with a horseshoe shaped auditorium, whereas at Richmond the very small auditorium is rectangular. It is fortunate that the two different types of Georgian theatres have been preserved. In the case of Richmond there had been fewer alterations of the original theatrical structure.

The auditorium is very tiny, measuring only 26 ft. 8 in. in length and is 24 ft. wide. The stage is an inch deeper and has the same width: its rake is 1 in 20. The proscenium opening is 15 ft. 9 in. high and 17 ft. wide. The limited width of wing space suggests that in this theatre the back scenes consisted of suspended cloths and not the sliding screens which were more usual in the Georgian theatre. An old set of scenery, painted in 1836, has been discovered and renovated. This is a wood-scene, consisting of a backcloth and eight 9 ft. 6 in. high flats. The original borders are missing but reproductions have now completed the setting, which is on view at Richmond.

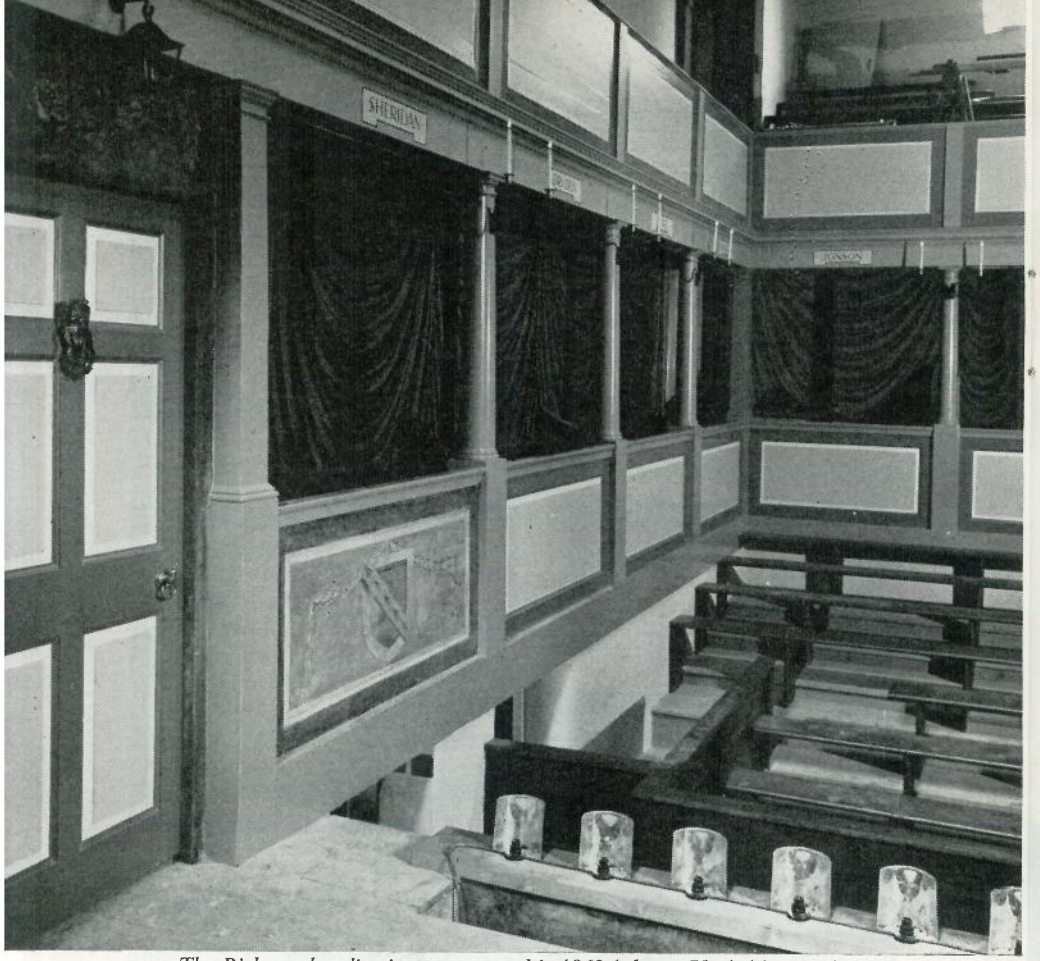
There is unmistakable evidence that the theatre originally had a grave trap and two corner traps. It is hoped that when further money is available it will be possible to reconstruct these. The machinery room, below the forestage, has been restored in readiness. Underneath the main stage are two dressing rooms. These are very small and must have been terribly congested, notwithstanding the acknowledged inferior physique of the Georgians. One can only hope that performer relations were harmonious.



Richmond theatre taken from a drawing by Richard Southern.

Nothing has been found to indicate that gas was ever used in the Richmond theatre. The stage and auditorium were lit by candles. The stage lighting was provided by footlights and by winglights. The latter were wooden battens hooked on to the wing flats, each having six candles. The footlights could be raised and lowered to allow the lighting operator scope for attending to his light sources: presumably, it also gave some facility for dimming effects. These lighting units have been reproduced as faithfully as possible, allowing, of course, for the substitution of candles by electric lamps.

The proscenium curtain, a reefer type, has been made from a fabric specially dyed to represent, as nearly as possible, the green baize of the period. The framed proscenium pelmet is made of scenery canvas

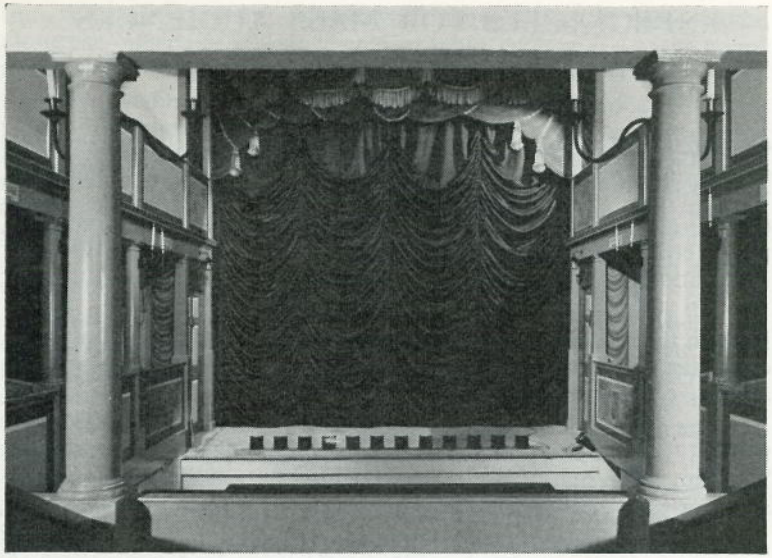


The Richmond auditorium as restored in 1962 (*photo:* Yorkshire Post).

painted to represent the swagged baize, with golden fringe, in accordance with Georgian practice.

Very little modern stage lighting equipment has yet been installed but there is wiring to provide all the circuits that will be required if and when it is possible to stage live shows again in the theatre. It is the intention of the Trust to present special productions occasionally. In an adjacent building modern amenities are now provided but it is very unlikely that the theatre could ever again be operated continuously, like the Bristol theatre. The maximum seating capacity possible at Richmond, even if the Georgian backless benches had been restored at their original centres, would be too small to support a professional company.

The auditorium consists of a row of four boxes on each side and three in the centre, a stepped pit and a gallery at rear and sides. The



Proscenium and curtain as seen from central box (*photo:* Yorkshire Post).

boxes have two stepped rows of benches and are divided by round Doric columns and dwarf partitions. The gallery has two rows at the sides and eight at the rear: these seats are reached by a narrow winding staircase from the pay-box.

It was found possible to uncover sufficient of the original decorative scheme for it to be restored very faithfully. The original lighting of the auditorium was by candles which, of course, remained alight throughout the performance. This candle-light has been reproduced electrically but the level of illumination would not be acceptable to any modern licensing authority: their proscription would be on grounds of safety, not morality! Ceiling lay-lights have been unostentatiously provided for non-museum purposes.

The exterior of the building is very unimpressive and to the modern eye it is more suggestive of the corn-chandler's warehouse than of the temple of drama it was erected to be. The interior is an attractive reconstruction of a part of the Georgian social scene which must be fascinating to any lover of the theatre, who must also be grateful to the Trust and to all those who have made the reconstruction possible.

The story of the theatre is told by Richard Southern and Ivor Brown in an informative booklet published by the Trust.* There is a well merited tribute to Doctor Southern and to Miss Sybil Rosenfeld for their extensive research.

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* *Available from The Georgian Theatre* (*Richmond*) *Trust Ltd., 2 Frenchgate, Richmond, Yorkshire. Price* 2*s.* 10*d. post free.*

SPECTACLES FOR MASS AUDIENCES

Report on International Colloquium, Athens, June 1962

by Peter Moro, F.R.I.B.A.

On June 16th some thirty invited participants arrived in Athens to attend the Colloquium on Spectacles for Mass Audiences organised by the Greek Government under the auspices of UNESCO. Other collaborating bodies were the International Union of Architects, the International Council of Music, International Theatre Institute, International Association of the Plastic Arts and P.E.N. Club.

All participants stayed at the King's Palace, a modern luxury hotel in the centre of Athens, all expenses being paid including large quantities of drink at the hotel bar and excellent meals on the attractive roof restaurant.

The King of Greece attended the opening ceremony and formally opened the Conference. Allardyce Nicoll, the British theatre historian, gave one of the official opening papers entitled Function and Forms of the Popular Theatre.

The working sessions too took place in the hotel, a most convenient arrangement. The morning sessions started at ten o'clock and lasted three hours with waiters discretely serving drinks or coffee on request, and continuously replenishing iced water. The discussion was in French or English with simultaneous interpretation. The arrangement, whereby all thirty delegates were seated along the outside of a large U-shaped table, each with a name board and his own microphone, greatly helped the discussion.

The evenings were taken up by official invitations to opera, play and concert, all held in the ancient open air theatre of Herod Atticus at the foot of the Acropolis. This has a large reconstructed 4,000-seater auditorium and a reasonably well preserved Skena. I found this least suited to opera as the long, narrow stage allowed for little depth in grouping. Concert performances seemed to me more successful although our musical experts were critical of the acoustics and the loss of certain frequencies.

Except during the more gripping performances when one tended to forget the discomfort of sitting on backless stone steps, half the programme was long enough and the sight of the Acropolis above bathed in moonlight was too much to resist. Full moon on the Acropolis with music drifting up from below on a warm June night was almost unbearably beautiful.

Strangely enough, to my mind the most successful evening was a theatrical performance; Roger Planchon's production of George Dandin using a box set! Planchon incidentally was a participant at the Colloquium and so was René Allio who designed the set. There was also folk dancing for those who like that sort of thing.

By sitting in a different position at every opportunity, this vast semicircular auditorium offered a unique opportunity for experimenting with sight lines, audibility, visibility and general impact.

Performance at Epidauros and (right) Theatre at Adelphi.

Whole day outings were efficiently organised; coaches with built-in refrigerators full of drinks; excellent female guides, intelligent, competent and charming. Highlights were the tour to the island of Hydra, a trip via Mycenae and Navplion terminating at the great 10,000-seater theatre at Epidauros to watch the first performance of the Bacchae by Euripides with Katina Paxinou, about which Kenneth Tynan reported fully in the *Observer*. The day trip to Delphi was perhaps, the most memorable with two great eagles circling above and the valley of olive groves thousands of feet below stretching to the sea, a spot pre-destined for fame by its sheer natural situation. The day was hot and we did a fair amount of walking, tracing the steps of those who, long ago, consulted the oracle. At the famous spring we followed Michel St. Denis (also a delegate) and took off our shoes and bathed our tired feet in the ice cold spring.

There were official dinners in luxurious open air night clubs with pleasant Greek wine and full whisky bottles on the tables to help oneself. Everything is in the open; Tavernas, Cinemas and even the striptease club which featured Rita Cadillac (not a delegate).

Φιλοκαλοῦμέν τε γὰρ μετ' εντελείας καὶ φιλοσοφοῦμεν ἄνευ μαλακίας

From all this it would be wrong to gain the impression that no work was done. Debates and discussions in two languages require a high degree of concentration and as every day was a day after the night before, this was not always easy. The theme was Spectacles for Mass Audiences. Although the assumption was that there was a demand for this kind of entertainment, this was immediately challenged by most delegates and few seemed in sympathy with the idea. All the same attempts were made at visualising what sort of performance could be enjoyed by mass audiences from 1,500 up to 15,000 where audibility has to seek the aid of electronic amplification and visibility of facial expression ceases altogether. Playwright and producer and designer discussed possible forms and problems and in the penultimate session the three architects present, Fritz Bornemann (New Opera House, Berlin), Guillaume Gillet (France) and myself were asked to describe the architectural framework in which such performances could take place. All three architects explained that without a precise brief an architect cannot work, and to say that the brief was not precise was an understatement. At this, one or two

Frenchmen got very angry at having come all this way without getting an answer from the architects. I tried to explain that the " École des Beaux Arts " approach to design, whereby architects jump to conclusions based on superficial, preconceived ideas, is dead and gone and that most architects today take their job far more seriously and that design today is a slow process of analysis, discussion, proposal, criticism, modification, refinement, etc., and that only in this way can we make sure that buildings in general and theatres in particular, will function properly in future. I did point out, however, that there is a solution even to a vague brief; namely a vague building. This would consist of a vast square hall of considerable height; it would

Tyrone Guthrie, Peter Moro, Kenneth Tynan, Allardyce Nicoll.

have a grid extending over the entire ceiling and mechanical means over the entire floor area infinitely varying its contours for stage and seating. That to do this on the scale of a 10,000-seater might prove to be prohibitive is another matter.

The French dominated the proceedings by sheer numbers and by an enormous output of words per minute, some of which I suspect were quite brilliant. Easily the word most frequently used by all during the Conference, irrespective of nationality, was " Brecht ".

As in most conferences, no answer was produced and no conclusion reached except some general agreement that 1,200 was the maximum number of spectators capable of enjoying dramatic performances as we know them and that these can be arranged closer to the action in an open stage theatre than in a picture frame theatre, all of which one knew before. The real value of these Conferences is in meeting new people who share one's devotion to a subject and in acquiring an international sense of proportion. As during the Colloquium in Berlin some time ago, the really fascinating meetings were held by small groups between and after the official sessions, in somebody's hotel bedroom, except that this time the glass in my hand was filled with Ouzo instead of Lowenbrau.

TWO APPROACHES TO PLANNING

by Frederick Bentham

1. HALT! Major Road Ahead

The photograph below shows the front-of-house lighting for *Blitz* at the Adelphi Theatre. This equipment, with a proscenium built of Strand lanterns, or so it appears, forms part of Richard Pilbrow's layout to light Sean Kenny's sets and the actors which populate them. These photographs should provoke thought. Brushing aside the first natural thought, " Better get some, or some more, Strand shares," I should hasten to say that to follow me up my particular avenue one must look at the photograph on the next page. Here we have the Adelphi auditorium as it was when it re-opened after its reconstruction in 1930. The architect was Ernest Schaufelberg and a particular pride was the decorative scheme of the auditorium, which was carried out in polished mahogany and sycamore with subdued lighting from Lalique glass fittings. This in no way resembled the " trade " decor of most cinema theatres of the time. The age of Egypt and the torture of plaster surfaces were both resisted. This theatre, like the Savoy Theatre over the road, was really something in our eyes then. The acres of bare light grey walls at the Cambridge, also 1930, were neatly dodged without having to

Fig. 1. Blitz *at the Adelphi* 1962.

resort to Komisarjevsky's period trappings as the Phoenix had done two months earlier. A contemporary account in the *Architects' Journal* says, " The reconstructed Adelphi Theatre is designed with a complete absence of curves. Externally and internally, the entire conception is carried out in straight lines and angles, the angle of thirty-two degrees, being used as a master note. . . . The lower half of the walls and fronts of the two circles have been panelled in wood of a deep orange colour, perfectly plain, polished and with no decorative motif whatever." This journal also found "a most bizarre and opulent atmosphere". *Cinema Construction* " an atmosphere of restfulness and comfort ". Your present author remembers being put off by the sombre and heavy looking photograph below, but succumbing completely to the actual atmosphere in the auditorium when going there to see *Evergreen*. The Lalique fittings between the boxes and the low intensity of the tungsten cornice lighting gave warmth and colour.

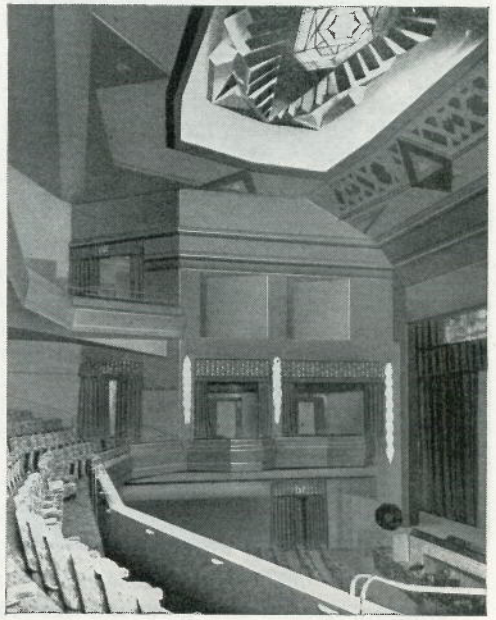


Fig. 2. *The Adelphi when new in* 1930.

The Adelphi Theatre had something else, it had what was unique at that time, adequate provision for front-of-house lighting. At this time Strand Electric were beginning to disfigure the circle fronts of theatres with sheet metal boxes or cages of stark utility to house the front-of-house lighting which became the rage following Hassard Short's use of it for *Waltzes from Vienna* in the old Alhambra Theatre. This is not of course the first recorded use of such lighting, but that show set the fashion. The Adelphi for its opening production, C. B. Cochran's *Evergreen*, had a spot box on the upper circle and, very valuable indeed, lighting positions over the side boxes. These appear at the top in Fig. 2 and were neatly masked from the audience. Originally used for arcs and operators, then pageant lanterns, by 1954 they each housed a pair of Patt. 93 high power spots with remotely controlled colour change. These, individually controlled from 8 dimmers, are still in service, though

eclipsed as far as Fig. 1 is concerned by more recent additions.

Everyone will know that for some years now to visit the theatre is to be confronted by more and more Strand manufactures hanging in every nook and cranny and, when the nooks and crannies are filled up, then out in the open. One of the biggest displays is in the Aldwych Theatre, where John Wyckham was faced with reproducing the Stratford-on-Avon layout in a theatre which, unlike the parent site, did not provide any natural concealment whatever. Nobody, including myself, shed many tears over the effect upon the Aldwych decor of this display of the lighting mechanics, Fig. 3.

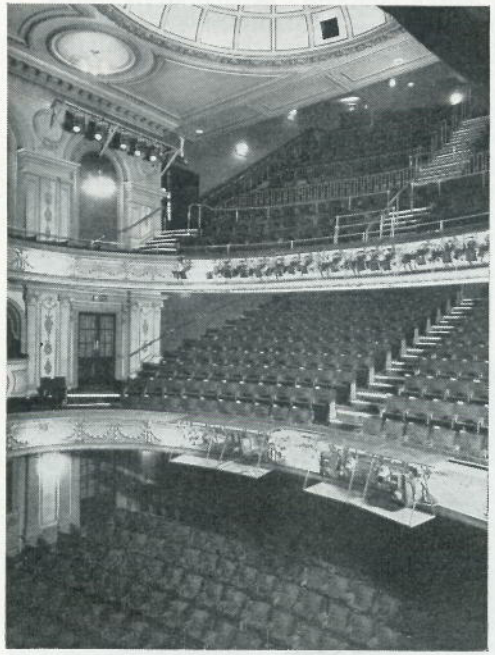


Fig. 3. The Aldwych in 1961.

It comes as a shock therefore to read in the *Era* of December 1905 and to realise the following is an account of that Aldwych auditorium when new: "Mr. Sprague has not only introduced into his architectural scheme the latest improvements in theatre construction, but has also made certain departures which are all in the right direction. The decorations are in the Georgian style and the general appearance of the interior of the building is pleasing in the extreme. Handsome and ornate it certainly is, but the words that correctly describe the impression conveyed by a first glance round are cosy and comfortable. The prevailing scheme is crimson, cream and gold and the contrast with Rose du Barri draperies and upholstery is striking and artistically effective." Someone loved it once!

It is now time to get to the point of this article. This is simply that no one has the faintest idea of the likely requirements of technical development and fashion in time to come. Today all of us concerned with planning our theatres must come to a dead halt and take stock of what may lie on the major road ahead. It is impossible to see ahead, but whilst some guidance comes from the past, this never takes the form of actual practice until now.

Among others, the Association of British Theatre Technicians (ABTT), for example, is faced at the moment with devising standards of planning and equipment for theatres. Assuming, rather optimistically, that these are published in a year's time, they will be incorporated into actual schemes, which will be accepted, have the money raised, and be built in four years or so. Thus our proposals of today will take concrete forms as buildings within some five years. A life of 25 years use is not unreasonable, which means that our new theatre buildings will cover a period equivalent to that in which the Adelphi has required the change from Fig. 2 to Fig. 1. Bear in mind the Adelphi has always been a picture frame stage, and even today the stage projects only two feet in front of the proscenium arch. Yet its original provisions pinch and indeed are hopelessly inadequate. What would happen if the stage came further forward?

I am astonished that the effect of time in the shaping of future useful life is so cheerfully ignored. I speak here as someone whose main world has been picture frame theatre with at the most a token fore-stage in front. This is the theatre I prefer, especially when embellished with lots of lovely scenery. Nevertheless I do not think the proscenium theatre can ever be the same again after Stratford Ontario, the Mermaid and now Chichester. I think that the German highly mechanised stages and adaptable proscenium area arrangements serve only to remind us that these devices are only really at home in opera.

However, all this is a matter of conjecture, the new forms of theatre pose as many new problems as they solve. All one can be certain of is that one should make each new theatre building as flexible within its form as possible. I say "within its form" because I do not favour, except in a small scale theatre, such as the Questors, Ealing, a theatre adaptable to many forms. Stephen Joseph gives some good reasons against the adaptable forms,* but to me the most conclusive is the engineering involved. If we want to make quite sure that a theatre *is* regarded as an expensive mechanical toy, then as the Loeb Centre has the adaptable theatre is the way to set about it.

The solution is obviously to build differing forms of theatre; sometimes even, when funds permit, side by side. Thus there may be proscenium theatres to be designed, but if so these must be designed in knowledge that of all the principles to be incorporated the least likely to be needed are those used as a basis hitherto.

This does not mean that I subscribe to the view that fibrous plaster a prison makes and bare brick or concrete a garden of opportunity. The architectural solution to a form of proscenium theatre for the future is a job for others, Hull-Miller (see TABS, Vol. 19, No. 3) has shown one way and a jolly good one at that.

* *New Theatre Magazine*, July/September (Bristol Drama Department).

My concern is lighting, and here flexibility is of the very nature of electricity and light; yet whether in the theatre, or the world outside, concrete and conduit prisons are still too often the rule. Just imagine; before a building is even started the lighting positions are determined. This method is a hangover from gas lighting—in the candlelit days flexibility must have been absolute by comparison.

To conclude, an electrical installation for lighting must have the flexibility of a television studio, only thus can the wildest range of production and lighting styles be catered for. If anyone believes that all of us approach lighting in the same way, that there is an absolute method, let him read Part II, where my own approach to lighting is set out. This approach may or may not be the correct one, but it is certain that as far as other lighting men are concerned it is only *one* way. Imagine therefore confronting any of the others with an installation which provided only for my own principles set out below.

2. One Way Only

The distinguished producer demands more light. This not unreasonable demand can be tough—why? There are two reasons for wanting more light, the most obvious being that certain vital stage areas which the actors visit are either not lit or, more likely, in contrast with the level of light elsewhere, they appear not to be lit. The other reason is that the stage does not appear bright or gay enough to assist the comedy or to get home that we are in sun-drenched Bradford.

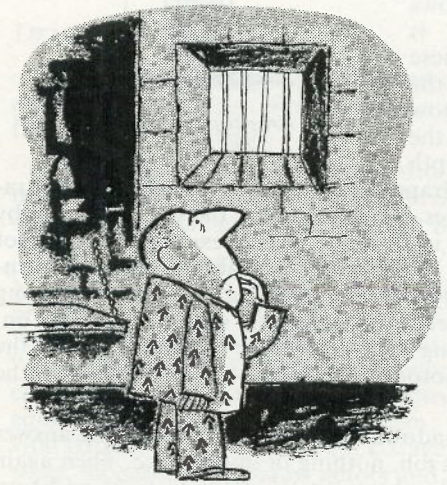
This problem becomes harder with the open stage, I think for two reasons: firstly, at any rate until a few years ago, scenery was painted and devised to look sun drenched, and secondly the line of demarcation afforded by the proscenium ensured contrast; we looked at a sharply defined bright rectangle—the picture frame—set in a dark auditorium.

In open stage, which I welcome if only for a change, there is virtually no scenery and the boundary is purposely ill-defined. It behoves us therefore to take far more interest in how lighting *taken nearly neat* may achieve its end.

Firstly, it ought to be much more widely admitted that most stages provide, in the case of the picture frame mainly because of some foible in the decor or in the case of the open stage mainly because of the proximity of the audience, certain areas which cannot be lit effectively. In these areas the answer to the lighting problem is quite simple—do not send the actor there or, at any rate, make sure he has nothing important to do there.

Outside the impossible areas, faced with the demand for more light it is important to remember that except for actual physical discomfort (glare) humans have little ability to judge intensity as such. The eye is equipped to cope with such a range of adaptability

that it can take lighting levels as widely different as 50 lumens per sq. ft. to 5,000 lumens per sq. ft. and, according to circumstances, consider them both as bright or as dull, provided it has time to adapt itself. As glare and discomfort is not a happy means of indicating intensity in the theatre we have to use contrast; that is the stage now appears bright because it was dim (lit to a lower intensity) a few moments earlier. Or this particular area looks much brighter than that over there. Yet again the light striking the stage tells us it is powerful because it throws strong contrasting shadows. Association of shadows with strong sunlight or moonlight suggests intensity. The method of contrast is commonly used by painters and Rembrandt's " Woman Taken in Adultery " is a good example of how to light a stage set this way! While Canaletto invariably suggests strong sunlight by the strong shadow method, more than half the Grand Canal, for example, is in the shade. With the above in mind it is obvious that for bright exciting lighting, long periods lit to the same level must be avoided as must all-over-alike lighting—lighting even in distribution and in duration—either or both must be avoided at all costs.



" *A sharply defined rectangle set in a dark auditorium . . .*"

If it is assumed as a first duty that lighting must make the actors' features visible to the audience and that in an open stage the audience is (as at Chichester) on many sides of him and he may move rapidly almost anywhere, a problem is posed incapable of solution. Lighting to do this will come from many angles and aim to be as evenly distributed as possible (giving equality of opportunity for all). It will therefore be drained of its means of expression. Very possibly not only the lighting will be drained of expression but the actor also, for even or multi-angle lighting provides no modelling. Such lighting may be applicable to the intimacy of theatre in the round, with but three or four rows of seating, but not to theatre heroic in scale.

Whereas a case can be made out for the multi-lantern and multi-angle techniques commonly used to light a picture frame stage today, I am positive the open stage requires large blocks of decisive light. This means less but more powerful lanterns (2 kW where 1 kW was applicable, 1 kW for 500 watt), less variety in hanging positions and

less but larger wattage dimmers. Using this technique one would throw large decisive chunks of light at the stage and niggling individual spots with their dimmers up a little or down a little would, in general, be out.

The lighting, I suggest, would be slashed in with heroic strokes, and once the main positions were determined they would be appropriate to that form of open stage and subject to very little change from production to production. I go further and say that productions requiring finesse in lighting are wrong for open stage.

" Will not permit the actor to twist and turn . . ."

Heroic lighting throws heroic shadows but what is wrong with that? It is these shadows which will tell the audience, by contrast, how strong the lighting is where the shadows are not. It is the depth of contrast in the folds of drapery and the deep slashing in Elizabethan costume that provides the richness for the eye. Contrast by light and shade or in colour is all; there is little excitement to be got from wish-wash. Of course, if the mood is drabness then large unbroken areas, both scenically and in lighting, are a must and along with this goes a uniform level of sound—of speech—droning on. The timid are afraid of raising their voices, the strident shout all the time, but also achieve monotony! These are the equivalent of the " even lighters ".

What happens in the shadows? it may be asked, and the answer is, if the producer knows his job, nothing of importance. Then again this contrasting lighting will not permit the actor to twist and turn on each area of the stage and yet be always near enough evenly lit. Is not the answer that if the actor has to twist and turn restlessly to get his message over then there is something wrong with him, his director, or the form of stage—or all three?

STAGE MANAGEMENT AT CHICHESTER

Diana Boddington has been Sir Laurence Olivier's stage director for very many years. With all this experience of proscenium type production we felt it essential to obtain her views on working in an open stage, and a three-sided one at that. Obviously the height of the season with a repertory of three entirely new productions, involving not only scene changes but changes in the stage structure itself, was no time to expect a full-scale article but the letter below to the Editor of " Tabs " represents immediate thoughts and is all the more valuable on this account.

DEAR SIR,

I am glad you wrote asking me about working at Chichester, and I am more than pleased that you will accept this letter rather than a full-scale article.

A season in a new Theatre—with three new productions—gives me little time for considered authorship, and the shortness of the experience makes me diffident about being too dogmatic.

To stage manage a Play in such a Theatre should, in theory, be a wonderful dream come true, and there are so many fascinating problems which do not arise in a conventional Proscenium Theatre. At first, I found a feeling of frustration being so isolated in a " control-box " 60 ft. from the foremost point of the stage. In this control-box we have complete control of the cue system, sound equipment and " talk-back " system; the latter going out to every vital part of the theatre, i.e. back-stage, left, right and centre, understage, all entrances used by actors and public alike, orchestra and all the usual important places. To be segregated from the actual stage is, at first, very frightening, especially when one hears a loud noise " off-stage," with the immediate thought: " Who has fallen?" " Will the understudy have time to get ready? " and all the usual thoughts, only to be told by one of my stage management that all is well. " It was only a table falling over "!

Such a control-box must, of course, be sound-proof and have an adequate ventilating system.

Running a show is naturally much more interesting if one has a lot of cues to give and, in this type of theatre, there are many more to be given, as actors have to be cued on for entrances owing to the difficulty of hearing due to the structure of the sets, and not because of bad diction! The orchestra is another unit with the same difficulty as they are situated as high as the control-box but at the opposite end,

and are concealed by a curtain, so these cues have to be given with complete precision.

Having worked for twenty years in a proscenium theatre, I miss very much the physical contact with artistes and staff which is, in my opinion, an important part in a stage manager's job. In this type of theatre, one says " Farewell " on the quarter, and then walks through the auditorium to the control-box. This, at first, seemed strange but holds a curious satisfaction in being able to control the play from " start to finish," and still feel a sense of being with the actors and staff.

In an arena theatre of this type it is essential to have a first-class team of stage management, each trained to perfection, for the smooth running of the performance. Without this team-work the success of the performance would be in jeopardy. In this instance there are five of us: one who works the sound-equipment, one who prompts, two back-stage and the stage manager in the control-box.

The most vital part of this type of stage management is that one can see exactly what is happening in the whole theatre and, should anything unforeseen happen, it can be rectified immediately.

As regards the lighting I feel that this is more difficult due to the fact that the actors have to be lit from three sides even just to be seen. This means many more lanterns and, for my money, I would plump for larger wattages than 500-watt and then have fewer lanterns. Except for special effects, one lantern is of little value by itself unless it is big. The lighting desk is, of course, in my control-room, and thus close liaison is possible and necessary, as it is with the sound-operation. One snag, I find here, is that one hears the sound from a single monitor in the control-room and lacks the audible reassurance that it is in fact issuing from the right-speaker position in the auditorium. Mere switches and pilots are not enough.

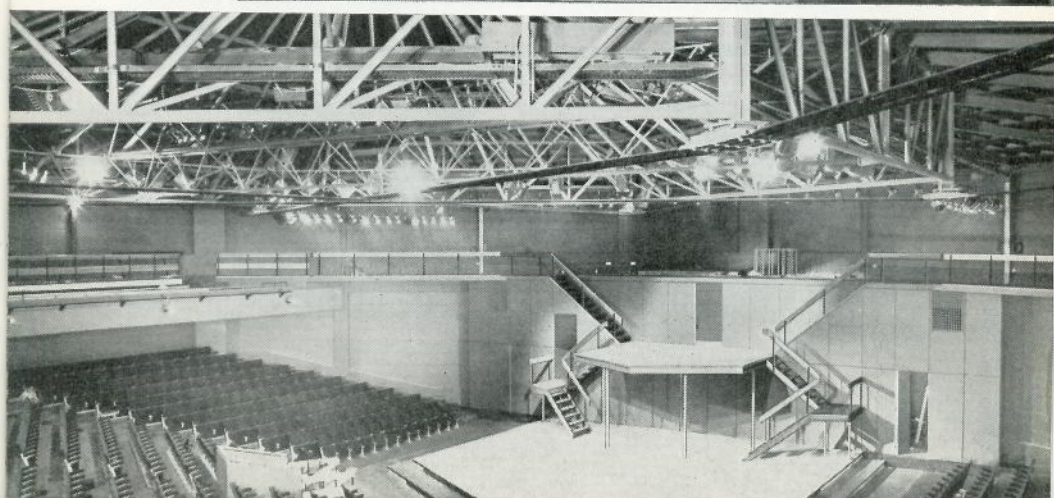
I am in two minds about scenery: obviously, unless it is very simple and very light in weight, it will bring problems of handling, especially in a repertory of three plays with change-overs between matinees and evening performances. I think I would prefer a permanent set for a season.

Really, I am enjoying it very much and still learning. The central-control position is obviously the best but I personally miss, more than anything, that wonderful close contact one gets in the stage corner with superb acting.

Yours sincerely,

DIANA BODDINGTON.

The photographs on the opposite page show (below) a general view of the Chichester Festival Theatre (photo: Architects Journal) *and (above) a scene from one of the productions,* The Broken Heart (*photo: Angus McBean*).



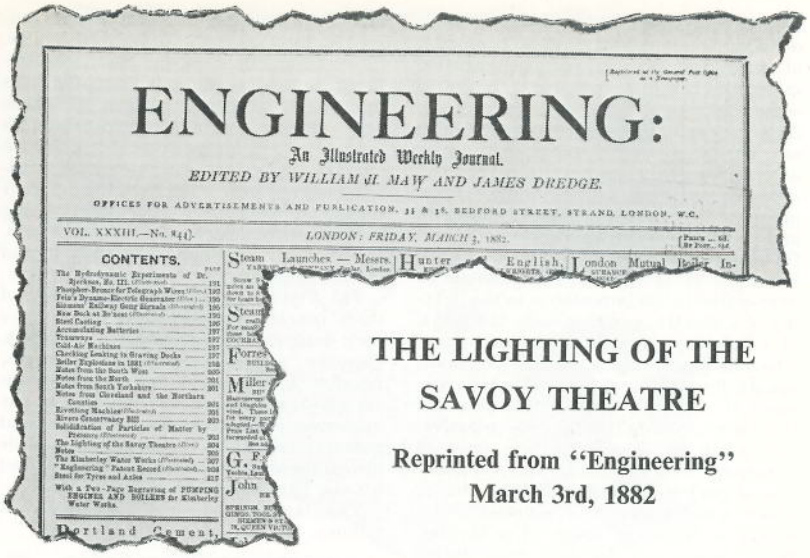
THE LIGHTING OF THE COVENTRY TAPESTRY

Reprinted from "Light and Lighting", July, 1962

The problems posed by a work of art in this dominant position in respect of composition, colour and texture over its 80 ft. by 40 ft. area, led John Reid to believe that only stage lighting techniques could provide a solution. Little planning was necessary, merely the choice of suitably versatile lanterns, an accessible fixing bar above the false ceiling to the chancel, and an adequate power supply.

When the time came Strand Electric carried out a normal stage lighting operation. The operator up in the roof directed and focused the lanterns on to the tapestry on instructions from the floor. With Sir Basil Spence acting as the equivalent of the theatre producer, the lighting arrangement was modified to achieve what he required.

To achieve an appropriate balance with the general night-time lighting in the cathedral only five lanterns were used; these are Strand 10-in. diameter Fresnel spotlights adjustable to beam angle variation from 15° to 50°. Each lantern houses a 1,000 W BI projector lamp with pre-focus cap, and four were fitted with rotatable barn-door attachments. No filters were used as the lamps themselves gave a sufficiently warm colour. Under artificial light there could be a strong tendency for the eye to be drawn to the oval patch presented by the figure's lap, but by increasing the illumination on the face this was avoided. No light is allowed to stray on chancel walls and roof and once set the barn-doors were locked to be no longer adjustable.



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CONTENTS.

THE LIGHTING OF THE SAVOY THEATRE

Reprinted from "Engineering" March 3rd, 1882

The general adoption of the electric light for the illumination of theatres and other places where large numbers of persons congregate, cannot be very much longer delayed, because it fulfils every requirement for perfect lighting, and when properly carried out is free from nearly all the dangers and defects which appear to be inseparable from all other systems of illumination.

The lighting of a theatre, however, involves the fulfilment of conditions peculiar to itself, and which differ in very essential qualities from all other installations, and it is not too much to say that any system of illumination which is applicable to the lighting of a high-class theatre can be successfully applied almost anywhere, for there is no installation which can furnish so severe a test for any given system. Let us see then what are the peculiar requirements to be fulfilled in the lighting of a theatre. In the first place the auditoriums of theatres are, for obvious reasons, not provided with windows, and thus they are at once deprived of the principal means of ventilation and circulation of air, both of which other buildings can have the advantage. It is, therefore, highly important that an illuminating agent should be employed which does not in its action overheat the air, and above all which is incapable of vitiating the atmosphere by continually pouring into it the poisonous products of combustion that are inseparable from every system of illumination except that of electricity. Another requirement of theatre illumination is the production of a well-distributed, brilliant, and pure light, one which is completely under control, and can be regulated at will from the stage. This requirement is fulfilled with very considerable success by gas, but, on the other hand, gas illumination cannot be compared for steadiness or purity of light with any of the incandescence systems of electric lighting.

Many who have never been behind the scenes at a theatre are under the impression that the principal source of illumination for the stage is the row of footlights, and perhaps a few gas jets immediately behind the proscenium, but in order to obtain adequate illumination for the various scenes, the stage of every theatre is provided with long rows of gas jets above the heads of the actors and behind almost every layer of scenery, as well as a corresponding number of vertical columns of lights behind the "wings," and no one can stand behind the scenes when anything like a spectacular piece is being performed without being struck with amazement that it is possible to run a piece for many nights together without the theatre being burnt to the ground, for the whole surroundings, above, below,

and on every side, appear to be made up of naked gas jets and scenery composed of the most flimsy and inflammable materials, the two appearing almost to come into contact at every draught of air. As a matter of fact, however, the lamps are nearly always covered with wire netting, by which the scenery is kept out of the flames, and the comparative rarity of fires at theatres is a proof that managers and their responsible agents are very careful in the handling of so dangerous a combination. It is therefore impossible to over-estimate the importance to the lighting of a theatre, and especially the stage, of employing a system of illumination which is practically a perfect safeguard against fire. We have referred to the comparative rarity of fires in theatres, but this rarity is unhappily only comparative, and must be considered rare only in connexion with the dangerous combination of gas jets and inflammable material, which until lately was necessarily inseparable from the stage of a theatre. When, however, a fire does occur during a theatrical performance, it is too often awful in its character, and in the fatality which accompanies it, and the recent disasters at Nice and Vienna have not only roused the public and the authorities in all countries to consider the safety against fire of theatres, and other similar places of amusement, but theatrical managers have all, for more reasons than one, been awakened to the importance of attending to this all-important question.

In the autumn of last year some highly interesting experiments in connexion with the Exhibition of Electricity were made at Paris on the electrical illumination of the Grand Opera, and were described in these columns at the time. These experiments excited very considerable public interest, and constituted the first practical indication that the light of the future for theatre illumination must be looked for in electricity.

Almost simultaneously with the establishment of the experimental installations at the Paris Opera, Mr. D'Oyley Carte, the enterprising proprietor of the new Savoy Theatre, in London, determined to light this charming little theatre by the Swan incandescence electric light, and the work of installation was entrusted to Messrs. Siemens Brothers and Co., who appointed one of their electrical staff, Mr. C. Köppler, to carry out the work on their behalf. The theatre is lighted by no less than 1158 Swan lights of the improved form recently introduced by Mr. C. H. Gimingham, of the Swan Electric Light Company, who have adopted it as their most improved pattern. Of these 1158 electric lights the auditorium is lighted by 114 lamps attached in groups of three, supported on very elegant threefold brackets projecting from the different tiers and balconies, each lamp being enclosed within a ground or opaloid shade, by which arrangement a most soft and pleasant light is produced.

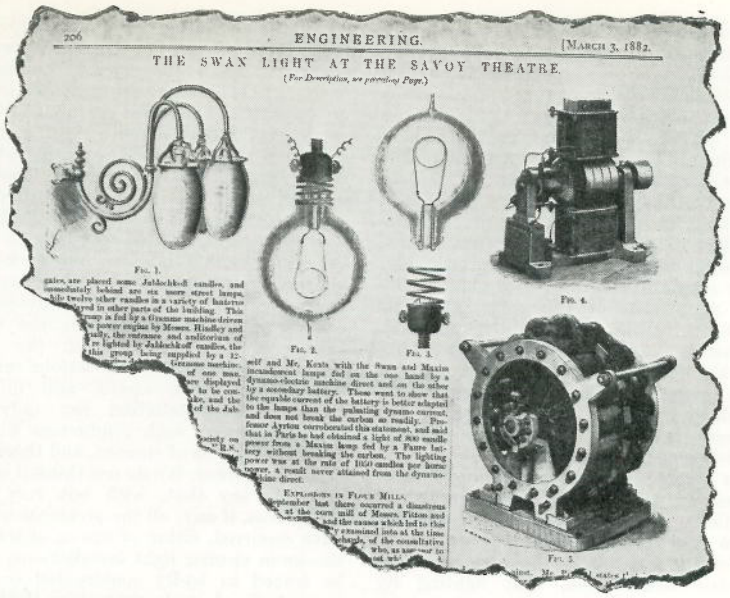
Fig. 1 (see next page) is a view of one of these bracket lamp holders, which have been designed and constructed by Messrs. Faraday and Son, of Berners-street, London. Two hundred and twenty lamps are employed for the illumination of the numerous dressing-rooms, corridors, and passages belonging to the theatre, while no less than 824 Swan lamps are employed for the lighting of the stage.

The stage lights are distributed as follows:

6 rows of	100	lamps each	above the stage...	600
1 ,,	60	,,	,, ...	60
4 ,,	14	,,	fixed upright ...	56
2 ,,	18	,,	,, ...	36
5 ,,	10	,,	ground lights ...	50
2 ,,	11	,,	,, ...	22
				824

And in addition to the above-mentioned lights within the **theatre, there are eight** pilot lights within the engine-room, which serve the purpose of illuminating the machinery; and as they are in the same circuit with some of the lights in the theatre, they indicate to the engineer in charge of the machines, by the changing of their illuminating power, when the lights on the stage are turned up or down. The new form of Swan lamp employed in this installation is shown in Figs. 2 and 3, and is both simpler and neater than the lamp of the same company of earlier construction, and, moreover, can be turned out more rapidly and at a cheaper rate. By this new arrangement the very clumsy and unsightly fittings of the old lamp is entirely dispensed with, and the exterior of the lamp is entirely of glass, having two very small platinum loops protruding from the lower part of the neck and which form the terminals of the carbon filament within the lamp. The **fitting by which these lamps a**re attached to the brackets is illustrated in Fig. 3.

The lamps are at present worked in parallel circuit in six groups, five of which comprise two hundred lamps each,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THE SWAN LIGHT AT THE SAVOY THEATRE.

(For Description, see preceding Page.)

and the fifth embraces one hundred and sixty-six lamps. The current of each group is produced by one of Messrs. Siemens Brothers' W_1 alternate current machines, **illustrated in Fig. 5, the field magnets** of which are excited by a separate dynamo-electric machine of the Siemens type, known as D_7, and which is in general form similar to that shown in Fig. 4. **The machines and engines are fixed in** a shed erected on a piece of waste land adjacent to the Victoria Embankment, the current being conveyed to the theatre by means of insulated cables laid beneath the soil.

The six alternate or W_1 machines are driven at a speed of 70 revolutions per minute, and the six exciting or D_7 machines at 1150 revolutions, by three steam engines, that is to say, a portable 20-horse engine by Garrett, a 12 horse power portable by Marshall, and a 20-horse semi-portable engine by Robey, but the horse power actually utilised, as measured by a Hefner von Alteneck dynamometer, is between 120 and 130 horse power.

The most interesting feature, however, from a scientific point of view, of this most interesting installation is the method by which the lights in all parts of the establishment are under control, for any of the series of lights can in an instant be turned up to their full power or gradually lowered to a dull red heat as easily as if they were gas lamps, by the simple turning of a small handle. There are six of these regulating handles —corresponding to the number of the machines and circuits—arranged side by side against the wall of a little room or rather closet on the left of the stage, and each of these handles is a six-way switch which, by throwing into its corresponding magnet circuit greater or less resistance (increasing or decreasing it in six stages), the strength of the current passing through the lamps is lessened or increased by as many grades. The special interest of this part of the installation, however, is the fact that the turning down of the lights is accompanied by a corresponding saving of motive power in the engine, for the variable resistance which is controlled by the regulators is not thrown into the external or lamp circuit of the **alternate current machines but into** the circuit by which their field magnets are excited. When a series of lights is lowered, increased resistance is thrown into the circuit of the dynamo machine, which is **exciting the magnets** of the **alternate** current generator corresponding to that particular series of lights; the intensity of the magnetic field of the latter machine is thereby reduced, and consequently the currents induced from that field and

transmitted to the lamp circuit are diminished in strength; but by the weakening of the magnetic field the mechanical resistance to rotation is correspondingly reduced, and therefore less power is required to drive the machine. This very beautiful arrangement is at present applied to four of the six circuits, but from its very successful working it will doubtless in time be applied to the other two with a corresponding increase of working economy. The resistances thrown into the circuits are at present of two sorts; the four switches, to which we have just referred, transmit the exciting current into long spirals of iron wire supported on a frame and having a free circulation of air around them by which the heat generated by the current is rapidly dissipated, and the switches of the other two circuits operate in a similar way upon resistances composed of zig-zag bands of hoop iron similarly arranged. It has occasionally been put forward by persons whose interest it is to oppose the introduction of electric illumination, that lighting by electricity is accompanied by two sources of danger, the one that of causing fire through improper contacts or the overheating of conductors, and the other the giving of dangerous shocks to persons who incautiously handle the wires. These objections to electric lighting have just that substratum of truth in them which makes it necessary to refer to them, and also to explain what they mean. It cannot be denied that fires have been caused by badly laid or badly constructed electric light conductors, and this occurred more than once at the Exhibition of Electricity at Paris, and it is also well known that several fatal accidents have occurred from shocks received from some of the higher electromotive force machines. We venture, however, to affirm without the slightest fear of intelligent contradiction, that there cannot exist the very smallest fear of fire occurring in an installation of incandescence electric lighting if the conductors are properly constructed, and put up by a person who understands his business; and the same remark applies with equal force to the question of the danger of electric shocks (but this element of danger is absent in the machines which are employed in connexion with the Swan system), and we would also venture to say that accidents arising from either of the above causes in an incandescence installation is altogether inexcusable; in fact, there is no more excuse for an electrician to fix an unsafe conductor, than there is for a gas-fitter to lay a leaky or otherwise defective gas-pipe, which would be attended with still greater certainty of disaster. In all industries close competition is certain to lead to inferior articles being manufactured in order to reduce estimates, and the business of the electrical engineer is no exception to this liability; but we would venture to point out that the employment of inferior conducting cables for electric light transmission is the very falsest of economy, for, in the first instance, it might lead to serious results for reasons given above, and in the second, the installation can only be worked through such conductors with a proportional loss of current, and therefore of motive power. We do not think it is too much to say that, with but very few exceptions, if any, all the accidents which have occurred, either of fire or of serious shocks in electric light installations, may be traced to badly constructed or improperly fixed conducting wires. With the splendidly constructed cables of Messrs. Siemens, accidents of this description are practically impossible, and we would also point out that it is part of the Swan system as it is of that of Mr. Edison, to make use of little fusible safety shunts at various places in the circuits, so that if from any cause there occurs any liability for the conductors to become overheated the current is instantly interrupted; this is, however, not intended so much to guard against a danger which is next to impossible to occur in practical working, but to protect the lamps themselves from destruction from too powerful a current being transmitted through them.

In an artistic and scenic point of view nothing could be more completely successful than the present lighting of the Savoy Theatre; the illumination is brilliant without being dazzling, and while being slightly whiter than gas, the accusation of "ghastliness," so often urged against the light of the electric arc, can in no way be applied. In addition to this the light is absolutely steady, and thanks to the enterprise of Mr. D'Oyley Carte, it is now possible for the first time in the history of the modern theatre to sit for a whole evening and enjoy a dramatic performance in a cool and pure atmosphere.

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