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TABS

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EDITORIAL

The Demonstration Theatre at our head office will re-open on the 1st January, 1954. Demonstrations of lighting effects and equipment can be given at short notice thereafter. However, applications for lecture-demonstrations (60 seats maximum) may in the first instance be addressed to The Manager, Demonstration Theatre.

In this issue we are taking the unusual step of devoting the greater part of our space to a single article: "Planning the Small Stage". We make no apology for our action because this " planning" business is so vitally important.

In our publication Stage Planning and Equipment (1949) the author, Mr. P. Corry, stressed the need for planning a new stage as a complete entity, regardless of the finances immediately available. and passed on much of our hard won experience for those who would read and learn. This book is now, alas, out of print and gone for ever, but the need for some such guidance clearly still remains. Hence the present treatise by the same author. This, incidentally, may also be obtained from us bound in a cover as a separate booklet.*

No one in their senses would build a house knowing they could not afford such essentials as a bath or back door. Nor, surely, would they buy the most decorative of lighting fittings for the bedroom, knowing that as a result they could not also afford some form of lighting in the kitchen, hall and stairs.

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Strangely enough such a misdirection of exchequer and effort is just the kind of thing that happens when it comes to small stages. The last available penny is spent on, say, battens or floods for a cyclorama which will seldom be used, while the rest of the stage is consequently starved of wiring, plug points and dimmer ways.

The moral is "start with essentials and leave the frills until later ". We are always ready to give advice on what comes in either category and to suggest a purchasing programme spread over such length of time as finances (or lack of them) demand. There is no obligation and no charge. Our reward is the knowledge that money

* "PLANNING THE SMALL STAGE" by P. Corry. Published by and obtainable from Strand Electric and Engineering Company Ltd., branches and agents. Free and post free.

is not being misspent and energies misdirected, and no bones are broken if our suggestions are not accepted in every detail. If this attitude should sound over altruistic it is because we do really believe that the informed user of stage lighting equipment is usually at the same time the most successful.

ANOTHER CHOCOLATE CREAM SOLDIER

Many years ago, a bright boy was acquiring, in the hard way, a knowledge of the stage in a large provincial theatre. He often recalls the occasion when a visiting company was starring a celebrated and beautiful actress (who is still delighting audiences by her beauty • and her acting) in a play which included in the important props a large box of expensive chocolate creams. The boy discovered, in due course, that they were very delicious chocolate creams; and the extent to which he desired confirmation of his judgment exceeded the bounds of prudence.

When the visible evidence made it increasingly obvious that his depredations might provoke a crisis, he visited a popular store at which he could obtain the maximum quantity of chocolates for a minimum expenditure and restore to the box an outward appearance of plenty. During that evening's performance, the celebrated actress selected her chocolate at cue and, with an assurance born of experience, sank her teeth into succulent sweetness, a delightfully timed prelude to a big laugh line, which failed to arrive. There was a pause of protracted silence which created a state of gradually increasing panic in the prompt corner. She had dried up! But in vain did the S.M. project the prompt from the corner, with a repetition that grew in intensity. After a few supporting gags, the C.A. was able to utter a few muffled words, and the play got shakily under way again. As the scene ended publicly, another began privately in the prompt corner. It was revealed, with justifiably emphatic indignation, that the "cream" was in fact a caramel which had held the teeth in a viscid vice.

Before each subsequent performance a chastened and apprehensive stage manager tested each chocolate with a darning needle and the boy hoped he had successfully concealed his conscience-stricken anxiety behind a look of bland concern. That boy is now a man of the theatre and still suffers agonies of remorse whenever he sees that celebrated lady. He has never dared to confess to her. She would probably be greatly amused if she learned the reason why her laugh line was killed so tragically; but he daren't risk it.

P. C.

It never rains but it pours

Since reporting difficulty in obtaining an aspidistra for stage purposes Doncaster Thespians Operatic Society have had nearly sixty offered.

-Daily Newspaper.

PLANNING THE SMALL STAGE

by

P. CORRY

Introduction

A LTHOUGH it is obvious that an assembly hall, village institute or community centre cannot have all the facilities of a theatre, it must be recognised that if play production is intended, a reasonable minimum of stage accommodation and equipment must be provided. Details of such minimum requirements are now presented in a condensed form, without all the arguments in favour of the demands. Those who have copies of *Stage Planning and Equipment* (published in 1949 and now out of print) will find the arguments more fully presented. Others who may have doubts or require more support for the statements made are invited to submit their problems for discussion.

It is hoped that those responsible for planning stages within the limits imposed by a restricted budget will not make the mistake of regarding a desirable minimum as the permissible maximum. The equipment scheduled must be capable of expansion. If the users of the stage are keen enough to deserve the minimum, they will work to acquire the additions that will become essential if their standard of production is good enough. They will probably appreciate the extra facilities all the more if they have had to work for them; but the initial planning should avoid restrictions that make future extensions economically or structurally impossible. It is better to provide only the facilities to install equipment, and not supply any equipment at all, than to supply an inadequate amount of equipment and no facilities for future additions.

SECTION I

PLANNING DETAILS

AND RECOMMENDATIONS

(1) Auditorium

A multi-purpose hall is often inevitable but this does not justify a flat auditorium floor unless it is quite certain that flat-floor activities cannot be accommodated elsewhere. In many modern schools such accommodation could be found and a stepped or raked floor would be best suited to the majority of uses to which an assembly hall is put. Nevertheless, it is almost certain that the hall will have a flat floor. It must be recognised that if the floor is flat, the vertical sight lines will be bad for everybody except the occupants of the front rows; at a distance of about 30 ft. from the stage they will be intolerably bad. Good sight lines can only be obtained if the floor is stepped but a reasonable compromise is possible if seats are staggered on a floor that is raked to the permissible maximum of 1 in 10. Although these facts have been repeated *ad nauseam*, it is a sad fact that an assembly hall with a raked or stepped floor is still a rarity.

(2) The Stage

It is assumed that a picture-frame stage will be required, although the frame itself might be varied in emphasis. If "production-in-the-round" is intended, or a Tudor-type stage is desired, the planning problems will differ and require independent consideration. The needs appropriate to a "space" stage are not satisfied merely by providing an open platform. (See Section IV, para. 2.) The main function of the proscenium wall is to mask the paraphernalia of production. If the wall is removed, the problem of installing essential equipment must be solved—not evaded.

(3) Apron Stage

An apron of 4 ft. to 6 ft. is usually desirable. If it can be sectional in standard-size portable units, so much the better. These units could be designed to provide a stage for "drama-in-theround" (or other shapes) if required and could be effectively used in conjunction with "picture-frame" presentation, either on- or off-stage.

(4) **Proscenium Opening**

A minimum width of 24 ft. is desirable: a width of more than 28 ft. would probably be a disadvantage. Lateral sight-line problems are, of course, involved but the width of the auditorium should not dictate the total width of the stage (see para. (6)); the auditorium width is, however, related to the width of the opening. The height of the opening is related to the overall design but 12 ft. is usually satisfactory. Openings of greater height often have to be masked down by a border.

(5) Depth of Stage

A minimum of 24 ft. from proscenium to back wall is recommended. A depth of 30 ft. or over would improve production facilities considerably. Although a depth of 16 ft. for what is known as the "acting area" is acceptable, an additional 8 ft. beyond that is desirable for background scenery, lighting equipment, and passage of actors.

(6) Width of Stage

The space between the proscenium edge and the side wall is of vital importance. It should not be less than 8 ft. on each side; any additional space would be a boon. When stage and auditorium form parts of the same rectangle the wing space is almost always too restricted. The side walls of the stage should extend beyond the side walls of the auditorium.

(7) Stage Floor

The height from auditorium floor level should be 3 ft. 8 in.; if footlights are fitted they must project above stage level and the floor height should be reduced to about 3 ft. 4 in. Main joists should run from side to side, with floor boards fore and aft. A central trap about 6 ft. by 3 ft. is an advantage. If storage space is provided under the stage the floor should be of hardwood. A strong cotton duck stage-cloth should cover the acting area.

The stage floor MUST BE FLAT. A raked stage is useless for improving sight-lines and an intolerable nuisance to stage managers. It is a relic from the deep perspective settings of the Georgian theatre and has no modern justification. It is strange that some planners still insist on providing a rake on the stage, where it is not wanted, and deny a rake to the auditorium, where it is vitally needed.

(8) Height above Stage

There should be not less than 8 ft. clear space from the top of the proscenium opening to the lowest effective level of the roof. Fig. 1 illustrates masking problems if only 4 ft. is allowed; Fig. 2 shows the difference if 8 ft. is allowed. If a stage is intended to have full **production facilities a "grid" should be provided, when the height** from stage floor to grid should be at least two and a half times the height of the proscenium opening. Absence of a grid does not remove the need for providing fixings for suspension gear. (See Section II, para. (3)).

(9) Cyclorama

The back wall should be free of all such obstructions as skirtings, windows, radiators, pipes, etc.; any doors must be as near the side

walls as possible. The wall should be plastered with a matt-finished hard cement, painted "off-white." With adequate lighting this background can suggest the infinite distance of the sky, provided the stage has adequate depth and the acting area can be independently lighted. It is not necessary to curve the top and sides of a cyclorama; the curves help to improve sight-lines but can cause complications on the small stage.



FIG. 1. Sectional masking requires four borders without adjustment if height above proscenium opening is reduced to 4 ft.



FIG. 2. Sectional masking obtained by two borders if height above proscenium opening is 8 ft.

(10) Access and Circulation

Access to back-stage should not be directly from the auditorium. Steps leading to stage level should be outside the stage area. Passages and doors should be wide: 3 ft. minimum. There should be access between the two sides of the stage, external to the stage area.

(11) Switchboard Platform

If the stage lighting is to be controlled from a stage position, that position should be fixed when planning and adequate space allowed. It is an advantage if the switchboard is placed above stage level. It is preferable that the board should be controlled from a front of house position from which the operator can see the results of his operation. (See Section III, para. 10).

(12) Fly Gallery

See Section II, para. (3). (Suspension Gear.)

(13) Safety Precautions

The requirements of local authorities are not entirely uniform although, in general, their demands are based on the Home Office recommendations printed in the Manual of Safety Requirements in Theatres and Places of Entertainment. It would appear from the Building Bulletin No. 7 issued in September, 1952, by the Ministry of Education, that the latter do not always agree with the demands of the local authorities as applied to schools and reserve the right to withhold the Ministry grant in respect of expenditure which they regard as inconsistent with the precautions they themselves consider necessary. The bulletin referred to is not very informative about the requirements for stages in assembly halls but it is obviously desirable that details should be agreed with the responsible authorities in the design stage. If a safety curtain and lantern light are demanded, the structural design must be affected. (See Section II, para. (4).)

In any case, all draperies and scenery should be made fireresistant. Electrical equipment and wiring must conform to I.E.E. Regulations; a single-phase supply is desirable when small children have access. In the auditorium, exit signs and some system of secondary lighting should be installed.

(14) Storage and Other Accommodation

Some provision should be made for storage of scenery, draperies, properties, costumes, electrical equipment, etc. In a school, special dressing-room and workshop accommodation is not usually provided; it is necessary that such space should be available for use when required.

SECTION II

STAGE DRAPERIES AND EQUIPMENT

(1) Stage Draperies

The curtains which fill the proscenium opening are variously known as "Main Tabs", "Act Drop" or "House Tabs". They fit immediately inside the proscenium arch. The designer of the auditorium usually has definite ideas about the colour and texture of these curtains. The most popular material is cotton velour: other materials used include linen or cotton cloth printed with contemporary designs, wool serge and mohair. The two latter are inherently fire resistant and therefore more favoured by some licensing authorities. Other materials must be made fire-resistant. It is not unusual for a pelmet to be fitted either for decorative purposes or to reduce the effective height of the opening. The Home Office Manual prohibits the use of a pelmet of combustible material outside the safety curtain. If the height of the opening must be reduced it is often better and cheaper to use a proscenium border matching in colour and fabric the stage draperies, fitted behind the main tabs.

In addition to the main tabs the stage usually requires a complete set of stage draperies, consisting of:

- (a) Front Traverse Curtains, usually suspended 4 ft. to 6 ft. up-stage, extending the entire width of the acting area, overlapping in the centre.
- (b) Leg Curtains, usually 4 ft. to 6 ft. wide, at each side of the acting area and completely masking the wing space and side walls. They may be either suspended on swivel arms or fitted to hinged frames; the latter are more flexible in use but are more expensive.
- (c) Rear Traverse Curtains, suspended at about 15 ft. or 16 ft. up-stage to form the rear boundary of the setting. These may be either a pair of curtains drawn on and off, or single leg curtains to allow insertion of scenery units.
- (d) Borders. These must mask the space above the stage (i.e. the "flies"). Their number and positions are largely determined by the height available above the proscenium opening. (See Section I, para. (8).)

The stage draperies are of maximum usefulness if of a neutral colour, say grey or beige, and should be specified as requiring 50% fullness; with less fullness the folds appear skimped and graceless.

(2) Curtain Tracks

As it is unlikely that sufficient height will be available to permit the suspended curtains to be "flown", i.e. hauled up into the flies out of sight, they will be fitted to curtain tracks and drawn to the sides. A special type of silent-running track is manufactured for stage use; the domestic type of curtain rail is not silent in use and not intended for curtains of the weight likely to be used. A stage curtain track may be either fixed to the inside of the proscenium wall with brackets or suspended: if a safety curtain is fitted the main tabs cannot be fixed to the proscenium wall and must be suspended. The curtains are operated by a hauling rope or by cable and a winch.



(3) Suspension Gear (Grid Equipment)

Fig. 3 shows the usual arrangement of grid pulleys when a theatre has a proscenium opening up to about 36 ft. wide. When insufficient height is available for a grid to be fitted it is customary to provide beams or rolled steel joists to which the pulleys can be fixed. The centre pulley should be above the centre line of the stage; the pulleys for the long and short lines should be not more than 15 ft. distance at each side; the head-pulley should be approximately above the cleat-rail. R.S.J.'s running front to back of stage provide the best type of support, the pulleys being clipped to the flanges, as shown in Fig. 4. If R.S.J.'s cannot be provided in the correct positions, any alternative fixing is acceptable provided the weight can be satisfactorily supported; the suspension pulleys can be adapted to suit the method of fixing. Rope lines are used for suspending scenery and draperies, and are secured to cleats. The cleats should be fastened to a cleat-rail either fixed to the side wall, about 3 ft. from stage level, or forming the guard rail of a fly gallery. The latter is preferable; the gallery should have a minimum width of 3 ft. and be above the level of the proscenium opening, with clear height for scenery stacked underneath and at least 6 ft. 6 in. above the fly-gallery floor. The cleat-rail must sustain all the suspended weight. Lighting equipment should be suspended by flexible steel cables, being raised and lowered by means of a self-sustaining winch fastened to the wall or the cleat-rail.

The initial installation will probably not provide the maximum number of sets of lines but in estimating total loads it must be assumed that the additional sets might be fitted at a later date. The capacity may be estimated by assuming sets at 8-in. centres. The loading varies considerably but it would be safe to estimate that on a stage of 24 ft. depth six sets would have a maximum load of 5 cwt. each, ten sets of $1\frac{1}{2}$ cwt. each and about fourteen sets at $\frac{1}{2}$ cwt. each: this excludes the weight of a safety curtain which would vary according to type. (See Schedule A.)

In a theatre it is desirable to have counter-balanced sets of lines owing to smoothness of operation and economy of labour. The capital cost usually precludes this advantage for the small stage.



FIG. 4. Girder fixing pulleys.

(4) Safety Curtain

If the local authority decides that a safety curtain is a necessity it will also stipulate the type of curtain required. The Home Office Manual is a little ambiguous. If the fire authorities insist on the installation of a one-piece rigid curtain, that requirement will determine the height of building above stage level. A two-piece or threepiece rigid or an asbestos-cloth roller type curtain is usually permitted if the available height is limited. Whatever type is installed, there must be an overlap of 18 in. at each side and top, a quick-release mechanism and a drencher system: there are other important requirements of which full details are given in the Manual.

(5) Lantern Light

A lantern light is regarded as a necessity when a safety curtain is installed. It is usual to provide the haystack type, the sides of which open automatically when a fusible link is severed by heat. This creates an upward draught and an escape for the smoke and heat, thus releasing pressure. The plan area of the lantern light is required to be equal to one-sixth of the stage floor area. Alternatives to the haystack type are permitted by some authorities.

(6) Compartmentation

A maximum of three openings in the proscenium wall is allowed in addition to the proscenium arch. Fire-resisting doors of an approved design are required to be fitted to such openings.

(7) Film Projection Equipment

Special regulations affect such equipment and its accommodation, particularly if inflammable films are to be used. It is desirable to obtain the co-operation of the firms specialising in the manufacture of such equipment. Provision must be made for satisfactory siting and storage of screen and sound equipment when the stage is planned. It is an accepted cinema practice to determine the width of screen required by dividing the greatest spectator distance by five; the height is then fixed at three-quarters of the width. The size and position of the screen should be decided when planning. Vertical sight-lines might be affected by the borders and if these cannot be raised it might be necessary to install a divided border which can be drawn aside.

(8) Television Equipment

It seems probable that television equipment will be required sooner or later in schools; although it would be rash to predict what facilities will be necessary, it is quite possible that the apparatus will incorporate rear projection and be rather bulky.

Note: It is fairly obvious that a raked or stepped auditorium is as desirable for Film Projection and Television as for a stage performance, concerts, meetings, school assembly and for any purpose which includes a seated audience.

(9) Sound Effects

For numerous stage performances it is necessary to have "noises off". Since the development of sound amplification the use of recorded effects has become common practice. It is desirable that there should be installed double-turntables with pick-ups and amplifiers, either in the stage prompt-corner or, preferably, in the room at the rear of the auditorium in which the stage switchboard is accommodated. The speakers should be carefully sited and capable of being moved about, since the direction from which the sounds travel to the audience can considerably affect their credibility. If the equipment is not provided initially it should be assumed that it will be added later and electrical supply provided in a suitable position.

SECTION III

STAGE LIGHTING EQUIPMENT

It is important to realise that if those who use the stage for play production have any appreciable knowledge of the technique of lighting for dramatic expression, and not merely for visibility, they will **not** find the **facili**ties they require in a footlight and two or three battens. This equipment is too often assumed to be adequate provision for a small stage.

The equipment available should provide diffused lighting to give general illumination of the acting area, and directional lighting to give significance to selected focal points and to emphasise the threedimensional picture. It should be possible to vary the intensity of each lighting unit and to alter the colour to suit each particular setting. The dispersed lighting is provided by battens, footlights and flood lanterns; the directional lighting is obtained from various types of spot lanterns, the focus of which can be altered to suit the need. The variation of intensity is obtained by the use of dimmers which should be capable of being controlled individually and collectively.

Fig. 5 shows plan and section of a stage that could be considered typical. The measurements of stage depth, wing space and height above proscenium are more generous than those applying to the majority of schools but conform generally to the suggested minimum requirements. The equipment indicated is not lavish and a producer who uses lighting skilfully will probably require additional units; provision should therefore be made for the temporary installation of lanterns which can be hired for **particular productions**. The following comments will explain the functions of the various units shown.

(1) Front of House Spots

The object is to provide lighting from above, over the whole of the forestage and extending up-stage until it meets the area lit from the No. 1 Batten position. Spill of light on any part of the proscenium front must be avoided and for that reason flood lanterns are unsuitable. The spot lanterns should be so placed and focused that they will adequately light an actor standing near to the front edge of the stage. The best positions are on the side walls if there is sufficient height to permit the beams of light to be directed diagonally, thus avoiding shadows on the background. An angle of from 30° to 45° from the horizontal is usually the most satisfactory. Two spots from each side are desirable, one being lower to help correct facial shadows. If only one spot can be provided at each side initially, it is important that provision should be made for the additional lanterns. F.O.H. Spots are necessary even if footlights are also used as the latter do not fully light any actor standing well down-stage.

(2) Footlights

The customary misuse of footlights is to treat them as a main source of illumination instead of a very subsidiary one. Their chief value is to correct unwanted shadows caused by the top-lighting. If economy is essential, the footlights should be the first sacrifice. If they are installed, they must be correctly fixed; as the lamp-filament should be level with the stage-floor a projection above that level is unavoidable. It is an advantage if the footlight can be stored in a trough with removable cover as illustrated in Fig. 6. As footlights in the conventional position are a disadvantage when a cyclorama is used, it is recommended that plugs and wiring should be so arranged that the footlight units may be transferred to the base of the cyclorama and used in the capacity of what is usually known as a cyclorama groundrow.

(3) No. 1 Batten (or Barrel)

This should be situated as close as possible to the inside of the proscenium wall. It is the most important of the lighting positions. There should be provision for both diffused and directional lighting. A compartment batten will provide diffused lighting but it has limited flexibility. The direction can only be varied by the degree of tilt and for that reason individual floods are often more suitable. On the very small stage a number of 150-watt Baby Floods (which are virtually separate batten sections) are better than a larger number of rigid compartments. When floods are used for large stages they should be 300-watt or 500-watt lanterns. Provision should also be made for Batten Spots to be attached to the No. 1 Barrel. At least four are desirable; eight or twelve would be preferable.

If the wiring to the lantern positions terminates in plug-sockets, the individual units can be moved about to suit the needs of varying productions and even if all the lanterns required cannot be supplied initially, the wiring and plugs should be provided.

(4) Intermediate Battens

The number required depends on the depth of the stage and the number of borders necessary (see Section I, para. (8)). It is necessary to be able to flood the rear curtains or scenery with an even spread of light and in many cases a compartment batten is the apparatus best suited to the purpose. This lighting should remove any shadows caused by the front borders interrupting the light from the No. 1 Batten, and any other intermediate batten. It is a great advantage to be able to fix individual spots, floods or acting area lanterns in intermediate batten positions and it is recommended that the circuits should be wired to plug sockets.



(5) Cyclorama Lighting

The top of the cyclorama can be lit either by floods or a compartment batten. Normally, three or four separate colour circuits are required and there should be an even overall spread of light from any one circuit. Unless the equipment can be placed at least 8 ft. from the cyclorama, flood lanterns would not be entirely satisfactory; the compartment batten with wide-angle reflectors can be used much closer to the cyclorama but a distance of at least 4 ft. is desirable if there is to be a smooth spread of light and mixture of the colours.

A footlight or groundrow normally provides lighting for the base of the cyclorama, and, as stated in para. (2) of this section, the footlight often serves the dual purpose if plugs are wired in parallel at the front and rear of the stage. In some cases the horizon lighting for sunset and sunrise effects can be obtained from individual floods at stage level and if it is an economic necessity to restrict the purchase of equipment, the cyclorama groundrow should not be high in priority, but plugs should be available so that a hired or borrowed groundrow can be used when there is a need for it.



FIG. 6. Section of footlight trough with removable cover.

(6) Portable Equipment

In almost every production it is necessary to light the off-stage area independently of the acting area. The backings of windows, doors, arches—in fact any part of rear or wing space that is seen from the auditorium—must be illuminated. It is necessary, therefore, for some equipment to be available for this purpose. The 500-watt Wing Flood and the 150-watt Baby Flood mounted on telescopic stands are the most popular units; Spot Lanterns and Pageant Lanterns are also frequently used in off-stage positions, particularly when it is necessary to direct strong beams of light (e.g. sunlight or moonlight) through windows or other openings.

(7) Stage Plugs

Plug-sockets should be provided for the portable equipment, such sockets being permanently wired to the switchboard. The sockets are usually distributed about the stage floor and on the fly gallery. The stage-floor plugs are known as "Dips" and should be below stage level, with flush-fitting hinged metal covers known as "Traps". If a stage floor of concrete is planned, the positions of stage dips should be fixed and detailed measurements obtained before the floor is laid. Provision must be made for the sockets and the wiring to them.

The sockets fixed to the fly gallery or on the wall at fly level are known as "Fly-plugs" and are used primarily for portable equipment suspended above stage. In the typical layout, all the suspended equipment is intended to be connected to fly-plugs.

Stage-dips and fly-plugs should be as numerous as possible. To economise in dimmer-ways it is usual to wire such plugs in pairs, as indicated in the typical layout plan. It is recommended that four two-way dips should be regarded as a minimum, two on each side wired in pairs up-and-down stage: thus, the eight plugs would have four switchboard control circuits.

(8) Fixing Gear for Lighting Equipment

(a) Batten Suspension. As stated in Section II, para. (3), the suspension lines from the grid should be flexible-steel cable. These lines are usually attached to chain-bridles which are secured to a length of gas or steam barrel (2-in. outside dia.). The compartment batten is fixed to the barrel by its special bracket-arms; spots and floods are fixed by means of barrel-clamps.

If only a limited height is available above stage, the battens or barrels may be fixed directly to the ceiling by means of special saddles.

(b) Wall-brackets. For the F.O.H. positions in particular, it is usually necessary to provide special swivel-arm brackets to which the spots can be safely fixed. If required, the swivel-arms can be removable from the wall-plate; this meets with the approval of those who do not like to see the spot lanterns in position when the stage is not in use.

(9) Switchboard

A panel of switches and fuses is no longer adequate to control even the simplest of stage-lighting apparatus. It should be possible to vary the intensity of each lighting circuit to any degree between full-up and black-out. This involves the use of a dimmer in each circuit. The cost of a switchboard is considerably affected by (a) the type of dimmers used; (b) the number of dimmers incorporated; and (c) the method of controlling the dimmers.

It is unnecessary to consider the more expensive methods of control which are becoming a necessity in the professional theatre. The simplest and cheapest type of dimmer is the slider type, which is smooth and efficient in operation but if more than about twelve dimmers are incorporated, there are difficulties in operation unless provision is made for collective fading, either mechanically, by a system of tracker-wires and pulleys, or electrically, by means of variable-load master dimmers. When the number of dimmers is more than twelve it is usual to install the Bracket-handle Sunset dimmer board. (See para. (c) below.)

The types of switchboard recommended for consideration are the following:

- (a) Junior Board. This incorporates a plugging system by which a limited number of slider dimmers can serve a greater number of circuits. The dimmers have a one-third plus or minus variability of rating. The circuits, whether connected to dimmers or not can be switched on or off, so that all the circuits can be used simultaneously.
- (b) Non-Interlocking Slider-dimmer Board. This incorporates slider dimmers each rated for the load of its particular circuit, to which it is permanently connected.
- (c) Bracket-handle Sunset-dimmer Board. This may be either adapted for a plugging system or have a Sunset dimmer for each circuit. The bracket-handles which control the dimmers screw down to a shaft and are then locked for collective operation of all the dimmers so connected. This provision for collective operation is very desirable and is obtained by a chain-interlock of shafts, at a little extra cost.

The choice of the switchboard is usually determined by the amount of money available. Schedule A gives approximate costs for a typical layout with alternative types of switchboard, as a guide in preparing provisional estimates.

(10) Siting of Switchboard

Ideally, the operator of a switchboard should be in a position from which he has a full view of the stage. The importance of this fact is becoming widely recognised and in very many theatres, professional and amateur, large and small, the switchboard is installed in a room at the back of the auditorium. This involves some extra cost in the wiring but it is a desirable expenditure. Any on-stage position is to some extent unsatisfactory but if a front-ofhouse position cannot be given, an effort should be made to give the best position available. It is desirable to avoid having the board at stage level. A platform adjoining the inside proscenium wall is the usual provision. Fig. 7 gives the essential measurements. When the choice and siting of the switchboard are left until after the final plans are prepared, it is often necessary to adopt an unsatisfactory compromise.



FIG. 7. Above is a typical switchboard installation in plan with the board parallel to the proscenium arch. Left gives an alternative arrangement wherein the switchboard is parallel to the side wall of the stage. Where local conditions permit, the former arrangement is much to be preferred as it allows the operator a better view of the stage, at the same time keeping the side walls clear for counterweight systems, scenery packs, etc. Right shows a side view of either of the foregoing arrangements. Although the switchboard is shown on a perch or platform, the dimensions given will apply equally if it is situated at stage level.

(11) Electrical Mains Supply

For an installation similar to that indicated in the typical layout, it is recommended that the main cable and switchgear for the stage supply of current should be suitable for an ultimate load of not less than 24 kilowatts (i.e. 100 amps. at 240 volts). When the connected load for the permanent installation is less, it is suggested that a plug-point be supplied, to which temporary portable switchboards could be connected: this point should be near to the permanent switchboard.

SECTION IV

SPECIAL PROBLEMS

(1) The Platform without Proscenium

In the past, most schools and public halls were initially provided with open platforms. When it is desired to use such platforms as stages, the universal practice is to erect what is known as a "fit-up" to provide a picture-frame stage. Such fit-ups in current use show an interesting variety of structural ingenuity and æsthetic catholicity. In some instances a disastrous collapse appears to be averted only by bits of string and lots of luck.

The most satisfactory type of frame is constructed of tubular steel sections which can be erected and dismantled simply and quickly by adults or senior children. Fit-up frames should, if possible, be designed for the particular halls in which they will be erected. Fig. 8 illustrates a typical fit-up for a small stage. As the frame must support all the draperies forming the proscenium front, the main tabs, borders, traverse curtains and lighting equipment, all of which would be suspended from the grid of a permanent stage. it is obvious that the construction must provide for the considerable weights to be supported. This construction must vary according to the lengths of span involved, particularly as it is rarely possible to have any support from above. The various sections should be of such size and weight as will facilitate handling, assembly, dismantling and storage. Fit-up frames can be designed for any type or size of hall. The Royal Festival Hall has a fit-up which incorporates grid and fly gallery. It can be erected overnight, having been designed specially for rapid assembly and dismantling.

The electrical supply for the stage lighting equipment attached to a fit-up frame should, when possible, be single-phase; the risks involved by use of three-phase supply are increased when the installations are temporary and not under the control of fully qualified technicians.

(2) The Open Stage

There are people of the theatre who sincerely believe that the "picture-frame" stage is a handicap to contemporary drama and argue that the dramatist should be released from the restriction of a realistic technique by giving him some form of open stage with greater intimacy between actor and audience. There are others, equally sincere, who do not agree that current techniques need hamper the competent playwright and fail to find special virtue in adopting discarded conventions of the past.

If the stage planners wish to provide facilities for this type of "intimate" production, they must recognise that it is a requirement

that the audience shall be disposed on at least three sides of the stage. The usual assembly hall is rectangular, having a width of about twothirds of the length. The stage is invariably placed at one end and even in those instances when an open stage is intended, the same practice is followed. The problems involved are not solved merely by omitting the proscenium wall and overhead fixings from a conventional stage; to do so involves an almost certain addition of a fit-up sooner or later. Fig. 9 suggests a method of dealing with the problem by placing the stage at one side of the hall. It will be seen that the stage level is continued at each side at the width of a passage. These passages could be separated from the auditorium by walls, but curtains are suggested as this extra space could be used effectively in certain productions and probably for meetings, concerts, etc. For drama the curtains would normally be drawn to the edges of the stage but it should be possible to close them completely, when required. A school stage has been assumed and the rear wall should be designed to form a suitable background not only for drama but also for assembly, and other varied purposes. Doors, windows, radiators and other incongruities should be excluded from the rear wall. It is assumed that although orthodox scenery could be dispensed with, controlled lighting would be a necessity. As far as possible the lighting apparatus should be screened to minimise discomfort to spectators opposite. The switchboard is assumed to be in a room at the rear of the auditorium. The steps round the stage are not essential to the suggested layout but would complete contact between stage and audience and give opportunity for grouping players at different levels. The raised seating in the rear helps a little to reduce the disadvantages of an entirely flat floor but stepping or raking the entire auditorium would be preferable. The reduction of the maximum distance between audience and stage by placing the latter at the side of the hall also reduces the disadvantages of the flat floor.

An approximate estimate of the cost of the curtains and lighting equipment is given in Schedule B.

(3) Equipment for Existing Stages

It is not possible to give any precise guidance for general application to the adaptation or re-equipment of stages not originally intended for play production. On broad lines the principles stated in the previous sections will apply but it is necessary to consider each problem individually owing to lack of any uniformity. Proposals must be adjusted to meet the particular conditions existing. When it is necessary, for financial or other reasons, to carry out the work by instalments, it is most desirable that each instalment should be part of an agreed complete scheme. Otherwise, it is quite possible for initial expenditure on inadequate equipment to be largely wasted and for the later alterations and additions to be more costly than they need have been if preliminary planning had anticipated the requirements.



Layout of small portable fit-up. The frame consists of tubular steel or aluminium girder sections, to which curtain tracks, border barrels and lighting equipment are clamped. Long lengths of lighting battens should be avoided owing to difficulty of handling. Baby floods and spot lanterns are suggested in this layout. Fig. 8 (c) is a perspective impression of the fit-up.









Suggested arrangement of an open stage for school assembly hall (See Section IV (2)), with indication of concealed positions in ceiling for the following lighting equipment:

- A. 6×500 -watt spot lanterns. B. 6×250 -watt spot lanterns.
- 2×500 -watt flood lanterns.
- C. 2×500 -watt acting area lanterns.
- D. Room over rear passage for switchboard and cine-projector.

SCHEDULE A

Equipment for Typical Stage (see Fig. 5)

(1.) Lighting Equipment

FRONT OF HOUSE SPOTS.

NO. 1 BATTEN.

No. 2 BATTEN.

STAGE DIPS. FLY PLUGS.

SWITCHBOARD.

CYCLORAMA BATTEN.

- Four Pattern 23, Baby Mirror Spots with 500watt lamps. (a) 15 ft. Magazine Batten (20 compart-
- ments) in three circuits and 100-watt lamps;
 - or alternatively, Six Pattern 30/500-watt Floods in three circuits.

Four Pattern 23, Baby Mirror Spots with *(b)* 250-watt Lamps. (a) 18 ft. Batten (24 compartments) in three

- circuits. 100-watt lamps.
- Two Pattern 23, Baby Mirror Spots with *(b)* 250-watt lamps.
- Six Pattern 60/500-watt Floods in three circuits.

or alternatively:

18 ft. Batten (24 compartments) in four circuits. 150-watt lamps. CYCLORAMA FOOTLIGHT. 18 ft. Footlight (24 compartments) in four circuits. 150-watt lamps. Four—2-way Dips and Traps. One—4-way Dip and Trap (Cyc.). One—7-way for No. 1 Batten. One—5-way for No. 2 Batten. One—4-way for Cyc. Batten.

> eighteen dimmers. Approximate Cost, £700.

Junior Sunset Board with thirty circuits and

ALTERNATIVES:

- (a) If the cyclorama lighting and two spot lanterns were omitted, to be added at a later date, the approximate cost could be reduced to £600.
- (b) By grouping some of the lanterns in pairs, the total number of circuits could be reduced to 24, when a Junior H. Board with 12 Slider dimmers could be substituted. This would considerably reduce the flexibility but the total cost would be reduced to approximately £500.
- (c) If a 28-way Bracket Handle Interlocking Sunset Dimmer Board, (i.e. with a dimmer for each lighting circuit) were substituted for the Junior Sunset Board, the approximate cost would be increased to £900.
- Note: Although alternative (c) gives greater facilities than any other, the sug-gested installation at a cost of approximately £700 provides very satisfactory flexibility with some scope for expansion and alternative (a) is much preferable to (b) even if further cuts were necessary in the lighting units installed initially.

(2.) Stage Equipment and Draperies

GRID SUSPENSION GEAR

Nine sets (including three spares) of rope suspension consisting of girderfixing pulleys, cleats and rope.

Three sets of cable suspension for lighting equipment consisting of girderfixing pulleys, self-sustaining winch and flexible steel cable.

CURTAIN TRACKS

Three "Hall" Standard Curtain Tracks No. 280/C (medium weight). CURTAINS

- (a) One pair front trailer curtains (Main Tabs) made from good quality cotton velour or similarly priced material.
- (b) One pair intermediate and one pair rear trailer curtains made from dyed cotton twill.
- (c) Leg Curtains for side wings 7 To match in colour and material Three Borders. the stage trailer curtains (b). Approximate Cost, £350/£400.

SAFETY CURTAIN

It is exceptional for a safety curtain to be demanded for a school stage, but the following alternatives are given for reference, if required.

- (i) Roller-type Asbestos Cloth Curtain:
- Approximate weight, 15 cwt. Approximate Cost, £750. (ii) Rigid Two-piece Curtain:
 - Approximate weight, 30 cwt. Approximate Cost, £1,000.

SCHEDULE B

Equipment for Open Stage (see Fig. 9)

(1.) Lighting Equipment

Ten Pattern 23, Medium Angle Baby Mirror Spots.

- 23, Narrow Angle Baby Mirror Spots. 30, Medium Angle Floods. Two .,
- Two ,,

Two 76, Acting Area Lanterns.

18-way Junior H. Slider Dimmer Board with 18 circuits and 10 dimmers (500 watts).

Separate Master Sunset Dimmer with a load capacity variable between 6 and 8 kilowatts.

Approximate Cost, £350.

(2.) Curtain Track and Curtains

One "Hall" Standard Curtain Track (66 ft.). Two Velour (or similar quality material) curtains, each 35 ft. wide and 15 ft. high.

Approximate Cost, £170.

CONVERSATION PIECE

Reproduced from CHRISTIAN DRAMA, summer issue 1953, by kind permission of The Religious Drama Society of Great Britain.

"What can I say that is both kind and true?" thought the Producer's friend, making her way, as promised, behind the scenes at the end of the children's play. But she need not have worried.

"I'm so glad you enjoyed it!" said the Producer at once, beaming. "You knew the play, of course?"

"I er . . . thought I recognised parts of it," admitted her friend. "But I don't remember the angel."

"The angel? Oh yes, I introduced an angel to brighten things up. Of course there wasn't an angel in the actual play."

"Perhaps the author did not intend there to be an angel?" ventured her friend. "The part seemed to me to be-well-just a trifle superfluous."

"But what on earth does the author know of my circumstances?" demanded the Producer hotly. "I always improve a play to suit my own convenience. I ginger up the end, or add a bit to the beginning, or put in a scene I like from another play. It makes it so much more original."

"Oh," said her friend. "I hadn't thought of it like that."

"You will, dear, in time. The more you produce, the more you will find that there never is a play that will quite fit in with your requirements. Now in this case, there was poor little Nellie bursting for a part, and no part left to give her. So I turned her into an angel."

"But was she the type? I mean, if you just wanted her to feature in the play, couldn't she have been a sheep-dog?"

"Well, dear, Nellie is rather plump, I know. But I thought all that spangly stuff on her made her look just like a fairy."

"But angels aren't fairies!" The protest was firm. "They are quite different. Angels are real and fairies aren't."

"But they both have wings!" announced the Producer triumphantly.

"I prefer my angels in a play not to have wings," said her friend a trifle wearily: then seeing the Producer's horrified expression, she added: "at least, not wings attached with safety-pins. Their arms are draped with stuff that hangs well. I think it's more dignified."

"But not half so pretty?" defended the Producer. "Could you imagine my Nellie to-night without her wings! Why it would have been as bad as mutilating a dragon-fly!"

"Her wings waggled."

"Not often, darling. They were wedged on to her with safetypins. I told her to stand as stiffly as possible, and if she had to move, just to give the tiniest hitch, so that the safety-pins could adjust themselves."

"I noticed her hitching," acknowledged the Producer's friend.

"It didn't matter so much perhaps in this play, as the angel was purely—er—supplementary; but what do you do in a Nativity play? Does the Archangel Gabriel hitch? Or do you have a row of hitching angels? Or perhaps," she spoke hopefully, " perhaps you don't have a Nativity play?"

"Oh, but we do. I have lots and lots of safety-pins for the angels. Of course they mustn't turn round. I tell them to keep an eye on me, standing at the side, and if any of their wings begin to slip, I just tip them the wink.

"But surely that distracts their attention a little from the play?"

"If they can see me all the time, it gives them such confidence, don't you think? Especially during the last scene round the manger when it *matters* so much that they should look nice. 'Eyes on me,' I remind them, 'and if they're slipping, just a *tiny* hitch and you'll be *quite* safe '."

"I prefer them to keep their eyes on the Babe in the manger."

"Oh no! The Babe can't help them. I can. You really must come and see our Nativity play. It's amazing."

"I'm sure of it. Just tell me one more thing before I go, about this play. Why did the Angel Nellie hold a trumpet?"

"We had one in the acting box, and I thought it matched the colour of her spangles. Dear little Nellie does so much like trying to dance, and I thought it would give her something to flourish as she tripped on."

"I'm sorry, but I still think the episode was out of character with the rest of the play."

"I don't know what you mean."

"Let me try to explain it this way. Suppose you had ordered a new suit from the tailor, cut in modern style."

" Yes."

"Suppose he had an assistant who needed employment and although the suit was well in hand, the tailor, for compassionate reasons, handed the thing over to her to improve."

" Yes."

"Well, suppose, having a liking for them, she inserted a bustle."

"A bustle? I don't see the connection."

"No. There isn't one. That was my point."

"But what has it to do with my play? I can only think you are raising objections to annoy me. We just don't see things eye to eye. You were always so horribly conventional. Now I like to let myself go, and do things really artistically. . . ."

BOOK REVIEWS

Offstage. By Charles Landstone, O.B.E. (Demy octavo, 195 pages, 12 illustrations, cloth board. 18s. Paul Elek, London and New York.)

To the theatre-going taxpayer this book should be of great interest, telling as it does for the first time the true story of the organization through which part of his contribution to the National Exchequer is invested in the support and development of dramatic art and returned to him in the form of tax-free entertainment. Moreover the story is told by Charles Landstone, not only one of the most experienced and knowledgeable men of the theatre in this country but the one person who, as the right-hand man of all five Drama Directors of C.E.M.A. and the Arts Council, has been a direct participator in every project of those bodies since the State decided tardily to follow the example of most civilized European countries and extend to the Theatre the financial support it already gave to Libraries, Museums, and Art Galleries.

The Charter of the Arts Council calls for both the extension of knowledge and practice of the arts, and the maintenance of the highest possible artistic standards. The internal conflict in the Council has obviously been between those who could not reconcile these two aims, and those who understood that the two were complementary and that neither could ultimately be realized without the other. Mr. Landstone took the long-term view that the establishment of good repertory companies in strategic centres, combined with the extension of subsidized tours to country areas where good quality drama could not be commercially profitable, was the best way of increasing the demand for high standards and of creating a public which would in time be satisfied with little short of the best. The opportunities provided by the conditions of wartime were seized by him and his colleagues with both hands and when hostilities ended the vision of Lord Keynes was realized in the permanent establishment of the Arts Council, free from all political control and supported by all parties, as the channel through which the Exchequer provides opportunities in the theatre for artistic endeavour which can no longer depend on private patronage.

This book gives a fascinating and most readable account of all the vicissitudes of the new venture with its experiments, inevitable failures but far more frequent successes. The dangers and drawbacks of the Committee which is the inevitable concomitant of the spending of public money are well brought out. The lay committee should in the author's opinion confine itself to broad policy, delegating executive powers to the professionals; there are few who will disagree with himamong professionals at any rate. A number of controversial issues are dealt with frankly and at times dramatically, notably those concerning the association of the firm of Tennent with the Arts Council (with special reference to the production of A Street-Car Named Desire), and the recurrent crises at the Old Vic: but though Mr. Landstone holds and expresses very definite views we have seldom met such scrupulous fairness in presenting the other side of the argument in every case, nor such generosity as he displays towards those with whom he disagrees. The explanation is that here is a man who really loves the theatre, whose approach is positive and constructive, who has no use for clever-clever cynicism, who has quietly and unassumingly done something while others were talking and writing. L1. R.

Dressing the Play. By Norah Lambourne. (96 pages, Crown quarto. 40 diagrams and 40 plates, cloth board, 15s. "How to do it" series—No. 48. Studio Publications, London and New York.)

I couldn't help being amazed at the enormous knowledge of historical costume in particular, and of the stage in general, that Miss Norah Lambourne portrayed in the early part of her most interesting book, which is so beautifully presented. Her instructions to designers for the amateur stage to visit museums and picture galleries to enable them to obtain a knowledge of historical accuracy of costume—one of the first necessities of design—and furthermore her wise reminder that successful designing of a play really necessitates good team work (for good scenery on its own or very elaborate dresses can so easily detract from the general picture) are very helpful. How very true that is, and how often are these facts overlooked, even in the London theatres.

The instructions to amateurs on making dresses, showing the amounts of materials that are necessary, and in many cases how the dress should be cut, are also most instructive to the amateur wardrobe mistress.

Miss Lambourne's suggestions as to the utilization of Bolton sheeting and hessians with an appliqué, stencilling or dyeing system are very sound and helpful

for those who are preparing a pageant which will be viewed at a distance by the audience and where a bold effect only is necessary. But I doubt very much whether these materials are helpful to the smaller stage where lighting is perhaps of necessity not 100% and the audience very close to the actors. Here I feel that Bolton sheeting, or hessian stencilled or painted, will look just like Bolton sheeting, or hessian stencilled or painted, and would not give the impression of real costumes historically reproduced, which Miss Lambourne so rightly tells us is necessary for the stage.

Again are we right in advising an amateur society to have its own wardrobe? I think the answer is perhaps "yes" to a school or society that has definitely made up its mind that every Easter, for example, they will portray a Biblical play, as costumes of this nature can be easily disguised from one season to another and incidentally are, comparatively speaking, simple to cut and make. If the above is not the general policy I feel that a permanent wardrobe would prove an embarrassment to the society.

Miss Lambourne subsequently tells us that costumes of one period can be easily adapted to those of another. Well, we know that during the last 2,000 years, boldly speaking, there are only two or three occasions where a definite change of costume occurs, and that the changes were more or less transitional. If it were a matter of adjusting a dress to represent say a period of ten to twenty years earlier or later, of course this could in some cases be effected; but the writer very much criticizes Miss Lambourne's bold suggestion that it is generally a practical proposition to alter costumes from one period to another. This, if necessary, can be simply illustrated by the fact that high waistlines were the fashionable dress during certain periods for ladies' costumes, whereas in other periods a natural or even a low waistline was the fashion of the day; which, of course, applies equally if not more so to the male costumes. And this is only one of many adjustments to be considered, each of which would necessitate a heavy structural alteration.

Again, we must not overlook the fact that certain designs which may have been stencilled or painted on costumes of one period would, in so many cases, be right out of period and atmosphere for any other period.

The writer does, however, feel that Miss Lambourne is rendering a very great service to the amateur dramatic society in her suggestions for properties. The papier maché work and other good schemes that she puts before her readers are comparatively inexpensive to execute and undoubtedly helpful, as these properties are so often difficult to obtain.

Of great assistance also are her instructions to the wardrobe mistress on matters of maintenance. If the show is running for a week or even less, ironing, pressing, cleaning of collars and cuffs, etc., are so very important.

The writer has no wish to disguise the fact that he has for some forty years been personally associated with one of those business houses which have for generations been engaged in supplying the Amateur and Professional Theatre alike with costumes.

Thousands of appreciative letters which such establishments hold on their files range from such famous people of earlier days as Charles Dickens, Wilkie Collins, Cruickshank, and Tenniel (who illustrated *Alice in Wonderland*) down to the smallest amateur groups of to-day, and would seem to suggest that these businesses are fulfilling a useful function.

Is it therefore sensible that a Society's own private wardrobe—always a substantial outlay of time and money—should lie idle just because it happens to be "period", when the choice of plays for the next two productions may be, for example, *French Without Tears* and *The Middle Watch*. Alternatively is it right that the choice of plays should be limited to those which fit the wardrobe historically?

And who is to house and care for this wardrobe, seeing that in many societies the wardrobe mistress for the current production, having displayed considerable histrionic ability in the last, is quite likely to be playing the lead in the next?

Possibly it's her turn. At any rate good luck to her in either capacity, and even better luck to her successor.

ARCHIE J. NATHAN.

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