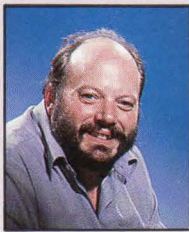




LIGHTING · THE · AMATEUR · STAGE
BY · FRANCIS · REID



Francis Reid studied for a stage career by sitting in the top galleries of theatres while reading psychology at Edinburgh University.

After five years as a stage manager, he specialised in lighting and was lighting designer for Glyndebourne Opera throughout the sixties. Subsequent freelance lighting design included over thirty productions in London's west end. He has taken two sabbaticals from visual theatre: one to varnish boats on the Norfolk Broads and another to administer the

theatre in Bury St Edmunds. With the onset of his prime, Francis Reid's interests have increasingly become centred on Handel and eighteenth century theatre architecture. His writings include three books, three years as editor of *Tabs*, and a lot of articles. He has lectured on lighting in many parts of the world, particularly in Canada and the Antipodes and, following seventeen years of teaching at RADA, is now Head of Theatre Design at the Central School of Art and Design in London.

Anyone attempting to practise the art of stage lighting can expect to be hampered by two basic shortages – lack of time and lack of equipment. In the case of many professional productions, these shortages, like more conventional forms of poverty, tend to be relative. However, in the lighting of many an amateur production, the plea of 'just one more spotlight please' usually represents a desperately critical addition to the lighting rig so that the audience will be able to see just what is happening upstage left. Consequently each and every light must be employed to maximum effect. Life is not made any easier by the stage frequently being much too wide and much too shallow, with an auditorium ceiling so low that it provides a lighting angle which ensures that the actors

walk tall across the sky. And lighting always takes longer than one's most pessimistic estimate.

Whatever the scale of the operation, lighting, like any other design process, is based on a sequence of logical management decisions plus, and it is a very big PLUS, a measure of creative inspiration. This creative bit grows out of the designer's subconscious, planted there by the experiences of looking at life through one's own and other people's eyes. This *Tabs* special is about making the logical decisions that will allow the creative bit to flourish. In lighting a show there is a lot of work to be done and the key to success lies in the . . .

PLANNING

READ SCRIPT

at least twice (first for overall 'feel' and then for detail) concentrating on text rather than the stage directions which the director may well ignore – especially those in an 'acting edition'. If a musical, listen to the music until absorbed.

DISCUSS

with the director, choreographer, set and costume designers, how the script will be staged and the contribution to be made by the lighting. Will light select acting areas? And/or will it establish shifts in atmosphere? Are there any particularly special effects?

DECIDE STYLE

of the 'lighting look'. Will it be softly diffuse or have stabbing beams? How directional? How selective? How atmospheric? Will the colours be subtle tints? Or more strongly romantic hues? Or more saturated contrasty statements? Or a penetrating white? How naturalistic?

ESTABLISH PRIORITIES

for the allocation of resources. There is rarely enough equipment or time to meet all the requirements of our ideals. How vital is that two minute special effect? Enough to justify removal of two lights from two hours of general use?

DIVIDE STAGE BY AREAS

for independent selection determined by the production's requirements (at actor eye level which does not correspond to the area of lit floor). Musicals may have symmetrical areas of uniform size but drama areas are rarely symmetrical in size, shape or distribution.

DIVIDE STAGE BY COLOURS

if colour is to be a variable. Which areas in a drama need both warm and cool toning? Can some be neutral? In a musical where do we need more saturated 'reds' and 'blues' (and 'ambers?') in addition to face 'neutrals'.

DETERMINE ESSENTIAL SPECIALS

where the light beam's size or shape is so critical that one of the generally set area lights will not suffice. Also determine essential special effects. Double check priorities.

CHOOSE LIGHTING POSITIONS

to give the best available angles for lighting the chosen areas in the chosen colour ranges. And position the specials and the effects.

ALLOCATE LIGHTING INSTRUMENTS

starting with the ideal type for each position, then reallocating to make the best use of equipment actually available.

SELECT COLOURS

by converting general 'warm', 'cool', 'reddish', 'bluish', 'amber', 'hot', 'fruity' etc into specific colour filter numbers.

COMPLETE PAPERWORK *

including lighting layout plan; equipment, colour and cable lists; cue synopsis.

COMMUNICATE INTENTIONS

to electricians crew, stage manager, scene designer and director by giving them photocopies of lighting plan and cue synopsis. Point out to them anything vital that they might otherwise overlook.

CHECK INTENTIONS

by comparing the observed action at rehearsal during each cue state with the planned areas, colours, specials as noted in the cue synopsis.

PREPARE EQUIPMENT

by checking all adjustments for free movement and positive locking. Clean and flash-out all spotlights. Don't forget accessories. Visual check of all cables for insulation breaks and loose clamping at plugs and sockets.

GET INTO THEATRE

RIG

as plan, paying particular attention to mechanical safety. Fit barndoors, masks, gobos, colours etc. Flash-out, checking plan numbers correspond to dimmerboard numbers.

FOCUS

each light to predetermined position on stage, checking actor lights by moving around all positions which are intended to be lit by a particular spotlight. Check for required beam edge quality – normally soft and, as far as possible, 'lost' on set.

PLOT

each cue state by selecting appropriate lights and balancing their intensities on the dimmers to give the required lighting pictures. Use a 'body' to walk the actor positions and do not hurry the writing down of the levels.

REHEARSE

any difficult cues before the dress rehearsals. After these rehearsals, some rebalancing and refocussing is almost inevitable.

PERFORM

with maximum concentration. If anything goes wrong, correct very very slowly and smoothly. If nervous actors head for black spots, try to help them – but slowly and smoothly.

GET-OUT

carefully after the final performance. Put away all equipment as you would hope to find it next time.

CONDUCT POST MORTEM

with the rest of the production team to compare hopes with reality, so that next time . . .

WHAT DO WE HOPE THAT LIGHTING WILL CONTRIBUTE TO THIS PRODUCTION?

The overriding priority just has to be **VISIBILITY**. Having decided what we want the audience to see, we must ensure that they see clearly and without strain – if in any doubt, up half a point in brightness!

But this can be a **SELECTIVE VISIBILITY** concentrating the audience attention on chosen parts of the stage action.

The lighting can contribute to the **ATMOSPHERE** of a scene. In a naturalistic play this can mean a light quality that conveys the season of the year, the time of the day and the state of the weather. Or it can be emotional messages from colour tonings of cool sadness to warm happiness. Or perhaps the menace of contrasts between light and shade.

Light should always **ENHANCE** the look of a production, helping to reveal the form, colour and texture of all components of the stage picture whether scenic elements or actors.

And Lighting's contribution can be totally **FLUID** – particularly in terms of *selectivity* and *atmosphere* – whether by sudden dramatic contrasts or subtle subconscious shifts of emphasis.

AND WHAT ARE THE CHANCES OF ACHIEVING ALL THAT WE WANT?

To be quite frank, the chances of totally realising our ideals are so slim as to be virtually nil. The problem is that there is a series of conflicts between the various contributions of light to the staging process.

To project a character, an actor requires full visibility of eyes and teeth – yet this requires a low angle of light, coming from in front. But a low angle will project a large actor shadow, and extend a corridor of light well upstage in conflict with any desire for light selectivity. And the more a light comes from the front, the more it tends to flatten – rather than enhance form and texture.

One of the ways to create atmosphere is by light and shade. But shade is hardly conducive to visibility.

On an ideal stage the lights for the actors and the scenery would be independent of each other. But some of the acting light must inevitably fall upon the scenery: if angle and colour are right for the actor, they are quite likely to be deadening on the scenery. And that shaft of purple that so enhances the scenic texture can be a bit distracting when it catches an actor's face.

Oh that we would cut off the light beams just behind the actors!

Then if there is an angle of light that would permit a good compromise, there is every likelihood that it is not possible to hang a spotlight in a position that would provide light at this angle.

And if all the design problems are solvable, there remains the shortages – have we enough lights, dimmers and time?

SOME OF THE PITFALLS ARE . . .

. . . concentrating on a few moments of special effects at the expense of general lighting for the whole evening . . . dividing the stage into too many tightly defined areas for the amount of available equipment . . . failing to overlap areas, upstage and downstage in addition to left and right . . . choosing colours, especially in a musical, that do not give a sufficiently contrasty palette . . . placing too much faith in logic and realism rather than theatricality . . . focussing with beam edges that are too hard and therefore too noticeable . . . being too ambitious for the time available to rig, focus, plot and rehearse.

AND SO WE MUST ESTABLISH PRIORITIES

by analysing what the director and the scenery and costume departments are doing with the text, music and actors. This analysis can only be done by reading, watching and discussing. Discussion means asking questions. Encourage everyone to think about light. Nothing is ever achieved by saying *impossible*: alternatives must be offered. Planning begins with a priorities list.

FACES VERSUS FLOORS

Lighting's insoluble problem – and therefore major compromise

Perhaps the most fundamental problem in lighting an actor is that the most selective light (and the one throwing minimum shadow behind the actor) is the one that shines vertically down. Yet this does not reach the actor's eyes and teeth (Fig 1).

To enable the actor's face to be seen, light must come from a position to the front of the actor (Fig 2).

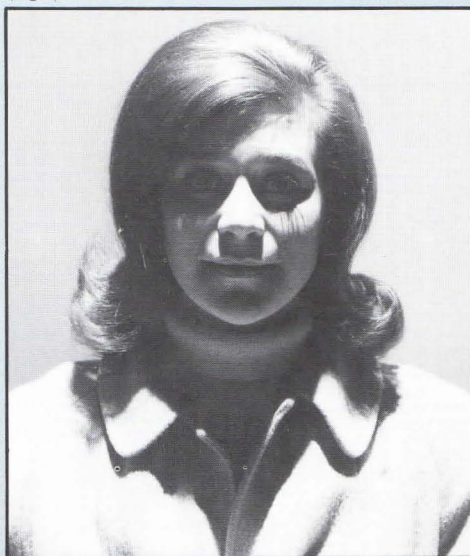
So when considering the size and shape of stage areas to be lit, it is important to remember that we are referring to light at the actor's face level – and that this does not normally correspond with the lit area of stage floor.

Thus an actor may stand within a pool of light on the stage floor yet his face will miss the light (Fig 3).

Or indeed the actor may stand outside that pool of light while his face is fully lit (Fig 4).

SO WE MUST THINK IN SECTION, as well as in plan!

(Fig 1)



(Fig 2)



(Fig 3)



(Fig 4)

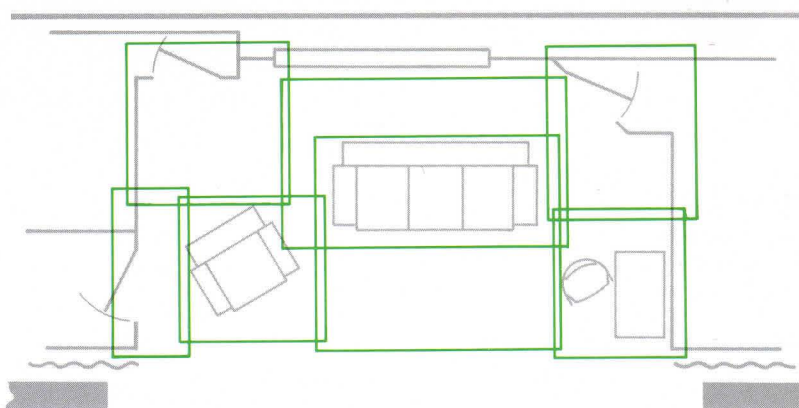


DIVIDING THE STAGE

DIVIDING BY AREA

Once decisions have been made about the kind of contribution that we expect lighting to make to the production that we are planning – and these contributions have been put into some sort of order of priority – we need to break down the stage area into the segments over which we require independent selective control. The required breakdown may be symmetrical, in which case the stage plan will be divided into something that resembles a series of areas of different sizes corresponding to the placing of the action. Of course it could well be that there is no need for division into what it is useful to call *production areas*: all the stage may be in use all the time. In this case a simple division into centre and sides will allow balancing for maximum 'enhancement' of the look of the scene.

Note: Adjoining areas **overlap** – both side to side and back to front. And remember to remember that these are areas where an actor's head is to be lit – they are unlikely to be the same as the light patterns on the floor.



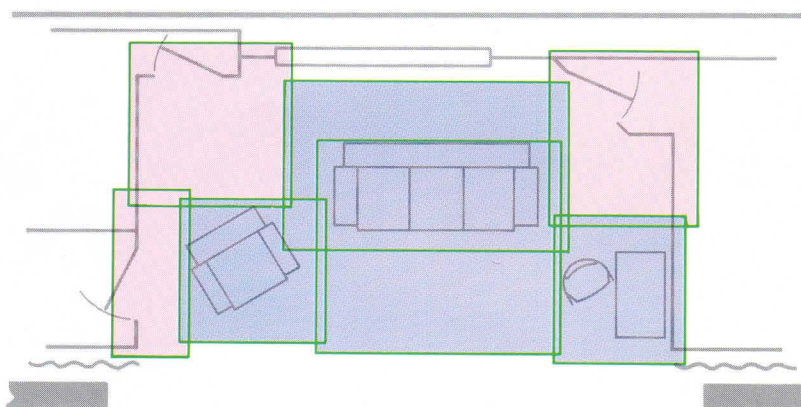
AREA PLANNING FOR A PLAY

In this naturalistic play – possibly but not necessarily in a box set – the areas are determined to a considerable extent by the positions of furniture and doors. And the lighting is expected to make some logic in terms of practical light fittings (table lamps, wall brackets, etc) and the natural sunshine and moonshine coming through windows (including those in the audience's fourth wall'). In this particular example, we have a play where it is desirable to focus attention at various times on the sofa, the armchair, the table (with that essential tool of modern drama, a telephone) and the doors. These doors are tremendously important in any drama: some of the key appearances and speeches are made there. But for a long intimate scene on the sofa, it is useful to concentrate on that sofa and loose peripheral areas like the doors. Consider the seven areas shown here in terms of possible combinations: the *area palette* gives the director a wide range of selectivity of audience vision – whether a subconscious fluidity (slow cues that are not obvious) or an area selection obviously linked to the switching of the practical lamps.

DIVIDING BY COLOUR

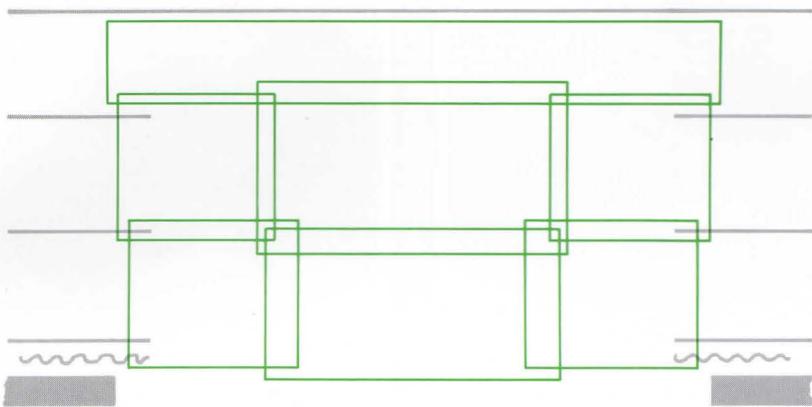
Does our chosen lighting style for the production include a fluid use of colour? After establishing a breakdown of the stage into areas, the next step is to consider whether any areas need to have controllable variations in colour. Or whether some of the adjoining areas could be grouped together for more general variations from a less selective colour wash.

Note: These plans have been drawn with colour to illustrate our discussion. When actually planning a production, normal procedure would be to define the selected areas, then indicate colour range by initials such as W,C,N for warm, cool and neutral or possibly R,O,Y,G,B,A, for red, orange, yellow, green, blue, amber for a musical. Actual colour filter selection is best postponed until after the position and type of lights has been decided.



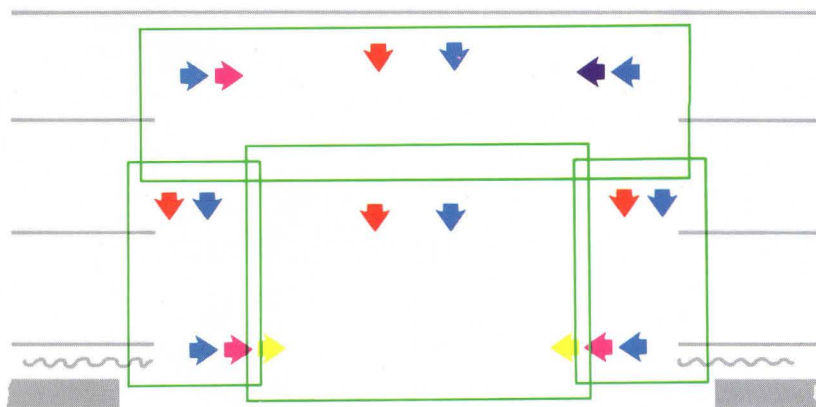
COLOUR PLANNING FOR A PLAY

In a naturalistic play, colour is often used to create a fluid atmosphere that can shift from warm cheerfulness to cool sadness. If an area is lit with some lights in warm tones and some in cools, the dimmers of the control board can be used to achieve a whole series of options from an extreme of the warm colour alone through the neutrality of both together, to the other extreme of cool colour alone. Which (if any) of the areas need to have this kind of 'double cover' of colour tones? In this example, discussion with the director has established that such a *colour palette* seems necessary around the central areas and the desk, whereas the upstage corners and downstage right can manage on a warm tint only – although perhaps one that is a little closer to a compromise neutral than the warm in the mixable areas. In such a naturalistic production the actual colour tints chosen are likely to be quite subtle.



AREA PLANNING FOR A MUSICAL

Musicals tend to have many scenes and many selective and atmospheric light changes within these scenes. Therefore, unless there are many – very many – lights available, the breakdown into areas has to be very general. In this example the breakdown is symmetrical because, as in so many musical productions, the settings consist of a symmetrical series of wings leading to a backcloth, possibly a skycloth. With the addition of cloths and scenic pieces, this method of staging gives a flexible masked acting area with the possibility of sufficient open space for dancing and lots of entrances for a large chorus to get on and off quickly. In most musicals the big moments are staged in the downstage areas: to help both musical balance and the 'putting across' of numbers to the audience. For the same reasons, much of the essential action takes place centre stage. The most common selective lighting cue is to 'concentrate centre', usually downstage centre, by 'losing the edges'. This suggests a minimum of three areas across the stage – certainly at the front of the stage, and probably also midstage. However it is often quite practical to consider the whole width of the rear of the stage as one area. This provides a seven area combination that offers an *area palette* giving the director considerable selectivity with the possibility of progressive tightening from back to front and from sides to middle.



COLOUR PLANNING FOR A MUSICAL

The dialogue scenes of a musical require the subtle colour tones that are appropriate for a naturalistic play. However the musical numbers, particularly when solo singers can be given isolating visibility from tightly focussed follow spots, usually call for strongly atmospheric colouring. And many dance sequences, where the body is relatively more expressive than the face, respond well to positive use of quite strong colour. This example shows a much used technique where the colour is applied in rather broader washes than the areas selected for scene location. The front half of the stage is divided into three areas, each lit from above in rather saturated colours: a hot and cold rather than a warm and cool. The rear half is treated as one area, also with a hot and cold from above. From the side comes further washes, probably in slightly less saturated hues. These may divide the stage into bands: in this case an upstage band and a downstage band, possibly splitting the stage into left and right but just as likely covering the full width. With relatively neutral colour from the front, saturated colours from above and intermediate colours from the side, we have a *colour palette* that offers considerable scope.

LISTING THE SPECIALS

The major proportion of a stage lighting rig is focussed to form a palette of areas and colours whose various combinations will provide the desired fluidity of selectivity and atmosphere. However there are certain lights whose function is so 'special' that they cannot make a significant contribution when mixing the basic palette.

FOR THE ACTOR

Specials usually consist of spotlights set so tightly that the spaces they light cannot be considered as areas. They are often for moments when an actor has to be picked out (perhaps only head and shoulders) on an otherwise blacked-out stage. They need to be listed in a priority order for close scrutiny and reduction to essentials.

FOR THE SCENERY

The proportion of the rig focussed on the scenery will be very small. With the exception of skys and back or front cloths, scenery normally gets sufficient general wash from the reflected light bouncing off the stage floor from the lights that have been set for the actors. Indeed, as discussed in the following pages, many of the basic problems of lighting design arise from difficulties in stopping actor light hitting directly on the scenery. Successful lighting of scenery depends on augmenting the diffuse reflected general light by selective highlighting of chosen scenic elements, or parts of these elements. This can vary from bold gashes to soft emphasis. Again, to be listed and reduced to essentials after a debate based on priorities and available resources.

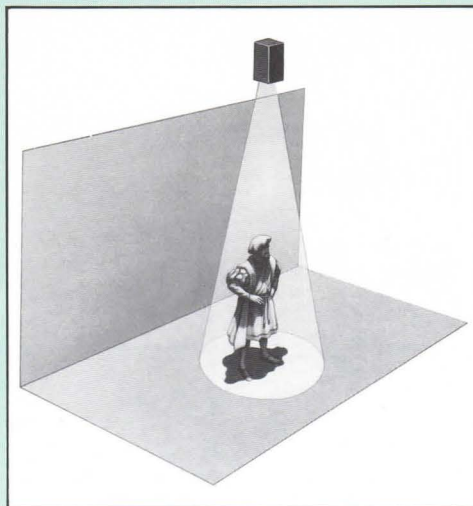
FOR SPECIAL EFFECTS

There may be a request for equipment to produce clouds, flames, water, lightning etc. When listing it is always prudent to remember that such effects can draw attention away from the actor rather than positively support a performance. And if the effect is essential, then the effect of light reflected from fire or water is often more telling than a pictorial representation of the actual fire or water.

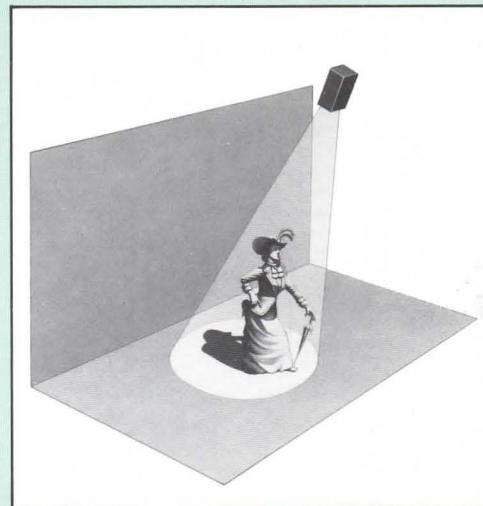
CHOOSING LIGHTING POSITIONS

LIGHTING FROM THE FRONT

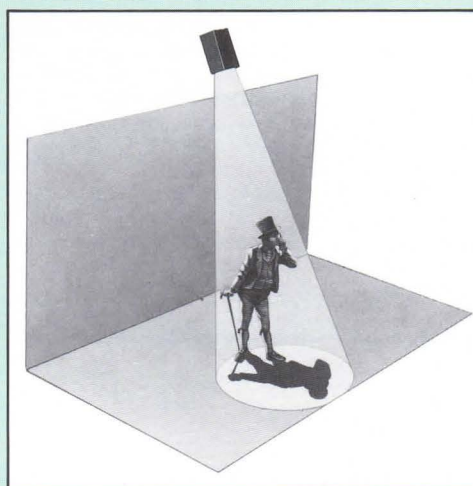
Consider the effect of a light starting as a vertical downlight on an actor, then moving in a frontal plane until its beam becomes horizontal and then carries on to light from below. How visible will be the actor's face, particularly eyes and teeth? To what extent will face and body be modelled or flattened? What area of stage will be selected and what will be the size and direction of shadows cast on floor and scenery?



A vertical beam is the most selective light possible. The lit area of stage, and the shadow cast upon it, need be no wider than the widest part of the actor. However the actor's eyes will be black pools and a highlighted nose will shade the mouth.



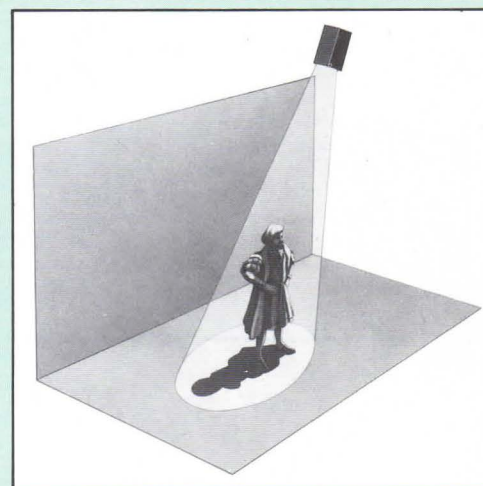
If the light comes from a little forward of the actor, it will start to reach the eyes and mouth (providing that she keeps her chin up and is not defeated by a hat brim!). However the lit area, and shadow cast, starts to extend upstage from the actor — ie the light is slightly less selective.



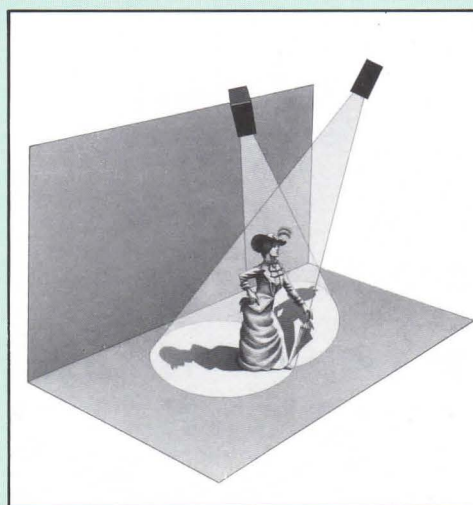
LIGHTING FROM THE BACK AND SIDE

Now consider a light from behind. Then a light or lights from a series of side angles (ie lights at right angles to those considered above). Once again the criteria are visibility, modelling, selectivity and shadows.

A light source behind the actor does not illuminate the face, but it helps to give depth to the stage by separating the action from the scenery through creating a haze and highlighting head and shoulders. The shadow of the actor is cast forward, helping the selection of areas. Since the light does not fall on the face, strong colours can be used.



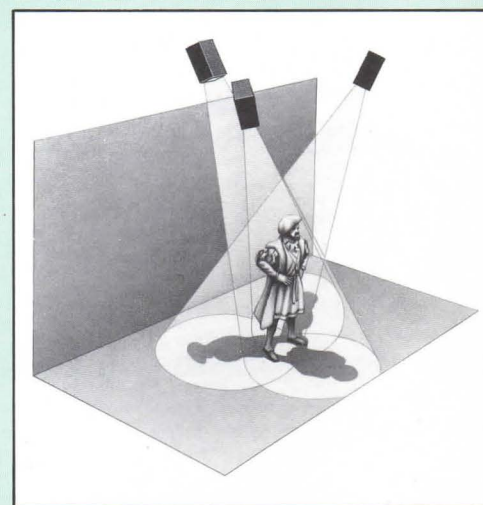
If the light comes from a little to one side of the actor, it will start to reach the eyes and mouth on that side. The area lit, and the shadows cast, will extend along the stage floor on the other side.



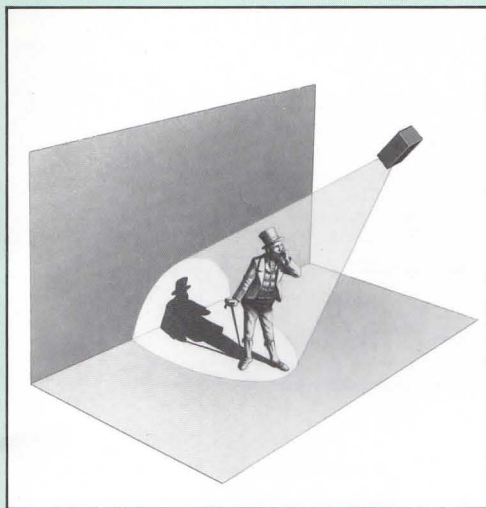
FINDING THE COMPROMISE

We normally seek to light an actor for maximum visibility and maximum modelling, with minimum shadow. Additionally, in many productions, we need to select as tight an area as possible. Which combination of angles offers the optimum compromise?

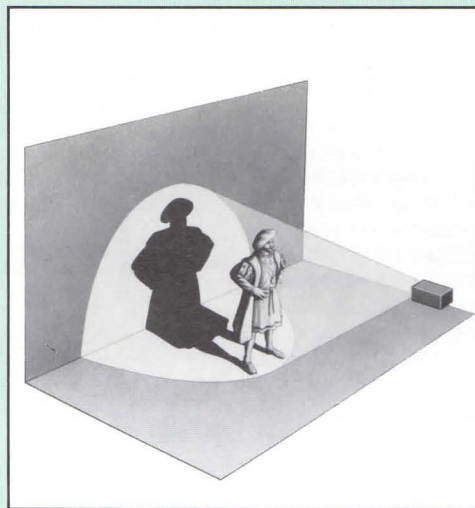
The basic compromise that has long been the standard approach is a pair of beams crossing on to the actor (one for each side of the face) from positions which are both forward and to the side of the actor. The suggested angle is often around 45 degrees in both directions — ie midway between vertical and horizontal; and midway between front and side. However, to restrict the shadows cast and to give a better 'join', the lights are often positioned closer to the vertical and to the centre.



A backlight added to the basic crossed pair brings depth to the scene and generally enhances the 'look' of the actor. The backlight can be used for strong atmospheric colour if required, while the crossed pair maintain a more natural tint on the actor's skin tones. Note: The actor is now lit by three beams with a 120° separation between them.



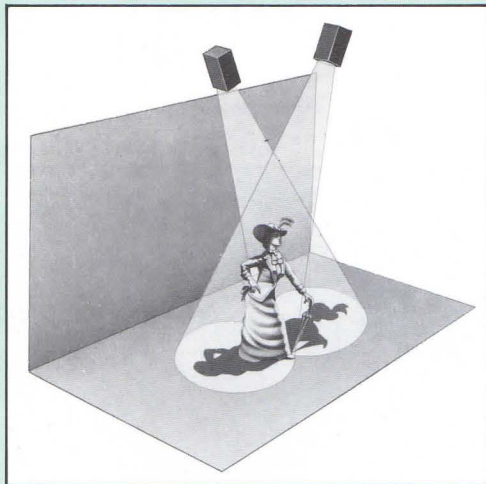
As the lighting comes increasingly from the front, the actor's eyes and teeth receive more light. But the area lit extends further and further upstage, reducing the selectivity and increasing the likelihood of the actor's shadow hitting the scenery.



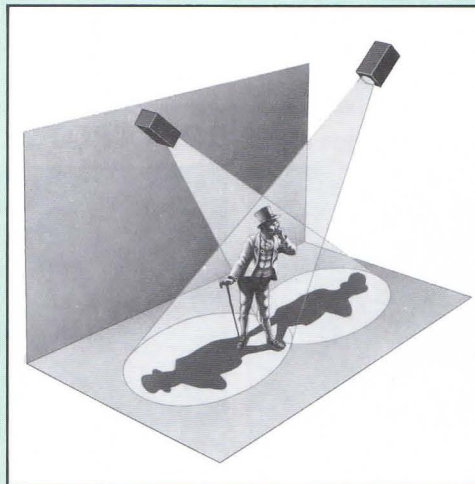
As the light becomes more and more frontal, the actor's features become flattened (and so also does three-dimensional scenery). The lit area and the actor shadows increase until, when the light is horizontal, there is a lit corridor for the entire depth of the stage, and the actor shadows become actor length.



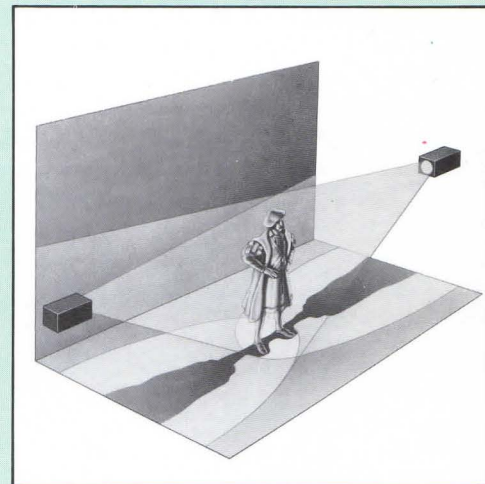
Light from below projects an actor shadow that looms above the actor, rising and falling as she moves towards and away from the light source. When this is the only lighting angle, the effect on the face is not at all natural. But a little from below, usually just reflected light, can help to soften the harshness of light from above.



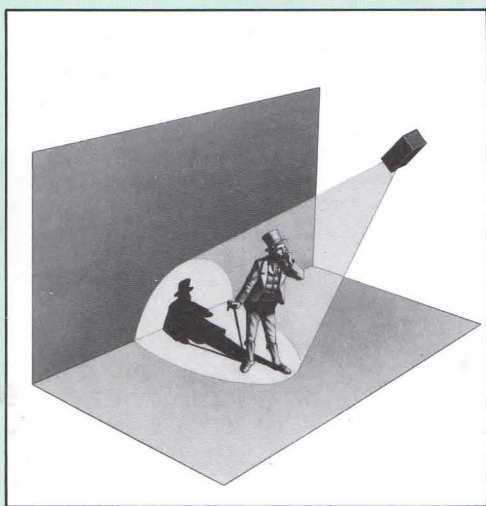
Add a second light source from the other side, and both sides of the face will receive light. However there is now a second shadow, and the selected area of stage floor extends to both sides of the actor.



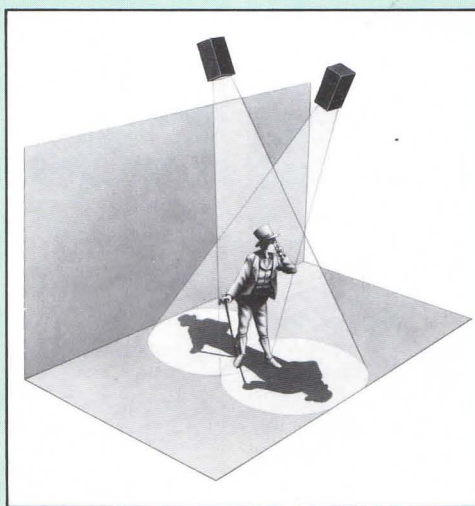
As the side lighting comes from an increasingly lower angle, the shadows will lengthen to both sides of the actor and a larger corridor will be selected across the stage. As the light hits the face from a lower angle, it will light more into the eyes and teeth, although there will still be a tendency towards a central dark line where the beams meet down the centre of the face.



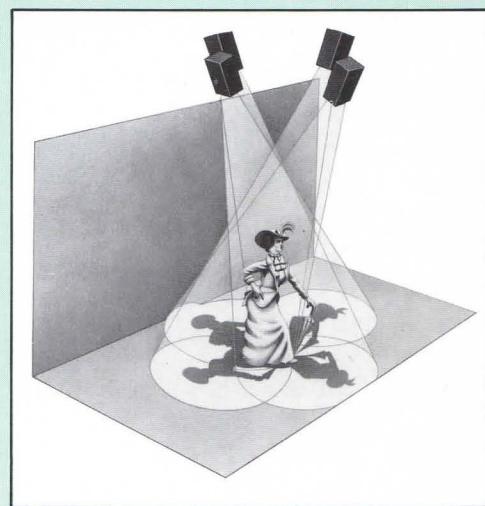
As the angle lowers, side light has an increasingly modelling effect on the actor's face and body. This is particularly important in dance. When the light becomes horizontal there will be a lighting corridor across the whole stage. By focussing just clear of the floor, it is possible to lose shadows into the wings, and the light will only be apparent when an actor stands in it.



The problem with 'crossed pair' lighting (with or without a backlight) is the extent of the spread of light on floor and scenery beyond the area where the actor's head is lit (remember that head is usually about five feet above the floor). Although a single beam can be flat, it can also be quite tight.



This flatness can be enhanced quite considerably by adding a backlight — and the selectivity is still a tightly controlled upstage/downstage corridor without side spillage.

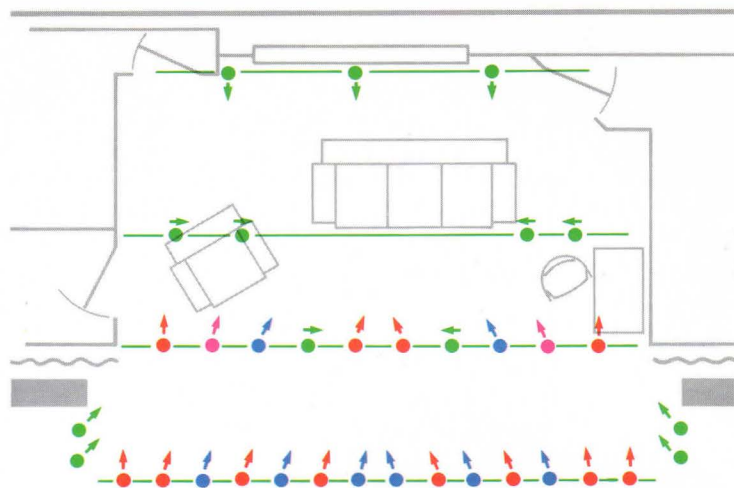


For modelling, side lights can be added and, although they will spread the lit area, they can be at quite steep angles since they do not need to make a major contribution to visibility. *Note:* the actor is now lit by four beams with a 90° separation between them.

THE DECISION PROCESS

So how does one decide where to put the spotlights? On many stages and in many auditoria there is not much choice: but, to make the best use of the positions available, it is necessary to start from an ideal and compromise that ideal to fit reality. By WHERE we mean *where to put the light* and *where to point it*. Traditional advice involves a lot of crossing of light beams — partly to help model/sculpture the actor by introducing a partially side-light angle and partly because lighting diagonally across a stage provides a bigger spread of light from each lamp: an important bonus when equipment is in short supply. But crossing the beams opens out the area lit and can cast excessive shadows on side wall or masking. And so, with spotlights becoming increasingly versatile as to beam width, there is every reason to consider using the traditionally discredited method of lighting the actor with light coming straight in from the front. Of course if this is the only light, yes it will be flat. (And if the available positions are so low that an actor shadow will be thrown on to the sky, then better to come diagonally — priorities again!) But with the addition of some backlight (even if it is nearly vertical) and some side light, the front-lit actors will come alive and the areas/shadows brought more under control. There need not be precise side lighting for every area: it can often be quite general since it is frequently more important in the big wide areas than in smaller tighter areas (more important, that is, in *priority* terms!)

In the examples shown here, the traditional crossing method has been used for the play, while the actors in the musical are lit 'flat frontal'. But it could be vice versa. Whichever way, **the next stage in the planning is to establish where the lights go and where they point.**



EXAMPLE PLAN FOR A PLAY.

For each area of our play we need two lights: one for each side of the actors' faces. When an area requires a full colour control of cool and warm, the number will double to four spots — a crossed pair in warm and a pair in cool. A spot bar immediately behind the proscenium arch will give a suitable angle for lighting the upstage areas, but for the downstage areas a position in the auditorium is necessary. Red and blue have been used to indicate warm and cool filters in the spots. Green indicates more neutral washes which have been added from back and sides. Not enough equipment? Well, do we *really* need all these areas? And so many of them with both warm and cool? (Back to priorities?) Or rather than a pair, we could use a single straight in — but if so, we must make it really straight in because a single crossing beam does not do much for the other side of the face!

ALLOCATING LIGHTING

Having chosen where the lighting instruments are to be placed, how do we choose which type to use in each position? Choice is complicated by lighting equipment being so robust that, in addition to the range in today's catalogue, many earlier models are still in use. However, lighting instruments group into families and it is convenient to consider our requirements in terms of what each family offers in terms of beam size, beam shape, and beam quality.

FLOODS

The beam size, shape and quality emitted by a flood is fixed: there are no adjusting knobs. The light is therefore suitable for lighting skies and cloths. It is not selective enough for lighting actors. Coda units may be single or grouped in 3s or 4s for colour mixing: they have a reflector which is specially designed to ensure an even wash over a large area from a short throw.



CODA I (500/200W)



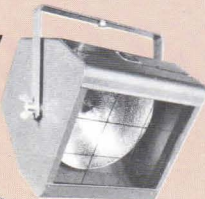
CODA 3

TODAY ➔

The basic Prelude (650/500W) and Harmony (1000W) ranges are extended upwards by the Cadenzas (2000W) and downwards by the Minims (500W)

Older floods offer less spread at close range and the light quality is not so smooth.

137



'S' BATTEN



SOFT SPOTS

Prism Convex (PC) spots allow control of the beam size, and the beam may be roughly shaped by a rotatable barn door. The quality is even and soft-edged, with less light-spill outside the main beam than in the case of a fresnel.



PRELUDE PC



HARMONY PC

Fresnels have a very soft edge. The beam angle is adjustable and its shape roughly containable by a 4-leaf rotatable barn door. The extent of the spill outside the main beam makes them unsuitable for longer throws, particularly from the auditorium.



PRELUDE F



HARMONY F

Older PC spotlights had a simple plano-convex lens which tended to give a poor quality beam with images of the lamp filament and a hard edge that was often discoloured.

43

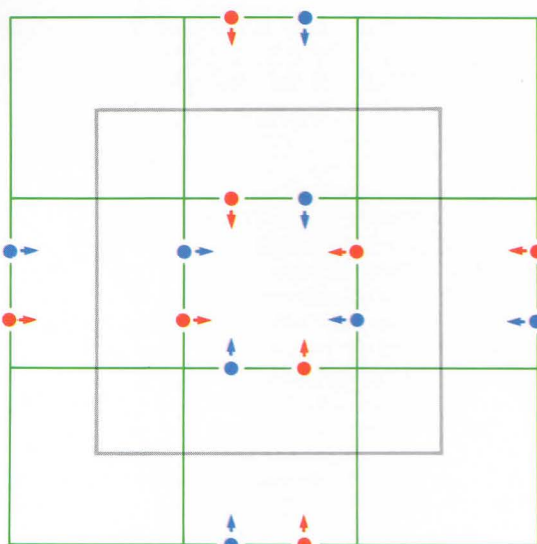


Vast numbers of these earlier models are still in use as the standard light source on many stages.

123

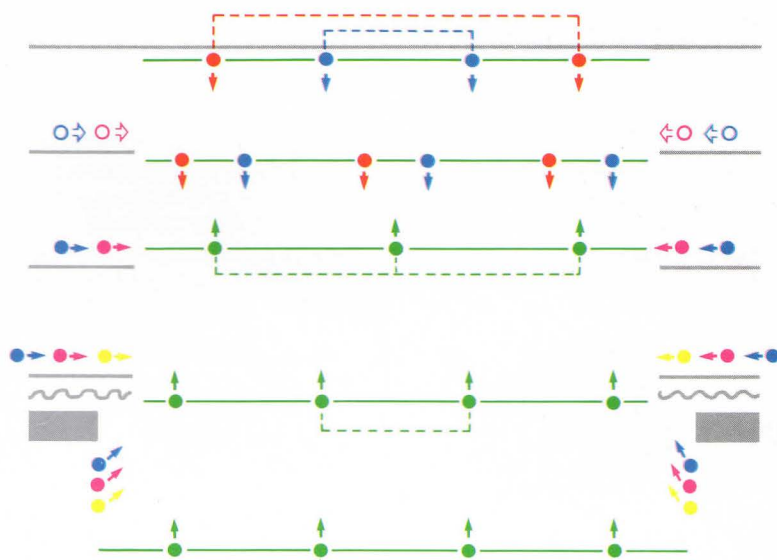


743



EXAMPLE PLAN FOR 'IN THE ROUND'.

For staging in the round, light needs to come from all sides. And it should be evenly balanced to avoid favouring one segment of audience to an extent that is not really permissible in a staging form so democratic as theatre-in-the-round. To avoid hitting into audience eyes, light has to come from both within the acting area and from outside it. Angles can be closer to the vertical than in other forms of staging because the audience are closer to the actors and thus visibility is 'easier'.



EXAMPLE PLAN FOR A MUSICAL.

In this musical the actors' visibility light is provided by spots in a neutral colour hitting straight in. The front areas are covered from the auditorium, the midstage areas from a bar just inside the proscenium, and the upstage areas from a midstage bar. If the stage is very wide, two or more lamps may be required for each area as indicated. Strong colour comes from near vertical backlights and medium colour from the wings (on stands, booms or ladder-frames to be discussed under 'rigging')

Note: For clarity, these plans only include actor lights. The play would require light outside the window and on the door backings, while the musical is likely to need a colour mix for the backcloth and possibly specials for elements of scenery.

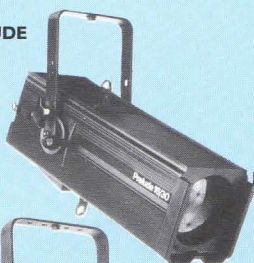
PROFILE SPOTS

Profile spots give precise control of the beam. Shapes in all sizes can be produced by an iris diaphragm (for round edges) and shutters (for hard edges). For more complex shapes, special masks can be cut. Edge quality can be adjusted from very soft to very hard by moving the lens, while the quality of the whole beam can be textured by a metal pattern plate called a *gobo*. The number in the profile's name indicates the beam angle.

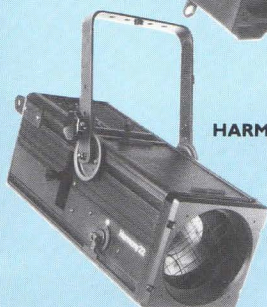
PRELUDE 30



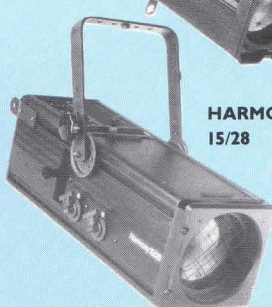
PRELUDE 16/30



HARMONY 22



HARMONY 15/28



Whereas standard profile spots have a fixed beam angle which is narrowed by shuttering, *variable beam profiles* use a pair of lenses whose differential movement gives a wide range of beam angles and edge qualities. The shutters are then only required for shaping. Adjustments are faster and more efficient use is made of the lamp's output. The number in a variable profile's name indicates the range of available angles.

BEAMLIGHTS

Most lighting instruments produce a conical beam so that the spread widens as the throw increases. Beamlights use a parabolic reflector (and no lens) to produce a near parallel beam which is more intense than a lens spotlight of the same wattage.



750

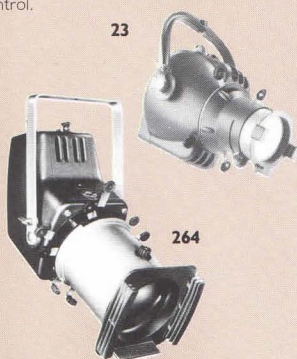
One of the most important developments of the past decade. The optics are within the glass envelope of the lamp. Various angles of a squashed near-parallel beam are available. The intensity produces a depth-enhancing haze in the air. So intense that effective with deep colours. The basis of all rock lighting.



PARBLAZER

The most successful spotlight ever produced was the pattern 23 whose run of 30 years ended only recently: its robustness ensures continuing use for as long as a lamp is available. Lamp problems will terminate the 264 sooner, but in its time it revolutionised beam edge control.

23



264

An early type of variable beam profile, affectionately known as the Teapot by many of its users.



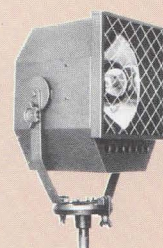
T-SPOT

The first beamlight, produced over 50 years ago and not available for the last 25 years are much cherished by their owners.



PAGEANT

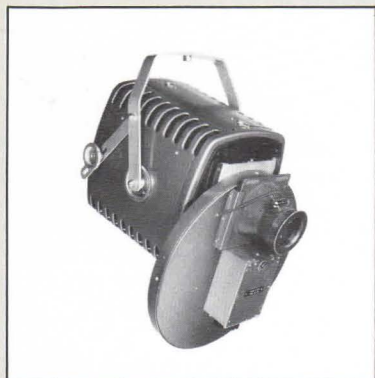
Rarely used in Anglo-American lighting, but prominent in Central European practice are beamlights using low-voltage lamps fed from a built-in transformer.



LOW-VOLTAGE BEAMLIGHT

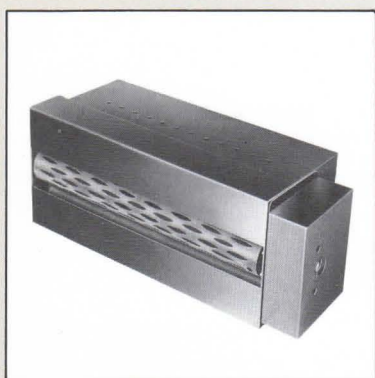
EFFECTS

Effects are best achieved by the simplest means — ripples produced by bouncing light from a tray of water, flames flickering by waving a flag cut into strips in front of a spot (this needs an operator with concentration as well as strength of arm). Beware anyone who thinks that projection is easier and cheaper than paint. And please don't upstage the actor.



252 WITH EFFECT

Fire, clouds, kaleidoscopes and various kinds of water can be produced from a motor driven effects disc fitted to a special scene projector. Usually look better when slightly out of focus and (alas for the budget) when several are superimposed.



BOX RIPPLE

A long linear lamp and a rotating pierced cylinder give a simple ripple which can be very effective at short range. Often used at the bottom of cloths, masked by a groundrow.



123 WITH FLICKER

A small motor driven disc made to fit the patt 123 gives a flame flicker (whereas the flame effect from a patt 252 shows the actual flames). With change of colour filter, makes a good water flicker.



KODAK CAROUSEL

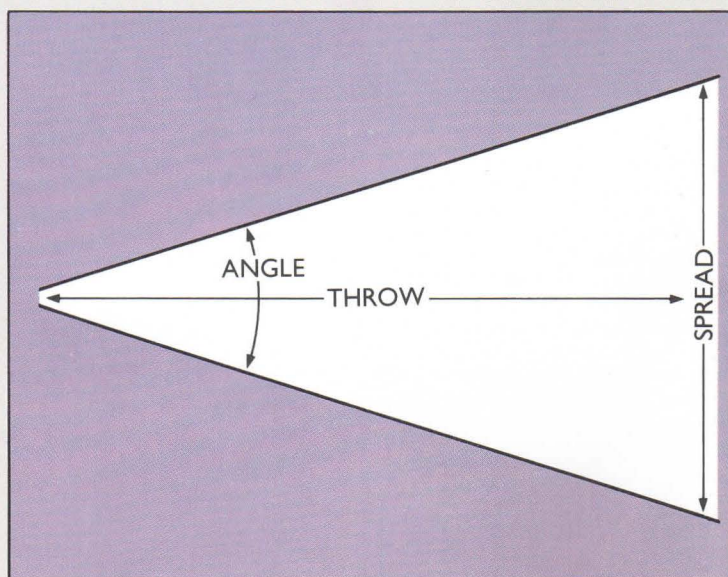
The most effective scene projection unit, using slides that are cheap and easy to prepare.

DECIDING WHICH LIGHTING TO USE

Deciding which instruments to use obviously depends to a large extent on what is available — meaning another exercise in listing priorities. For 'foh' (front of house) throws of any distance in the auditorium, profiles are essential, both to avoid undesirable lighting up of the auditorium from scatter light, and to allow sufficiently precise control of the beam to prevent spillage on to the proscenium. However in a small hall there is a lot of merit in considering fresnels or PCs (well barndoored) at close range when a lot of spread is possible from a few lamps. For onstage use, fresnels and PCs come into their own with fast-to-set soft edges — profiles are the most versatile instruments but they inevitably take longer to focus. For backlight, fresnels and beamlights are favourite, floods are to be thought of only for wide expanses of scenery. (Use for actor light only in situations of extreme desperation). For theatre-in-the-round, barndoored fresnels give the required smoothness and spread. Existing installations in most theatres and halls are likely to be based on fresnels and profiles: anyone buying new equipment should look seriously at including a goodly proportion of the new generation PCs giving smooth soft-edge beams without stray scatter light. And at the versatility of the variable beam profiles.

WHICH BEAM ANGLE

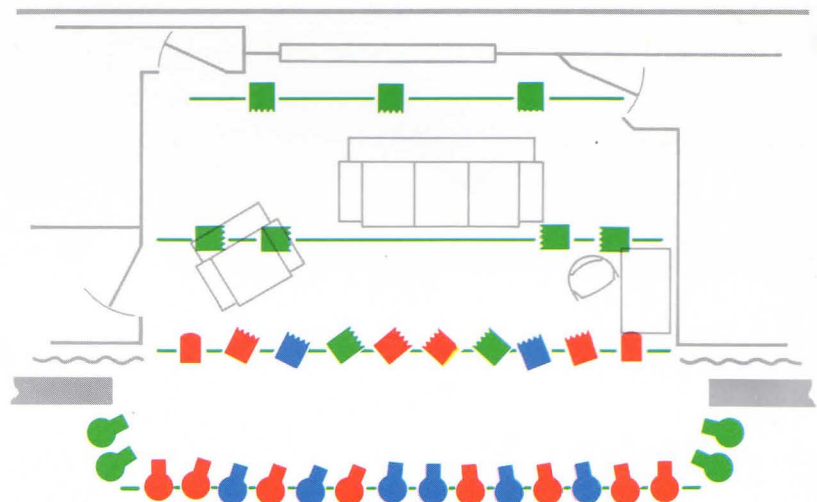
To find the required beam angle, the simplest way is to draw at a suitable scale like 1/2" or 1/4" to the foot (25 or 50 to 1 if you are metricated) the throw and required spread distances, then measure the angle with a protractor.



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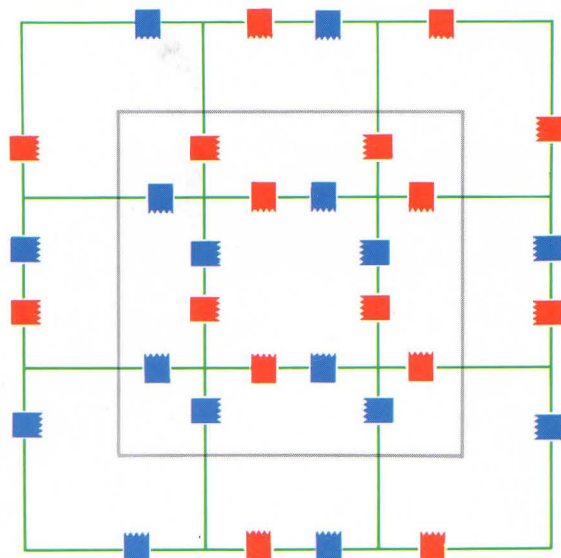
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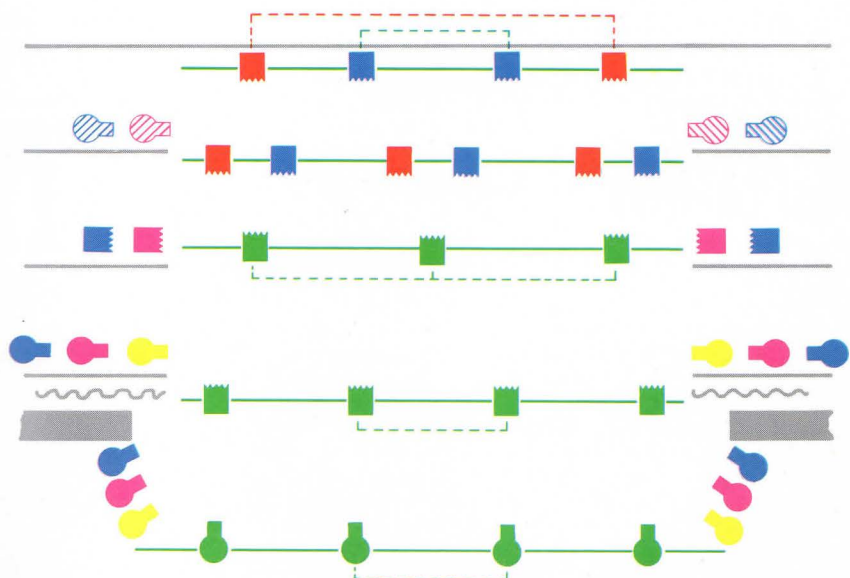
This plan shows instruments being allocated to our play in a very orthodox way: profiles for the front-of-house and fresnels for onstage. If a couple of the new PCs were available, they would be a useful alternative on the ends of the stage spot bar: this is a position where any scatter light shows up badly on the side walls of the set. Whether 500 or 1000W units are required will depend mainly on length of throw, perhaps with the changeover around 6 to 8 metres. However, it is important always to remember that the actual level of light intensity is not so important as the BALANCE.

the

SPREAD
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Fresnels have been allocated everywhere because they have a good smooth spread (profile edges can be very difficult in small theatres in the round). Every spot must have a barndoor to contain spill from the audience eyes. Each become a pair of spots since this is the only way that it is possible to light fully to the sides of the acting area. Too many spots? Then perhaps just one cover in a neutral shade (thereby halving the number on the plan) and utilising a couple of pairs of straight downlighters to add colour toning in warm or cool.



The actor face lights are profiles from the front and fresnels onstage, with the second bar being less powerful units – face light is rarely important upstage in a musical. The backlights are fresnels, although parblazers would be nice if available. For the sidelighting, profiles have been used downstage to contain the light in a tight corridor across the front – often advisable when frontcloths or running tabs are in use. Midstage sidelighting is fresnels for a good spread, while the optional upstage sidelight is again profiles to keep the light clear of the skycloth.

SELECTING COLOUR FILTERS

WHERE the lights are to be positioned.

WHICH types of light will be used in these positions.

WHAT part of the stage each light will point at.

WE NOW MUST SELECT THE ACTUAL COLOUR FILTER FOR EACH LIGHT

WHITE must be the starting point in the decision process. For white is a colour – or perhaps we should say white is the principal colour, because it contains all the shades of the spectrum. When we put a colour filter in front of a light, we are not adding that particular colour – we are taking away others. So we should start by thinking of white as the basic neutral point from which we move as the result of a positive decision. In filter terms, white means no filter. However as a light dims down, the filament becomes increasingly red until an unfiltered 'white' light becomes quite rosy. In these circumstances we might wish to add a steel blue just to correct the light back to white. Or if we wish our white to be 'whiter than white', we can follow the washing powder manufacturers and add a touch of blue.

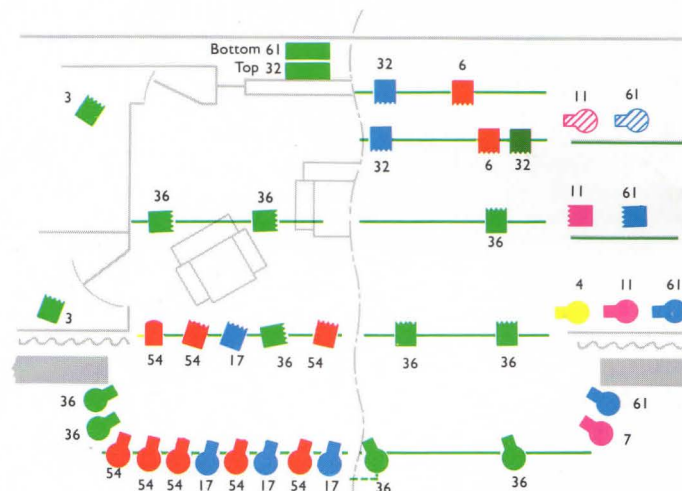
SATURATION The degree of saturation of a filter — ie how 'dark' the colour is — will effect the response of the pigments in set and costume materials. These only have 'life' if the colours in the material receive some similar colour in the light. The more saturated the colour filter, the more the proportion of the spectrum that will be held back (ie filtered out). For example the darkest primary red lets only red through, while a pale red passes all the red plus a proportion of the other colours in the spectrum. An early decision is therefore to choose how saturated our range of colours will be. The light falling on the set can often be more saturated than that on the actor — the skin tones of the actor can only in rather special circumstances stand anything stronger than the palest tints. The style of musicals usually permits the use of more heightened colour for atmosphere than does a more naturalistic play.

SYMPATHETIC FILTERS can be chosen by experiment: try filtered light on a sample of the set painting or on the costume material: quite a lot can be discovered with the aid of a torch and a colour filter sample book.

For a pale lavender to use as a neutral, 36 is a long established favourite. For a warm tint on the actor faces there is 52 (slightly gold) or 54 (slightly rose). Number 7 is about the maximum saturation of pink that a face can accept yet retain some feeling of reality. If a more gold-amber tint is required, then number 3 straw is about the maximum for faces in that direction. For cools, 17 steel is a delicate tint with 18 and 41 getting progressively more saturated. They also have a tendency to produce a greenish hue — for a more reddish-blue there is 61 which is more sympathetic to faces: it is often used for moonlight. Faces in musicals may take stronger colours such as 11 pink or even 4 amber, while 32 and 6 offer strong blue and red for backlights — or perhaps 13 a very useful good fruity magenta. 32 is also a good medium blue for skies, with 19 to give a very dense dark blue. For a green-blue use 15 although, with 39 primary green, this is really a scenic rather than actor colour. So also is 1 yellow and 34 golden amber, although both can be used in backlight (treat the yellow with great discretion!) and 34 can be a useful alternative to 4 in musical sidelights. For panto demons there is a middle green 22: for the rest of the year, a little bit may be useful for scenery.

To start a basic collection, get 36, 54, 17, 61, 32, 3. Then add 7, 11, 34, 19.

Some of the more frequently used Cinemoid filters outside the Masterline range include: the pale yellow 50 for a delicate sunshine (and try doubling it). The pale green 38 which has slightly yellowish tinge and, discreetly used, can help outdoor scenes with a feeling of foliage. For an alternative lavender neutral try 71 or 42. And for a green-blue at the bottom of the sky 16 cyan is a good mixer. Anyone who has played with colour as far as this will have gained enough experience to experiment without any further advice!



Lavender 36 is also the neutral for the musical (but it might be open white . . . ie no filter). Backlight is quite dense at 32 blue and 6 red. If Parblazers were used for the backlight, that 32 might need to deepen to 19; and if the fresnels were a bit weak, then the 6 red might have to drop to 11. In this case the 11 pink shown for the side fresnels might have to pale to 7 pink; however the 61 blue and 4 amber shown for the other sidelights would probably still be fine.

by FRANCIS REID
(published by A & C Black in London and Theatre Arts Books in New York).

THE STAGE LIGHTING HANDBOOK
(also available in Swedish)

THE STAGING HANDBOOK
THEATRE ADMINISTRATION
(available October)

Richard Pilbrow: **STAGE LIGHTING** (Studio Vista)

Frederick Bentham: **THE ART OF STAGE LIGHTING** (A & C Black)



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