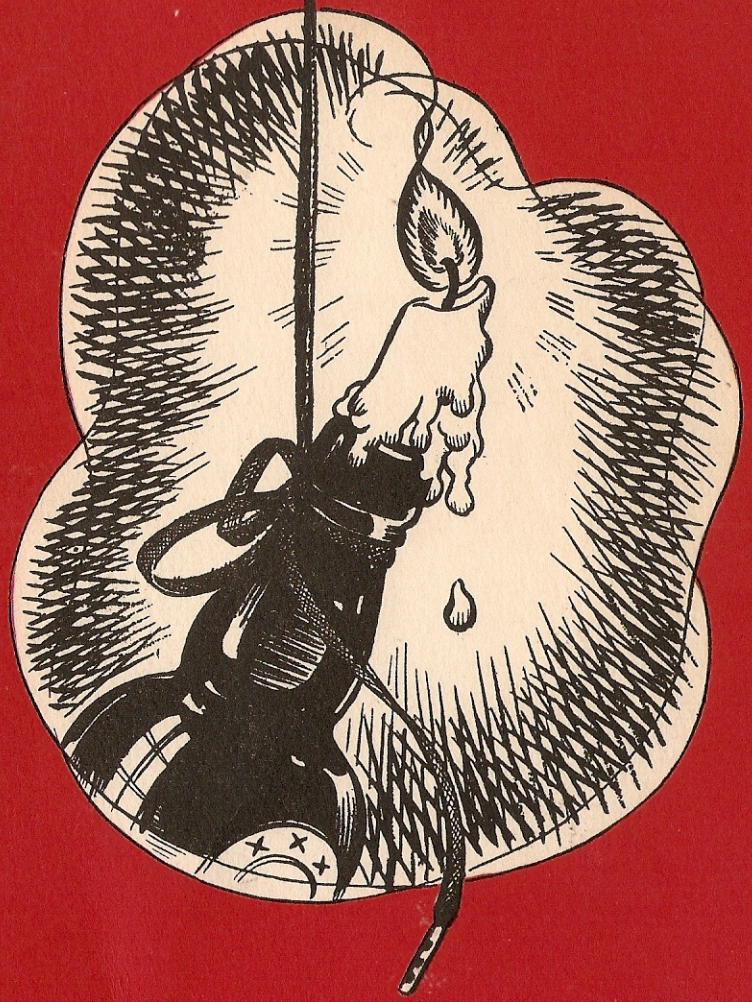
STRAND ELECTRIC



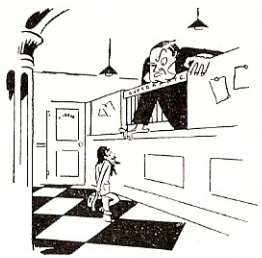
STAGE LIGHTING ON A SHOESTRING

Completely revised
and rewritten
January 1959
Reprinted 1961

HEAD OFFICE SOUTHERN OFFICES, SHOWROOMS	**The Strand Electric and Engineering Co. Ltd.** **29, King Street, Covent Garden** **London, W.C.2** **Phone: Temple Bar 4444 (16 lines)**
Manchester (Northern Branch)	313/7, Oldham Road, Manchester Phone: Collyhurst 2736
Glasgow (Scottish Agents)	Stage Furnishings Ltd. 346, Sauchiehall Street, Glasgow Phone: Glasgow, Douglas 6431
Dublin (Eire Branch)	30, Upper Abbey Street, Dublin Phone: Dublin 47078
Bristol (S. Wales & West Representative)	**B. R. Webb** 56, Fouracre Cres., Downend, Bristol Phone: Bristol 651460
Darlington (N.E. Representative)	E. C. Birch 3 Kemble Green North, Newton Aycliffe near Darlington Phone: Newton Aycliffe 593
Australian Company	**Strand Electric (Australia) Pty., Ltd.** **212, Graham St., Port Melbourne** **Phone: 64-1267**
Canadian Company	**Strand Electric Limited** **755, Yonge St., Toronto 5** **Phone: WA5-5108**

STAGE LIGHTING ON A SHOESTRING

Stage Lighting on a Shoestring was first published in 1954, and is now brought up to date, to assist those amateurs, of whom there are thousands, who present plays in small communal halls on stages with a multitude of inconveniences and few facilities. These people often assume, quite wrongly, that as Strand Electric equipment is installed in large theatres all over the world, their own modest needs would receive little consideration. Much of the equipment that is now regarded as essential for a large professional theatre is, of course, unsuitable for the village hall, but the needs of the latter are specially catered for. A range of lighting units and stage boards has been produced specifically for use on small stages. These units are low in price but high in efficiency. They are low in price only because they are sold in large numbers.



"Their modest needs receive little consideration."

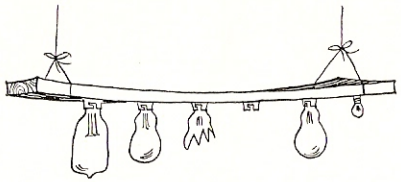
In devising the lighting of any stage it is necessary to preserve a balanced relationship of intensities. A limited overall intensity, sensitively varied, can be more dramatically significant than a great overall intensity that merely floods the stage with smooth, even illumination which flattens the picture. Yet on hundreds of the types of stages under consideration, the limited supply of electric current is squandered on lighting that is inefficient, inflexible and entirely uneconomic. Usually the lighting equipment consists solely of old footlights and battens which are merely rows of lamps, without reflectors. The lamps may vary in wattage and number, but it would be not at all unusual to find a single batten with about 36 × 40-watt lamps and the footlight with even more. It is also quite probable that the lamps will be colour dipped or sprayed, probably in three different colours in separate circuits. This method of lighting is quite ineffective, out-dated and wasteful.

The lamp manufacturers publish details of the light output of their lamps in lumens, a standard measurement of a light source. The comparative efficiencies of clear single-coil tungsten lamps are given by one manufacturer as under:

40 watts	340 lumens	=	8·5 per watt
60 watts	600 lumens	=	10·0 per watt
100 watts	1,200 lumens	=	12·0 per watt
150 watts	2,040 lumens	=	13·6 per watt
200 watts	2,830 lumens	=	14·1 per watt

It will be seen that the amount of light from a 200-watt lamp is over eight times as great as that from a 40-watt lamp, so that it would be necessary to consume more than 320 watts to obtain an intensity from 40-watt lamps equal to that from one 200-watt lamp. It is obvious that if only a limited wattage is available, maximum intensity should be obtained from the current consumed.

If lamps are dipped in coloured lacquer or are internally sprayed, the amount of light emitted is reduced considerably. In the case of blue lamps, the amount of light obtained is negligible. The importance of using colour in light must not be over-rated. On the small stage particularly, only the palest tints are necessary, except on a skycloth or cyclorama. It is much more important to have variety of intensity and direction of light.

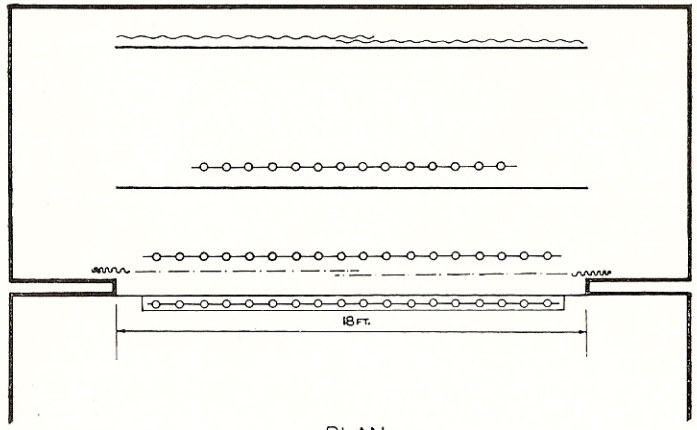


"Battens consisting of lengths of timber."

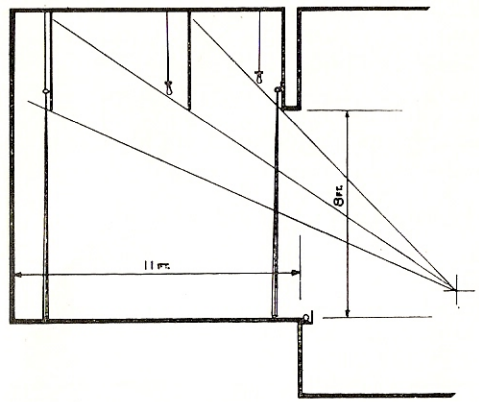
For the present, the use of colour may be ignored in judging the most effective use of the electrical supply available. Not only is it desirable to use the lamps of higher wattage, it is also necessary to ensure that they are used efficiently. If a 200-watt lamp is used in a Strand Electric Junior Flood, Pattern 137 (Fig. 6), we find that it is possible to obtain three times the intensity of light that is obtained from the same lamp without a reflector. Reduced to simple terms, this means that in order to obtain at stage level an intensity of light equivalent to that of a 200-watt lamp in a Pattern 137, it would be necessary, if an open type batten without reflectors were employed, to use nearly 25 40-watt lamps. Quite clearly, this makes nonsense of the sort of lighting that is still so common on many small stages. The open type battens dissipate most of the light above the stage where it is not wanted. Efficient reflectors throw the light to stage level, where it is needed. Of course, there are reflectors and reflectors.

Let us take a hypothetical case which could be typical of so many. Fig. 1 shows the plan and section of a stage that probably compares very favourably with those used by many who will be facing the same problems. It has a proscenium opening of 18 ft. by 8ft., a depth of only 11ft., restricted wing space and other quite customary inconveniences.

The 240-volt supply available is limited to 15 amps. There is an antique home-made switch panel which has a varied assortment of switches acquired over the years past. There are footlights and two



PLAN



SECTION

FIG. 1. *Typical small stage with usual limitations showing assumed arrangement of open lamp battens and footlights.*

battens, each consisting of lengths of timber to which 60-watt lamps in B.C. lampholders are fixed. For use in the wings there are a couple of biscuit-tin floods, the pride and joy of somebody who failed to realise that most of the light from the 300-watt lamp was being eclipsed by the biscuit tin, not reflected and projected to where it was needed.

A few enthusiasts, who realise that all they can get from such lighting equipment is a very poor standard of visibility, without any theatrical significance at all, are anxious to do something about it. Funds are restricted, of course, but we may assume that with a concerted effort, £30 or £40 may be raised. Obviously, such a sum could not completely re-equip the stage with efficient lighting apparatus, but it could provide a useful first instalment. The first need is to decide what would be a complete basic installation giving the best possible facilities at the lowest possible expenditure.

At present, the 15-amp supply allows a consumption of 3,600 watts only. This is how it is now distributed:

Footlights .	. 18 × 60-watt lamps =	1,080 watts
No. 1 Batten	. 18 × 60-watt lamps =	1,080 watts
No. 2 Batten	. 14 × 60-watt lamps =	840 watts
Portable Floods .	2 × 300-watt lamps =	600 watts
	Total	3,600 watts

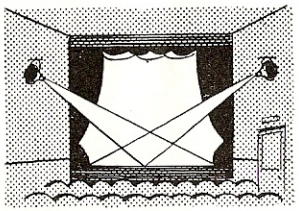
Improbable though this may seem, there is an exact use of the supply without the overload that is so customary in such cases. What is less improbable, and quite usual, is that the lighting is badly distributed.

Let us now consider how this supply could be best employed to give stage lighting that contributes something more than doubtful visibility.

Front of House (F.O.H.) Spots

These are a necessity, even if footlights are used, as the latter do not adequately light the faces of the actors when they are down stage. Wherever possible, four such spots should be used, two on each side wall of the auditorium at high level. Solely on grounds of economy, we must accept two Mirror Spots as the basic minimum. Each spot should be directed diagonally to the down-stage area.

The Pattern 23 Baby Mirror Spot (Fig. 5) is specially designed to give the quality of light required for Front of House lighting. It has a clear-cut beam which can be effectively masked to avoid spill on the front of the Proscenium. A soft-edged spot is not suitable for these positions. Also, the Pattern 23 lantern with a 250-watt lamp will give a light of greater intensity than most 500-watt spots.



"Two mirror spots directed diagonally to the down-stage area."

Footlights

FOOTLIGHTS SHOULD NEVER BE USED AS A MAIN SOURCE OF ILLUMINATION

The 18 × 60-watt lamps in the footlights are quite excessive in relation to the rest of the lighting. Although footlights have some limited value, when properly used, they can be dispensed with if there is adequate Front of House lighting. In our case, the two Mirror Spots to which we are restricted have some limitation, but they are very much superior to footlights. In the basic scheme the decision should be F.O.H. or Footlights as we cannot really afford control circuits for both. Obviously, the footlights are out. The 60-watt lamps will no longer be required.

No. 1 Batten

The 18 × 60-watt lamps in this position, also, will become redundant. Four 200-watt Pattern 137 Junior Floods (Fig. 6) will be installed. They will be looped in pairs, and will therefore require two control circuits.

No. 2 Batten

This will be identical with No. 1 Batten. In this up-stage position we should like to have six Pattern 137 Junior Floods which would better balance the forestage lighting from No. 1 Batten and the F.O.H. Spots; but four floods are more truly basic and are less likely to overload the budget.

"Given an honourable interment."

Not only will the floods greatly increase the intensity of light, but they will also provide greater flexibility. Although looped together in pairs for circuit control, each lantern should be treated as a separate unit; its position can be varied to alter the direction and spread of the light. Also, the colour can be altered and, if thought desirable, any lamp could be replaced by a 150, 100, or 60-watt lamp.

Portable Equipment

The biscuit tins should be given an honourable interment and replaced by two Junior Floods. These will normally light backings, etc., at close quarters.

Accessories

A special hood (Fig. 6) is available for the Junior Floods so that the spread of the light may be confined to prevent spill on borders, etc. The use of this hood can also enable the flood to fulfil some of the functions of a spot by concentrating light on a particular part of the stage. It is desirable to have a few such hoods—say four—for use when required.

The above may be regarded as a complete basic installation of actual lighting units. We shall be using only 2,500 of the 3,600 watts available but shall obtain a very much greater intensity of light and some flexibility.

Switchboard

To complete the equipment we require a switchboard with some provision for dimming.

The following are the circuits to be controlled:

F.O.H. Spots . .	2 circuits @ 250 watts	= 500 watts
No. 1 Batten Floods .	2 circuits @ 400 watts	= 800 watts
No. 2 Batten Floods .	2 circuits @ 400 watts	= 800 watts
Stage Dips. . .	2 circuits @ 200 watts	= 400 watts
	8 circuits	2,500 watts

"A useful stimulant to the Hon. Treasurer."

The main circuits are purposely kept within the range of 250/500 watts. It would be an obvious luxury to have a separate dimmer for each circuit, but by using the standard 8-way Junior Board (Fig. 10) it would be possible, by means of its plugging system, to cope satisfactorily with most cues with four dimmers only. These dimmers would be the standard variable load type, rated 250/500 watts so that any circuit may be safely connected to any dimmer. The dip circuits are slightly underloaded by the 200-watt floods, but the deficiency is not serious. The dips may be used at times for spots, etc., with higher wattages.

Summary of Basic Equipment

The complete basic installation would consist of:

F.O.H. Spots* .	2 × Pattern 23 (250-watt) Baby Mirror Spots.
No. 1 Batten .	4 × Pattern 137 (200-watt) Junior Floods.
No. 2 Batten .	4 × Pattern 137 (200-watt) Junior Floods.
Portable . .	2 × Pattern 137 (200-watt) Junior Floods.
Accessories .	2 × Junior Telescopic Stands.
	4 × Masking Hoods for Pattern 137.
	Barrel clamps or other fixings, for lanterns.
	Lamps and Colour Filters.
Stage Board .	8-way Junior H.A. Board.
	4 × 250/500-watt Variable Load Slider Dimmers.

This equipment is truly basic, but is a vast improvement on the former archaic installation; it also economises in current consumption to the extent of 1,100 watts, which should be a useful stimulant to the Hon. Treasurer.

Intelligently used, this equipment could give very interesting lighting of a small stage. The Front of House spots would be used almost exclusively for lighting the forestage. The light can be masked to give a clean cut-off at the level of the stage floor and at the sides of the proscenium arch. The Junior Floods, although looped in pairs for switchboard control, should be used as separate units. Each flood should be swivelled or tilted to project the light where it can be most effective for each particular production. The colours, also, can be varied but it will be found in practice that No. 52 Pale Gold can be used effectively in all lanterns, unless a cold or deep colour is required for a special purpose. For some effects, it might be preferable not to use any colour at all in a particular lantern when the added intensity is required to emphasise some part of the stage. The masking hood can also be used in this way, with or without colour.

"The dancing enthusiasts might be disposed to pay . . ."

**The Pattern 23 has a number of variants giving a different range of beam distribution. In this context the Pattern 23 standard giving 22° maximum or the Pattern 23F giving 30° maximum are suitable. In its auditorium position, a lantern should cover over half the stage when beams are crossed as in Fig. 2.*

It should be borne in mind that the F.O.H. spots need not be used exclusively for stage work, a fact that may well influence contributions to the funds. In most multi-purpose halls it is quite usual for dances to be held and these spots can be used to provide colour lighting on the dance floor, and to select prize-winners in the spot waltz. The dancing enthusiasts might be disposed to pay for a remotely controlled colour-change wheel to provide changing colours and this could, on occasions, be quite useful for stage shows.

The total cost of the basic equipment suggested would be something like £115, which is outside the scope of immediate aspirations. We have to limit the first instalment to what can be obtained, say for about £35.

Desirable though the dimmers may be, the obvious first need is to improve the intensity and flexibility of the lighting. The limited funds can best be used to provide F.O.H. Spots and to replace the 18 × 60-watt lamps on No. 1 Batten by Junior Floods. For the present the No. 2 Batten will have to retain its 14 × 60-watt lamps.

First Instalment

F.O.H. . .	2 × Pattern 23 Baby Mirror Spots.
	2 × 250-watt Class B Projector Lamps.
	2 × "┌" type wall brackets (Ref. 238).
No. 1 Batten .	4 × Pattern 137 Junior Floods.
	4 × Masking Hoods (Ref. 245).
	4 × 200-watt Clear Lamps with E.S. Caps.
	4 × Hook Barrel Clamps (Ref. 483).

The cost of this would be somewhere between £30 and £40. At this stage the current consumption will be reduced by 860 watts. The next step is to replace the No. 2 Batten and the biscuit tins. This instalment would be cheaper.

Second Instalment

No. 2 Batten .	4 × Pattern 137 Junior Floods.
	4 × 200-watt Clear Lamps with E.S. Caps.
	4 × Hook Barrel Clamps.
Portable . .	2 × Pattern 137 Junior Floods.
	2 × 200-watt Clear Lamps with E.S. Caps.
	2 × Junior Telescopic Stands.
	2 × Spigot Adaptors (Ref. 484).

The cost of this would be about £25, and the current consumption would now be reduced by 1,100 watts. One may optimistically assume that the reduced consumption and the obvious improvement in the lighting facilities will make the raising of the necessary funds for the further instalments relatively easy. To complete the basic installation, the 8-way Junior Board is required, and it should have four dimmers. The total cost would be slightly under £50. If necessary, the board itself (Fig. 10) could be obtained as the next instalment and the dimmers

last of all (Fig. 12). Of course, dimmers could be hired, as needed, quite cheaply. The final instalments are:

Third Instalment

8-way Junior Switchboard without dimmers. The cost would be about £30.

Fourth Instalment

4 × Type J.L.S.15 Slider Dimmers (250/500-watt) (Fig. 13). This is the cheapest instalment of the lot, the cost being slightly under £20.

This would complete what is suggested as a basic installation. Some re-wiring costs would also be involved, but as the existing supply is being used and the switchboard would be internally wired, the amount of work required is not considerable and is quite simple for any qualified electrician.

Fig. 2 shows plan and section of the stage with the positions of the new lighting units.

Desirable Additions

The increase in the efficiency and the flexibility of the new equipment will make it possible for the lighting, in future, to make a positive contribution to production. A desire to extend the installation is almost inevitable, sooner or later.

It must not be forgotten that we still have a surplus of 1,100 watts to play with. The lighting enthusiasts will find that there are many occasions when a few extra spot lanterns would be invaluable. These could be hired, of course, for special productions, and could be connected to the stage dips. The most desirable additions are Batten Spots and two more F.O.H. Spots. The addition of two 250-watt Baby Mirror Spots in F.O.H. positions and two 250-watt Junior Spots on No. 1 Batten would be a tremendous improvement and the total wattage in use would be slightly below the possible maximum of 3,600 watts. These additions would make it possible at times for the acting area to be lit entirely by spots, in which case, all the floods could be used to light the cyclorama or backcloth for an outdoor scene.

This would, of course, involve some re-arrangement of the switchboard circuits. All the spots would have to be looped in pairs to keep the control within the eight circuits available. The looping of such circuits is not ideal, but it is an acceptable compromise that need not be frustrating if the lighting is planned, as it should be, to suit the limitations of the equipment.

It would be a very desirable refinement to have a dimmer to control the auditorium lighting. The total load is probably 1,000 to 2,000 watts. A slider dimmer of this capacity is not expensive and could be installed in the prompt-corner, to be operated by the stage manager, or to be adjacent to the switchboard, if preferred. A slow fade of the house-lights is in every respect preferable to the sudden black-out by switching.

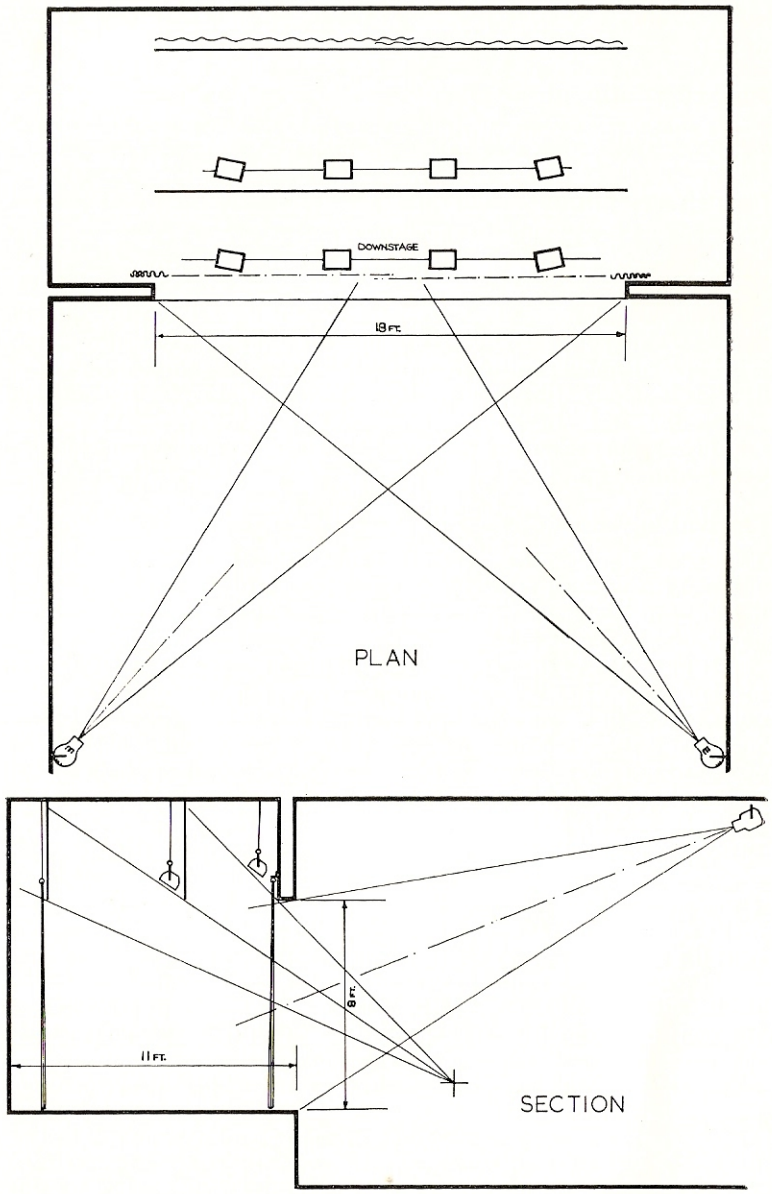


FIG. 2. *The same stage as Fig. 1, but showing suggested arrangement of Junior Floods and F.O.H. Spots in the complete scheme referred to on the previous pages.*

EQUIPMENT FOR LARGER STAGES

There are many stages that, though far from ideal, are somewhat larger than our hypothetical one, and many of these may well have a supply of 30 amps equally misused. These stages will present almost identical problems, with a difference of scale, and the solution would follow the same general principles. The number of actual lighting units would be increased and their positions might be different. It could be possible for the cyclorama or backcloth to be lit quite independently of the rest of the stage. For this purpose one could use a compartment Batten in two circuits.

There would be an increase in the total number of circuits required and the 8-way Junior Board would not cope. The Junior Boards have two standard sizes, the 8-way and the 12-way, the latter having space for six dimmers. Boards of either size can be joined together to increase the number of circuits controlled, so that it is possible to control in this manner either eight, twelve, sixteen, twenty or twenty-four ways. Similarly, the number of dimmers used may be either four, six, eight, ten or twelve.

Note: *Most stages in new schools and other multi-purpose halls are now planned to give more reasonable facilities than were formerly provided. The planning and the equipment of such stages are dealt with in a separate booklet,* **Stage Planning, 1961,** *which is supplied free to those who apply.*

THE "BASIC–MINUS" EQUIPMENT

There are, alas, some heroic workers in the amateur theatre to whom even the modest equipment suggested as basic will be unattainable. Some of them work on platforms that never begin to be stages. They need not despair, however; it is still possible, if they can raise just a modest few pounds, for them to have lighting that is fundamentally efficient and that has some dramatic possibilities.

In these cases Pattern 23 Mirror Spots, designed for F.O.H. lighting, would be out of the question. Two 250-watt Pattern 45 Junior Spots could be suspended over the auditorium to provide F.O.H. lighting. These spots should hang near, or on the side walls of the hall. The beams being crossed in the same way as the spotlights in Fig. 2.

Over the stage might be suspended two Junior Floods. These should be fixed near to the sides of the acting area, throwing the light diagonally across the stage. If there is no proscenium the floods could be dispensed with because spotlighting from the auditorium is the best way of lighting an open stage.

With only two Junior Spots and a couple of Junior Floods plus a little imagination it would be possible to obtain interesting lighting effects.

LIGHTING EQUIPMENT

A general purpose spotlight (Fig. 3) consists of a lens behind which a lamp can be moved backwards and forwards. The result is a more or less circular beam, variable between a spot and a medium angle flood. The beam consists of an enlarged image of the filament. A 250- or 500-watt lamp is in common use on the types of stages here considered. At one time plano-convex lenses were used but now even an inexpensive spotlight such as the Patt. 45 (Fig. 3) has a Fresnel lens. This type of lens is used to even better advantage in the Patt. 123 (Fig. 4) where it is 6 in. in diameter instead of 4½ in. and in consequence more light is collected. All Fresnel lenses used on the stage give much more light than the plano-convex lenses they have supplanted. Furthermore, the light is softer and does not need a frost and there is no filament striation, even when spotted right down. Fresnel lenses have a tendency to give low-intensity stray light beyond the main beam. In consequence they should seldom be used in the auditorium. However, as the beam is variable from 16° up to 45° there may be occasions on short throws with few lanterns when this will be the only type to provide a wide enough spread of light.

The Pattern 23 Mirror Spot (Fig. 5) has a mirror system instead of a lens to collect the light from a 250 or 500-watt lamp. The beam shape and size is governed by a gate and it is this which is focused by a lens. The Mirror Spot is the only true spotlight. A feature of this Mirror Spot is its adaptability to various beam angles by merely changing the lens arrangement. Thus the Pattern 23 in Fig. 5 is available in four beam ranges: 11°, 22°, 30°, or 37°, patterns 23N, 23, 23F, and 23W respectively. Within the particular range a masking shutter or iris in the gate can do all the rest. The Pattern 23 is the perfect lantern for use from auditorium positions.

All colour filters should be of the self-extinguishing acetate sheeting known as "Cinemoid". Dyed gelatine is not stable enough for halls which are used intermittently. Glass is quite unnecessary except as diffusers for Mirror Spots.

	Watts	Width *ins.*	Depth *ins.*	Height *ins.*	Price £ *s.* *d.*
Focus Lantern Patt. 45	250/500	8½	11¾	12	4 17 6
Fresnel Spot Patt. 123	250/500	11	10¾	12	9 17 6
Mirror Spot Patt. 23 & 23F	250/500	11	13	12	9 17 6
Junior Flood Patt. 137	60/200	12	9½	12	2 17 6
Hood for above Ref. 245	—	9¼	4	8	6 6
Hook Clamp Ref. 483	—	—	—	—	3 8
Junior Stand Ref. 257	—	—	—	43 to 69	2 15 0
Spigot Adaptor Ref. 484	—	—	—	—	2 9

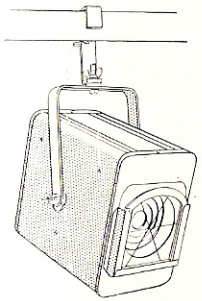


Fig. **3**
Junior Spot Patt. 45.

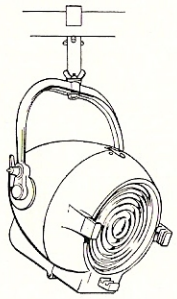


Fig. **4**
Fresnel Spot Patt. 123.

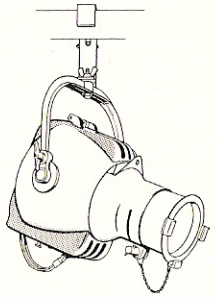


Fig. **5**
Mirror Spot Patt. 23.

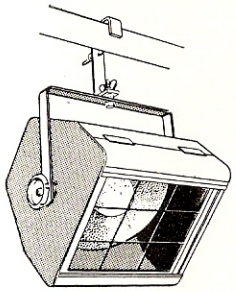


Fig. **6**
Stage Flood Patt. 137. (Right) fitted with masking hood.

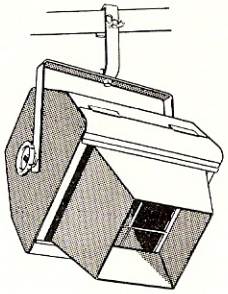
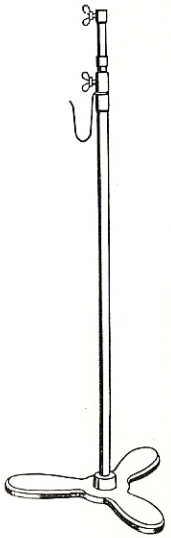


Fig. **7**
Hook-type clamp (below). Ref. 483.



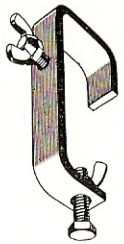


Fig. **8**
Junior Stand (left), Ref. 257.

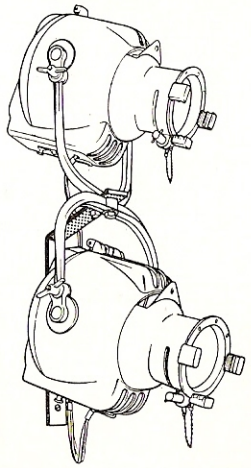


Fig. **9**
The ⌐ shaped bracket Ref. 238 is designed to carry two spot lanterns in the manner shown right.

The floodlights to be used with the above spotlights would be 60/200-watt Junior Pattern 137 (Fig. 6) used separately or more rarely made up as a compartment batten. This lantern is inexpensive yet very versatile, since it takes a 60, 100, 150, or 200-watt lamp and a hood attachment (Ref. 245) converts it almost into a fixed spot.

STAGE SWITCHBOARDS

It is now generally recognised that for the smallest of stages, some provision must be made for varying the intensity of the lighting circuits to any degree between full-up and black-out. Ideally, there should be a dimmer in each circuit but for economic reasons the ideal is often sacrificed. The cost of the switchboard is mainly affected by the number of dimmers used. For halls and stages covered by this booklet a Junior switchboard has been devised by Strand Electric. Since its inception six years or so ago, many hundreds of these have been supplied.

The Junior board is a simple, inexpensive control which has proved most successful in use. It is made in standard units that can be used singly to control eight circuits only, or assembled to cope with as many as 24 circuits. A plugging system is used and the usual number of slider dimmers required is half the number of the circuits but, if desired, a dimmer can be fitted for each circuit. In point of fact, a complete set of dimmers makes nonsense of the plugging system. It is far better to spend the money on a master dimmer to use in conjunction with half the number of dimmers. This would provide electric mastering which would be all the more valuable as mechanical interlocking of slider dimmers, which are the least expensive available, is not an economic proposition. Owing to the compact nature of standard Junior boards, such a master dimmer has to be mounted on the wall adjacent.

The Junior board takes up little space and can be mounted directly against the wall, no rear access being necessary.

Although it is desirable to have a permanent switchboard in the hall, it may be that the outlay required for even the least expensive

Type	Width	Depth	Height	Prices	
				Without dimmers	With dimmers
	Ins.	*Ins.*	*Ins.*	£ *s.* *d.*	£ *s.* *d.*
H.A.8	25	$8\frac{3}{4}$	64	**31 0 0**	**50 10 0**
H.A.12	36	$8\frac{3}{4}$	64	**37 5 0**	**66 10 0**
H.A.16	50	$8\frac{3}{4}$	64	**64 0 0**	**103 0 0**
H.A.20	61	$8\frac{3}{4}$	64	**70 5 0**	**119 0 0**
H.A.24	72	$8\frac{3}{4}$	64	**76 15 0**	**135 5 0**
H.A.8/CAR	25	$8\frac{3}{4}$	40	**39 15 0**	**59 5 0**
H.A.12/CAR	36	$8\frac{3}{4}$	40	**48 5 0**	**77 10 0**

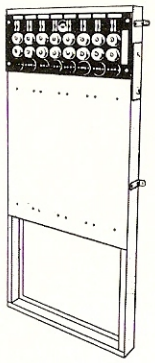
FIG. 10. *Junior Switchboard, type H.A.8, with space for dimmers.*

FIG. 11. *Portable Junior Switchboard, type H.A.8/CAR.*

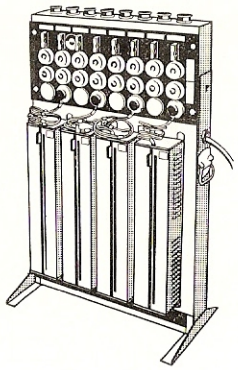
FIG. 12. *Junior Switchboard with slider dimmers.*

FIG. 13. *Slider-type dimmer for use with Junior Switchboard.*

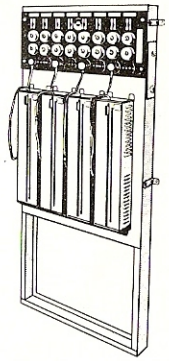
FIG. 14. *Two H.A.8 Junior Switchboards joined to provide 16 ways and 8 dimmers.*



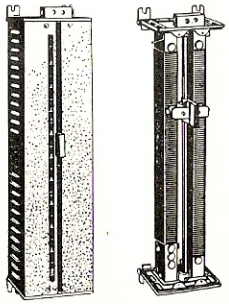
10



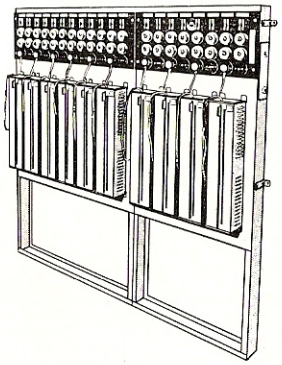
11



12



13



14

model is too great for the particular budget. In these cases the CAR switchboard shown in Fig. 11 provides a solution, the cost and the use of it being shared between several neighbouring halls. The board is easily portable and will fit into any but the smallest private cars for transportation from one hall to another as required.

INSTALLATION

Where, as this booklet assumes, money is really tight, care must be taken to ensure that the minimum is expended on accessory gear, for example, on suspensions and wiring. As has been shown a 15-amp mains supply is quite adequate while a 45-amp main would cover all future development. Wiring outlets need only be 5 amp, and money should not be wasted on switched socket outlets.

Fixing for lanterns in the auditorium could be by the ref. 238 ⌐ shaped bracket which, though not elegant, costs less than any other and will carry two spot lanterns (Fig. 9). On stage, although it may be necessary to move individual lanterns about, their collective mounting should be fixed and not arranged to raise and lower for maintenance. Even the simplest winch and flexible cable feed will prevent the purchase of that extra spotlight which will do your lighting for you.

However, make sure that the stage board has two switches per circuit, one for blackout selection (2-way) and the other to cut the dimmer plugs in and out (circuit on-off). All Strand Junior Boards have these but not all the copies do. The second switch is an essential to carry out the common stage lighting changes such as; blackout, room lighting leaving firelight with moonlight shining through window.

Use Cinemoid colour filters instead of gelatine as the former, though more expensive, are durable and not subject to deterioration due to variable humidity and temperature in halls used only occasionally.

ADVISORY SERVICE

The staff of Strand Electric, at Head Office or at the various Branches, includes people of considerable experience of the problems peculiar to the amateur stage. Their advice is always available to any organisation requiring assistance. The questionnaire enclosed with this booklet will obtain the kind of assistance that is required.

If a new stage is being planned, it is advisable to make an approach during the initial planning, before any actual construction begins. It is then possible to detect and prevent mistakes that might create serious inconvenience and trouble when the stage is in use.

This service is provided without charge or obligation.

Any prices in this booklet are approximate and are included as a guide only. Costs should be checked by reference to the current Strand Electric catalogue before ordering.

LECTURES

Each season, lectures are given in the Strand Electric Demonstration Theatre, King Street, W.C.2. These lectures deal with various aspects and techniques of stage lighting and other branches of stage production. Admission is free to those who apply for tickets to the Head Office.

RECORDED LECTURES

The Provinces are in the main catered for by recorded lectures. Each of these consists of approximately 60 colour slides and a recorded tape commentary given by two experts. The result is a lively and instructive hour which requires only a tape reproducer for $3\frac{3}{4}$ ins. per sec. and 2″ × 2″ slide projector. Full details will be sent on application to Head Office.

PUBLICATIONS

STAGE PLANNING 1961. Planning and lighting for those concerned with the building and equipment of new stages in schools, colleges and community centres.

LIGHTING FOR ENTERTAINMENT. Illustrated catalogue of all equipment.

STAGE LIGHTING EQUIPMENT HIRE CHARGES (U.K. only).

DECORATIVE FITTINGS HIRE CATALOGUE (U.K. only). Illustrating (to scale) representative lighting fittings, lamps, fires, etc., of all periods from wide range available, with weekly hire charges.

BLACK LIGHT. A leaflet explaining the theatrical use of ultra violet and fluorescent materials.

COLOUR CHARTS. Samples of all colours of Cinemoid.

TABS. A journal devoted to stage lighting matters and published three times a year. The free mailing list is open to professionals and members of amateur groups.

Printed in England 17132.5M.461

QUESTIONNAIRE

Issued by Strand Electric with their publication " Stage Lighting on a Shoestring "

Name.....

Address.....

Theatre, School or Hall.....

Details of Stage

Proscenium opening: Height*..... Width*.....

Height of stage above floor of auditorium:.....

Height of auditorium ceiling: Centre..... Sides.....

Height of stage ceiling above stage floor: Centre..... Sides.....

Depth of apron stage, if any:.....

Depth of stage: pros. to back wall:.....

Width of stage: side wall to side wall:.....

Is back wall used as cyclorama? .....

What facilities are provided for suspending curtains, borders and lighting from ceiling? .....

.....

Present lighting equipment:

F.O.H. Spots: .....

Footlights: .....

Battens: .....

Portable:.....Stage Plugs or Dips: .....

Switchboard: No. of Circuits with switches and fuses: .....

No. of dimmers:.....

Type of dimmers: .....

Total Capacity of Electrical Supply to Stage: ..... Voltage.....

Requirements: .....

.....

.....

Approximate limit of funds available (if known):.....

* *These should be the effective (not decorative) dimensions, i.e. if there is a fixed pelmet or other masking, the height is to the underside and if the House Tabs do not completely clear the proscenium when open, then the width is taken between these.*