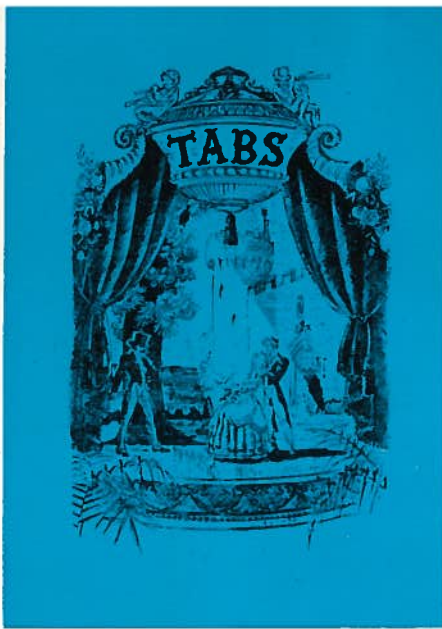


Tabbs

Stage Lighting International
Autumn 1974





TABS

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The cover photograph shows a backstage view of the complex staging for the DaSilva Puppet Company's production of *Snow White and the Seven Musical Dwarfs*, seen here on tour in Peterborough's new Key Theatre. The picture on this page, although taken from the front, is not quite an audience view of the performance: TABS has deliberately adopted a low camera angle to see the spot bars which would normally be masked from audience view.

Intellect or Illusion?

We met a sad designer yesterday. He wanted his play to look soft and hazy but it remained stubbornly harsh and clear. He wondered what was wrong with the lighting.

We ventured to suggest that the lighting was splendid (the candles had been trimmed by another hand) but that only distance could add hazy enchantment to an audience view. "Thrust it not into the laps of the audience but let it be set softly upstage (and with voice fading to a whisper as our self-confidence ebbed) behind a *false proscenium!*" He did not shout for if he has hang-ups, they are rationalised to the point where they barely hang. With patience he explained the delicate nature of the actor/audience relationship. "Rhubarb", we shouted, for we were schooled in rough theatre and our hang-ups are not well hung, "intellectual rhubarb!"

We, that is the sad designer and the hung-up editor, then partook of a couple of friendly jars and agreed to divide the acting profession into two basic categories (no, not those that can find their light and those that cannot): those who can project themselves through ten gauzes from sixty feet upstage and those who cannot project themselves when they are thrust into the lap of their audience.

Pausing to admire the last seconds of a sunset fade, which he dismissed as *lighting designer's celes- il kitsch*, we went our separate ways into the night. His moon was probably open white, ours was certainly 61: we do not know his thoughts although we are sure that he had some for it is logic rather than divinity that shapes his end. In a theatre we personally are neither logical nor divine: our response is merely sensuous. But then we pondered and without so much as the stimulus of a proffered inflated penny, we offer our thoughts to all our readers in that unanswerable form, the rhetorical question.

Not so long ago when we looked at a stage picture from the audience and then inspected the backstage mechanics, we were amazed at the illusion, the deception, the economy of painted mountain, of canvas wall, of hessian silk. Today that trip through the pass-door frequently reveals not magic but a massive heavily-engineered complex of raw material which often has the appearance of painting and the function of masking.

Why has *so much from so little* become *so little from so much*? Is it the art that conceals art? Or is it an art so subtle that it fails to communicate with its audience? Is the art of Theatre, in its inevitable alternation of action and reaction, on the brink of another major descent into scenic decadence?

The visual elaborations of restoration masques and victorian Shakespeare blurred the communication between playwright and audience; in both cases a reaction produced simpler staging. Advocates of the present raw material are vociferous in their claims of playwright supremacy: but do they in fact perhaps deny the playwright the support of the actor and that actor the support of an appropriate scenic environment? Their advocacy is persuasive and logical but do the reasonings of the mind sometimes tend to obscure the instinctive responses of the senses? Is the hunt for psychological motivation an intellectual rationalisation of the hunt for gimmickry? Have we a theatre for Theatreman and his critic friends, when we should have a theatre for Everyman and his children?

Intellect or Illusion? If intellect is an acceptable alternative to illusion at the level of art (and we have surely indicated our personal doubts), anti-illusion bears little inspection under the microscope of cost/effectiveness. Is there perhaps a degree of truth in that old managerial chestnut "Shall I see it from the Box-Office?"

And what about the lights? Surely a tool of illusion! When the decadent scenic bubble bursts, will the playwright/actor/audience relationship develop in a purely lighting environment? We think that the advance of lighting technology makes it inevitable. Shall we use the lighting freedom to create sensuous illusion or shall we abuse it by an application of man's pathetically inadequate intellect?

And then we realised that our ponderings were close to the intellectual rhubarb that we were so vocal in condemning: for theatre is surely something to do rather than something to talk about. So we ceased our ponders, said goodnight to the moon in 61 and telexed the sad designer thus: "You cannot use light to make a thrust production look soft and hazy, but you *can* use light to make a proscenium production look either soft and hazy *or* harsh and clear."

Editor : Francis Reid

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Lighting Design for Puppet Theatre

Ray DaSilva

The Author, Artistic Director of the DaSilva Puppet Company, has pioneered full-scale Puppet Theatre productions in this country. The company employs eleven full-time people and tours theatres almost continuously throughout the country and abroad, with various sizes of productions, including the largest touring puppet stage in Europe.

This article is intended for the reader who already understands the principles of lighting for the live stage and deals only with problems of lighting puppets that are smaller than life size (generally 24in. to 35in.) and does not include actor-puppet combinations.

Apart from the problems of visibility due to the size of the puppets there is the added difficulty of the smallness of acting area and often the proximity of backcloths to the characters.

In this article I intend not to make rules, but to explain how we solve these problems because, whilst our solutions are appropriate in most cases, there are bound to be cases where the director's intentions call for exactly the opposite of what follows. The scale necessitates that the normally dimly lit scenes be given more light on the puppet stage, but to make the puppets more visible is not simply a matter of providing greater intensity of illumination than that used in similar situations in the live theatre. To enhance visibility the designer for puppets will use every trick of his trade, such as slightly scaling down the scenery in relation to the characters, keeping horizons low, using slight contrasts of colour rather than close harmonies and so on, and then where possible he will design situations where the puppets can be lit separately from the sets and where this is not possible due to the closeness of the sets he will select filter colours which will enhance the characters and subdue the sets.

GLOVE AND ROD TYPES

We find that puppets operated from below (the glove and rod types) are easiest to light and the most similar to live theatre on a small scale.

Overhead battens are useful, whilst side lighting and back lighting from lanterns tucked between wings give some plasticity to the figures and help to "punch" them forward from the sets. A cyclorama can add considerable depth to the stage and act as a projection screen. Fill-in footlights are not recommended with this type of puppet as they accentuate any creases and wrinkles in the glove material. Carefully focused FOH spots are useful but a disadvantage is that the visible beams from longthrow lanterns tend to emphasise the smallness of the puppet stage and therefore limes should be avoided if possible. On our hand and rod puppet stages we include

purpose built lanterns, which basically are tin boxes holding reflector-spot bulbs and fitted with slides for colour-frames.

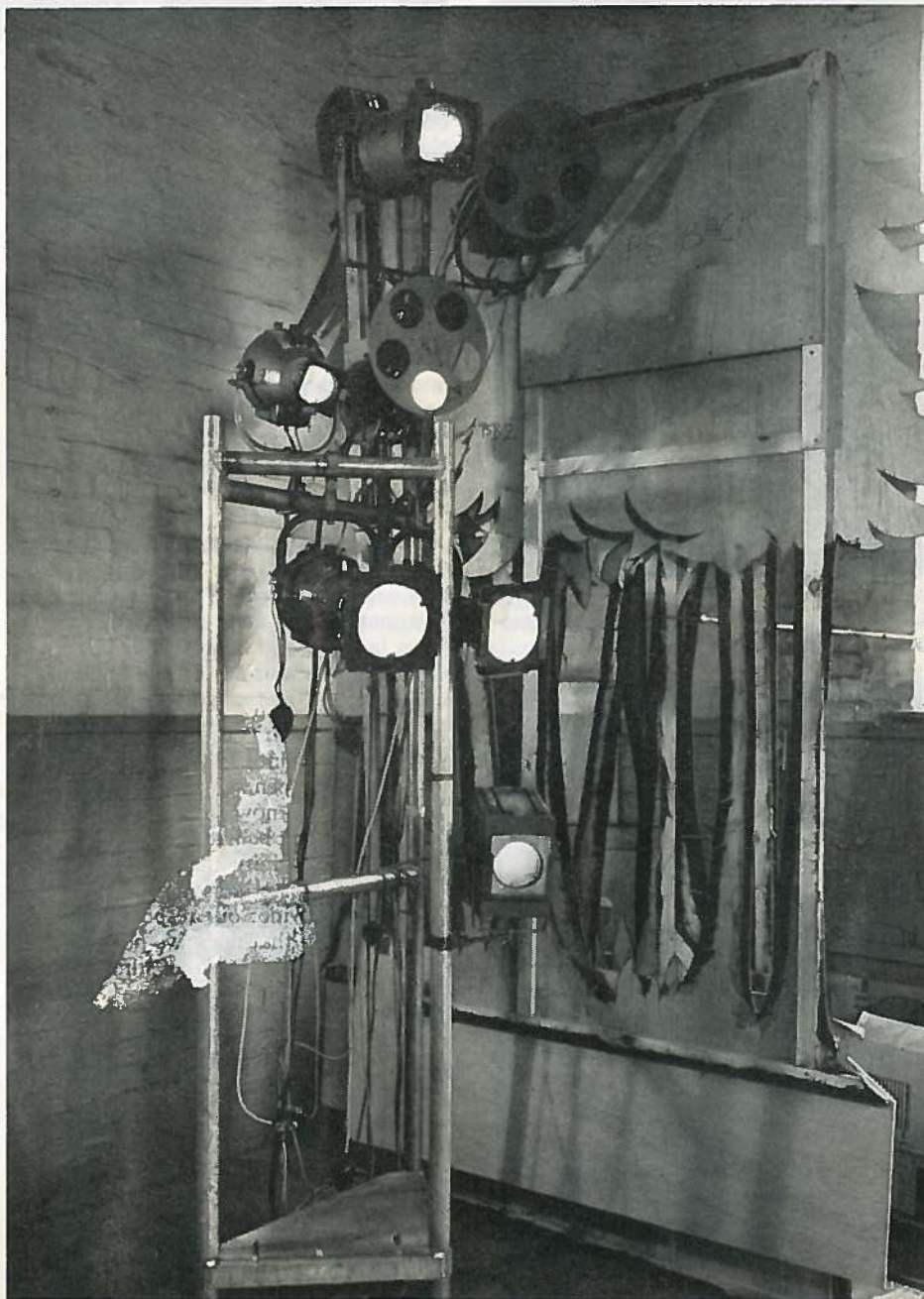
MARIONETTES

The ease of lighting this type of puppet is greatly affected by the stage design and it must constantly be borne in mind that generally the puppet can only move at arm's length from its operator.

When the operator is standing behind the backdrop the puppet will mostly be operated only about a foot away from it, and at most 2ft. 6in. Consequently it becomes almost impossible to light the puppets

separately from the sets. Carefully focused Patt. 23N and Patt. 263 lanterns can be used. A ground row and overhead "batten" of tungsten tubular lights or small bulbs near the back will help kill unwanted shadows. In this physical situation we find it helps for the sets to be quite dark so that unwanted shadows are not obvious. Often black drapes with scenic set pieces give the most effective results.

One way to increase the distance between puppet and set is to incorporate an operating bridge or bridges in the stage design but this is more difficult for a touring set-up than in a purpose built situation. A bridge



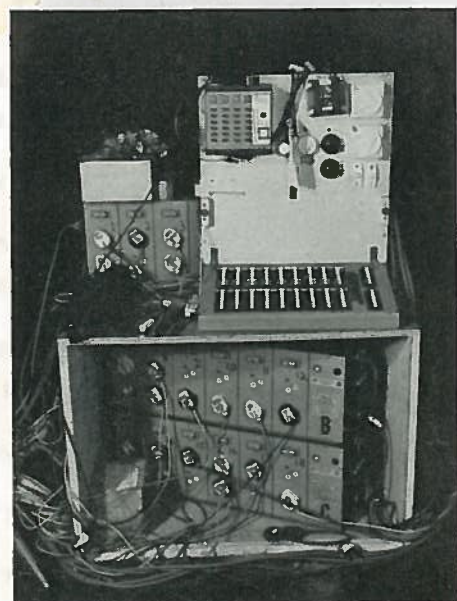
Portable lighting tower.

allows puppets to be well downstage of sets and also permits full cyclorama facilities lit from below stage level and from under the bridge floor. If the director requires the strings of the marionettes not to be seen then low level spots are used but generally in our style of presentation we ignore this aspect and sometimes deliberately put white strings in front of a black background as part of the overall design.

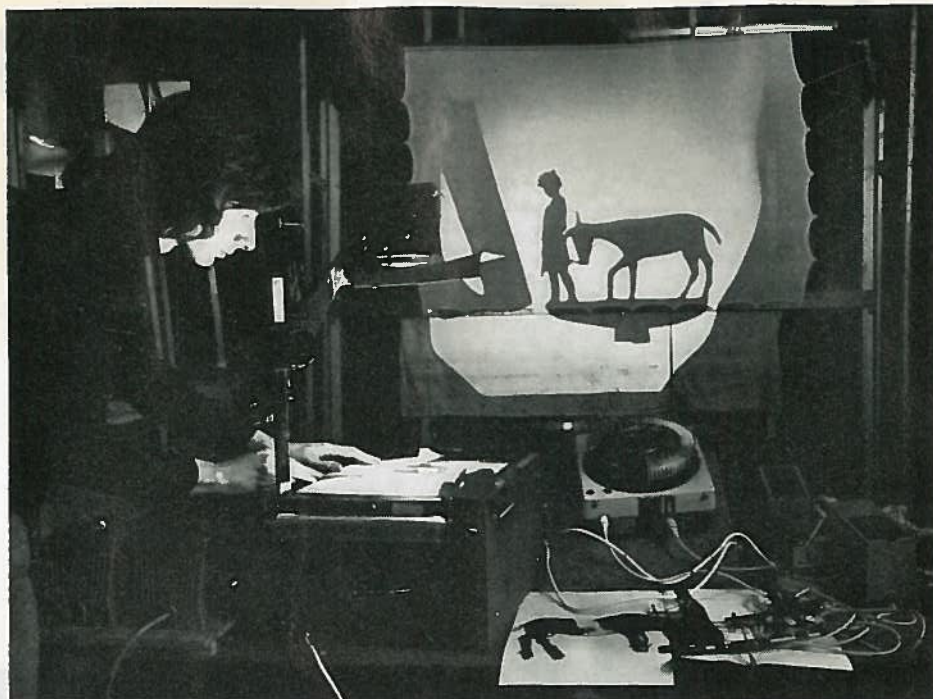
The cover picture shows a side view of the stage the DaSilva Company uses for its presentation *Snow White and the Seven Musical Dwarfs*. Most of the Patt. 23 spots have remote controlled colour wheels in order to save valuable hanging space and weight in touring. The pushbutton type control for colour wheels is preferred



A Puppeteer's view from the bridge. While one operator works Marionettes from above, four others work Rod puppets from below.



For ease in travelling, the Mini 2 Desk with its 18 dimmers is mounted with the colour change box and auxiliary switchgear.



Shadow puppets.

because our board is on stage and the noisy clicks of the rotary switch type can be heard out front.

We also use front of house positions, usually from the sides fairly close to the stage for lighting our apron. A disadvantage of this occurs when we occasionally play in certain civic halls with resident electricians having little or no knowledge of theatre. It is then simpler to connect the house positions to our board to give us complete control of the lighting and therefore a thyristor dimmer (we use an 18-way Mini 2 combined with a patching system) with a wide range of handling (15-2000 watt per element) is useful. These light weight units have the advantage of being simple and foolproof because in Puppet Theatre jobs are less defined than in live theatre. The puppeteers need to know how to focus lanterns and operate the board, and the lighting technician is often doubling as stage manager and might even find himself with a puppet on one hand, a dimmer lever in the other whilst pulling a curtain cord with his foot.

SHADOW PUPPETS

Shadow puppetry in which shadows of the puppets are cast on a screen is a separate consideration. The usual arrangement is to have flat articulated cut-out figures operated behind a screen with the audience in front. There are two basic methods of lighting, first with projectors and simply holding the puppet in the beam of the light, the nearer to the light source the larger the shadow becomes. Secondly, by diffused light when the shadow is only seen when the figure is in close contact with the screen. Experiments have also been made with forms of rim lighting whereby spots are placed around the screen so that the light skims across the back surface and illuminates reflective objects (such as flexible metallic strips) placed against the screen.

Practically all special effects used in live theatre can be used on the puppet stage to great advantage, often at a fraction of the cost, although looking at the equipment we sometimes have to carry and comparing this to the small amount available in many of the new civic theatres makes me wonder how a live show succeeds.

Sightline

The ABTT members' magazine has had its ups and downs: the peak was probably John Wyckham's May 1967 issue, eminently readable with a good balance between Association news, technical theatre philosophy and nuts and bolts. The difficulty of finding an Honorary Editor with enough time on his hands to produce regular issues on a mini-budget has led to a certain lack of continuity in the past. But with Fred Bentham on the retired list (although the word retired is somewhat nominal, because FPB appears to be as active as ever!), the ABTT have acquired an editor of impeccable credentials.

His first issue of the ABTT Journal, now to be known as *Sightline*, contains illustrated reviews of three new 1973 theatres (in Aberystwyth, Cardiff and Leicester) and there are accounts of three London ABTT meetings. That these accounts read rather better than one's memories of the actual meetings is a tribute to the skilful editing of the tapes! As *Sightline* is at present restricted to two issues per year, items of more immediate news interest are to be circulated with the monthly membership mailings. It is to be hoped that somewhere along these lines of communication, the ABTT will concern itself rather more with the nuts and bolts of technical stage production: *Sightline* tends to emphasise the impression that ABTT is an Association of Theatre Technical Managers, Manufacturers and Theoreticians, rather than an Association of Theatre Technicians.

F.R.

Sightline is free to members of ABTT. Available on annual subscription of £1 to non-members from *Sightline*, 9 Fitzroy Square, London W1P 6AE.

Getting Organised

by FRANCIS REID

FIRST STEPS IN LIGHTING MANAGEMENT

The Loamshire Thespians have quite good lighting on opening night. But have you ever been to their Dress Rehearsal? The lighting may be all right on the night but, long before the curtain goes up, the cast have more than a mere touch of the screaming twitters and the producer is under heavy sedation. Their electrician knows his equipment; he has imagination, flair, instinct, inspiration. . . . you name it, he has got it. Everything, that is, except organisation.

When the dress rehearsal is scheduled to begin, he is changing a plug. He spends a lot of time changing plugs. And changing fuses and dismantling the switchboard. Sometimes he even replaces a 100-yard cable run before discovering the fault. But the fault is always the same: he forgot to put a lamp in the spot. When he has got it all working, he rehangs the spots in different positions and when the vital cue comes, he is up a ladder changing colours. And around closing time, it becomes clear that he has completely misunderstood the producer's requirements. But it is all right on the night.

In staging a show, every department needs organisation, but the electricians department needs more than most because they can only really do their thing when every one else has finished doing theirs. Time is the enemy and time creeps up fastest and most devastatingly on the electrician. Consider the situation.

The actors have a lot of rehearsals and if one or two of these (actors or rehearsals)

are total disaster, all is not lost: there is time for a rethink. Scenery can be sketched, it can be marked out on the floor (any floor) and the problems of moving between sofa and drinks table can be discovered. If the first choice of paint is awful, there is time to experiment with an alternative. Costumes can be fitted in time to be altered. Props can be chosen and changed.

But what about lighting? Most dramatic societies can only get access to their stages at the last moment; quite possibly at the weekend immediately prior to performance week. There is, to put it mildly, a lot to be done. The lighting cannot be done properly until the scenery is up and by then the actors are leaping about, eager to dress rehearse, with merry shouts of "I didn't know the door was going to be *here*" and "What a *ghastly* sofa" (Exit Mrs. Prompter whose parlour has cherished that offending furnishing since the dawn of time.) Do we delay the dress rehearsal to let us do the lighting properly? Or do we bodge up the lighting as we go? We usually, inevitably, settle for a compromise. And that compromise should be to finish the ladder bit.

Get most of the lights working, coloured, and focused on the correct part of the stage. Then we can use the switchboard to experiment during the dress rehearsals and give the actors a tolerable idea of what it will be like on the night.

You cannot light well on paper, but you can *plan*. Lighting a show needs equipment, people, know-how, imagination, experience . . . BUT above all it needs *organisation*.

I will not concoct another version of the Inspiration/Perspiration Gag: let me just make a few points about organisation.

THE PLAY

Read the play. Beware any printed lighting plots in the acting edition: your producer's interpretation may be quite different.

THE PRODUCER

Discuss with the producer. If any of his ideas are too ambitious for the equipment available, try to avoid splashing cold water immediately but go away and think it over. Come back with constructive suggestions next week.

THE SCENERY

Discuss with the scenery department. Persuade them to draw a ground plan. Show them how building the set to suit the lighting will make life easier for them. Explain the horrible lighting that must result from having pale pastel bare undressed walls on a small stage.

THE LIGHTS

If all or any of the lighting equipment in the hall is movable, decide where you are going to put it. Draw it on the ground plan. Always draw the non-movable stuff first: this makes the plan take shape quickly, you will begin to feel good and, if you are like me, you will tell yourself that you deserve a pint of congratulations. Then draw in the movable equipment. For this you will require a pencil, an eraser and a flagon of black coffee.

THE COLOURS

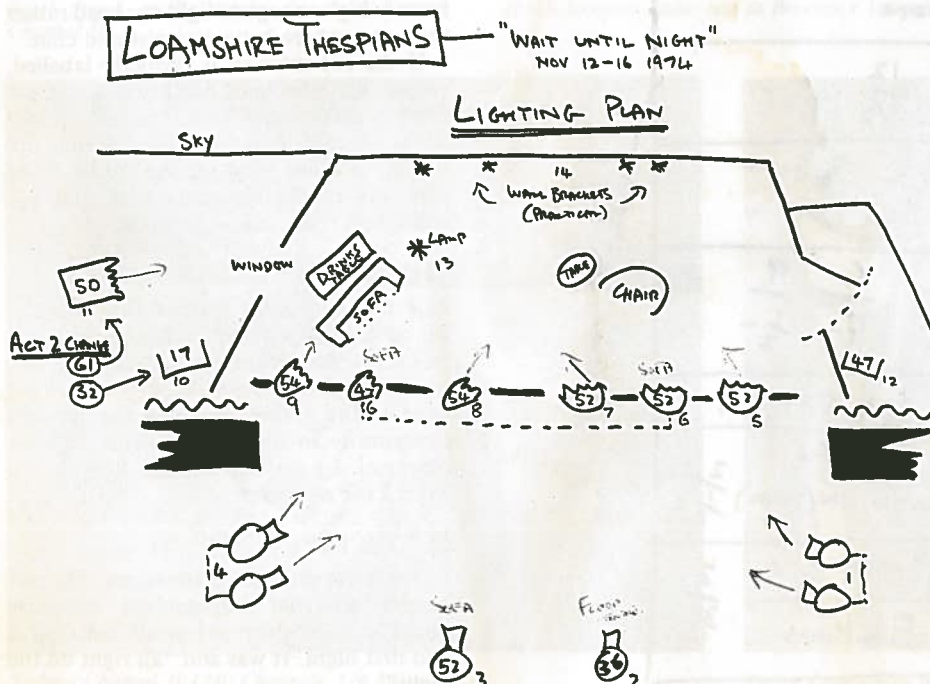
Decide on a colour for each lamp. You will have to change a few colours during rehearsal, but it is always better to modify an existing plan than to have no plan at all.

THE PLAN

You now have a paper plan showing where each lamp will be positioned, which switchboard circuit it will be plugged into and which colour will be in its frame. Beside each lamp draw an arrow showing where it points and pencil in where it is focused, e.g. *Chair down left* or *Desk up right*, etc.

THE CHECKING

- Time to check the equipment. Has each spot got a lamp? Is it a good lamp? Are the reflectors and lenses clean? Are all moving parts (focus knobs, lens-tubes, etc) able to move? Does the tilt locking device actually lock? Is there a nut for the hanging bolt? Has it got a plug? Is it the right plug? Does it light?
- And is the switchboard working? Did that cup of tea, accidentally poured into dimmer 3 on the final night of the last show, do any lasting damage? Any blown fuses to mend? Spare made-up fuses ready?
- Light and switchboard produce nothing without cables. Rubber perished? Plugs on? The right plugs? Properly on?
- Colours cut to size?



ACT TWO

LIGHTING CUES

<u>PAGE</u>	<u>Q</u>	<u>TIME</u>	<u>EFFECT</u>
42		OPENING PRESET	MOONLIGHT THRU WINDOW HALL BACKING ON
42	1	SNAP	STANDARD LAMP ON SOFA AREA [SOFT (ROMANTIC)]
43	2	20 SECS	CHEAT UP FRONT CENTRE + DRINKS TABLE
45	3	SNAP	WALL BRACKETS ON EVERYTHING TO ABOUT 3/4
47	4	30 SECS	BUILD NEARLY FULL FOR TROUSERS COMEDY(?) BUSINESS

ACT TWO

SWITCHBOARD PLOT

<u>Q</u>	<u>TIME</u>	<u>ACTION</u>
0L	PRESET	$\frac{11}{F}$ $\frac{12}{1/2}$
1	SNAP	$\frac{13}{F}$ $\frac{6}{3/4}$ $\frac{3}{1/2}$
2	20 Sec	$\frac{3}{3/4}$ $\frac{6}{F-}$ $\frac{9}{1/2-}$
3	SNAP	$\frac{14}{F}$ $\frac{1\ 4\ 5\ 7\ 8\ 9}{3/4}$ FOLLOW ON (CHEAT) $\frac{2}{1/2}$
4	30 sec	$\frac{1\ 4\ 5\ 7\ 8\ 9}{FULL MINUS}$ $\frac{2}{3/4}$

THE RUN THROUGH

Last week of rehearsals. Let's hope the actors are having a non-stop (well almost non-stop) bash at the play. We sit beside the producer. From time to time he mutters in our ear. Members of the cast greet us with the usual remarks "Ah, it's *you* that's going to make us all look lovely", "You'll have lots of problems lighting my great Grandmother's button-boots in Act 2", and "Hello, old boy, all ready for lots of the usual bangs, sparks and flashes: brought lots of shillings for the meter, eh?" We go home to modify the plan.

THE CUE SHEET

Now we can prepare a list of cues. Not the actual lamps that will be used on each cue, just a description of each lighting change, its position in the script, and the timing. I like to make this list in discussion with the Producer and there is a lot to be said for holding this conference on licensed premises. Once again we go home to modify the plan.

THE FIT-UP

The great day dawns: we get possession of our "Theatre". Only a grand piano and forty chairs to clear from the stage before action can commence. If the planning was good, we might get all the lights in position, coloured, and on their correct dimmers without the use of a screwdriver. Or that should be our ideal.

THE FOCUSING

Time is running out. Our head is a-buzz with problems but THE PLAN tells us what to do. Of course, we will make the odd modification. That Patt. 23 on the wall will not light so far to its own side as we had hoped; we knew that the space between the French windows and sky would be tight, but nine inches is ridiculous.

We do not try to be a one-man-band for the focusing. We do not, personally, push up the dimmers and climb the ladder, as well as stand on the stage to check if the beam is high enough to light our head rather than somewhere between waist and chin.

If the switchboard is properly labelled, young Sue who does not know a current from a currant can switch on any circuit when we call its number. And young Bill is getting quite good up the ladder if we give him intelligible instructions like *up, down, left, right, bigger, smaller*.

THE DRESS REHEARSAL

Not too agonising. Rather fun actually. Bit of a drag rushing back and forwards from the backstage switchboard to see what the lighting looks like. Pity we did not have a Mini 2, then we could put the desk temporarily in the middle of the hall for rehearsal. I wonder if we could *organise* a Mini 2 for next year.

POSTSCRIPT

I nearly forgot the performance. Do not believe all that unorganised nonsense about a good dress rehearsal meaning a bad first night. It was *still* "all right on the night".

Modular Memory Marches On

MMS is now operational in two of the world's major Television Centres. In addition to the London and Sydney studios illustrated here, and to the BBC Cardiff and Birmingham Hippodrome installations pictured in April TABS, MMS is now on-site (early July) in Melbourne ABC, Mexico City Cultural Arts Centre, Manila Folk Arts Centre, Klagenfurt Stadttheater, Bradford Alhambra and South-end Cliffs Pavilion.

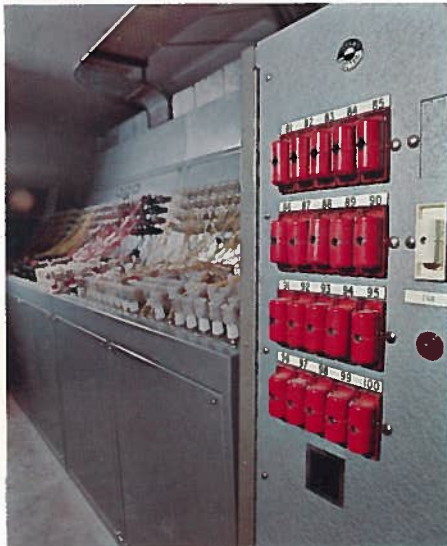
Television models are under construction for the Australian Broadcasting Company in Perth, Sydney, Brisbane, Adelaide, Hobart and Canberra; Melbourne & Sydney Channel 7, Singapore Studios 1 & 2, TVW Auditorium Perth, TV Dubai, and TV Kuala Lumpur.

Theatre Systems are being built for the Royal Festival Hall, Round House, Dominion, Casino, Prince of Wales and Victoria Palace Theatres in London; Rogoland Theatre in Stavanger, National Arts Centre in Ottawa, Bella Vista Theatre in Sao Paulo, Baden-Baden Studio Theatre, Vienna Stadthalle and Nice Casino.

Meanwhile in the software technology division of the *Memory Revolution*, DDM is about to pop-up all over Germany; and the Special System for the South Bank National Theatre is taking shape. TABS will report.



BBC Television Centre Studio 5 (104 Channels, 140 Memories).



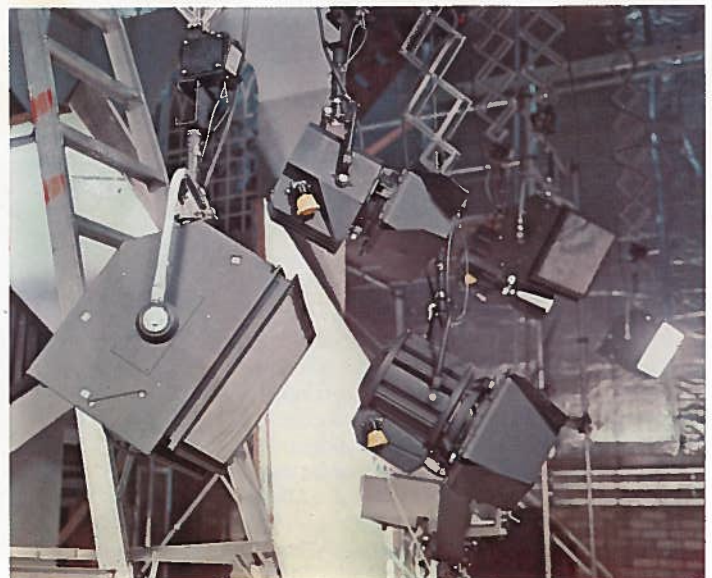
Patch Panel in the dimmer room at Sydney Channel 10.



MMS Systems under test in Brentford Laboratory.



Sydney Channel 10 (240 Channels, 128 Memories).



Janiro Luminaires in studio at Sydney Channel 10.

Lighting on the Move

by FRANK DAWE

Light and sound, colour and music, are closely related in nature and occur in combination in all our surroundings. An environment with sound but in total darkness or one that has light but is completely silent is both unnatural and disturbing. Most persons conjure up in their minds a picture of some sort when listening to music.

It is therefore not surprising that there have been many attempts over the years to mix the two art forms. This has been shown in sentimental references, such as Whistler's



tendency to call his paintings "Nocturnes" and "Symphonies". The French poet, Rimbaud, translated vowel sound into various colours. Beethoven noted that B Minor was a black key.

HISTORY

The invention of a machine that could play music and colour is credited to a French priest, Louis Castel, in the year 1734. He used transparent coloured tapes attached to the wires of a keyboard so that they became visible only when the corresponding notes were played.

It was not until the mid-19th century that the concept became of general interest. Books then began to appear advancing the theory that music and colour have an analogous relationship and should be combined. Typical books are J. D. MacDonald's *Sounds and Colour* published in 1867, F. J. Hughes' *Harmonics & Jones* in 1883, and D. D. Jameson's *Colour Music* in 1884. Concert tours by colour musicians, such as Thomas Wilfred and

A. B. Klein, became popular.

In one version the keyboard controlled a series of gas jets, each in a tinted pipe. When a key was depressed a flame would rise in the appropriate pipe. As it burned brighter it started the air vibrating in the pipe and thus produced tones. Each pipe glowed in varying intensity with the changing intensity of the music.

In 1934 Israel Shamah demonstrated at Harrods what could be regarded as the forerunners of the modern discotheque lighting equipment, two types of light box and a pattern projector, each coupled to a keyboard. Shamah foresaw the day when every home would have one and proposed



The original Strand Light Console of 1936.

to mass produce them at about £30 each. Unfortunately, the venture fizzled out through lack of public interest.

In 1936 Frederick Bentham designed a Light Console for the dual purposes of colour music and theatre lighting and such was the excellence of his design that some are still in use. The Drury Lane Theatre currently uses one with 216 dimmers.

Around 1937 the "Light Console Society" was born. It grew to about 100 members and gave a series of colour music recitals over a two-year period using a Strand Light Console.

The relationship between colours and musical pitch varied largely according to

the whim of the designer. Professor Remington of Queens' College, noted that the frequency range of visible light covered about one octave and related this to one octave of the musical scale, matching deep reds with middle C and deep blue to the first octave above middle C. Other colour musicians, in particular Mary Hallock Greenwalt, have challenged this relationship and maintained that no sound finds an exact counterpart in any one colour. She found that few musical compositions excite the same sensation in every director or performer.

Interest in colour music has further increased in recent years. It is widely featured in television shows, at international exhibitions, at art displays and has become a vital part of most discotheques and ballrooms.

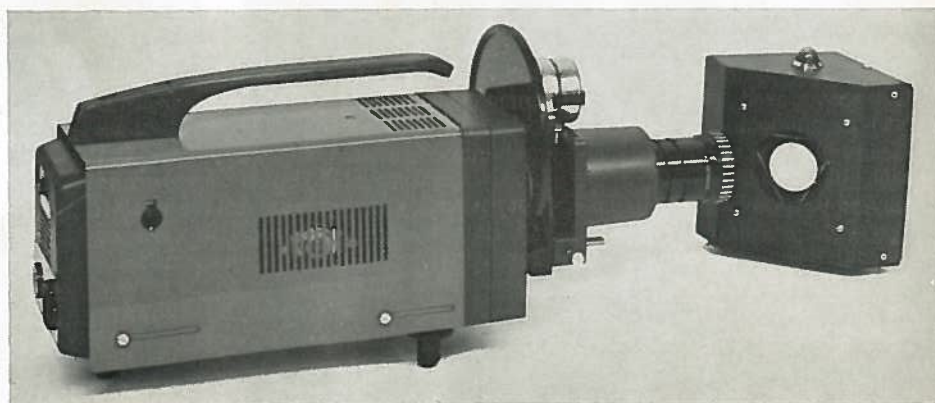
CONTROL SYSTEMS

Sound can be made to control lighting in various ways. In its simplest form the total sound intensity, irrespective of tone or pitch, can be made to change the intensity of a lamp, or, alternatively, to change the



Frederick Bentham's Tchaikovsky setting.

relative intensity of two lamps of contrasting colour. A second method is to pass the audio signals through a filter system to separate the sound into several channels. These separate channels are connected through switching triacs to the



The Rank Aldis Tutor II can be adapted to produce complex dancing patterns from the rhythm of an audio signal.



Colourgram being used for voice training by deaf children. The pupil tries to imitate the Light Pattern produced by the Teacher's voice.

control circuits of different coloured lights.

Each colour channel thereby responds to a different tone group. Bass notes (bass guitar and drum) control one channel connected, for example, to red lights, a middle channel picks up mid-range notes such as the male voice and rhythm guitar operates green lights, and the upper or treble channel which reacts to such sounds as the female voice and cymbal causes blue lights to operate.

The number of channels can vary from one to eight or even more. In practice, a very satisfactory relationship between sound and colour can be achieved with three and four channels.

One practical difficulty of translating sound into colour lighting effects, is that sound has an intensity range of about 1,000 to 1, whereas a filament, or fluorescent lamp can only show a change of 5 or 10 to 1. This problem is overcome by incorporating in the amplifier system of the electronic converter an automatic gain control which converts the 1,000 to 1 audio input to a 10 to 1 light output.

Experience has also shown that the direct translation of rapid sound signals into equivalent light changes can be satisfying for the teenage dancer but distracting and irritating for the older person. The solution adopted on the Lightomation Colourgram 4 is to incorporate a slow/fast switch to smooth out the abrupt passages. An alternative compromise that has been adapted in some Sound to Light equipments is to make the initial response fast but then to tail slowly away.

A third method of presenting sound as a light effect is to make it create outlines

which change shape with the musical score. These equipments use a narrow beam of light with a mirror system which draws patterns whose shape varies with the type of sound. The Lasergram and Musical Graphics are equipments in this group. The former employs a low power helium neon laser as the light source.

Yet another procedure is to use impulsive sounds to sequentially switch a series of



A 4-channel colourgram offering auto-dimming, sequencing and impulse switching.

spot lights, each showing a different scene or colour—an Audio Sequencer.

CONTROL OF SOUND "POLLUTION"

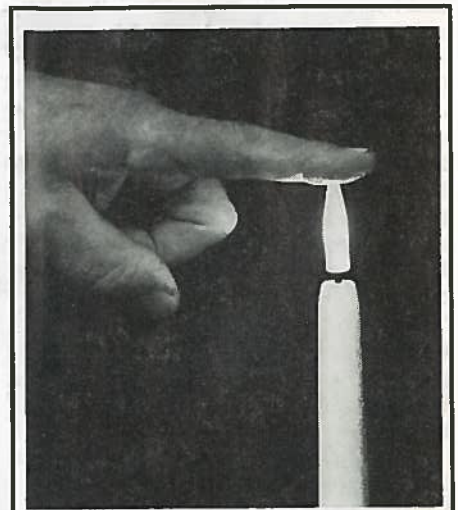
Whilst sound to light effects and their high intensity amplifier systems are sweet music to some they can be distracting and a source of severe irritation to others. The sound can even penetrate to nearby premises. For this reason some authorities and building owners have established a maximum sound intensity that must not be exceeded. An equipment is now available—

the Sound Sentinel—which when the pre-determined sound level is exceeded switches on a warning lamp and if this is ignored the power to the amplifier system is then automatically disconnected.

SPEECH TRAINING

The main application for Sound to Light devices has been in the entertainment field. However, this equipment also has a valuable application in speech therapy—the speech training of deaf children. When a word or phrase is spoken into a microphone connected to a Colourgram the lamps are illuminated in the tone sequence and colour according to the frequency of the tone content of the sound. In practice, the pupil tries to imitate the light pattern produced by a teacher's voice.

The author is Managing Director of Lightomation Ltd., whose Kinetic lighting products are marketed by Rank Strand.



Flame Without Fire

Sweden has produced a new answer to that old stage design problem: the Candle. Introduced in 1973, the CIMA electronic candle has been installed in all the fixtures and brackets of the historic Drottingholm Theatre and is now finding widespread use on the stage and in the studio. A CIMA candle consists of a candle body of polyamide plastic resembling a stearin candle in form and colour. On top there is a "flame", a bulb of 3 watts made of matt glass, shaped as a real candle-flame and having the same intensity. This "flame" is fixed to a sprung pendulum in the candle body. At irregular intervals (23–28 seconds between the impulses), the pendulum is given an electronic "puff". The "flame" then swings on the spring and it "flickers". The candles can be used in all types of lighting fixtures, brackets etc. intended for wax candles and having candle holders of diameters between 18mm and 23mm. The candles are intended for 24 volt AC, although it has been found that they can be over-run to 35 volt for TV purposes.

Travels of a Lighting Designer

RICHARD PILBROW

Wednesday Night, Kennedy Airport, New York, USA.

"Fasten your seat belts. No smoking." Fred, a lighting designer from Theatre Projects in London, leans back in his seat very, very tired. He looks around and finds himself the only passenger in the rear section of his monstrous Jumbo jet now hurtling down the runway. 80 seats to stretch out on, and half a dozen air hostesses to minister to his wants, seem a welcome change from the lunatic bustle and hysteria of the musical he left an hour ago in its second week of previews before opening on Broadway. If a "bomb" (American style—meaning disaster) it'll cost somebody nearly a million dollars, and if a "bomb" (English style—meaning a hit) it'll probably make a million. Fred has been in the States two weeks on his fourth trip over the Atlantic for this production, and now he has to leave. The opening night has been postponed a few more days, but the show has settled down and at home "duty calls". His smashing assistant (employed as routine by the New York producer) will see the show through its last few previews and then keep an eye on it through the hoped-for run.

We're off, and Fred puts his watch forward to five past three a.m. Lighting in New York is a mixture of great excitement and frustration. The present musical is an intimate intricate, yet spectacular multi-media production—a mass of projection, lighting and special effects. Technically it's gone well and the creative team of director, designer and lighting designer are satisfied.

Stage lighting is highly regarded in New York. The profession of the lighting designer is a good one. Every New York production has to have a lighting designer and an assistant by rule of the United Scenic Artists Union, but managements feel not only compelled; they *want* the best in lighting and recognise the vital contribution it can make to a production. The need for lighting design is totally recognised and the equipment with which the designer works is generously provided. No Broadway theatre has permanent equipment, so all the lighting needed is shipped in for each production. So too are the crew, a practice that results in each production having its own highly skilled professional electricians who travel and stay with the show rather than with the theatre. This has produced a breed of fine craftsmen committed to the show on which they are working—fast, efficient, competent and determined, and a great team for the designer to rely on.

Ironically, there is one great shortcoming in the field of lighting control. Because all the equipment is temporary, and many

of the theatres use direct current, Broadway still stands in the dark ages of the resistance dimmer. Amazingly, modern techniques have been introduced to handle scenery movement (remote control electric winches, etc.), but lighting is still worked by resistance dimmer "piano" boards. Like great upright pianos, these monsters stand in basement or gallery connected by miles of thick black cable, snaking across the stage to their "instruments" (lanterns, luminaires, etc). Each pair of piano boards are worked by one electrician, but perhaps worked is an understatement for the Kung Fu, all-in wrestling that can be witnessed between man and machine in an elaborate production. Indeed with the finest crewmen it can almost appear to be a Stone Age memory system since the whole lighting plot might be learnt and performed by memory, sometimes an amazing achievement!

It's hard for Fred to refuse an unpleasant British Airways dinner when there are eight people trying to serve him, the only customer, so picking at the brown wedge of polystyrene steak, he ruminates. How odd that America, the leader in electronic technology, should be, by comparison, so primitive in lighting control. And yet from what small beginnings are such differences of technique born. Remote control of dimming, albeit initiated by Fred's namesake, the Bentham, many years ago, probably owes its development in the UK more to crass commercial pressures rather than to any concern for the art of lighting. Through the fifties many London theatres saw themselves re-equipped with Consoles, CDs, etc., because the theatre owner who supplied the equipment and the men (as opposed to New York where the producer did both) saw the chance for economy. Many of those great old "Grand Masters" requiring two, three or four men were removed and single operator consoles took their place. Strand Electric led the way in a technology which was exactly what the English television industry needed as it began to expand. The new medium made yet greater demands and a developing cycle ensued resulting in England's present leadership in the field of sophisticated memory lighting control systems.

The profession of the lighting designer in England has come a long way in fifteen years. Inspired by America and still led by them in terms of professional recognition, the profession has become an established one in England with its own organisation, the Society of British Theatre Lighting Designers. Started in 1961, it now has a membership of 34 and exists to improve the standards of the profession of the lighting designer and his work. The Society



John B. Read—Lighting Designer of The Good Companions (photo Zoë Dominic).

meets monthly and has a programme of technical lectures and discussions as well as encouraging the interchange of information about working conditions, contracts and so on. Lighting design in the theatre is still, however, only a vocation for the enthusiast. While its material rewards have improved over the years, that improvement has only been modest and probably not greater than the rise in the cost of living. An awareness of the need for lighting is growing and the working conditions of the designer have to follow.

Strangely enough, the designer can increasingly look outside the United Kingdom for work that can provide a reasonable income. British lighting design has become an export industry and the demand is growing. Every month throughout the last year, one or more lighting designers have set off to foreign parts to exercise their skills. Internationally there is a growing sense of the contribution that "new lighting" can make to the theatre.

The only trouble with working abroad is that it means travel. Fred squints at his watch in the half-light. Half past six and a long way to go. Oh God!

Thursday

Fred, feeling even worse, gets himself home from the airport. A bath and a shave make some modest improvement to his condition and then off to the office. A glimpse through an over-large pile of letters, then to the Coliseum to meet the director and designer of a new opera, opening in a few weeks time.

A lighting designer is called upon to work

on many different types of production and in many different theatres. The key to success in all of them is the relationship he has with his colleagues on the creative team. This opera is with two old friends with whom Fred has worked upon many productions, large and small. This is the second meeting on the present project and there have already been long talks about the intent and purpose of the opera and the overall style of the production. A rough model is discussed. Little cardboard figures are moved around and each scene analysed. Fred is pensive and watches quietly. Maybe its the lack of sleep or maybe. . . "Hang on, fellows". He suggests an idea—a style for the lighting that would frame the production and perhaps allow a heightened emotional focus to be obtained. This idea is thrashed about, changed, modified, and then decided on. For Fred it is the key to an idea as to how lighting might be used to build the appropriately abrasive atmosphere for the modern music and support the singers in their task.

Next, to LAMDA, a drama school with a technical training course run by Theatre Projects. Three hours on lighting design with the first year class. Difficult to feel fresh but this is important. There's no formal way to study stage lighting in England—not like in America where you can go to University and take a degree course in the subject. Here one can only



Photo Zoë Dominic

go to drama school and start on a stage management career, or start as a junior electrician, and in both cases hope to make the transfer to lighting. The Arts Council offer one bursary a year to a potential designer and some practising designers take on assistants, but the opportunities are few and far between. Most designers and their Society feel the importance of helping with training. Not only potential designers need to find out about lighting, but directors, scenic designers and stage managers.

Light itself is the prime stimulus to the human brain. Without light no audience can see any actor. How the stage and every part of it is lit is vitally important. Lighting is changing the shape of theatres and for this potential to be completely developed it must be understood by all the creative team in the theatre. To achieve this more widely, education is needed.

End of lecture. Off to Brighton to check a production on tour which is coming to the West End next week. A smashing revival of an American play with an exciting new director who wants from the lighting everything that Fred can offer—and more. The production has changed, tightened and improved since it opened. Some of the lighting looks good and fits. Some is out of key and out of rhythm with the changing production. Supper with the director. Discuss changes and improvements. Make a note to alter a few colours on Bar 3 before the weekend arrives and so to bed at last.

Friday

To the office. Check over drawings for the lighting design of a car showroom in Berkeley Square. Installation in five weeks time. The lighting designer working in the theatre has a lot to offer the world of commerce, architecture, fashion, exhibitions and pop. If he can use light dramatically,

from the rehearsal the day before. One of the secrets of successful lighting is pre-planning and Fred's hope is that before he starts to light or focus the show he will have considered every eventuality and that every lantern installed will have its pre-determined job to do. At this late stage of the design, he double-checks through all his previous work and attempts to reduce and simplify the planned installation so far as he dares. Can a lantern used in one scene double for one used for a different purpose in another? He must consider every scene and musical number and visualise mentally each moment.

By the end of the day he has a final lighting layout plan and section and a final list of equipment to confirm the order that has already been placed.

Sunday

Our American drama has arrived in the West End. After lunch, to the theatre where



The Good Companions from the fly gallery at Her Majesty's Theatre, London.

atmospherically or spectacularly in the theatre, so he can outside it. The successful American designer works extensively in commercial fields, and that pattern is repeating itself in Europe.

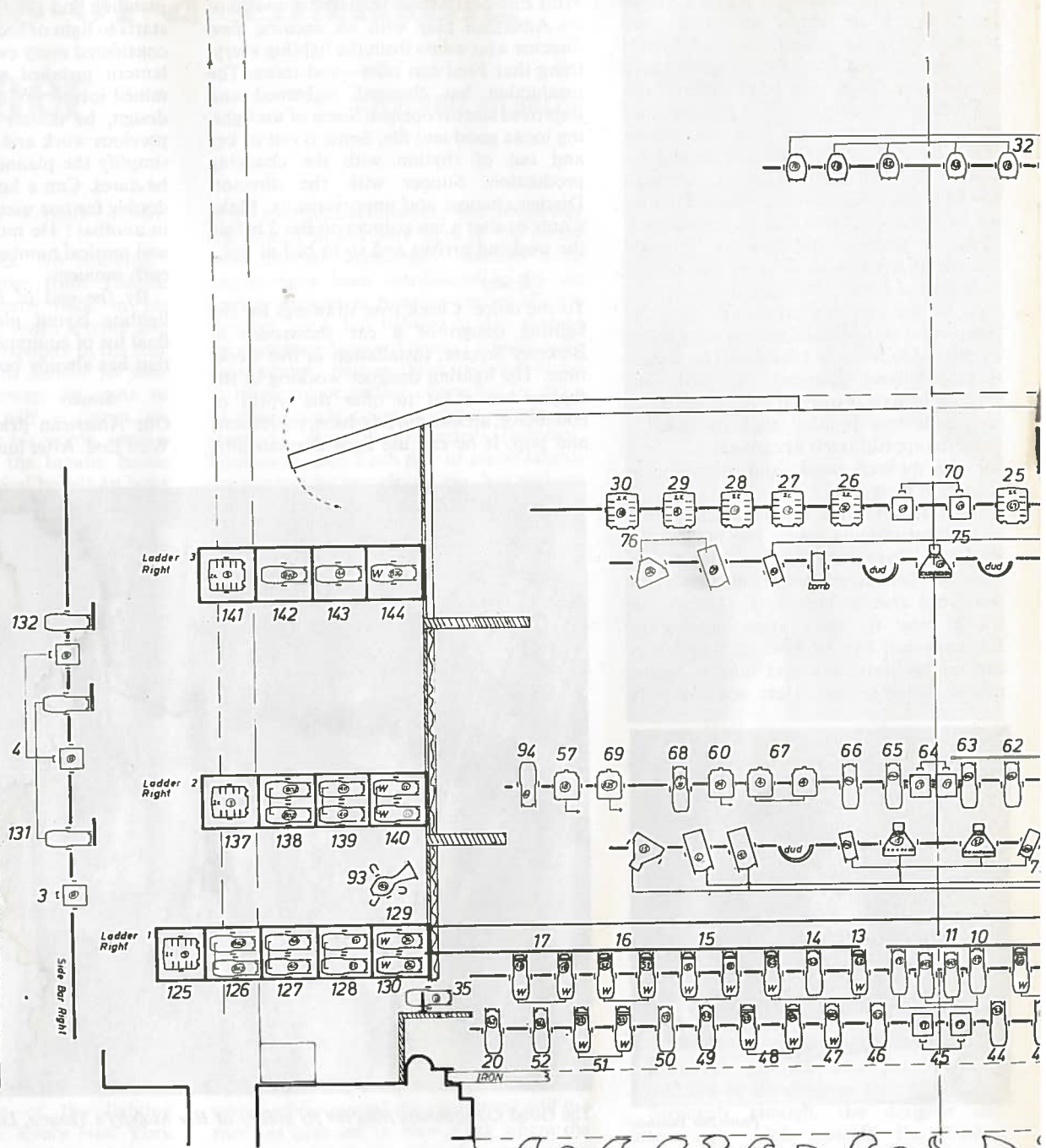
Next, to a rehearsal. The first run through of a new musical that opens in Manchester the week after next. It's a bit rough and obviously people don't quite know what they're doing yet, but the script has already been changed, there's a new song, and Fred's objective is to get the moves written into his script and to find out if the director's intention for the show has changed since their preliminary discussions.

Saturday

Saturday's a day at the drawing board. Fred had roughly designed the new musical before he left for New York, and he spends the day finalising everything and making any alterations that he thinks are needed

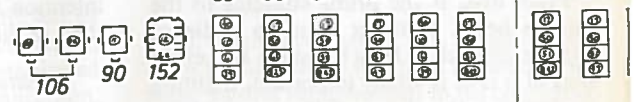
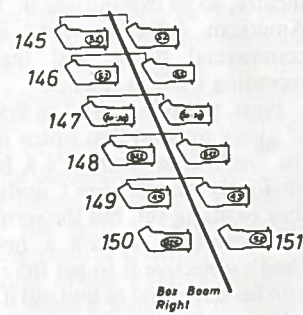
the process of rigging which began at 9.00 a.m. is nearing completion. The lights over the stage are mostly hung and, while the set is being finished, the electrical crew are completing the rig of special equipment in the auditorium. Fred checks that his lighting desk is set up correctly in the stalls and has an intercom to those people he wishes to communicate with. About teatime he starts to focus commencing with the stage left end of Bar 1. His electrician, who has toured with the production, waits at the top of the tallescope. There's a lot of other activity still going on—hammering, sawing, lights going up and down—so Fred has to concentrate, and with each lantern consider exactly the many uses it has during the show. How far across the gauze wall should the beam extend? Should it be softer because of the end of Act II? Should the left hand side be a little tighter so as to miss an actor when he is on his knees by the

46
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44 LX Bar 5
43
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38
37
36
35
34 Map
33 Gafford Pros.
32 Gafford Tabs
31 LX Bar 4
29 LX Dressing Bar 2
28 Rowsley Cloth
26 Wreckage
23 Brudersford
21 Dullingham
20 Rowsley Opening Pros.
18
Hamp LX Bar 3
17 LX Dressing Bar 1
16 Crewe
15
14
13 Rose Jellies
12 Gafford Tabs
10 Gafford Pros.
9
8
7 LX PAR Ballen
6 LX Bar 2
3 LX Bar 1
2 Cinema Screen
1 House Tabs



Patt 264 1KW	Patt 43 1KW
Patt 264W 1KW	Patt 44 250w
6" x 9" Leks 750w 110v	Patt 60 300w
Patt 53 1KW	Patt 35 300w
Patt 243 2KW	Patt 30 300w
Patt 223 1KW	Horizon
Patt 123 500w	
R & V 500w	

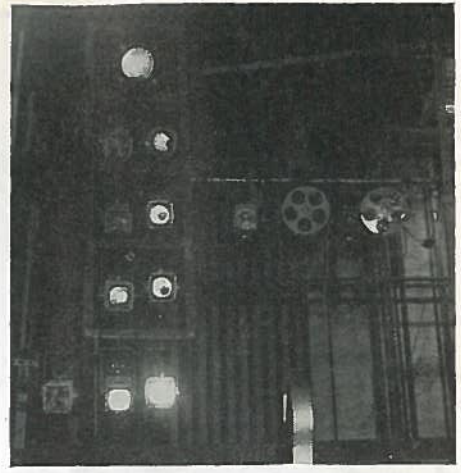
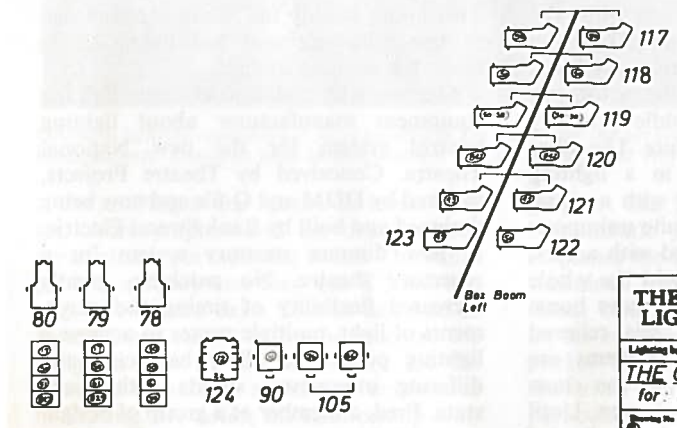
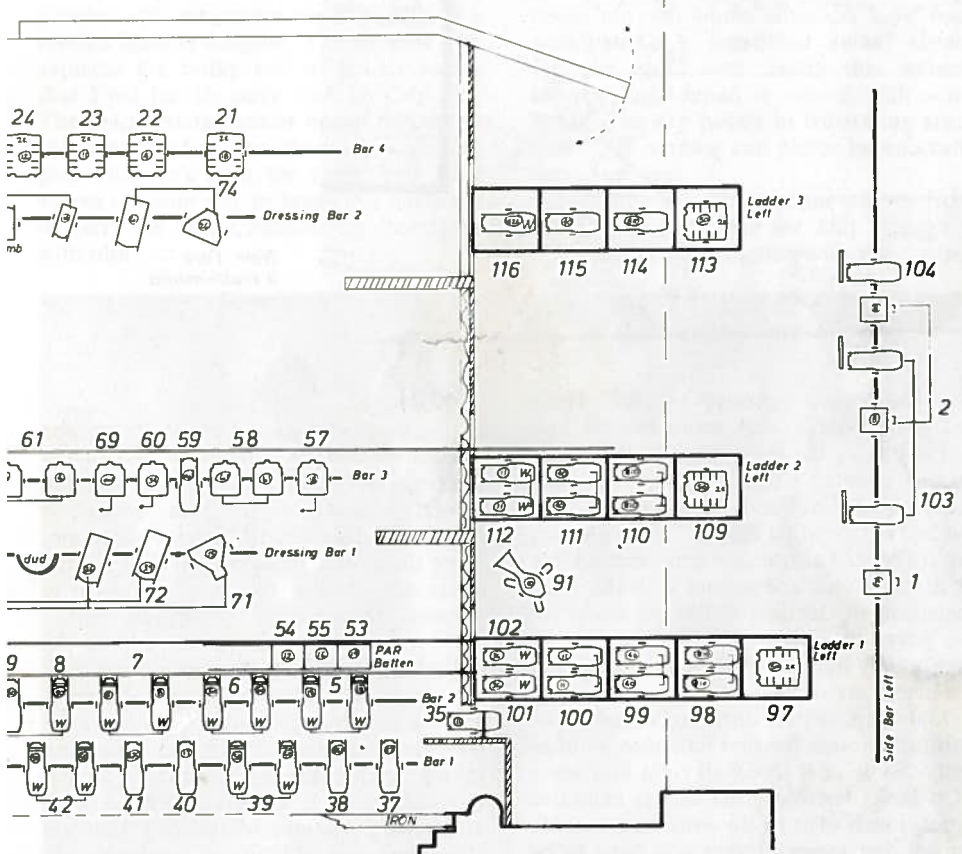
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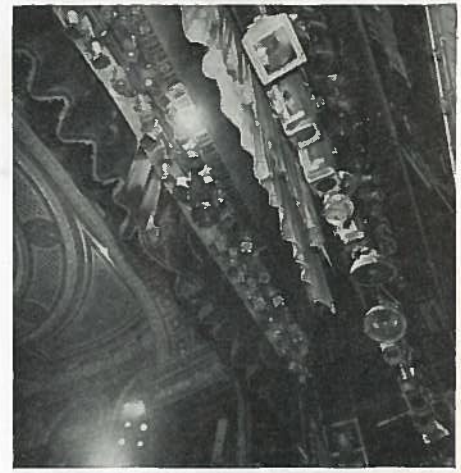
THE GOOD COME

31

Bar 5



Ladder 1 Right and part of Side Bar Right.



Bars 1 + 2, Par Batten, Dressing Bar 1 and Bar 3.

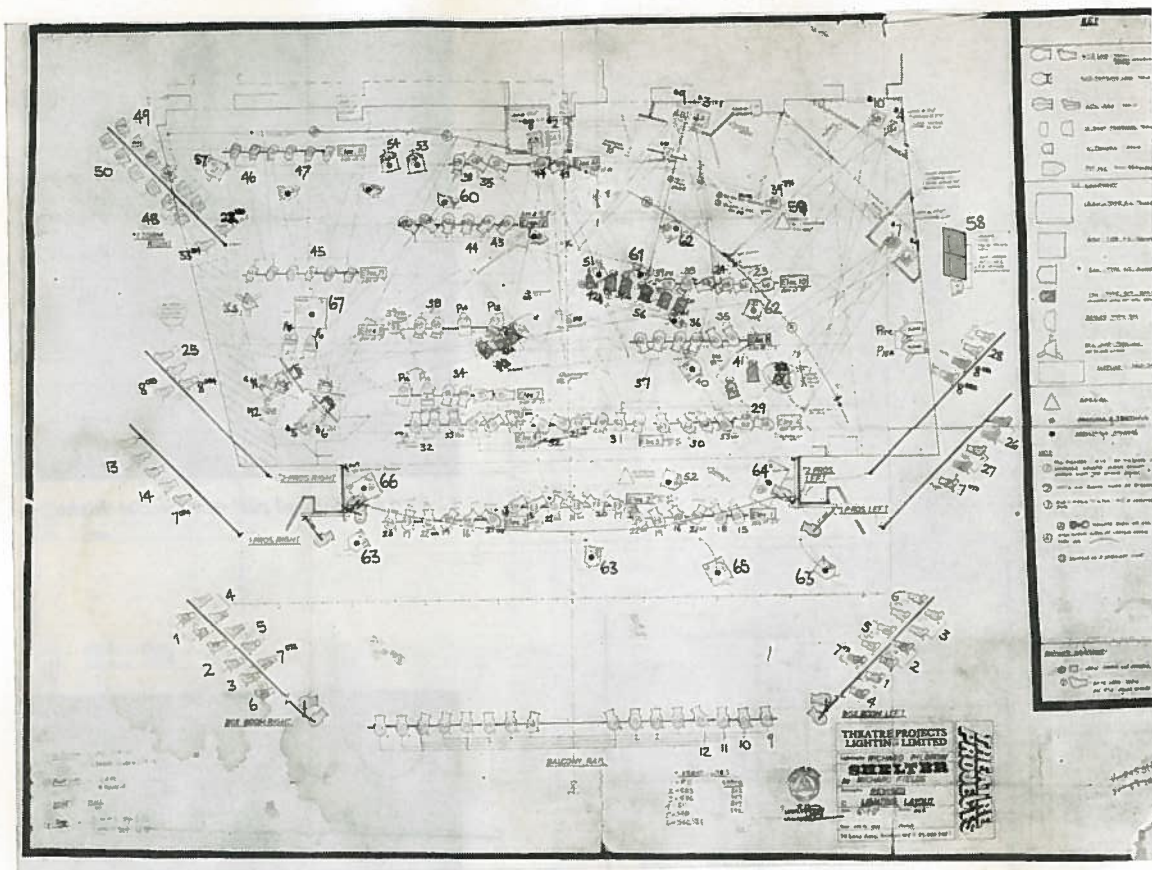


FOH.

THEATRE PROJECTS LIGHTING LIMITED	
Lighting by John B Read	
THE GOOD COMPANIONS	
for BERNARD DELFONT	
HER MAJESTY'S London	
Drawing No 1	Drawn: NBL
Date: 1. 68	Checked:
Date: 7. 74	Checked:
<small>30 Long Acms, London, WC2E 9LH Tel: 01-238 2881 VAT No: 248 628 15 Registered in London, England Regd. Office: 30 Long Acms, London, WC2E 9LH</small>	

THEATRE PROJECTS

VISIONS



New York—
a multi-media
complexity

table? All these and a hundred other considerations may bear down upon him and fix the position of each spotlight. Accurate and precise focusing is another key to successful lighting. Once the show is focused correctly, every mood and effect can then be achieved by balancing the lighting from the switchboard. Fred has to work fast. He has about 240 lanterns to set and some of them are difficult to reach from even the tallest ladder. He'll try and maintain an average of about 1½ to 2 minutes on each lantern as each has to be directed to the right spot, and firmly clamped into position before moving on to the next. At 11.30 p.m. the crew have to break. Fred is frustrated that he hasn't finished. There's another hour's work to do. The stage manager will call the director in the morning and tell him to delay his arrival at the theatre.

Monday

After a nine o'clock start all the focusing is completed by 11.00 a.m. A slow start and a few problems have delayed things even more. At 11.15, sitting in the stalls with the director alongside, Fred starts with Cue 1. Circuit by circuit he builds up each lighting picture until an effect is arrived at that pleases both the director and himself. The lighting process calls for teamwork and humility. The director may be only concerned about the illumination of his actors. The set designer might only worry about the appearance of his work. The lighting designer is trying to satisfy everyone and make his own creative contribution. But his contribution is to enhance—not distort—the intentions of his colleagues and he is always subservient to the director's wishes. When all is agreed, Fred requests

the switchboard operator to plot. There are switchboards and switchboards and this is one of the slow ones, so there's an agonising delay while the operator notes every circuit level and works out his best method of operating the cue. When plotted, on to Cue 2. This process continues all day in the darkened auditorium with the stage management standing in for the actors on the stage. By 6.00 p.m., when its time to break, only half the show has been lit and the actors arrive by 7.00 p.m.

7.00 p.m. First dress rehearsal. The lighting through the first half goes indifferently. Some of it looks all right and some of it looks terrible. Fred makes extensive notes, much of it to do with focusing. He knows that some lanterns will have to be adjusted three or four times before they are exactly in position. Half-way through, having run out of pre-plotted cues, Fred begins to block in fresh lighting while the actors rehearse in front of him. Through the years he has increasingly preferred blocking his lighting with the actors on stage, with a chance to fiddle privately afterwards to perfect the picture. The other way, hours can be spent in a lighting rehearsal wrestling solitarily with a visual problem that proves to be quite unimportant when the stage is peopled with actors.

By the end of Monday night the whole show is roughed in and Fred goes home after a 16-hour day. He feels relieved because the worst of the problems are over and he knows now that the show is going to work in the new theatre. Until this moment he had a sickening feeling of apprehension, despite years of experience and despite having done the show on tour, that none of the lighting would work this time.

Tuesday

In the theatre at nine o'clock. Telescope out and an hour of re-focusing. During the rehearsal last night Fred has been making mental allowances for the errors in focusing he discovered during the afternoon. Now these can be corrected and in the afternoon, during the first straight run through, things look significantly better, still messy, but better. At the end of the rehearsal a few more obstinate lamps will have to be adjusted. Then a bite of supper, a drink and the first public preview. Fred watches from the back of the circle, still taking a good many notes to do with timing, parts of the stage being under or over lit, and certain sections of the play that are still simply not looking good enough.

Wednesday

Two hours to tidy up. Work through cue to cue adjusting and polishing. All is ready for opening tonight.

Meeting with well-known stage lighting equipment manufacturer about lighting control system for the new National Theatre. Conceived by Theatre Projects, inspired by DDM and Q-file and now being designed and built by Rank Strand Electric. A new dimmer memory system for a repertory theatre. No patching, greatly increased flexibility of timing the movements of light, multiple routes to achieve a lighting picture to allow balancing and differing interwoven speeds within any state. Fred, a member of a group of designers, adds his comments to the discussion. He marvels at the promise that the new computer technology holds for the future.

First night. All well. Great reception.

Thursday

Despite a hangover from the rather enjoyable first night party, Fred leaves soon after seven for the airport. Another trip, this time to Stuttgart to light a one-act ballet for a choreographer with whom he has a very close working relationship. The ballet has been done before by another company which Fred saw in London and he has also been able to study a video-tape of the work which has greatly aided his preparatory thinking. On the way to the airport he looks at the standard printed lighting ground plan and ruminates on the typically Germanic layout. He knows the theatre well and he also knows that working there is difficult. The Beleuchtungsmeister (chief electrician) is wedded to the old German operatic style of working and accepts with reluctance the intrusion of a foreign lighting designer. This attitude also explains the bulky roll of colour media that Fred has to carry through Customs. The Beleuchtungsmeister firmly believes in the virtues of a few sheets of coloured glass that he's used for years, and Fred knows the only way to break this barrier is to carry his own Cinemoid or Roscolene with him.

from Theatre Projects come for the weekend to carry out any changes or modifications that might be needed.

Friday

8.00 a.m. Fred arrives at the theatre, but finds himself alone. 9.00 a.m. The stage crew arrive and set up a temporary set. 10.00 a.m. Still no electricians. Fred, feeling under growing pressure, visits the administration office. Where is the crew? After half an hour his chief electrician is found. Apparently there is no possibility of a lighting rehearsal since the requisite 96 hours' notice has not been given. Fred enquires as to why this information could not have been given him yesterday and, in any event, since the appointment for his visit had been made months ago why could not the whole situation have been anticipated. A somewhat sullen silence fills the room and clearly this setback for the Englishman is viewed with some relish. The day passes in frustrating argument, but nothing can pierce bureaucratic barriers.

2.00 p.m. Fred's colleague arrives from London to substitute for him. There's a quick but cordial meeting with the choreo-

NODA. Fred finds himself the star speaker with the problem of cramming ten years' experience into two sessions. Firstly, he stresses that the key to organising the work of designing lighting is to adopt a logical and systematic approach. He stresses the need to organise one's thinking. Preliminary meetings with director and designer followed by the preparation of a scene synopsis, listing clearly all the states of lighting that have to be achieved. Then accurate and careful pre-planning. No matter the scale of the operation, all lighting *can* be premeditated. The designer must benefit from an accurate lighting plan and section. From these the use of each light can be calculated in advance. This preparatory work must save time when the designer actually gets to the stage and time is always of value. If the lighting starts efficiently from a carefully thought out base, more time can be spent on improving, changing and perfecting the final result.

In the second session Fred begins to talk of the basic tools of the trade; the lighting equipment. He explains the fundamental differences between different types of lantern and stresses that for successful lighting it is the use to which the equipment is put that matters, not the equipment itself. His questioners seem preoccupied by colour and its uses. Fred continues to stress his theme—that colour, like equipment, should not be used just for the sake of using it. There must be a reason, stemming from the play, the director and designer's concept, and from the behaviour of natural light, that prompts the lighting designer to use any particular lantern in any particular position or any particular colour.

The meeting breaks up, but conversations continue with growing excitement at the party that follows. Scotch whisky always tastes nicer in Scotland.

Sunday

After a tedious train journey, Fred steps through the stage door of the Palace Theatre, Manchester. He greets the familiar faces of the crew with a feeling of great pleasure. He hasn't been to Manchester for some years, but many old faces are still there. The show is the new musical and it's a world premiere. He glances about him. All the lights are rigged and everything seems to be in place. He turns to the smiling chief electrician beside him—a man who, all his working life, each weekend, has taken in one show and got out another, who is always constructive, open to change and quick to react, a theatre technician of the finest sort. He thinks fleetingly of all the other people—directors, designers, choreographers, actors, dancers and technicians he has worked with over the last few weeks. "Gill," he says, "It's good to see you again. There are only 200 cues in this one, so it should be fairly simple. Let's go and have a drink before the shouting starts. After all, the show is called THE GOOD COMPANIONS".

The author would like to acknowledge the help of John B. Read, Lighting Designer of "The Good Companions", in compiling this composite portrait of Fred.



Obsolete lighting equipment is incorporated in the decor for the period backstage scenes in *The Good Companions*. Lanterns used include Pattern 30, 35, 43, 44, and Horizon Floods.

On arriving at the theatre he meets with the choreographer and the designer. An air of gloom pervades the room. The ballet set is not ready and they ask if Fred can stay a few more days. This he can't do as he explained clearly before he accepted the assignment as he has to be back for the weekend to address a NODA* conference in Stirling. However, his relationship with the choreographer is close and he promises to rough in the lighting on the following day in a skeletal set and have a colleague

grapher. He is also groaning under the bureaucratic yoke and Fred once more emplanes for England. It's been a sad and ridiculous episode, but happily an exceptional one. International co-operation is on the increase in technical theatre and this pocket of resistance to change will soon melt away (the eventual great success of this particular ballet and its visual quality may help).

Saturday

To Scotland. The MacRobert Centre at Stirling University—a weekend seminar for

*National Operatic and Dramatic Association

THEATRE PROJECTS

THEATRE PROJECTS
LIGHTING LIMITED

Lighting by HOWARD ELDRIDGE

BASIC LIGHT LAYOUT

Drawing No. 996-2

DATE: 1.8.66

BY: H. ELDRIDGE

SCALE: 1/8" = 1'-0"

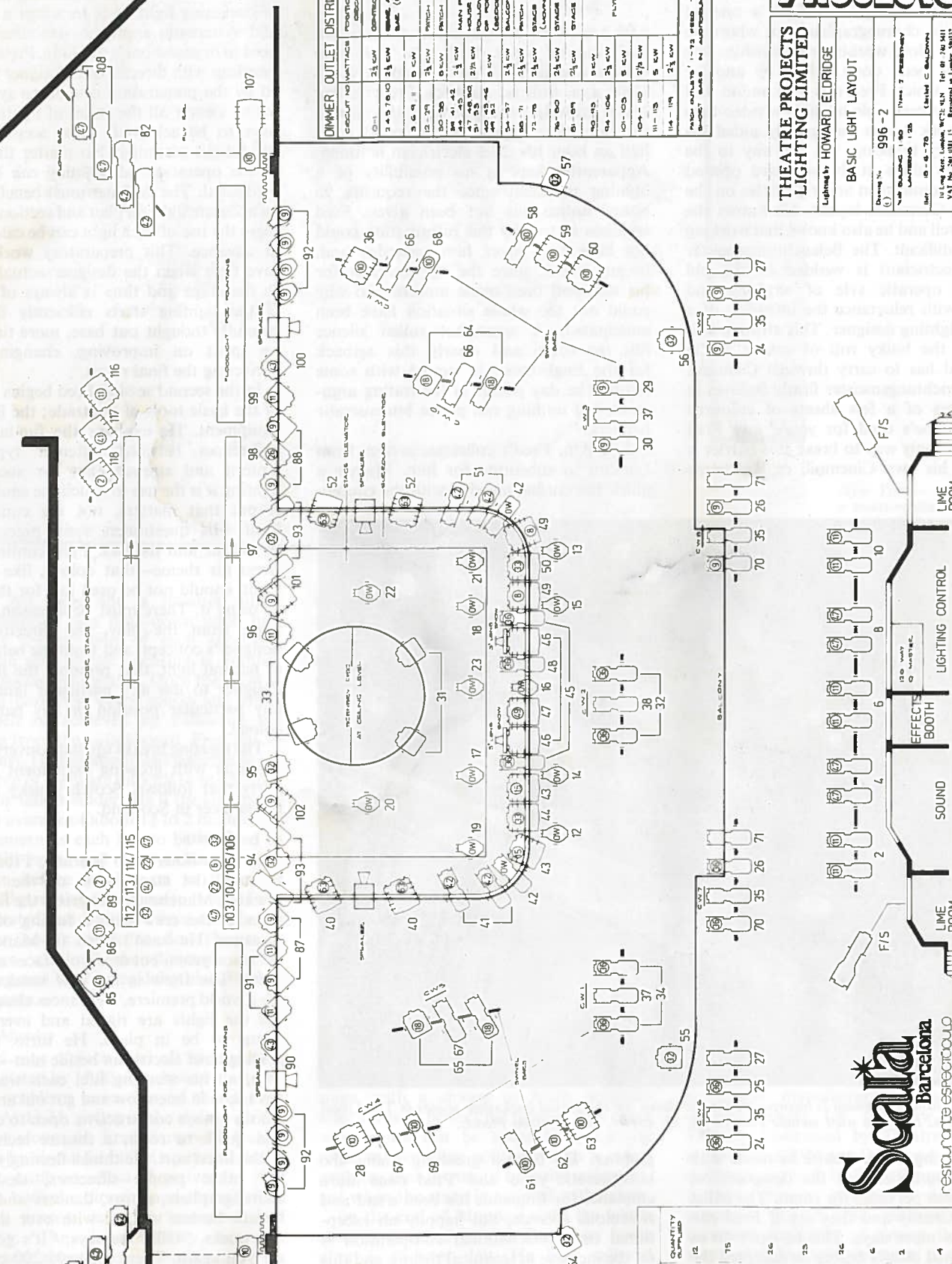
PROJECT: SCALA BARCELONA

15, LAZARUS STREET, LONDON, W.1

TELEPHONE: 01-253 4411

REGD. OFFICE: 10, LONG ACRE, LONDON, W.1

DIMMER	OUTLET DISTRIBUTION	POSITION OF DIMMER
1	2 1/2 CW	CONTROL ROOM
2	2 1/2 CW	MAIN REAR OF HOUSE BASE (SECTOR 2)
3	0 CW	FRONT PANEL
4	0 CW	FRONT PANEL
5	2 1/2 CW	MAIN REAR OF HOUSE BASE (SECTOR 1)
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COLOUR WHEELS

1	2	3	4	5
(Symbol 1)	(Symbol 2)	(Symbol 3)	(Symbol 4)	(Symbol 5)

KEY

SYMBOL	TYPE	QUANTITY SUPPLIED
(Symbol 1)	PATTERN 774	12
(Symbol 2)	PATTERN 764	15
(Symbol 3)	PATTERN 245 B.P.	26
(Symbol 4)	PATTERN 745	15
(Symbol 5)	PATTERN 251	26
(Symbol 6)	PATTERN 125	4
(Symbol 7)	PATTERN 240	2
(Symbol 8)	PATTERN 255	4

Scala
Barcelona
restaurantes espectáculo

Scala Barcelona

RESTAURANTE ESPECTACULO

CHRIS BALDWIN



Opened in June 1973, Scala Barcelona is a theatre restaurant, the scale and facilities of which are unique in Spain.

Owned and administered by the Riba Brothers, Scala employs over 300 people, including performers, stage staff, kitchen staff, waiters and management.

The first performance commences with dinner being served at 8 p.m., dancing from 10 to 11 p.m. and the show from 11 p.m. to 12.30 a.m. The price is a very reasonable (by London standards) 790 pesetas—approximately £6, including the meal and half a bottle of champagne per person.

The second show starts at 1 a.m. being a repeat of the 11 p.m. performance with drinks only (£1 a time, double English measure) being served. The charge for the second show is 375 pesetas—approximately £3. Performances are twice nightly, every day of the week, with an additional performance at 5 p.m. on Sundays.

The stage comprises a shallow linear rear

Scenery handling on the forestage is more difficult, as this has to be carried out in view of the audience. Even in blackout conditions, the glimmer from the necessary safety lights can partially destroy the element of surprise when an 8 metre by 5 metre refrigerated ice skating floor ascends from the basement level 9 metres below.

The centre section of the forestage is an elevator which can descend to three floors below stage level. The first two floors are used for conventional scenery, including a Russian sleigh complete with horse; the lowest level houses the ice platform.

A rolling stage travels out from under the rear stage to fill the hole created when the forestage elevator is down. This rolling stage is guided into position and supported by the 1 metre wide forestage surround; this in turn can be adjusted in height from auditorium level to stage level. The hydraulic rams which move the rolling stage are automatically disconnected and retracted into the rear stage before this vertical movement can occur. In addition, a 3.5 metre diameter disc, suspended by a single inverted hydraulic ram, can be lowered from the ceiling to the stage level.

The number of lighting positions over the auditorium is extensive and grouping is extremely flexible via the patch panel. Access to lanterns which are not actually over the stage is a tortuous process of moving tables and setting up towers on the multi-level stalls or balcony level.

Access is not required, as one would chiefly expect, for re-lamping and focusing but for cleaning lenses and colour filters—a problem in a 900-seat theatre restaurant.

Lighting control is via a 120-way Thorn Q Master intensity memory lighting system; no doubt about a memory board here with 140 cues in the same number of minutes, at least twice nightly. The electrical wiring installation leaves something to be desired; the use of conduit (plastic, not metal) or cable tray is minimal. The normal phase to neutral supply voltage is 110 volts: where 240 volts is required, this is derived from a phase to phase arrangement.

A transformer was installed to provide a 240-volt phase to neutral supply for production lighting. The outputs of the dimmers, phase and neutral being wired

in black cable throughout, produced one or two “shocks” for those involved on the electrical fit up.

One recalls a particularly humorous moment when circuits 19 and 21 were faded in together, this bringing the house lights in to a half! The electrical foreman was seen rushing from the building.

Music is, of course, a major element in this type of presentation and aided by the fact that totally pre-recorded material is permitted in Spain, Scala have made an extremely good attempt at replacing the orchestra with the loudspeaker, LOUD being the fashionable sound. The Altec “Voice of the Theatre” speakers deliver the goods at the threshold of pain with very little distortion.

The orchestration of tape machines is a credit to the musical director, and the dexterity of the sound mixer, plus additional “live sounds” from the effects man, completes a back-up of non-stop sound.

The main construction, installation of all equipment, decoration and rehearsals all took place in the space of one year, with the site being worked 24 hours a day, seven days a week—an incredible achievement even if an expensive way of constructing a theatre.

From *Brecht on Theatre*, a selection from Brecht's notes and theoretical writing, edited and translated by John Willet. 294 pages with 32 pages of illustrations. Published by Eyre Methuen.

There is a point in showing the lighting apparatus openly, as it is one of the means of preventing an unwanted element of illusion; it scarcely disturbs the necessary concentration. If we light the actors and their performance in such a way that the lights themselves are within the spectator's field of vision we destroy part of his illusion of being present at a spontaneous, transitory, unrehearsed event. He sees that arrangements have been made to show something; something is being repeated here under special conditions, for instance in a very brilliant light. Displaying the actual lights is meant to be a counter to the old fashioned theatre's efforts to hide them. No one would expect the lighting to be hidden at a sporting event, a boxing match for instance. Whatever the points of difference between the modern theatre's presentations and those of a sporting promoter, they do not include the same concealment of the sources of light as the old theatre found necessary.



stage, 36 metres wide and 5.5 metres deep, and a forestage 10 metres wide by 6 metres deep, the tab line dividing the two. The show is a series of spectacular visual presentations, revealed on the rear stage when the tabs are opened, alternating with speciality acts presented on the forestage with the tabs in.

A fly tower over the rear stage provides scenery suspension facilities; the problem of lack of stage depth being partially overcome by having counterweight flying bars on 4-inch centres! Needless to say, the hanging of lanterns in this area proved difficult. Three-dimensional pieces of scenery are manually handled from a store, stage right.

The author is an Associate of Theatre Projects Consultants Ltd.

Theatre of the Universe

by RICHARD DINES

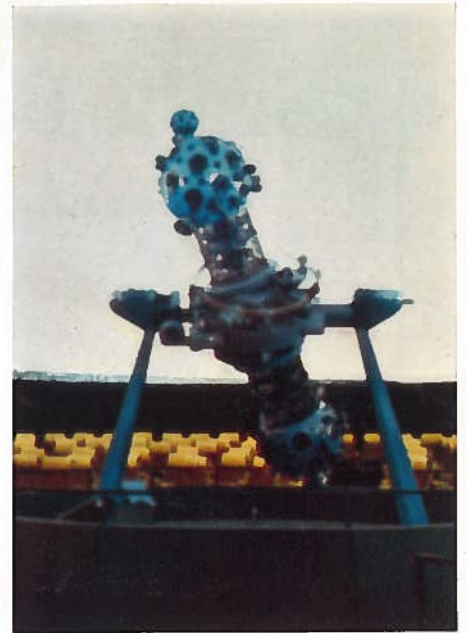
The sun is beginning to set as we cross the Burnard Bridge on our way to the MacMillan Planetarium, situated in Vanier Park, Vancouver. We pass by the fabulous sculptured steel crab, and entering the foyer, pause at the desk to collect our tickets. One of the two giant elevators carries us effortlessly to the flight deck of this flying saucer shaped building and as the doors of the lift open we are presented with a breathtaking view of the sun setting behind the mountains on the far side of the bay, while closer at hand the buildings of downtown Vancouver glow in the warm light.

We are ushered into the auditorium and immediately approve of the armchair type individual seats which we find rotate

flushes crimson and we fall totally under the spell of this unusual theatre.

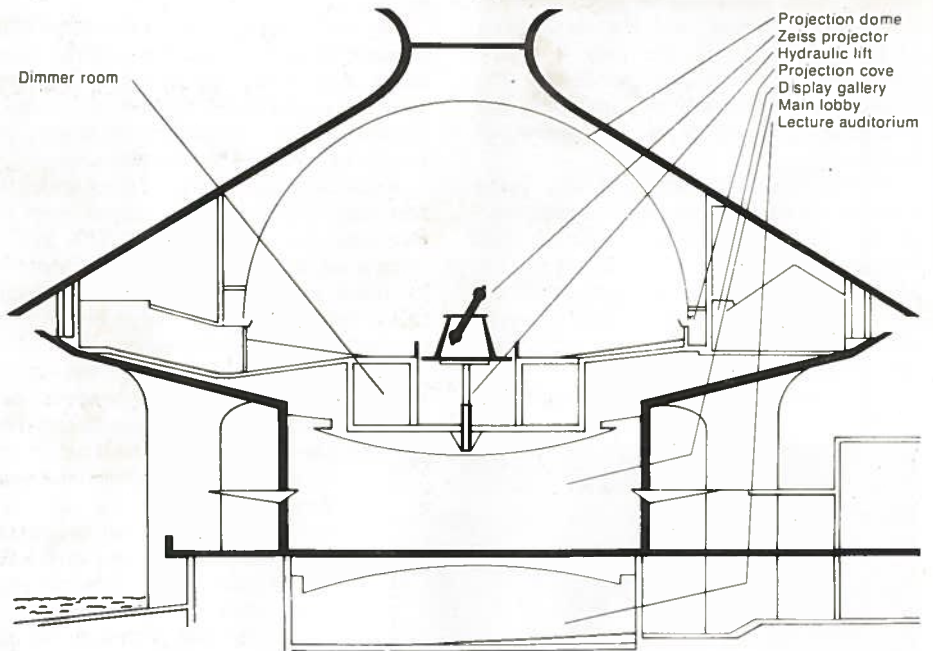
The sky grows darker and lights come on in the houses along the skyline. The main stars begin to twinkle through the wisps of cloud, only just visible now. Our lecturer points out the main constellations and explains that because of the high background illumination in towns, due to street lighting, only these major stars are normally visible, but if we move away from the town many thousands of stars can be seen.

The skyline goes black and there is a gasp from the audience as their eyes accommodate to the lower light level, and nearly 9,000 stars become visible, all in

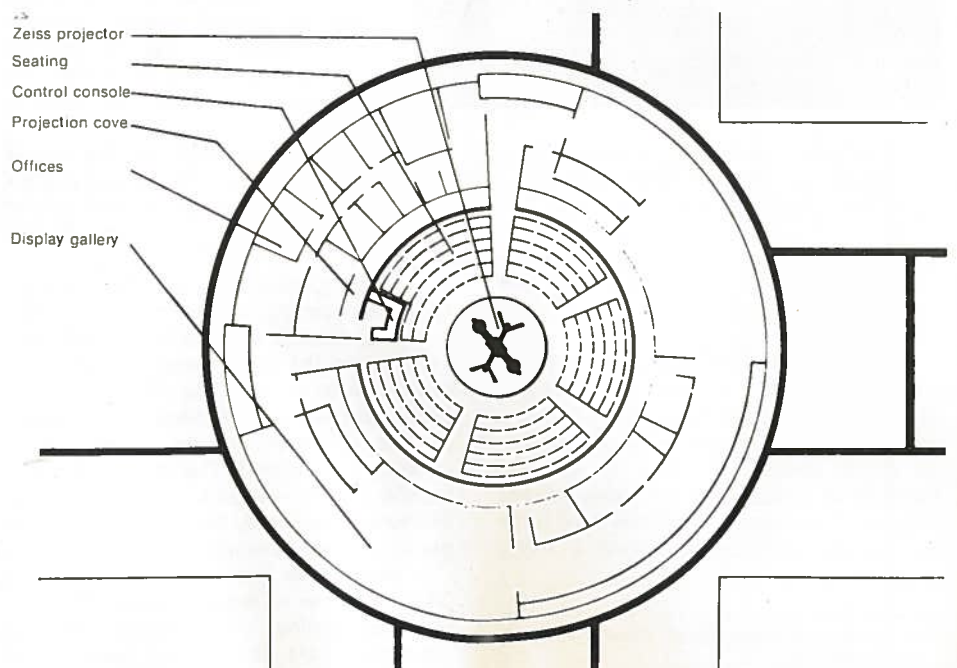


through 45° so that all of the dome can be comfortably seen.

Fluffy white clouds drift across a blue sky and we are surprised to see that the sun has apparently risen again and is riding high. A panoramic sky line of Vancouver encircles the dome, the whole effect being very realistic. As the overture begins, the sun drops lower and lower in the sky, until it sinks behind the mountains. The sky



Sound can be mixed from tape, disc or microphone and patched direct to selected speakers or controlled via a joystick.



their correct positions and relative brightness.

We appear to be travelling towards the stars as the Planetarium projector rises out of its well in the centre of the auditorium. With so many stars visible it is now very difficult to pick out the constellations, so the lecturer projects onto the sky such mythical drawings as the Great Bear and Orion the hunter, to help us find our way around.

The stars start to drift across the sky as we leave the latitude of Vancouver and move south to Pasadena. The skyline of the Rocket Research Centre becomes visible; suddenly the noise of a rocket launch attracts our attention and as we watch, it lifts off and flies across the sky on its way to Mars. The pictures sent back by the TV cameras aboard the rocket as it passes close to Mars appear around the dome, staggering in their detail and clarity.

The dramas of the Universe continue for an hour or more, until finally it's time for the sun to rise and as the new day starts, the programme ends.

How was it all done? The star projector, constructed by the East German company of Carl Zeiss, Jena, is situated at the centre of the auditorium on a lift so that its 2½-ton 16ft. long bulk can sink from view when not required. Partial projection is possible in the lowered state and was used to show the stars visible from the town. Using many lenses and four axes of rotation, the Planetarium projector is able to show the sky from any latitude of the earth at any time in the past, present or future. Recent innovations have extended its range and it is now possible to show the sky as seen from any part of our solar system or even from an orbiting space craft. Even stars which change their brightness over a period of hours, days or months can be faithfully reproduced.

The Vancouver skyline is mounted on a hydraulic hoist and is painted in a mixture of ordinary and UV paint.

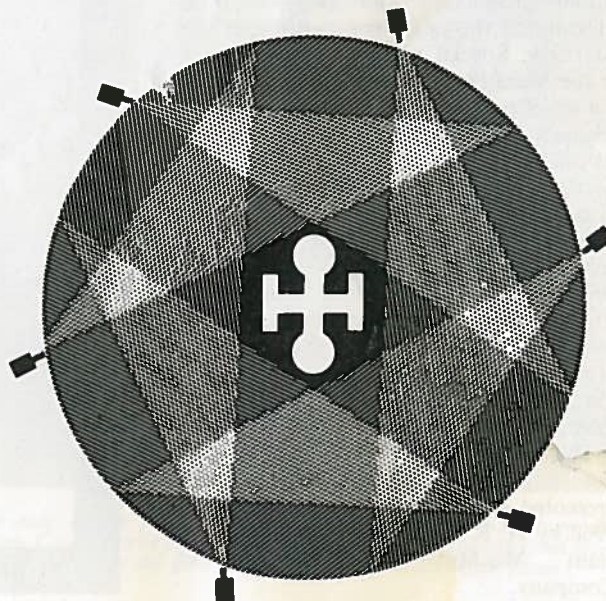
UV fluorescent tubes are used to illuminate it (and so bring the lights on in the houses). When the skyline is lowered, a projection cove, around the circumference of the dome, containing up to 120 auxiliary projectors (patched to 40 outlets) complete with auto start or remote slide change facilities and 38 other dimmable circuits controlling the colour floods, cloud projector (Patt 252 with wide angle lens), and special effects, is revealed (although not to the seated audience).

The lighting control consists of a special 120-way Strand IDM system providing full level memory and also a slide change/auto start memory for each projector. Fade times are also memorised. The system provides immediate access to 240 lighting states stored on a magnetic drum. A punched paper tape dump store is used for long term storage and repertory playing. Once the programme is stored sequentially in the memory, each cross fade can be initiated by either depressing a single "Go" push or by detecting start pulses recorded on the master sound tapes.

One of the problems experienced when controlling the slide projectors is that the



▲ *Special 120-way IDM lighting control providing full level memory, also a slide change/auto start memory for each projector.*



▶ *Landscapes are projected on to the dome from six slide projectors fitted with special anamorphic lenses for oblique projection.*

fan motor, integral with slide change mechanism, requires the lamp to be on before it will operate, and as the slides normally change during blackouts some very careful level adjustment has to be accomplished.

For greater realism each slide and indeed each frame of cine film is carefully masked so that only the object image can be seen.

Some of the projectors have motorised mirrors in front of the lens so that rocket ships, flying saucers, etc., can be moved across the sky.

An interesting problem was how to project additional landscapes onto the dome with the Planetarium instrument raised (this prevented direct projection). The successful answer has been to use 6 slide projectors fitted with special anamorphic lenses, and projecting obliquely across the dome.

The sky dome is built of perforated metal sheets, to enable the air in the auditorium to be cleaned every few minutes and thus prevent dust particles showing up the projected light beams. The perforated dome gives a greater sense of depth and allows the 25 speakers of the Omniphonic sound system to be placed out of sight on the outside of the dome.

The sound source can be mixed from tape, disc or microphone and can be patched either direct to selected speakers or controlled via a joystick. This joystick consists essentially of a torch with variable beam angle and intensity controls, shining onto an array of 25 photo cells arranged to simulate the speaker positions in the dome. The photo cell currents, caused by the light falling on them, control the volume of sound fed to each speaker. This ingenious Omniphonic sound system was invented and manufactured in Vancouver especially for the Planetarium by Barron and Strachen, acoustical engineers and Commercial Electronics and allows the various sound effects to track across the sky with the projected images. It can also add another dimension to the music score. A recording studio and record library complete the sound installation.

The Planetarium theatre usually has one public production and two or three educational shows in its repertoire at any one time. Special topics of interest, such as the Mars Probe pictures are added into the main programme as soon as they are released by NASA, and in this case a telephoned commentary from scientists at Pasadena was also included. Productions usually take about two and a half months to prepare and rehearse. The nine strong production team, headed by the Planetarium director David Roger, is both artistically and technically very talented. The public shows are presented by a keen team of amateur astronomers who provide just the right note of individuality to each show.

The Planetarium Theatre is part of the Centennial Museum complex and was presented to the people of Vancouver in 1968 by H. R. MacMillan, founder of the giant MacMillan Bloedel Lumber Company.

EERKHLITE PRESENTS!!

"J.C." HI-TEMP CASING

"FINGALITE" LOCK. MOVES AT A TOUCH - NO TOOLS REQUIRED.

"SODIT" SELF-LOCKING FRAMING SHUTTERS. WILL JAM IN ANY COMBINATION DESIRED.

SPECIAL THING TO PREVENT MOVEMENT OF LENS TUBE

"NIKAS" SIDE LOCK - CANNOT BE OVERTIGHTENED.

"LITELEAK" BOTTOM TRAN LIVES EXCITING RANDOM PATTERNS ON DULL EYES. ETC.

"SPECIAL COLOUR FRAME HOLDER - CANNOT BE CONFUSED WITH OTHER CHEAPER UNITS"

"SUPALENS" WILL MINIMISE LIGHT LOSS THROUGH HOLE AT THE FRONT. RETAINED BY OVER 20 EASILY OBTAINABLE SCREENS.

MANUFACTURER'S NOTE - THIS NEW LUMINAIRE IS A BREAKTHROUGH - IT IS THE FIRST LUMINAIRE TO HAVE EVERYTHING.

THIS SUPERB TRANSIT ENCASMENT WITH NO FEWER THAN IT PARTS!!

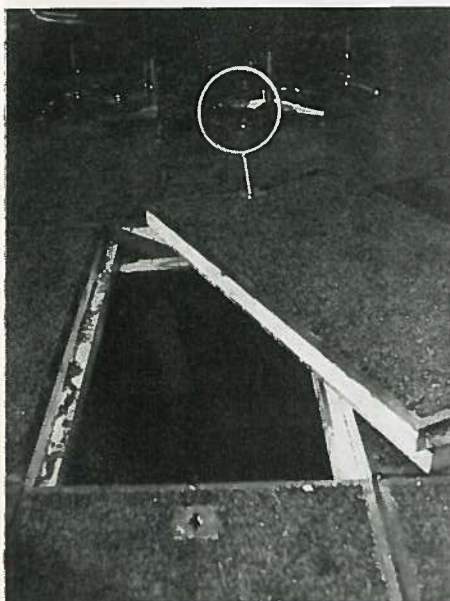
FREE WITH EVERY LUMINAIRE

Bonabean '74

The publishers of TABS wish to draw the attention of all readers to the enclosed information regarding future distribution arrangements.

The Hannah Playhouse

The Hannah Playhouse, Wellington, New Zealand, was opened in October 1973 as a permanent home for the Downstage Theatre Company which was founded ten years ago in a coffee bar on the site of the new theatre. A unique feature of this



The centrally placed trapdoor area measures approximately 5 x 7 metres, and contains 54 individual floor panels. The entire area may be removed or lowered, as may each separate panel, giving additional scope for stage settings and/or performer entrances and exits.

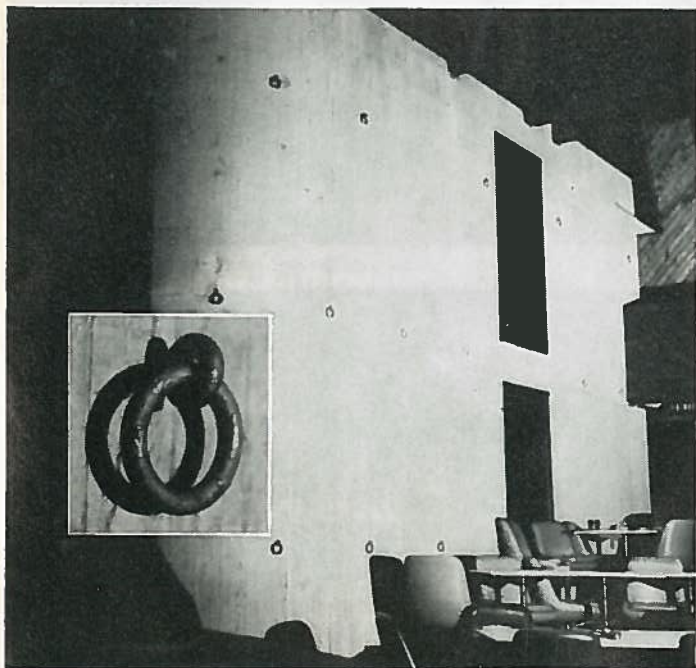


Audience dining before the opening performance of *As You Like It*: here the flexible auditorium uses a transverse staging form.

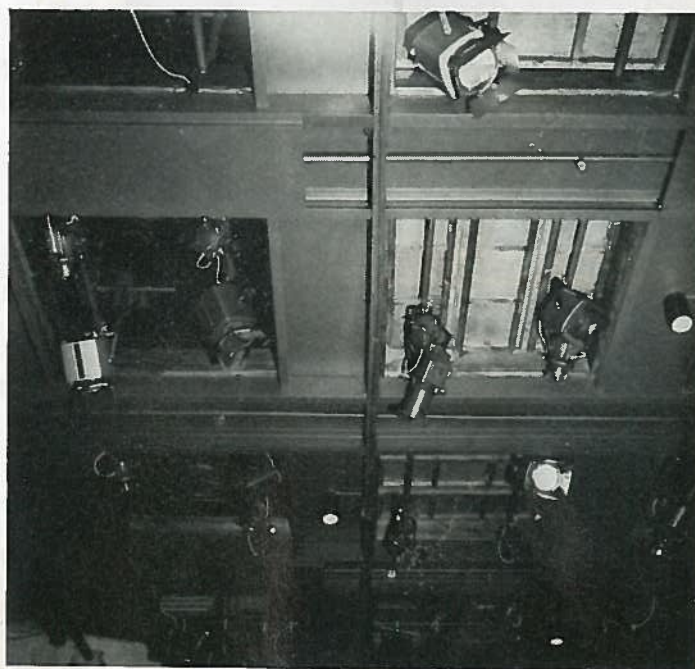
company is their operation as a theatre restaurant: an obvious staging form for light entertainment but rather unusual for straight plays. The informal seating arrangement and the chance to relax over a meal engenders a warm atmosphere that encourages a natural, less self-conscious response among the audience, while the flexibility of the arrangement allows the whole theatre space to be used as most befits the production. There is seating for up to 200, approximately 130 at dining tables and 60 or 70 non-diners. The entire theatre floor, including a central trapped area, is

carpeted. Wooden stage floors are erected over the carpet wherever the action is taking place and a system of carpeted platforms, shaped in squares and triangles, can be fitted together and stacked to form virtually endless permutations for audience positioning. Lighting is operated from a movable control booth sited for optimum operator visibility for each play.

Architect: James Beard & Co
Theatre Consultant: Raymond Boyce
Building Contractors: Lemmon & Slack Construction Co. Ltd.



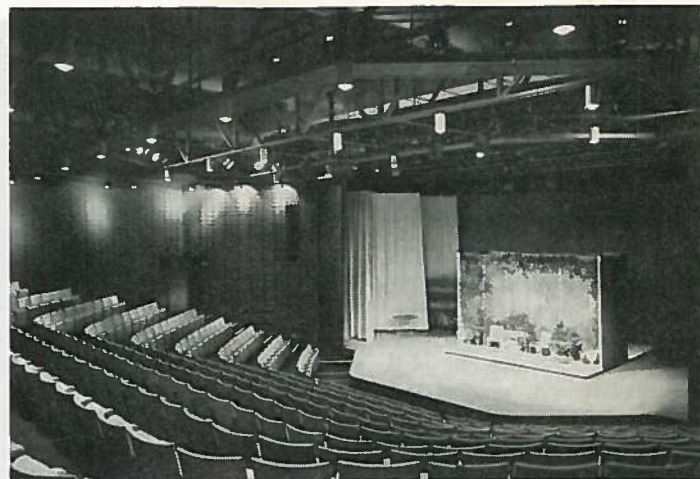
Much of the theatre wall area is of stained wood but there are two concrete towers corresponding to the service stairs running through the three main levels of the building. These towers have an interesting arrangement of rings set into concrete for the attachment of scenery.



There is easy access for hanging lanterns from the grid floor to the auditorium. Covers can be placed over the openings to aid acoustics and there is ample height above the grid to fly scenery out of audience vision.



Key Theatre, Peterborough.



Key Theatre Stage.

Two of a Kind

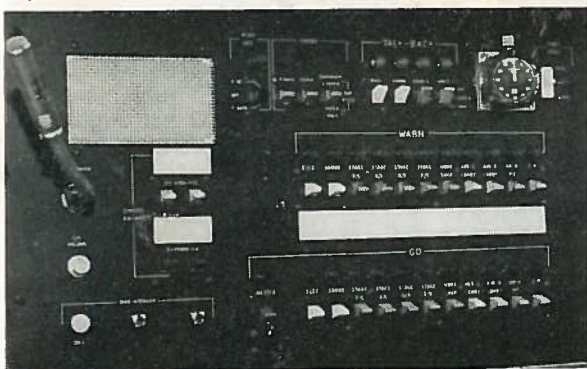
Within the last year, two remarkably similar theatres have opened in England. Is this the beginning of a new standard format for the smaller playhouse? The *Redgrave* in Farnham has 356 seats and the *Key* in Peterborough has 399. The similarity in auditorium shape and stage thrust is obvious from the photographs. In both cases the thrust portion of the stage can become an orchestra pit. Neither theatre has a fly-tower although both have over-stage suspension systems. In both cases, the lighting control is a Threeset (80 ways in the *Redgrave*, 60 ways in the *Key*).

Key Theatre, Peterborough. Architect: Mathew Robotham Associates. Main Contractors: Bowmans of Stamford.

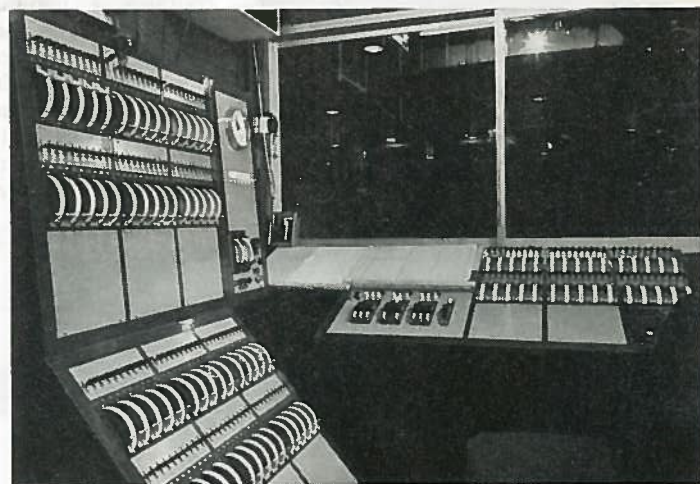
Redgrave Theatre, Farnham. Architect: Frank Rutter, F.R.I.B.A. Theatre Consultants: Theatre Projects Consultants Ltd. Main Contractors: R. Holford & Co. Ltd.



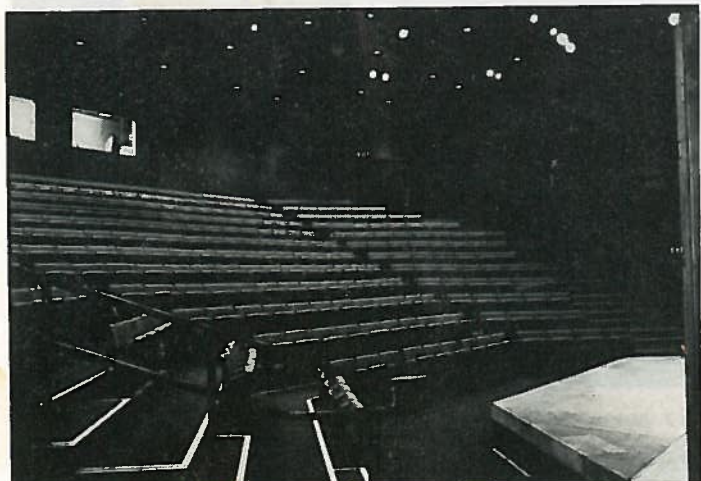
Key Theatre auditorium.



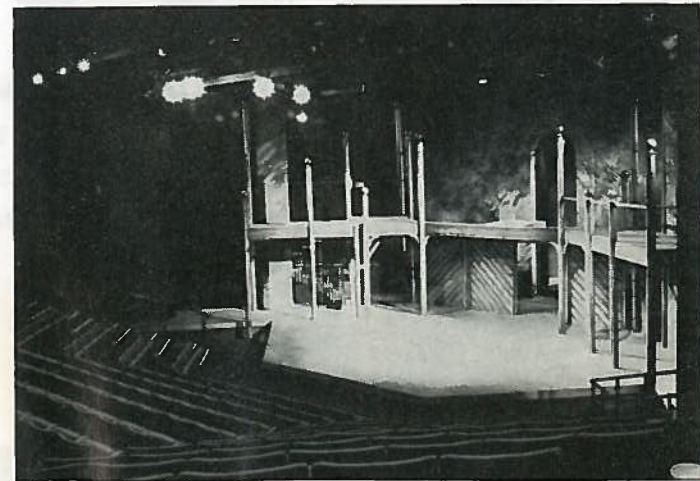
Stage managers control at the Redgrave (Stafford King Controls Ltd).



Threeset control at the Key Theatre.



Redgrave Theatre auditorium and (right) the stage.



Tabman's Diary

a personal view

Flowering Colour Music

Until the Lindsay Kemp *Flowers* at the Regent Theatre, my only enjoyable mime experience had been working a switchboard for Marcel Marceau, particularly a memorable first night when lost baggage forced him to talk. Too often the word *mime* triggers off memories of an alleged comedian climbing stairs and opening a door, or the posturings of non-dancing courtiers in a three-act Tschaikovsky ballet. But *Flowers* is pure Tabman's Theatre. Not that I understand it, or frankly that I even tried to understand it. Indeed, I rather doubt if Genet ever intended me to apply the conventional processes of mental logic to either the book or Lindsay Kemp's stage interpretation. As an integration of movement, music and lighting, it is compelling theatre: *Flowers is Colour Music*.

Over here, Over there

Arrival in New York with a jet-lagged clock calls for a razzmatazz musical to keep awake. For people of a certain age (i.e. mine), *Over Here!* with the Andrews Sisters stimulates the memory cells and for lighting students there is a text book demonstration use of a paint spatter to make the floor respond on cue.

Token Male

There are members of the formidable (no, Mr. John Knox, formidable not monstrous) regiment of British technical theatre women who have had occasion to refer to this little piggy as a male chauvinist. Nevertheless, unknown to these M/s and referred to by the chair as *our token male*, I sat on a panel of eminent USITT ladies to give a UK liberation report. Uncertain of my audience, I funk'd my prepared red herring of an observed movement towards multisex and settled instead for predicting a more socially acceptable progress toward unisex. In fact, the female stagers of the UK seem to be ahead of their US sisters in the alleged sex war, except in lighting design where feminine commonsense has resulted in the Britannias staying away from a profession which requires maximum adrenalin secretion without adequate financial reward. Of one thing I am sure: the theatre world is one of the sections of society most free from discrimination whether of creed, class, colour or sex. And that tolerance is real not just words. But any male viewing the march of the ladies with apprehension should take comfort from the dialogue as the USITT panel took their token male from the bar to the conference room. Quipped himself nervously, "If this elevator breaks down, the conference will have an afternoon off". Replied an unidentified panellist's voice "you should worry, honey, you'll be in good hands!"

Rhubarb in Seville

Barbiere at the New York City Opera is decorated with a sort of balletic graffiti of camp noddies who rush on stage to gesture and posture at the drop of an aria. Such diversions did nothing to conceal either the lack of rapport between stage and pit or the somewhat blurred lines of communication between Rossini and the switchboard. And I know of no better way of killing "La Calumnia" than by fading to blackout with a single blue-green (cyan) downlighter: even if Basilio had got his chair on its marks. The follow-spots were out-of-tune but the evening was saved by Ruth Welling's delicious *Rosina*.

Conference Notebook

Opening session on incredibly complex stage machinery suddenly develops a great wave of "but let's keep the control systems very very simple: none of this computer data storage nonsense". I did not succeed in catching the chairman's eye to insist that complex actions require sophisticated control: computer lighting controls have been developed out of necessity because simple systems just do not perform the job required. If simplicity is the goal, then it is the machinery that should be resisted, not its inevitable control. Fortunately, the conference issue of USITT's own Journal carried a very sound crystal-ball article on the philosophy of integrated control. . . . At the training session, I put forward the suggestion that a theatre technician should be a general theatre man first and a technical specialist second. Accused of advocating a Renaissance man when the theatre requires highly skilled specialists, I still remain convinced that an ideal theatre technician is a "Jack of all trades and master of one". . . . Invited to sit-in on the deliberations of their international liaison committee, I am struck by the fact that USITT is much more internationally orientated than ABTT. The Association of British Theatre Technicians must cast aside its insular approach. Why not start with a London International Conference to celebrate the opening of the National?

The Sound of Musicals

Candide demonstrates, no surprises, that the proscenium theatre is the most adaptable building form. Both sides of the proscenium arch of the Broadway Theatre are used to scaffold a multi-stage arena theatre where my seat is somewhere around the position of the PS perch. Lighting tells me where to look and a wonderful evening only avoids greatness by the effects of the sound reinforcement (too much quantity and not enough quality) which kills the potentially exciting idea of dotting the orchestral sections around the theatre. The production style of *Candide* cries out for

natural (unreinforced) sound whereas *Don't Bother Me, I Can't Cope* needs and gets electronic support. Both shows have terrific scores, but the Bernstein music suffers from technological assistance.

New Product



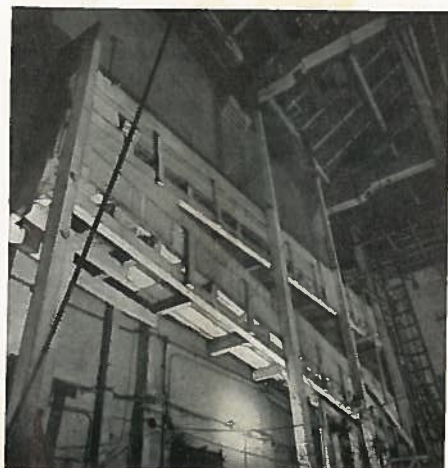
Rank Strand weathered Britain's spring industrial troubles with customary theatrical resourcefulness, including improvisation in the packaging department. This resulted in some confusion over the delivery of new spots masquerading as whisky to the Theatre Royal, Bristol.

Samoiloff on a G String

Stag night at Valentine's in Manchester, chaperoned by Professor Jack Watling of the Rank Strand Striptease Lighting Division. Jack is maestro of the Pattern 123, colour wheel and G string: his use of Samoiloff Gels makes the costumes change colour as well as come off. And for anyone (is there?) not stimulated by the sight of a Patt. 123 or G string on a thrust stage, there was some splendid flutter tonguing from the resident flautist.

Thunder Run

Poking about on the PS Fly Floor of Her Majesty's Theatre in search of a good camera angle, I noticed the original *Thunder Run* on the wall. Presumably used by Sir Beerbohm Tree. Loudspeakers and tape can be splendid technical theatre tools but are there not some productions when the style might be better served by a cannon ball in a thunder run or the scraped canvas of a wind machine? Is there perhaps a danger that a desire to reproduce an identical sound (or light) effect from one performance to the next might take the life out of live theatre?



Coathangers in Ipswich

A major problem in British theatre-going is overcoat disposal. There are rarely enough cloakroom pegs and never enough cloakroom attendants. The only cost-effective solution is machinery with personal keys, but installation is slow. Ipswich Theatre has a simple idea which also contributes to auditorium intimacy: they have coat pegs on the auditorium walls.

Mozart in the Ring

Great Yarmouth Hippodrome is a permanent circus building with occasional concert use. Listening to the Jupiter Symphony, my ears tell me that an arena shape might minimise the problem of achieving acoustical presence in a very large concert auditorium.

Philip Rose

Like most lighting men, I expect equipment manufacturers to make every item specially to my requirements, deliver it yesterday and charge me a nominal price which ignores inflation. The equipment manufacturer, in his ideal world, would prefer to standardise on the minimum number of items, quote six months' delivery and invoice me on a squared cost plus basis. Both roads lead to bankruptcy. Successful marketing is a fine balance between the requirements of user and shareholder, but depends primarily on identifying the needs of the user. In a company with world-wide leadership in a field as subjective as stage lighting, there is a particular problem of reconciling international differences in terms of both lighting styles and equipment regulations. Tabman is delighted to report that *Philip Rose* is now performing this herculean task for Rank Strand. Phil is the son of a famous theatrical family and has world wide experience as a Theatre Consultant and as a Strand Man both in the UK and in North America where he built-up the Canadian operation and presided over Century Strand in the USA. Every stage lighting user will be glad to see a lighting man as Director of Marketing for the international Rank Strand operation and will no doubt desire to join TABS in wishing him every success with a mind-boggling task.

Lighting by Design

With a billing of *Stay six days and see six plays*, *Pitlochry Festival Theatre* has pioneered repertoire playing since 1951. With the general UK movement towards repertoire and the consequent necessary rethinking of technical organisation in terms of a daily changeover rather than a run, Pitlochry makes an ideal setting for another in the series of ABTT/Arts Council in-service lighting design courses. Ten younger lighting men (i.e. younger than Tabman), programmed in advance with script, stage and set plans, set photograph, equipment inventory, etc., arrive with a

lighting design for *Blithe Spirit*. With emphasis on paper planning as the king-pin of successful lighting design, the course format gives the student an opportunity to compare his own ideas against an actual production in a controlled situation. With script, design, theatre building and equipment known, the only variables are the production team of Producer, Director, Designer, Lighting Designer and Production Manager. On the second day of the course, having seen the performance on the previous evening, there is a chance to quiz this team on stage and to have lights flashed out in illustration. This "who decided what" is fascinating for anyone but essential for the young electrician who may have spent much of his career in non-producing touring theatres where the artistic decision makers are an unknown, unseen and therefore unbelievable "They".



Burgmüller in Pitlochry

Theatre management is attention to detail: like hanging a framed list of today's incidental music in the foyer.

Fred's Teach-In

Billed as the *comical historical Frederick Bentham*, Fred invites us to *come to the theatre as more than a spectator* on Tuesday



afternoons at 3 p.m. when we are promised an afternoon *packed with entertainment, edification, and illumination*. Manipulating lights, slides and audience with all the dexterity of a virtuoso switchboard operator, Fred takes us on a package tour through the proscenium arch (old, new and non) to a world where the actor treads a precarious path through an environment of fire and water machines, billowing smoke, bomb tanks, ultra-violet radiation and primary colour mixing. Fred succeeds, as always, by bringing two essential qualities to his subject: a sense of humour and an opinion. We wish our favourite colour musician a long run at Wyndham's: may Fred the Light Console become Fred the Mousetrap.

Tabwoman's Postscript

Once upon a time Tabwoman (who prefers Mrs to M/s) went on a fit-up tour of *King Lear* where she doubled the roles of Cordelia and Fool with duties of master carpenter. With the scenic master's traditional scorn for lighting, she makes a useful, if critical, proof reader for TABS. Coming to Tabman's *Getting Organised* article she exclaimed "Really darling, this is ridiculous. You can't even organise yourself into a pair of clean socks!"



"George, would you kindly lay off that 'quality of life' crap."