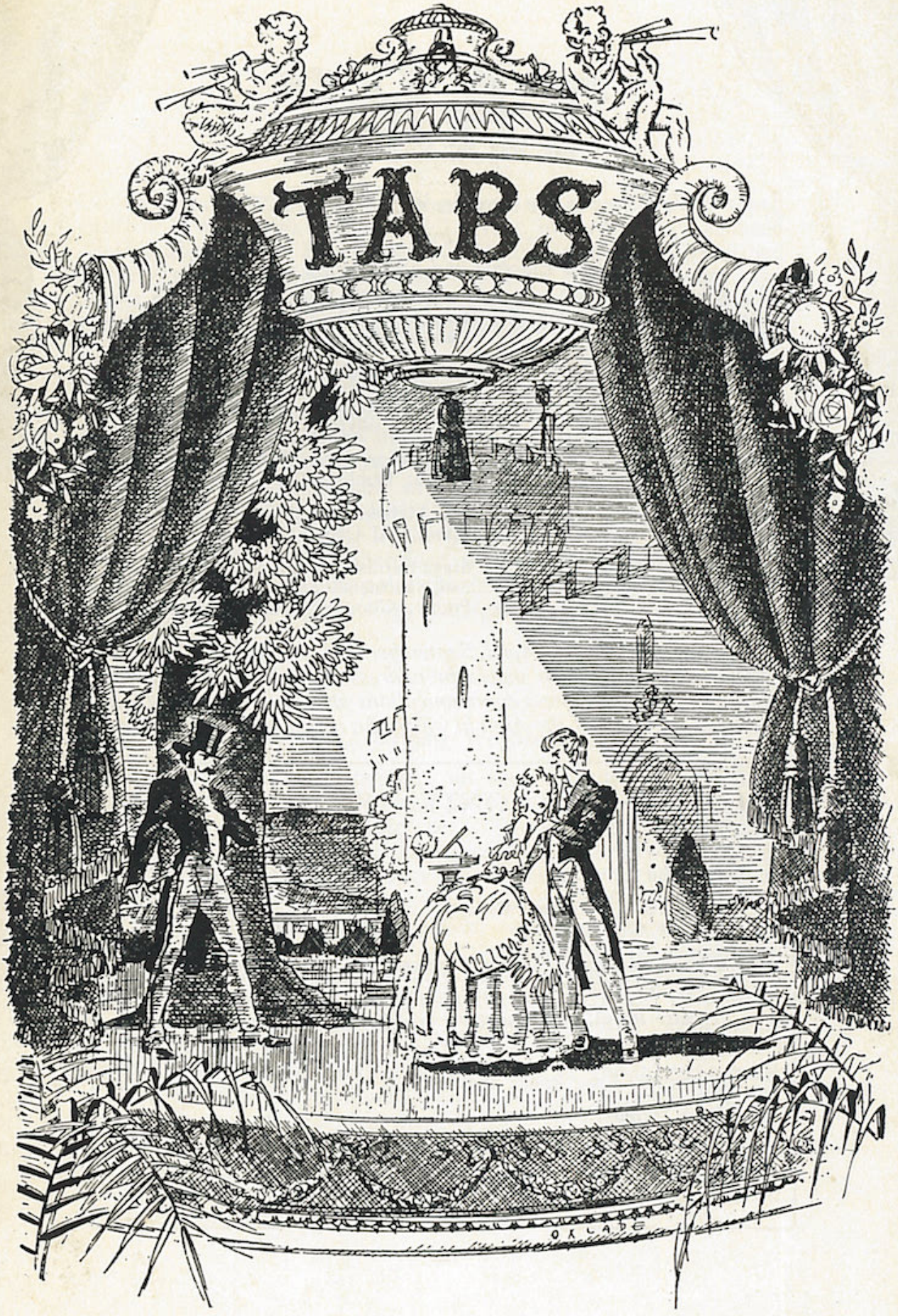

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TABS

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EDITORIAL

A Controversy

In our last issue we published an article by K. G. Wrench entitled "Who Lights the Set?" This has obviously aroused considerable interest as witness the extracts from letters published in our correspondence, pages 27 and 28. Needless to say, the points of view expressed do not always coincide. But why should they? Controversy, like competition, keeps all concerned on mental, if not physical, tip-toe.

If for this reason only perhaps we may be excused if in this issue we publish two articles on the same subject—Lighting the Arena Stage. The articles in question will be found on pages 7 and 16 and we leave it to the reader to decide for himself whether, for example, it is permissible or even desirable to light the front rows of the audience or whether they should, as far as possible, be left dark. Incidentally, neither of the authors of these articles has seen the other's. If, therefore, they should be found at times to agree on any particular point this is purely coincidental and not the result of any backdoor stage management on our part!

* * *

Hay-Ho, A-farming We Must Go!

In our last issue we pointed out the difficulties in which we found ourselves on receiving an order for "3 sheets each of Outside afternoon lighting (mid-September), Thundery Sky, and Bright Moonlight." Since then our powers of perception have been taxed in another direction by an order which called for "One sheet of Cinemoid Hay shade, and one sheet Cinemoid Straw shade 3." The latter item caused us no concern as both name and number appear in the standard range of theatrical colour filters. The former item did, however, leave us in the dark and it had to be elicited by correspondence that No. 3 Light Amber was required. The order was placed on behalf of a certain Women's Institute, but in justice to the fair sex it must be admitted that it was a mere male who was acting on their behalf. Brave man. Most of us find it hard enough to please one woman, let alone a whole Institute! Perhaps, however, our correspondent feels that there is safety in numbers. We certainly do when it comes to ordering colour filters. And for preference the name *and* number should both be quoted. Sample booklets of colour filters giving both names and numbers can be obtained from any of our branches free of charge on request.

British Drama League National Festival Rules, 1954/1955

In their brochure, *National Festival of Community Drama*, the British Drama League include " Notes for the use of Players and Adjudicators." These notes are in amplification of the rules, given elsewhere, to be used in judging competitors. Out of a possible total of 100 marks, 40 are allotted to Acting, 35 to Production, 10 to Stage Presentation and 15 to Endeavour, Originality, and Attainment. As Stage Lighting is included under the heading Stage Presentation we quote the entry in full.

STAGE PRESENTATION (10 marks.)

This covers such factors as stage setting and lighting, properties, costumes and make-up.

While the adjudicator will appreciate the fact that the effect of a performance must often suffer as the result of its presentation under strange conditions, the stage setting and lighting should contain sufficient indication of what the producer would achieve under ideal conditions. Within these limitations, adjudicators will be on the look-out for touches of detail such as give atmosphere to a production. They will also look for indications of an appreciation of the value of lighting other than merely as a means of illumination.

The difficult conditions obtaining in the case of settings and lighting do not apply in the case of costumes and make-up, and a high standard in this respect will be expected. Credit will be given for the appropriateness of the costumes for the characters and to the play, and the manner in which they have been designed and made.

Lectures and Demonstrations in Head Office Theatre

For parties of not less than twenty-four it is usually possible to arrange a special lecture or demonstration. However, for the benefit of individuals or small groups, a series of omnibus lectures have been arranged as follows:—

Wednesday, January 26th, and Wednesday, March 23rd

Coloured and Directional Light as Applied to the Stage

Lecture by L. G. Applebee

Wednesday, February 23rd, and Wednesday, April 27th

Basic Stage Lighting

Demonstration and talk by F. P. Bentham

The above are 6.30 p.m. on each day. Entrance at 29 King Street, W.C.2, will be open from 6.15 p.m. Those wishing to attend please apply as early as possible to **Head Office**, 29 King Street, W.C.2, marking the letter " DEMONSTRATION."

FIFTY YEARS OF SCENE-PAINTING

The Importance of Lighting *By William Stewart*

Reprinted by kind permission of the Author and the Editor of "The Stage"

At the beginning of the present century the traditional style of scene-painting which prevailed was that which had been handed down by Clarkson Stansfield, R.A., and David Roberts, R.A., the tradition being carried on by the elder Telbin and William Beverley. Realism was aimed at, and dramas, operas, comedies, farces, pantomimes and music-hall stock-scenery were all treated in this manner. In the hands of the artists mentioned above this manner was all right, for they suggested realism and did not attempt to " paint realism."

Even to-day we still come across scenery painted laboriously in an attempt to make things look real. In productions of plays this is quite all right, provided it is done by a capable painter, but to try to apply realism to pantomimes and summer shows is entirely out of order. Imagination, colour and design are alone suitable.

Front Cloths

A pantomime is a fanciful presentation of a fairy-tale, the characters so unreal that a woman represents the principal boy and a man the dame. The book is unreal. The costumes are the imaginative creations of the designers, and the scenery should be a combination of imagination, colour and design.

In the past, in the majority of shows, each full set was preceded by a front cloth. Now the painting of front cloths is becoming a lost art. Prior to Clarkson Stansfield's day, each full set was closed in by an act drop, the tabs in those days being a cloth of plain green baize. Then the front cloth was introduced to enable the set to be constructed behind it, and so cause no break in the scenic continuity of the show.

To-day practically the only shows in which front cloths are used are pantomimes, but here again is a difference from the conception of what a front cloth should represent, for there is a distinct tendency to paint close-up views, whereas in the past any amount of perspective was insisted on. But the greatest change of all in scene-painting is the discontinuance of the practice of keeping resident artists at theatres. At the beginning of this century there were resident scene-painters at all the London and provincial theatres which were of any importance.

At the Surrey, George Conquest kept a regular staff of three painters, two assistants and a labourer. Jock MacLeery was at Drury Lane and Walter Brown at the Lyceum. Now there is not one theatre in London with a resident artist, and only one or two theatres in the provinces keep an artist all the year round.

Fifty years ago the producer as we know him to-day was non-existent, the lessee exercising that function; and it is interesting to

note that the two greatest producers of pantomime were both originally scene-painters. They were Arthur Collins, of Drury Lane, and George Conquest, of the Surrey, and they always said that their great reputations for spectacular effects were largely due to their early training as scene-painters.

Finally, one thing allows of no argument, and that is this: If producers had the artist available who had painted the scenery, far less time would be wasted by the producer fumbling for lighting effects for the artist. Provided he knew his job he would know what pigments he had used and what effect would result by the various coloured lights thrown upon them. The effect of coloured lights on scenery is practically the same as that of mixing colours on a palette, and unless the producer knows something about mixing colours he has to experiment over and over again until he gropes towards the effect he wants.

This matter of lighting is of paramount importance, for nothing affects colour so much as light. A scene of magnificent colour can be dulled by incompetent lighting.

Mr. Collie Hirst, who contributed an article on Scene-Painting in our last issue, comments :—

No one will wish to quarrel with Mr. Stewart's well-informed article, but some " old-stagers " might feel pained that he omits mention of the late Stafford Hall, in connection with front cloths.

Mr. Hall (I am told) thought nothing of taking a fortnight to " draw in," with thin colour, one of his highly detailed interiors, and one feels that many stage-designers to-day would be better had they gained similar skill in drawing before starting to hurl colour about in their present light-hearted and uninhibited fashion. The thought sometimes presents itself that they cannot draw at all! Worse, the suspicion is aroused that too many producers adopt an attitude towards scene-design of " if I don't understand it, it must be good," and then look to lighting to come to the rescue.

It is true, as Mr. Stewart says, that " . . . A scene of magnificent colours can be dulled by incompetent lighting." It is equally true that no amount of lighting skill can mend bad painting, objective or abstract, but the painter must learn to use colour in light as well as in pigment.

Mr. Stewart underlines the departure from " realism " as understood and painted by those departed giants of the scene-painting craft, a departure seemingly as inevitable as the corduroys and sandals of present-day exponents. But one could wish he had reminded some of our young scene-painters that good ideas cannot justify bad craftsmanship; that what is " contemporary " to-day will inevitably be scoffed at to-morrow; and that they must learn how to light the scenes when painted. It is, perhaps, a pity that scene-canvas must be fireproofed. Otherwise a box of matches might be useful.

SOME PROBLEMS OF " ARENA " PRESENTATION

By JACK MITCHLEY

(County Drama Organiser for Norfolk and Director of The Conesford Players)

Jack Mitchley started his Conesford Players (Norwich) in 1948, recruiting players from all over Norfolk, and taking his plays round the county, playing in village halls and schoolrooms, wherever an audience could be gathered. The difficulties of preparing a normal type of production under such difficult conditions led him to decide that the only way to make the venture possible was to adopt the arena style of presentation.

In this article the author sets out some of the difficulties of staging and lighting the arena stage, and the steps he has taken with his Company to overcome them. In substantially the same form, the article originally appeared in *Spotlight*—the journal of the Swindon and District Theatre Guild—from which it is reprinted by kind permission.

The Acting Area

The size and shape of the acting area for Arena work must be the starting point for any consideration of the technical problems of this style of presentation. One of the particular joys of this method of production is that the producer has a completely free hand and can create the shape of acting area which suits the particular play on which he is working, and is not in any way tied down by dimensions except where they may be controlled by the local licensing authorities. Generally speaking a rectangular acting area is easier to work in than any form of an oval, and the complete circle should be avoided at all costs as it tends to force the actors into endless circular perambulations which can be very trying. Initial attempts at arena work should always be staged with the audience completely surrounding the actor. Proscenium-trained actors, if given any blank wall (e.g. a platform or acting area, similar to an Elizabethan stage), will tend to gravitate to this wall in a valiant endeavour to avoid turning their backs on the audience. A complete surrounding audience will force him to become accustomed to playing with his back turned to a large section of the spectators at all times. As the actors become more experienced in the style there is no reason why the producer should not have complete freedom in the arrangement of audience and actors. Once the size and shape of the acting area and the disposition of the audience around it have been selected—bearing in mind that more than two rows on one level make lines of sight impossibly difficult—the producer can then go on with consideration of the setting and the lighting.

Setting

The simplest rule is " the less the better "—but, needless to say, this requires modification in many instances. The conflict here is particularly fierce in the case of a proscenium-trained producer or designer who is very reluctant to relinquish the beautiful and fascinating possibilities of the picture within the frame, and resolves itself into the basic decision of what will really serve best the needs of the audience. The decision cannot be made without taking into consideration the disposition of the auditorium seating and the degree of raking of this seating. In other words, the arena designer is governed by the particular " theatre " in which he is working to a far greater degree than his " proscenium-minded brother." Certain things have emerged from experience:—

(1) If the main acting area is on the same level as the front row of the audience no rostra higher than 3 ft. 6 in.–4 ft. can be used as part of the permanent set as they will cut lines of sight very badly. Even 3 ft. 6 in. tends to be rather restricting as the actors cannot sit near it for fear of disappearing almost completely from the sight of one section of the audience. This, of course, only applies to " solid " rostra—platforms supported on thin " legs " might be used to great effect where more height is required. Where conditions (and finances!) permit, a very interesting rostrum set could be evolved using all kinds of different levels and enabling the producer to obtain enormous flexibility in his groupings. The mention of platforms on thin legs leads to a consideration of " skeleton " scenery which has been developed by the arena specialists in America. Decorative porticos over the entrances were used in a *Twelfth Night* production and even the skeleton framework of a complete bungalow has been built in an arena. I cannot help feeling, however, that no matter how thin the supporting pillars or skeletons are they must prove a source of annoyance to the audience if used throughout the play—although I can think of various moments in which they might be very effective, e.g. in the final scenes of *Romeo and Juliet* the tomb could be enclosed in a skeleton Gothic crypt. A great deal of work remains to be done on this aspect of arena design before any definite pronouncements can be made.

(2) Furniture must be low and as nearly " backless " as possible. This is not as difficult as it may sound and is mainly a question of careful selection. Where the furniture is reasonably simple it may well be built specially for the production. This may appear extremely expensive but it must be remembered that the scenic expenses of an arena show will very seldom approach those of a proscenium production so that some of the money saved on this score could be devoted to building furniture. For example, six " joint stools " and a simple table were designed and made for my own production of *The Shrew* for a total cost of less than £6, and the whole of the " setting " expenses, including this item, were less than £10. Even

this may seem extravagant to some small groups but it is offset by the fact that the table and stools will be extremely valuable " stock " furniture for many future productions.

(3) Settings should be as permanent as possible so that the number and length of changes can be kept to a minimum. Necessary changes should be incorporated into the action of the play and carried out by minor characters, or, where this is impossible, some form of return to the old Georgian system of liveried " Servants of the Theatre " should be employed. Such changes must be carried out in adequate lighting—nothing is more infuriating to the audience than inefficient fumbling in the dark. The scene shifters should be rehearsed as part of the cast and neatly and uniformly dressed. There are, of course, exceptions to this rule—instances where some small alteration to the set can be very effectively carried out during a blackout, but generally this must be avoided. Similarly a gloomy murk (changing sets in a dim blue working light) should be firmly abandoned as it merely worries the audience and tends to create an apologetic atmosphere.

(4) If a " practical " door is absolutely essential one of the available doors of the hall should be used. The acting area must be arranged to allow for this, and as the intimacy of the method calls for very few rows of seats it need never be far removed from the acting area. This scheme is particularly valuable when a completely realistic approach to the arena is being made.

(5) Any particularly bulky pieces of furniture which cannot be dispensed with but which are liable to cause difficulties in lines of sight are best set in line with one of the entrances or, in some cases, in a special " bay " in the seating created for the purpose. An instance of this occurred in a production of *A Phoenix Too Frequent*, where only one entrance was used but a recumbent body on a large rostrum was an essential part of the setting. This rostrum was set almost outside the acting area and no seats were placed behind it. Such necessary gaps in the seating can often be turned to good account in that they will provide means of approach for the members of the audience.

Lighting

It is perfectly possible to dispense altogether with stage lighting and give performances with the audience and actors illuminated equally. This does, however, demand an unflagging concentration from the audience and the arena producer will be well advised to help his audience by accenting the players by means of carefully controlled lighting, confined as nearly as possible to the acting area. Over and above the consideration of concentrating attention, there is, of course, the use of lighting to further the producer's ends in the interpretation of the play and expert lighting can be the strongest weapon in the arena producer's technical armoury. There is no great difference in the use of lighting for this purpose between proscenium and arena except that, as the audience is so

close to the pools of light (in some cases actually in them) the emotional effect can be more pronounced. This is particularly true when the lighting is changing rapidly in a rhythmical fashion, e.g. in documentaries and similar plays. The complexity or otherwise of the lighting plot is a question which each producer will settle according to his own ideas on the subject and the apparatus available. I propose to confine my remarks to the kind of apparatus best fitted to the job and its positioning. The only source of light which is sufficiently under control to be of general use for arena lighting is the " spotlight." This is not absolutely without exception but quite sufficiently so to be made a rule. The difficulty is to light the actor's face without dazzling the front row of the audience and on this point alone the suggestion that all rows should be raised above the acting arena is worth serious consideration. The lanterns must be placed as high as possible but preferably not quite vertically above the actors—this gives unmanageably harsh shadows and should only be used very occasionally for special effects—and the positioning and angling of each must be done with the aid of an assistant who sits successively in various positions in the auditorium and tests the dazzle effect. A small arena—say 350 sq. ft.—can be lit reasonably well with 4 × 500-watt spots equidistantly spaced round it, but better results are obtained if one or two 250-watt baby spots can be added from a slightly lower level than the 500's to help the modelling of the faces. The front row of the audience is inevitably fairly brightly lit either by direct spill or by reflection from the floor. This latter fact is extremely important as, without this reflection, it would be extremely difficult, if not impossible, to obtain reasonably balanced lighting of the actors' faces. As it is, the high degree of reflection from the floor softens the shadows caused by the heavy top lighting and the results are very pleasing, particularly as " rim " or " halo " lighting is obtained automatically under arena conditions. The exception to the " spotlight only " rule is the hooded flood, particularly in halls where the roof is low and the floods can be suspended directly over the acting area and fairly close to it, so that the spread of the beam is restricted. Even so, this lighting usually requires spots to supplement it and must be used sparingly. It has been found that one of the most useful pieces of apparatus for arena lighting in small halls is the new Strand Baby Mirror Spot, owing to its extremely sharp cut-off. It is exceptionally useful in avoiding audience dazzle and has been found to be a great boon in halls where power supply is limited. It is quite impossible to give optimum angles for the lighting of an arena as conditions will vary from hall to hall and only experiment will show the way. It is important that all auditorium seating should be in position before the lighting angles are finally determined, as only by careful testing in the actual seats can the dazzle effect be estimated.

The lighting of separate areas of the arena as a method of

ensuring smooth continuity in multi-scened plays is worth considering. A large acting area can be divided into two or more zones all separately lit and it is perfectly possible for a cross-fade with the lighting to move the action from one to the other extreme smoothly. Actors can easily enter the unlit zone just before the " cross-fade " cue and the play flows on.

Another technical development which can be applied to the arena is the projection of shadow patterns across the acting area. This can be done by a high powered spotlamp (or " bulb ") mounted in a flood lantern with a blackened interior. The cut-out pattern is then placed in the grooves normally occupied by the colour medium. The resultant shadow is best projected vertically downwards, otherwise the cutting of the template for the pattern is a matter for long and tiresome experiment. This method was used successfully for the prison scene in *Richard II*—a simple pattern of bars forming a square lighted area on the arena. In an American production of *Winterset* a curved shadow of the bridge was thrown across the acting area and it would seem the possibilities of extending this use of light are worth investigating.

* * *

THEATRE ROYAL, DRURY LANE

The original theatre was built in 1663 by Thomas Killigrew, who had received a charter from King Charles II in 1662. This charter still exists and is in the possession of the present theatre proprietors. It is interesting to note that the cost of building and equipping this first theatre was about £2,500 and that the electrical installation for the present building was approximately £34,000. But then, in 1663, a box cost 4*s*. and the pit (now known in theatres as the stalls) 2*s*. 6*d*., the middle gallery 1*s*. 6*d*. and the upper gallery 1*s*.

Actors employed in the theatre were known as " His Majesty's Servants " and as such were entitled to wear the Royal Livery of scarlet. This livery is still used by the " Footmen " at Drury Lane.

During its life, there were occasions when the audience were somewhat disorderly, and so serious was this once that the military had to be called to restore order; and for a considerable number of years sentries were posted outside the theatre and this practice continued until the reign of Queen Victoria.

There have been, in all, four theatres erected on this site and there is the possibility that some parts of all four are contained in the present structure. Among the architects who have been employed on the various buildings are the following: Christopher Wren, Inigo Jones, Holland, Wyatt, Emlyn Walker, F. Edward Jones, Robert Cromie and Joseph Emberton.

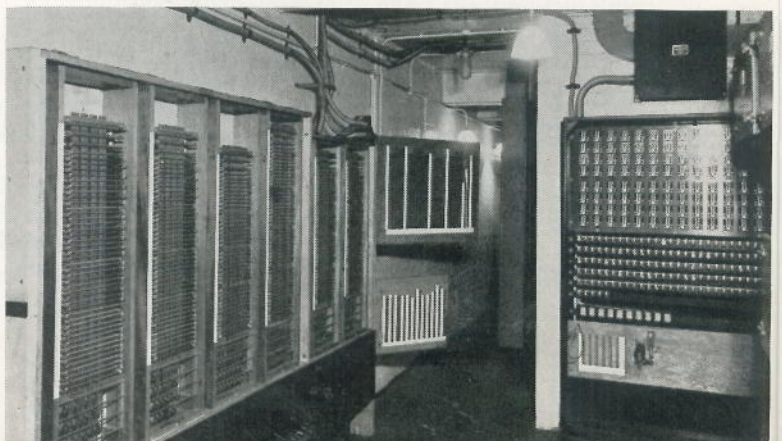
Stage lighting in the original theatre has been stated by various historians to have been by pendant candle chandeliers which hung from the proscenium arch. Footlights are thought to have been oil and installed in the theatre forty years after.

Fig. 1. *The Strand Light Console which controls 216 circuits but only measures 4 ft. 9 in. wide by 3 ft. deep by 4 ft. high, including control of all remote colour changes on lanterns. The window through which the operator sees the stage is shown at left*

In 1674 the second theatre was opened and stood for 120 years until, in 1794, it was pulled down and rebuilt. In 1809 it was destroyed by fire and then came the fourth theatre, which was opened in 1812. There is much of this building in to-day's structure and in 1831 the Doric Portico in Catherine Street which is the main entrance (originally the entrance was in Drury Lane itself where the rear of the stage, etc., now is) and the Colonnade in Russell Street were added.

Lighting of the stage passed through the various light sources, such as candles, oil, limelight, gas and, of course, electricity. It was one of the earliest theatres to be equipped with electric light and strange as it may seem was almost the last of the London theatres to have operated off a D.C. public supply of 100 volts. Its modernisation to present-day standards was long overdue and no doubt if it had not been for the war would have been converted to the modern three-phase 230-volt line to neutral supply much sooner.

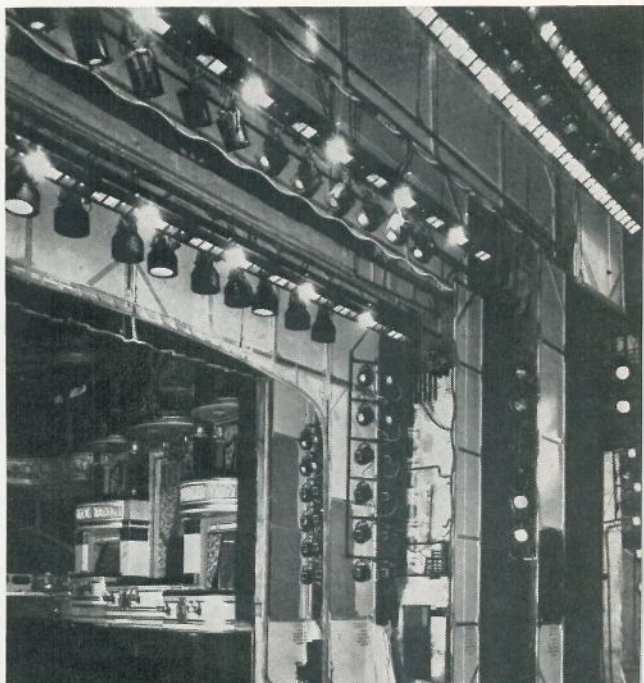
Fig. 2. *The relay banks are an essential link between the low voltage control desk and the mains voltage lighting circuits*



Some idea of the stage lighting installation in this theatre may be gathered from the fact that the total connected load is in excess of 350 kilowatts, this being balanced over the three phases of the four-wire A.C. supply. Control is by means of a Strand Light Console, the desk of which is in a room on the prompt side of the stage within the proscenium arch (Fig. 1). A window through the arch gives the operator a view of the stage. The slave dimmer banks operated by the Console are under and at the rear of the stage. There being no less than 216 dimmer ways, the saving in stage space by using remote control will be immediately apparent. The size of the three-keyboard Console is about the size of a roll-top desk, being only 4 ft. 9 in. wide, 3 ft. deep and 4 ft. high, all controls, including those for remotely-operated colour changing of lanterns, being thus well within the reach of the single operator.

Both the footlight and No. 1 batten are 42 ft. in length and are wired for four colours, with two circuits per colour (see Fig. 3). Battens 2 to 8 inclusive, which are each 45 ft. long, are similarly wired. All battens are fed through plug boxes with changeover switches, so that when the battens themselves are not in use the circuits may be utilised for other purposes. Other hanging equipment includes a spotbar equipped with sixteen 1,000-watt spotlights and a cyclorama top floodlight bank consisting of thirty-two 1,000-watt lanterns, these being controlled in four colours. At fly level on actor's left are two 24-way plug boxes with plugs in pairs and three similar 8-way boxes. This latter item is repeated on actor's right. For decorative fittings there are two single-way plug boxes on each side of the stage. At perch level there are also

Fig. 3
General view of the stage looking towards the auditorium, showing some lighting equipment



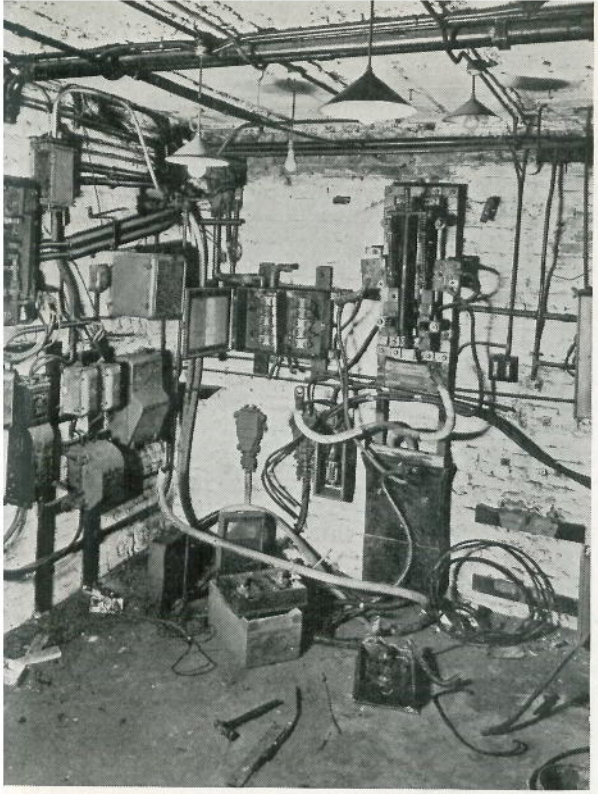


Fig. 4
An electrical intake room at Theatre Royal, Drury Lane. Before the arrival of the grid system of electrical distribution in this country theatres used to be supplied by more than one electricity company

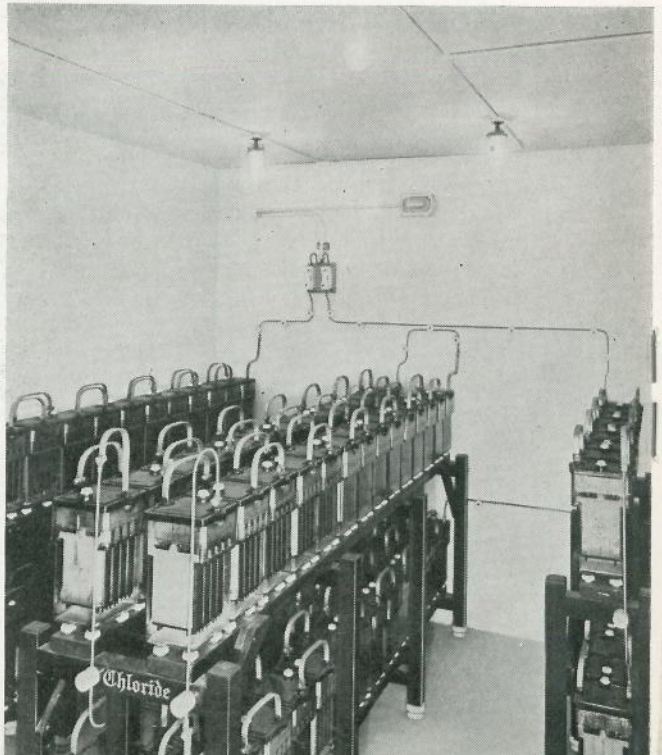


Fig. 5
The same room as in Fig. 4 (above), but now converted to house a battery installation for safety lighting. As the grid system of electrical distribution developed it became increasingly difficult to find alternative sources of electrical supply. Battery sets are, therefore, now in general use as a secondary source of supply

Fig. 6. *The auditorium, as seen from the stage, showing Front-of-House automatic colour-change spotlights at the two levels*

two two-way boxes on each side. At stage level there are four points for float spots and sixteen four-way dips or floor plug boxes. For the lighting of the bottom of the cyclorama there are two four-way plug boxes, one each side of the stage, these being wired across stage. To cope with special requirements three 75-amp. Effects Boxes have been provided, one on each of the three phases.

In the auditorium are a total of twenty-six 1,000-watt mirror spots, sixteen of these being fitted at Dress Circle level and the remainder at Upper Circle level (Fig. 6). All are fitted with remotely-operated colour change controlled from the Console Desk. The decorative lighting load of the actual auditorium itself amounts to 10 kW.

Cueing to the various parts of the stage is by means of a 28-way signal board in the prompt corner.

The " following " spotlights are in a special projector room at the back of the auditorium gallery and consist of four 100-amp. *A.C.* High Intensity Sunspot Arc Lanterns.

During the progress of the work, particularly other than the stage installation, much antiquated apparatus which dated back to the early days of electricity was discovered and removed. " The Lane " now ranks, from an electrical point of view, as one of the latest and modernly equipped theatres in Great Britain.

L. G. A.

LIGHTING THE OPEN STAGE

The most extreme form of Open Stage is the Centre Stage in which the audience completely surrounds the acting area. This layout brings new problems in lighting but itself is far from new. Without invoking history we have only to refer to the circus and cabaret to establish this. This extreme is not often found, the more common arrangement being an arena backed at one end by some kind of scenery or even more or less normal if shallow proscenium stage—i.e. an amphitheatre.

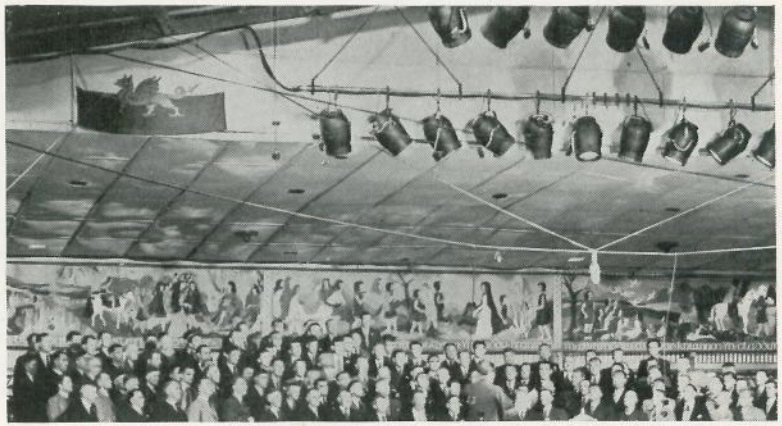


Fig. 1. "*The lanterns can seldom be mounted behind apertures or high enough not to look untidy*"

These arrangements are said to increase the intimate contact between audience and artist. Personally I do not find that this follows from the architectural form at all. Loss of intimate contact can be attributed to the provision of too large an audience first and foremost—there is nothing intimate, for example, in Ice Shows, by far the greatest users of open stages to-day. At the other end of the scale intimacy is achieved, I grant, but to my mind it is the intimacy of the cabaret—an intimacy which requires a haze of alcohol and a mind nearly at sleep to establish its charm. Without this adjunct the human form in strenuous endeavour, vocal and/or physical, seen at odd angles and at close range revolts me. If this applies to professionals it applies with very much more force to the amateur, any of whose shortcomings in breathing, make-up, costume, or fidgetings are pitilessly revealed.

Whether or not one is attracted to the Open Stage, it still has to be lit, but this brings me no pleasure because the Arena Stage, and even more so the Centre Stage, denies the lighting engineer all the proper angles and ten to one denies him all chance of concealing his lanterns. The Royal Festival Hall, London, affords an

example of an Open Stage with lanterns properly concealed behind apertures and giving sufficient variety of angle, though even there lighting from low down at the side is impossible. It should be remembered that this is not a true arena but merely a stage without a proscenium, and if I may point a moral, it should also be remembered that it was intended to stage all productions open. Nevertheless, except in concerts, it is almost invariably used with a makeshift fit-up proscenium constructed after the first year.

I dislike lanterns hanging immediately overhead because this vertical light casts heavy shadows which do not stand close inspection, and in any case the lanterns can seldom be mounted behind apertures or high enough not to look untidy (Fig. 1). To me a 45° angle is the only tolerable one in a show where footlight correction is impossible. Figs. 2 and 3 show this angle in relation to the audience, in this context assumed to be on three, perhaps all, sides. Fig. 2 shows the audience as it should be, looking down. Fig. 3 shows the more likely condition of flat floor and high stage.

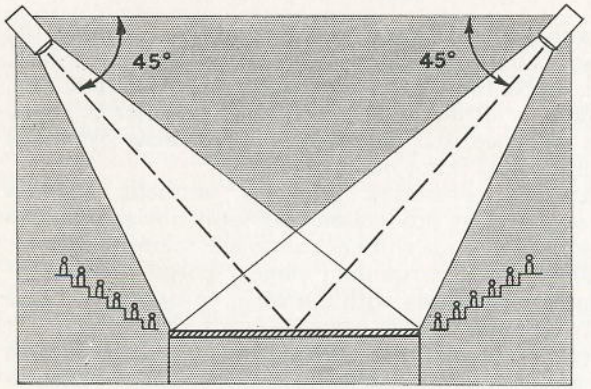


Fig. 2
"*The audience as it should be, looking down*"

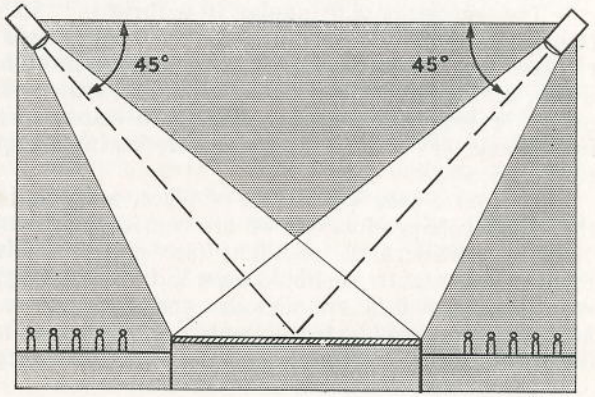


Fig. 3
"*. . . the more likely condition of flat floor and high stage*"

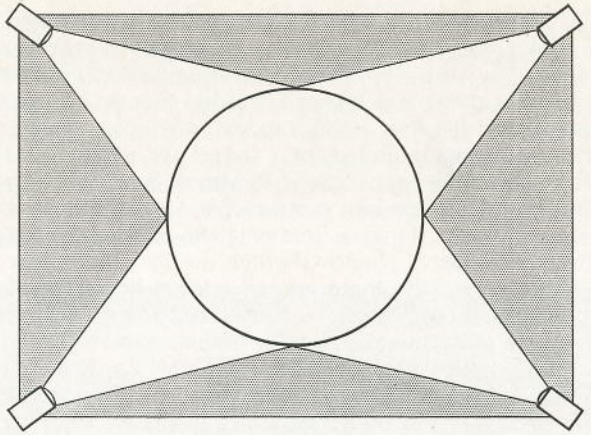


Fig. 4. *" Four lanterns will suffice, even for a centre stage "*

Beginning with this 45° angle, we find at least double the number of lanterns of a proscenium stage is needed for the basic lighting, because, unlike the proscenium stage, which faces one way, our stage may face in all directions; secondly, in order to avoid scatter over the audience, **the covering of large areas by a** few floods or wide angle spots is **not** permissible.

When centre staging is resorted to, not for " æsthetic " reasons but with an idea of reducing production costs, it is obvious that we are on the wrong lines if funds will not run to the requisite number of lanterns required on a proscenium stage. Large batteries of lanterns and dimmers run away with the cash, so one must begin again on a totally different tack.

If the lanterns are restricted in number but made mobile, each with its own operator, four will suffice even for a Centre Stage, in which case we have the condition of Fig. 4.

The operators will indulge in a form of " following, " not in the usual sense but opening on this or that area as the drama requires, sometimes flooding with soft edges, at others hard spotted down, moving with an artist or remaining static. The lighting will not be realistic nor evocative but it will belong to the Open Stage in the same way that the batteries of following arc spotlights belong to the Ice Show.

Of course arcs will be out of place, noisy and troublesome in the small-scale productions we are **considering, but fortunately the** 1,000-watt Pattern 93 spotlight (see pp. 19-21) is just the job. Each of these lanterns should have a dimmer alongside it and then each position will be self-sufficient and only require a 5-amp. plug. Much rehearsal will be needed unless, of course, as in the Ice Shows, the operators wear headphones and are talked through the show.

F. P. B.

A LONG RANGE 1,000-WATT SPOTLIGHT

The " Mirror Spot " principle, which was introduced by Strand Electric to the English Theatre some 18 years or so ago, is by now an accepted backstage term, and the interest shown in it by customers and copyists alike has passed even our own expectations.

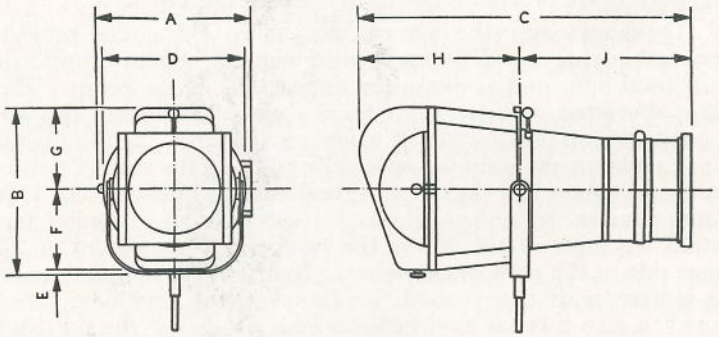
Embodying an improved, but nevertheless an essentially " Mirror Spot " optical system, the Pattern 93 1,000-watt long range unit has made its appearance with an intensity of two to three times that of the earlier 1,000-watt mirror spots. Intended primarily for long range work, this spotlight has been designed to give a narrow angle beam of 15° maximum against the 19° maximum of its predecessor. Instead of the single (rear) reflector used in earlier mirror spots, the Pattern 93 employs two reflectors, one behind the lamp as heretofore, and another in front of the lamp but facing backwards towards the former. Apart from the holes at top and bottom which are necessary to allow the tubular lamp used to be accommodated in the optical system, and the frontal aperture through which the stream of light emerges, the light source is virtually totally enclosed in the reflector system and an unusually high percentage of solid angle of light emitted is collected.

The lamp used is the high efficiency Class A.1 tubular projector type, embodying a grid filament which emits the greatest proportion of its total light output along the optical axis of the beam. These lamps are fitted with large pre-focus caps which makes the work of changing lamps a matter of a few seconds only, as the filament of any replacement lamp automatically takes up the correct position both as to height and direction in the horizontal plane. The Lamp Manufacturers' recommendations for the Class A.1 tubular lamp restrict its angle of tilt (along the beam) to a maximum of $22\frac{1}{2}°$ either side of the vertical cap down. By fixing the lampholder into the lantern with a backward tilt, however, this spotlight may be canted to give a beam anywhere between 45° below the horizontal to 5° above it: an adequate range of movement for the long throw front-of-house purposes for which the lantern is intended.

As in earlier mirror spots, the collected output of the light source is concentrated on an aperture gate which is, in turn, focused by an objective lens to give either a hard or soft-edged beam as required. The gate apertures may be either an iris diaphragm which is fixed to and forms part of the lantern and is controlled from a handle at the top, or it may be a straight-edged mask, which is removable from the lantern to allow each of the four sides to be individually adjusted for masking to a linear beam shape.

With an effective throw of about 100 ft., this spotlight will supersede arc lamps for many purposes, and the 40-amp. arc for nearly all. With a consumption of only 5 amps. against the 40 amps. of the latter, its use is not attended by the splutterings and irregularities of an arc lamp in inexperienced hands. Furthermore, no

Fig. 1. *Pattern 93 Mirror Spot.*



DIMENSIONS

	ft.	in.		ft.	in.		ft.	in.
A	1	1¾	D	1	0½	H	1	2
B	1	6¾	E	0	4¼	J (max.) ...	1	4
C (max.) ...	2	6	F	0	7¼	(min.) ...	1	2
(min.) ...	2	4	G	0	7¼			

OTHER DATA

Angle of Tilt.—45° below horizontal, 5° above. (Lamp is pre-tilted within lantern.)

Beam Angles.—Maximum 15°, minimum 6°.

Lamp.—1,000-watt, Class A.1 tubular projector with large pre-focus cap.

Effective Throw.—100 ft.

operator is required to stand by it throughout the time it is alight for the purpose of feed or adjusting the arc, or replacing carbons from time to time. It can, however, be used in the same way as an arc for " following " actors about the stage, a suitable handle being provided at the rear for the purpose.

This lantern, which is available either for hire or outright purchase, weighs about 45 lbs. and the dimensions are given opposite.

* * *

BOOK REVIEW

William Poel and the Elizabethan Revival, by **Robert Speaight.** (Heinemann. Demy 8vo., 302 pp. 21*s.* net.)

" Thank you for allowing me to play Cressida for you. . . . **Everything is dull and uninteresting to me since the play is over.** I can't make my hats, and although I try hard, my thoughts seem to wander and I'm afraid I shall have to give them up." The " little milliner " who had been playing Cressida (at the King's Hall, Covent Garden, in 1912) was Edith Evans and we owe it largely to William Poel, who produced the play, that the greatest English comedienne of this century gave up her hats.

Of Poel's many achievements, detailed here with affectionate care by Robert Speaight, who played in a number of his productions, this was probably the only one which proved an unqualified success. It may well be true that Poel's influence was even greater than Granville-Barker's in **persuading Shakespearean producers** to re-examine their texts **in the light of the stage conditions** which obtained at the time the plays were written. It was thus a worthwhile act of piety on the part of the Society for Theatre Research to undertake this memorial volume to commemorate the centenary of Poel's birth.

But those who have in the past unquestioningly accepted the Poel legend may be sharply disconcerted by many of the facts about his productions (and most of the photographs) provided here. For example, it comes as a surprise **to at least one** reader to discover how wretchedly Poel used " to hack about, alter and shamelessly transpose " the masterpieces he was directing. One is left, **in fact, with a rather depressing picture of this " man of the theatre who never had a stage," indefatigably producing** Elizabethan tragedies in half-empty parish halls and, for all his basic integrity, indulging in such inexplicable quirks as a female Thersites (at a time when there was no shortage of male actors) and—to end this review where we began—even going so far, in a production of **The Trial of Jeanne d'Arc** at the Ethical Church, Bayswater, as to cast that same Miss Edith Evans as Pierre Cauchon, Bishop of Beauvais.

R. V. M.

PRIMARY COLOURS—THE WATT WASTERS

The last few months have seen the publication of a number of books which have been devoted in whole or in part to stage lighting. This is a most welcome sign of an increasing awareness of the contribution which lighting can make to a complete theatrical production. What constitutes good or bad lighting in the theatre is largely a matter of personal opinion, and from that point of view alone the more opinions that are publicly expressed the better, so long as they are sensible. An aspect of stage lighting itself which is particularly " individual " and can therefore be somewhat controversial is that of colour. But if a chromatic chaos is not to be the result, it is important that certain fundamental principles should be understood from the outset by all concerned. It was therefore with some regret that one found the subject of colour rather poorly served in one or two recent publications.

One criticism is that authors all too frequently start by discussing the so-called primary colours of light as though they were of " primary " importance. While one can understand perhaps why they have done this, it can be unfortunate, because even if the light primaries have a limited use on the cyclorama or sky cloth, they have no place on the acting area of the straight play, or when realism is aimed at. They are, therefore, not entitled to the emphasis which an uninitiated reader may attribute to them by virtue of an early and sometimes lengthy mention.

There was at one time a school of thought, now better informed, we hope, which held that the most satisfactory method of colouring up such commonplace and compartmented equipment as footlights and battens was to use primary red, primary green and primary blue in alternate circuits. By varying the relative proportions of these three by means of dimmers, it was more or less correctly argued, any intermediate hue or tint could be obtained and primary colour screens could, therefore, be left unchanged from show to show. Indeed, if they did not fade or suffer mechanical damage from such an unlikely eventuality as cleaning, they might even last for years. No one, however, seemed to worry about the attendant expenses incurred in other directions.

In the first place a single circuit of primary blue is insufficient to obtain the full range of intermediate colours. The incandescent lamp is comparatively poor in light from the blue end of the spectrum and to make good this deficiency a double wattage of blue is required to maintain a balance. It is seldom if ever possible to achieve this simply by installing larger lamps in a single blue circuit, and the answer is almost always a second complete circuit of blue, making a total of four.[1] Amateurs will seldom find 4-circuit equipment of this kind available in halls which they hire,[2] but if ever they are fortunate enough to acquire their own lighting installation they may find themselves faced with additional wiring, switches, fuses and dimmers for the second blue circuit in each piece of equipment. If the number of compartments set aside for blue in a footlight or batten of given length is doubled this can obviously only be done by a corresponding decrease in the number of compartments available for the other colours. Using standard 9-in. centre equipment, each compartment of the red and green circuits will be 27 inches apart. On shallow stages using masking borders there is serious danger of the latter being so close to the battens that unsightly highly coloured patches result.

[1] *Where a double wattage of No.* 20 *Deep (Primary) Blue is impossible to achieve, a single circuit using No.* 19 *Dark Blue may be used but with a reduction in the number of intermediate hues obtained.*

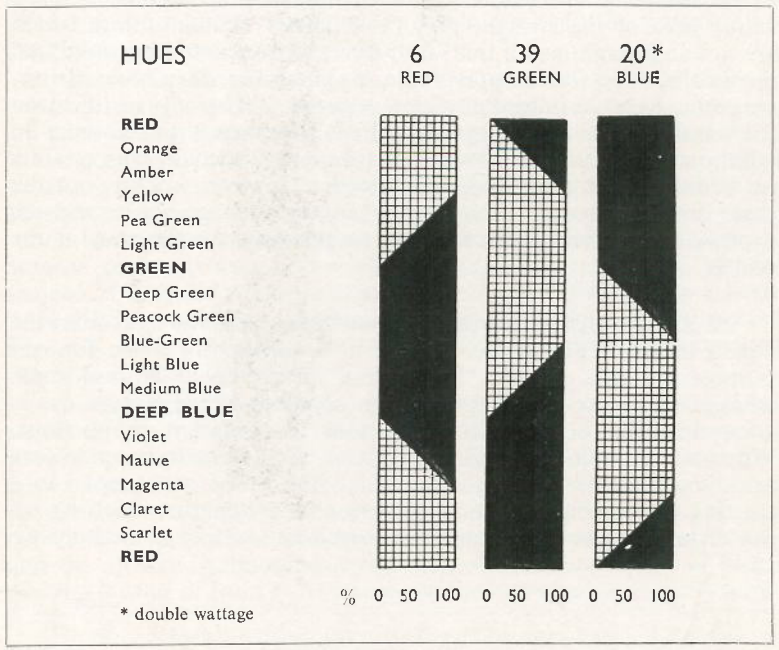
Now it does make a very nice " party piece " in the lecture hall or laboratory to demonstrate the intermediate hues and tints which can be obtained by mixing primary colours, and indeed their number is only limited by the ability of the beholder's eye to distinguish one from another, and by his or her memory or inventiveness in naming them. Nevertheless, so far as the acting area of the legitimate theatre is concerned, primary colours have about as much place as a racing motor car on a small island with an overall 10 mile speed limit. In either case, the available facilities are far greater than will be required and the whole project is unjustifiably expensive. The acting area of the straight play (and indeed of many plays which are not so straight as all that) do not require such concentrated and vivid colours as, for example, red, orange, amber, deep blue, mauve, magenta, claret or indeed any kind of green. The only justification for employing a colour system which produces those colours in addition to actual requirements would be that a saving, or certainly no additional expense, was occasioned. However, such is not the case; but in order to understand where the wastage occurs and the expense is involved it is necessary to get down to the root of the matter.

What we refer to as white light on the stage is the light from the naked incandescent lamp. Whilst it is sufficiently white for our purpose it is of a different " whiteness " to daylight. In both cases what gives rise to a visual sensation of white in the human eye is a combination of a variety of colours in different proportions. When we put a colour medium in front of an electric lamp we are not " colouring " in the sense of adding. We are simply subtracting or filtering out those colours or wavelengths which we do not require. The light source is therefore emitting something we

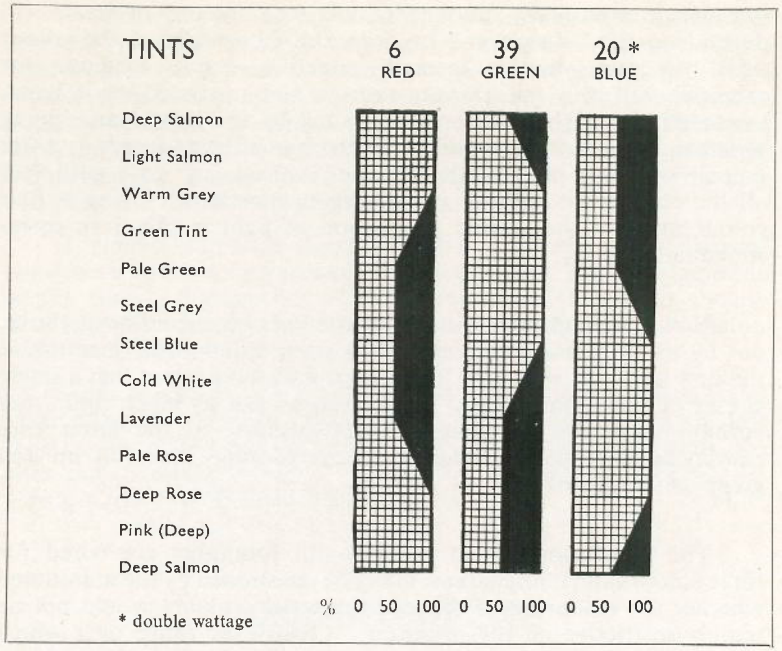
[2] *For this reason no mention is made in this article of use of an additional white circuit to dilute saturated colours.*

are not using and there is immediately a degree of wastage. In the case of the electric lamp in the stage lantern, we are at two disadvantages. Firstly there is a drop in intensity of light on the stage where we want it, and secondly we are consuming and paying for electric current from which we are deriving no benefit. Furthermore, reference to the table of hues and tints on pages 24 and 25 will show that in order to obtain the required colour, one and very often two of the three primary colours have to be dimmed. This causes yet a further drop in intensity.

Now it may be that this reduced light output is sufficient for the producer's requirements, but if not we are immediately in trouble. Supposing a light blue hue, for example, was required. Reference to the table will show that this is obtained by using the blue circuits full up and the green circuit somewhere about two-thirds to three-quarters full. Now although we can increase the light from the green circuit by raising the dimmer we cannot do likewise with the blues which are already full up, and if we alter the green by itself we immediately lose our required colour. We are then



See caption to diagram opposite



The percentage figures on the charts reproduced above and opposite are approximate guides only since the characteristics of dimmers and circuits vary; slight movement of the dimmer handles either side of the positions given will bring in the required colour. If double wattage is not available for the blue, then No. 19 *may be substituted for No.* 20. *The schedules show diagrammatically the positions in which to place the dimmer handles to obtain the colours in the first column. The percentages are of handle travel,* 0 *per cent. being the "off" position,* 100 *per cent. the "full on." For the tints no dimmer is taken below* 50 *per cent.*

left the alternative of using larger lamps (if the equipment will take them) or using more equipment. The matter does not rest there, for of course we shall be consuming more current and as likely as not switches, fuses, dimmers and perhaps even main cables may have to be increased in size.

The amount of wastage through filtering depends for one thing on the "colour" of the medium we are using. An incandescent electric lamp produces more light, for example, at the red end of the spectrum than at the blue end, and in consequence the use of a red filter deprives us of a smaller percentage of emitted light than

one which is basically blue. Secondly, the amount of waste will depend on the " deepness " or degree of saturation of the colour filter. A pure—that is a really selective—colour medium, for example, will only pass a very narrow and restricted wave band, the remainder of the wavelengths emitted by the light source going to waste. On the other hand, what the human eye accepts as a tint or pale colour is not just the " name " colour, e.g. pale gold, but all the constituent colours in varying proportions. Using a pale colour medium the wasted proportion of light is therefore correspondingly less.

Now if we had set out to obtain the light blue mentioned above, not by using primary colours but by using a light blue medium in the first instance, we would almost certainly have found that a single circuit of this colour would have given us just as much light, and perhaps more, as by using primary colours, in the latter case employing two and two-thirds circuits (double blue full up and green at two-thirds).

The great majority of battens and footlights are wired for three colours and it might reasonably be questioned by the uninitiated whether the colouring of these in three pale colours would not be unduly restrictive on the producer. Clearly the range over which he can change his colours is very much reduced. Experience shows however that this fear, so far as the straight play is concerned, is unfounded. If the filters are chosen with care it will be found perfectly possible to warm, cool or otherwise vary the atmospheric or dramatic quality of the lighting within the required limits. Indeed it is quite remarkable what very satisfactory results can be and indeed are obtained by amateurs on small stages with battens and footlights wired for only two circuits.

Very wide claims have been made in certain quarters in support of the use of fluorescent lighting for the stage including the acting area. It is argued that as the light emitted by these lamps is already in primary colours, the wastage due to the use of colour filters is eliminated. It is not within the scope of these notes to compare the capital cost of fluorescent lighting equipment and dimmers with that for incandescent, or to argue whether the colours are satisfactory. Nor is this the place to point out that the very shape of the fluorescent lamp is a major obstacle to the design of a satisfactory reflector system. It suffices to state once again that the use of primary colours to obtain the soft hues and tints required on the acting area must be wasteful and that once the required colour has been obtained any alteration of dimmers to achieve an alteration in intensity will almost certainly be accompanied by a change in colour, for no lamp can be increased beyond its maximum brilliance.

One should perhaps point out that as an incandescent lamp is dimmed the colour of light emitted by it varies somewhat with a bias towards the red end of the spectrum. If a circuit of dark blue, for example, is dimmed it will be noticed that the drop in intensity is accompanied by a distinct tendency towards purple. The same occurs, of course, up to a point when using lighter colour mediums, but as they are very much less restrictive as to the wave lengths they will pass, the result is very much less noticeable.

It should be understood that the arguments put forward above refer to the acting area of the straight play. For the cyclorama or sky cloth a different set of circumstances exists making the use of primary colours permissible in certain instances. This matter will be dealt with in a subsequent issue.

Some years ago Mr. Noel Coward wrote a song " Don't Put Your Daughter on the Stage, Mrs. Worthington." With less neatness, with equal fervour but, we think, no lesser justification, we offer the following advice. " Don't Put Those Primaries on the Acting Area, Mr. Straight Play Producer." **M.**

* * *

CORRESPONDENCE

Who Lights the Set ?

The Editor,
" Tabs."

SIR,—Visiting Stratford this year, I noticed, for the first time, that, on the programme, there was a special line " lighting by . . ." and it set me wondering. In those plays that I saw, lighting obviously received a great deal of attention—and I say " obviously " for a reason—it *was* obvious, so much so that, at times at any rate, one rather felt that the lighting expert was concerned to produce cunning effects regardless of the play. There were, indeed, some lovely pastel-shade pictures produced, but they obtruded: the acting took second place, though whether this was, in part, due to the actors I am not sure. I appreciate the importance of lighting, needless to say, and I realise something of its possibilities, but I also maintain that it is a factor in production and not an independent art as it seemed to be in Stratford. If there is to be a lighting expert, he should surely work under the direction of the producer, so that the resultant production is a unity; I would underline the sentence at the end of the third paragraph from the end of Mr. Wrench's article.* Incidentally, I would also underline a sentence on page 11 of Mr. Ost's recent book on lighting: " Lighting is, first and foremost, the means of making the actor visible to the audience." Of late I have noticed, both at Stratford and at the Old Vic, that, despite the tremendous lighting resources these theatres must have, very rarely is the actor's face clearly visible. To take a further instance from Stratford, in the production of *Othello* this season, the only time the actors' faces were clearly visible was when they took their final curtain.

R. B., Birmingham.

* *This read: " He should not, though, be able to cause the set to be advantageously lit at the expense of the actor, or of the mood and movement required by the producer."*—**Ed.**

(*Continued overleaf*)

The Editor,
" Tabs."

DEAR SIR,—Mr. K. G. Wrench is to be congratulated for pointing out, in your September issue, that the artist should not be afraid of concerning himself with technology, so that it is all the more surprising that he should refuse to admit that the technician can concern himself with art. I see no reason to suppose that the " lighting expert " should be used " only as a technician " in cases where the producer and designer do not know their jobs. One receives the impression that he will also be expected to use the back door, and be asked to wipe his feet before entering the drawing room.

Statements about what the designer should, and should not, study have little point when only one man in England (so I understand) is able to earn his living by stage design alone. Many designers are employed full-time in repertory theatres, but are chiefly occupied with painting and some stage managerial work as well. It is scarcely surprising that they do not study many important subjects bearing on their work, of which lighting is one, for it does not pay them to do so.

The editorial footnote, referring to conditions in America, has no application in this country. In the U.S.A. the designer is more highly paid, frequently on a royalty basis, and often employs an office staff, like an architect, including draughtsmen and " lighting experts." I should be interested to know whether the standard of stage lighting is, in fact, any higher than in this country.

Surely, as things stand there is ample scope for the producer, the designer, and the " lighting expert." They will have to work harmoniously together, but so does the producer with his actors, and I do not see why the introduction of the lighting expert should place so large a strain on the co-operation of all concerned. In certain cases one man may be able to combine the functions of two, or all three of the persons I have mentioned, but it does not follow that the results will be any better.

Would Mr. Wrench have us believe that Diaghilev's lighting would have been better done by the choreographer or designer, that a building designed by one architect is always better than one designed by two in collaboration, or that books by two authors are necessarily inferior than those by one?

P. A. J., Sussex.

The Editor,
" Tabs."

DEAR SIR,—In our little company I have the happy position of designer and lighting man combined. I am thus able to see that the ideas and colours which I have worked out on the model are fully carried out on the set. When people come to the theatre they want to get away from the drab and the everyday, and my own taste in colour leans towards brightness and intensity, even for serious plays. To an extent the design and painting of the set can add to the drama of the play, but this depends on the proper emphasis of light from act to act and from scene to scene. I attend all rehearsals and have frequent discussions with the producer about the motivation of the characters, the author's ideas, the progress of the plot, etc., and so know the play inside out. Thus I can help to underline the producer's aims and help to make a co-ordinated production. This is, of course, often done in the professional theatre, but far too rarely in the amateur theatre.

The only experience I have had of lighting experts was in a period play, a long time ago. The then producer demanded dark panelling; the expert decided on " sympathetic " lighting; the result was a few dim forms groping about at the far end of a dark tunnel.

H. R., Plymouth.

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