





The Original **Theatre Intercom**

For 15 years Clear-Com has been the U.S.A. leader in behind-the-scenes communications for lighting and stage crews. Famous world-wide for reliable performance, ruggedness, and excellent speech intelligibility, Clear-Com withstands the abuse and mileage undergone by "travelling" systems.

A Comprehensive and Integrated System

Clear-Com's single and multichannel intercom systems are in a line with over 50 different components and accessories. This allows countless system configurations using one, two, four, and eight rings and production talk-back channels. All parts are compatible... start out with the basics, and add more as your requirements arow!

All The Functions You Need

Clear-Com does what you want it to do. Features include: up to 100 intercom stations on a mile of twin screen microphone cable; nofail power supplies; remote paging (for dressing rooms); visual signalling; party-line and private-line intercom channels. Rack-mount, wallmount, custom-mount, portable, and belt-pack styles.

face); IF4-4 (for three-, fourwire interface); WRS-3 (for duplex wireless systems).



in the UK call or write: TIRA 31 Corsica Street/London N5 1JT LINHTING Telephone 01 359 3599 Telex: 25960 EUROTL G

Elsewhere: Clear-Com EXP. DIV: Box 302 Walnut Creek, CA 94596 U.S.A. 415-932-8134 Telex: 176340 CLEAR-COM WNCK



Dallas makes front page news again. This time it's the cover of CUE featuring Vari-Lite the secret and exclusive product of that famous city. On page 23 Francis Reid takes the covers off this intriguing lantern now made available in Europe through Samuelson Communications.

CONTENTS	
Stage Design	
David Fingleton	4
Spiegel der Welt	
Francis Reid	7
Light, Shade and Balance	
Frederick Bentham	. 9
Stage and Scenery – Performer	
and Acoustics	
Werner Gabler	10
Books	15
Theatre Archeology at CSSD	_
Joe Aveline	17
Alaska – A Theatre Capital of the World? Patricia Eckert	22
Product News	23
Nort T ite	
Francis Doid	12
riancis Rela	43

Cue is an independent magazine published bi-monthly by Twynam Publishing Ltd.

Available on subscription UK £10.50 per annum (6 issues) Europe and Overseas £13.00

Editorial Board James Twynam (Managing) Francis Reid Jeremy Twynam

Editorial, Advertising and Subscription Office: Twynam Publishing Ltd., Kitemore, Faringdon, Oxfordshire SN7 8HR Telephone 0367 21141



WATER MUSIC

For people who find it difficult to get to sleep when away from their own bed, a Wellington motel has the answer: White Noise. Guests at the Sharella can tune in to the sound of surf lapping on the shore... there are also plans to pipe in other sleep-inducing noises, such as the sound of rain and the sound of a waterfall.

Alas there is nothing particularly sleep inducing about the sounds currently being piped into our theatres. We do not refer to the acousticians and their calculations: like most theatrical pundits we flourish on philosophy but are floored by a single algebraic equation. Neither do we take issue with the concept of an "electronic sound" whose timbres and balances include a technological element appropriate to our age.

Our concern is that the sounds frequently do not appear to be coming from the actors. Beyond perhaps a dozen rows from the front, musicals seem like mime. There is technology to overcome this in the form of progressive delay in the signal fed to the speakers serving the remoter seats. But this is futile when the volume is raised towards the threshold of pain and sometimes even beyond. At this level the sound can only exist separately from the actors who originate it. But, as David Collison so succinctly pointed out a decade or so ago (when most performances were relatively quiet by today's standards) — one way of retaining the attention of an audience is to provide a level of sound it cannot ignore.

The current obsession with flashing lights is self-defeating: after a relatively short time the lights no longer seem to be flashing. Sound is not dissimilar: it is often so loud that it is difficult to hear.

We therefore earnestly hope that, if we find ourselves with a reservation to slumber in an audio motel, there is a volume control which goes not just below the threshold of audibility but down to that ultimate in repose: off.

Incidentally, the diarist of the New Zealand Sunday Times, to whom we are grateful for the report which occasioned these musings, expressed his own concern . . . Someone might get confused and think their waterbed had sprung a leak.

STAGE DESIGN

DAVID FINGLETON

Pretentious treatment of Molnar and Brecht obscures their meaning. A barely credible *Coriolanus* but a rivetting *Phedra*. A theatrically magic *Nutcracker* from the Royal Ballet and a just as memorable *Rosenkavalier* from The Royal Opera.

The managements of both the National Theatre and the Royal Shakespeare Company are regularly to be heard complaining that they are grossly underfunded, and thus warning that without substantially increased subsidies they risk massive curtailment of their operations. Looking at their work from the standpoint of stage design, I am all too frequently left wondering whether the first assertion holds any water, and whether the second, were it to happen, would be altogether a bad thing. Judging by two of the three new productions I saw on the South Bank and in the Barbican during the latter part of last year, it seems more the case that the two companies, having acquired large and technically sophisticated theatres, now have an irresistable urge to deploy these auditoria in elaborate and extravagant productions for fear otherwise of being accused of failing to take advantage of them. There seems almost to be a policy of dazzling audiences with 'effects' rather than having directors and designers apply their minds to the true dramatic needs of the plays being performed.

Why otherwise would it seem necessary to change Farenc Molnar's unpretentious comedy A Play at the Castle, by way of a 'free adaptation' by the eminent playwright Tom Stoppard, into a cumbersome and costly pastiche of a 30's Broadway musical and to hire Andre Previn to compose, though not to orchestrate, half a dozen ditties to support it? Either Molnar's original play was viable and worth reviving as it stood, or, as this production in the Lytteltom of Rough Crossing, as it was retitled, demonstrated, the attempt to turn it into something quite else, with a much larger cast, two of whom never actually seemed to appear on stage, a chorus, and a plethora of obviously very costly sets and costumes, ensured that any cries of impending penury from the National could only be greeted with a somewhat bitter and derisory smile. That said, it would be wrong to criticise designer Carl Toms for what he did. Clearly he was working to a specific brief and his sumptuous and highly elaborate sets aboard S.S. Italian Castle and his mass of exquisitely detailed, admirably in period, 20's costumes were a pleasure to look at and made as glamorous an effect as any West End musical. But when one sees a tacked-on finale that lasts a bare two



The Royal Opera's new production of Der Rosenkavalier produced by John Schlesinger with set designs by William Dudley, costumes by Maria Bjornson and lighting Robert Bryan. The Feldmarschallin's grand bedroom in Act 1. Photograph by Clive Barda



Der Rosenkavalier. The set for Act 3 made for some confusion in entrances and exits. Photograph by Clive Barda

minutes yet requires a complete lighting change, plus another set of especially lavish costumes for the entire cast, one really does begin to speculate on the quality and prudence of our National Theatre's housekeeping.

Shortly thereafter I was left with a very similar impression after seeing the Royal Shakespeare Company's revival of Brecht's Mother Courage and her Children in the Barbican Theatre. Not only is it possible to mount this play on a stage bare of anything save Mother Courage's cart - and a simple cart at that - that is also surely what Brecht's whole philosophy of theatre demands. Of all his plays this one cries out for simple, unadorned presentation to get its bleak message across. But none of that inhibited the RSC where Howard Davies's production had been blessed with what appeared to be the left-overs and afterthoughts from John Napier's designs for Cats and Starlight Express. At one end of a rather creaky central revolving axis was set a cute little gypsy caravan with detachable panels and doors, behind which lurked sticks of wurst in hung orderly rows, and from the roof of which poked a sweet little crooked chimney. Kitsch at one end was complemented by an elaborate and indecipherable contraption, apparently by Emmett out of Heath Robinson, at the other. In the centre of the axis was a yet more extraordinary Emmett-like structure, a species of weather vane atop a revolving wheel, which served no discernible purpose. Lest one was insufficiently distracted by all this, the back of the stage was littered with musicians beneath the murky glare of arc-lights. As in Rough Crossing, David Hersey was in charge of lighting, and here, as there, he did a thoroughly expert job. Too expert in this case, for the stage was bathed in a soft, romantic glow that was once again



Baron Ochs – one of the costume designs by Maria Bjornson for Der Rosenkavalier. (photograph by Donald Southern)

at odds with the work in hand. Whether Mr Davies and the RSC feared that audiences would feel cheated by too bare a stage I do not know, but what I do know is that this absurdly over-elaborate treatment both obscured the meaning of the play and inexcusably wasted the resources of a purportedly hard-pressed drama company.

With the National's new production of *Cariolanus* in the Olivier it was not the concept but the execution that was disheartening. It was certainly good thinking by Sir Peter Hall and John Bury to turn that theatre's awkward stage into an amphitheatre, but the effect was clumsily achieved, with Bury's portico looking disproportionately heavy and his amphitheatre seats looking much more like theatre properties than stone. Moreover although

one could see the point of Hall wanting to set the play with contemporary relevance, the mixture of three-piece suits and Roman robes, contemporary graffiti and military uniforms, but reversions to swords, shields and loincloths for the actual fights seemed both self-conscious and uncomfortable. But most uncomfortable of all was the posse of about 100 members of the audience roped in to serve as the crowd. With their scarves, brief-cases and hand-bags, and the all-tooobvious directions of the NT supers in charge of them, these wretched paying customers, through no fault of their own, threw all credibility to the winds.

Both the National and the RSC might do well to study the work of Philip Prowse, under whose aegis the Glasgow Citizens Company has so brightly flourished. His



The National Theatre's production of Rough Crossing adapted by Tom Stoppard from Molnar's comedy A Play at the Castle. Director Peter Wood, designer Carl Toms, lighting David Hersey and choreography David Toguri. Photograph Zoe Dominic.



Mother Courage – a new version by the RSC at the Barbican. Director: Howard Davies. Set design: John Napier. Costumes: Lindy Hemming. Lighting: David Hersey. Over elaborate treatment fails to convey Brecht's bleak message. Photograph by Nobby Clark.



Julia Trevelyan Oman's early 19th century staging for The Royal Ballet's Nutcracker made it can enchanting fairy-tale fantasy much assisted by John B Read's subtle lighting.

Photograph by Anthony Crickmay



Miss Oman's sketches of Grandfather for The Royal Ballet's Nutcracker. Photographs Donald Southern

recent direction and design of Racine's *Phedra*, presented by the small independent Lupton Theatre Company at the Old Vic was an object lesson in both concept and execution, as well as in achieving maximal effect with minimal means. Prowse used a single set, a splendid and vaulted chamber whose walls seemed grey, brown, sepia or gold according to Gerry Jenkinson's highly effective and precise lighting. He thus

achieved a powerful sense of claustrophobia and the effect of classical Greece seen in terms of late 17th century French baroque: just as it should be. A typically Prowsean stroke was to have Phedra's own quarters directly below this main chamber, so that her and Oenone's entrances and exits were made through a large square hole containing a double staircase, down-stage left. This ensured a clarity of focus that use of the wings could never have achieved. His costumes were at a similarly inspired level, again allowing Greek and Minoan style to influence Racine's France, the court of Louis XIV. The concentrated effectiveness of these designs was such that one's eyes never left the stage: a formidable achievement and one that is due for a West End transfer later in the year. Don't miss it at any cost.

The Royal Opera House could feel happy with its work in December. Both the Royal Opera's new production of Der Rosenkavalier, and the Royal Ballet's of The Nutcracker were considerable successes, both should continue to please and audiences for many seasons to come. Rosenkavalier is an opera in which designers can all too easily go over the top, but William Dudley's and Maria Biornson's designs for John Schlesinger's production were both blessedly straightforward and a constant pleasure to the eye. The opera was set fairly and squarely in the Vienna of Empress Maria Theresa with the Marschallin's very grand bedroom in Act 1 having all the space required for the levée, yet remaining discernibly a room, and designed shallowly enough for the voices to be heard. Von Faninal's salon in Act 2 was gloriously nouveau riche and overdone, a sort of galerie des glaces beyond the bounds of good taste in turquoise and silver and very,

very Viennese. There was great mastery of detail too with Faninal's books clearly bought by the yard, his copies of old masters. Etruscan vases by the score, and rather bad classical statuary littered about the place. The third act was less fully achieved: a cross-section of an enclosed, circular 'chambre séparée', with a narrow circular corridor surrounding it, which made for confusion in entrances and exits. I suspect there had been budgetary cuts: the concept was promising, the execution wanting. Nothing wanting however in the execution or concept of Maria Björnson's costumes which were a joy to behold. They were bang in period, bang in class, and, above all, each and every one looked as though it belonged to its wearer. What more could one ask!

Julia Trevelyan Oman's designs for the Royal Ballet's Nutcracker did not arouse enthusiasm in all quarters, some of my colleagues bemoaning the production's un-Russian-ness and the absence of the bright garish colours that they had expected. Perhaps they overlooked the fact that Petipa and Tchaikovsky took the ballet from a tale by E. T. A. Hoffman, set in Nuremberg in the first half of the 19th century, a time when of course lighting came from candles rather than light bulbs. One has only to listen to the music to hear how unRussian it undoubtedly Tchaikovsky's most is. European ballet score. Personally I found Miss Oman's early 19th century German staging to be enchanting, conveying far more of fairy-tale fantasy, as well as the spirit of Christmas, than any production of the ballet I have seen in recent years. As at Glyndebourne in last summer's Arabella. Miss Oman's renown as a designer of meticulous historical accuracy was much in evidence. The very endearing Biedermeier setting of the Stahlbaums' sitting room and its truly fantastic transformation into the realm of the Mouse-King were stunningly achieved. The softly candle-lit room with its gorgeous gothic Christmas tree, large dolls' house, rocking horse, bath-chair, exquisite icing-sugar palace Christmas cake, and Drosselmeyer's sinister owl clock changed proportions most dramatically with the help of traps and lifts so that the tree became enormous, the dolls' house was transformed into the Mouse HQ, with Grandpa's bathchair conscripted as the Mouse-King's chariot: true, and all too rare, theatrical magic. Predictably the icing-sugar cake in Act 1 then became, writ large, the setting for the Kingdom of the Sweets in Act 2, and I for one found its gleaming whiteness altogether preferable to the usual lurid and rather sickly confectionery colour-scheme that we tend to see at this point. John B. Read's lighting was of enormous assistance at all times, wonderfully subtle yet precise, achieving a miraculously candle-lit softness in the first act and a brilliantly glacial effect in the second. Judging by the rapt enjoyment of the children sitting around me, it was clear that their imaginative powers and capacity for visual stimulation are rather better developed than those of some of their supposedly more knowledgeable elders.

Theater – Spiegel der Welt

FRANCIS REID reflects upon an exhibition of images from Cologne Theatre Museum

Cologne's Theatre Museum at Schloss Wahn includes neither a permanent public display nor a temporary exhibition area. It is a study collection for the University's Institute of Theatre, Film and Television Studies. However the staff are prepared to answer specific queries and provide research access to the 100,000 volume library, the programme archives, and collections of scenic designs, critical reviews, photographs and printed items.

The museum mounts occasional exhibitions in host galleries and the discovery that **Theater – Spiegel der Welt** was designed by Josef Svoboda gave me more than enough reason to plan to do my christmas shopping in Cologne. Choosing a day, of course, when there was a performance of 'Hansel and Gretel' in the opera house.

Although the mirror metaphor for theatre has often been ill-used to the threshold of cliche and beyond, it provides a stimulating framework for an exhibition. The theatre and the world that it mirrors were in this case predominantly Germanic. But to have sought wider geographical reflections might have diffused the focus of what succeeded as a tightly selective display.

Theatre – Spiegel der Welt did not depend for its vitality upon particularly stunning quality in its individual exhibits. Displayed items were chosen for their value in illustrating thematic ideas, occasionally making their points in isolation but more usually by juxtaposition. The mirror metaphor provides opportunity for philosophic conjecture of every shade of complexity and this doubtless influenced the selection of exhibited material. Moreover such a metaphor provided abundant stimuli for any visitors seeking the sort of debate that attempts to rationalise visual images by converting them into words.

My own response was to an almost purely visual impact, heightened by the alternative views provided by viewing both direct and through a looking glass. This provided not just two but a whole series of alternative views since not only were there occasions for multiple reflections, but the mirror stimulated me to look also at the original from alternative angles. And that mirror metaphor must have been working away subconsciously because, afterwards, I realised that I had been more than usually relating theatre to social history during my walk through the exhibition.

Ascending the Kunsthalle stairs, the visitor is confronted by a statement written backwards: turning towards the exhibition entrance, the words are corrected by a mirror. To offer a reflected image as reality is a theatrical device that immediately points the exhibition theme. Life size commedia

dell'arte figures point the way in.

The Goldspiegel room, celebrating the golden aspects of the eighteenth century as reflected in its theatre, has as its centrepiece Charles-Nicolas Cochin's etching of Voltaire's and Rameau's 'La Princesse de Navarre' performed in 1745 for the wedding of Maria Therese at Versailles. A simple viewing of the etching can be heightened by experiencing the spatial experiment of sitting on an eighteenth century chair to view the reflection of a blown-up copy. This induces a confusion of the eighteenth century them with the twentieth century us, amidst a further confusion of reality resulting from some of the printed chandeliers, balustrading and proscenium-like framing being repeated between image and mirror.

Supporting this central experience, set in an appropriate ambience of elegant chairs and candle sconces, are paintings and prints. Watteau's Italian actors. A gouache copy of the great Panini theatre interior that hangs in the Louvre. Books of Bibiena engravings from 1795. And originals of many prints that we know from history books.

Other aspects of the eighteenth century, particularly those associated with civic rather than court dramatic entertainment, are viewed through plane and concave The **Planspiegel** illustrates mirrors. Lessing's 'Minna von Barnhelm' by reflecting upon the simplicity associated with Brecht's "Eine Wand und ein Stuhl sind schon sehr viel"; while a small Hohlspiegel's concave surface allows it to contain a life size setting of the furniture and props realised from Chodowiecki's 1785 engraving of a scene from Schiller's 'Kabale und Liebe'.

So often have I ogled, in reproduction, the manager backstage among wing lights that I come over all dizzy on encountering not just the original but a companion with a chandelier reference unknown to me. To the barely decipherable squiggles on my notebook, I add details of the source in the nearest I will ever get to a fair round hand.

The late nineteenth – an age whose theatre extended into the beginnings of the twentieth – reflected alternative versions of life: the beautiful and the clouded. In the **Schönspiegel** we experience an era when, says the catalogue, 'The dream of every theatre director was a stage from a mail order catalogue'. In the exhibition catalogue there is a description of a 1900 visit to a Berlin firm specialising in stage decor of the extremely decadent splendour that I personally rather hanker after a return to.

A 1900 salon design has been partly realised and if the realisation is a little plodding when compared with the heightened ethereal romanticism of the design drawing, then that is probably characteristic of the reality of stage canvas. However when viewed through its mirror, the scene softens with the ambience that distance and a softer stage lighting would have given.

(Oh that we could know the experience of earlier designs realised by the painters and carpenters of their own eras, and viewed in the ambience of the architecture and lighting of their theatres! But could we absorb enough social history to be able to see what the original audiences **thought** they saw?).

From the stylised artifice of cloth, border and profiled wing, placed and painted in beguiling perspective, to the inevitable reaction against this beautifying mirror: The exit from the brightly clear salon decor leads without hesitation into the gloom of Gorki reality. Here all is 'naturalismus' revealed by 'atmospherische lichtmalerei'. Motivated directional light revealing the cellar's three-dimensional form is offered as an example of the clouded reflection of the Blindspiegel. Yet the environmental reality of the set (one initially enters into it rather than looks upon it) makes this seem like a clear reflection of dramatic truth. The mirror can be a very mixed metaphor!

With the distorted reflections of the Zerrspiegel we are firmly into the twentieth century. Hasenclever and the expressionism that most of us (well I certainly do) particularly identify as synonymous with German dramatic theatre in the formative years of our own century.

The Facettenspiegel is given a particularly dramatic treatment in the exhibition. A large underlit glass platform carrying an extensive collage of Berlin images of the period when a Zeppelin over the Brandenburg Gate was a commonplace is reflected in a huge multifacetted mirrored dome. The platform is walkable upon and this increases the experience of the reflections and influences their nature. The mixture of decadence and the staging reactions it provoked made the Berlin theatre of the twenties and early thirties an excitingly innovative place. Is it just my age that makes me feel that the decadence of yesteryear was more inventive than the decadence of today? Or have the technological developments in the performing media isolated popular culture into something that still provokes critics when they choose to make contact, but no longer stimulates creative artists?

The cabaret costume designs are of the quality that endears me to decadence whether in actuality or in satirical comment upon it. The display of Max Brand's opera 'Machinist Hopkins' exemplifies the power of juxtaposed items combining to stimulate our understanding of a staging – design drawings with plans showing moves, accompanied by photographs of realised scenes. And there is no need to expand upon the interest generated by scenic photographs of the 'Happy End' premiere with Casper Neher's designs at the Theater an Schiffenbaum in 1929 or the model of Piscator's revolve setting, with film and projection screens, for 'Rasputin' at the Nollendorfplatz Theatre in 1927.

Historical context is only one aspect of production style and the mirror variations can co-exist as optional parallel approaches to a dramatic text. Schiller's 'Die Rauber' of 1782 illustrates this: a Schönspiegel romantic folk myth in Mannheim (1905), a Blindspiegel illusionist fairy tale in Max Reinhardt's Berlin (1908), a Zerrspiegel



a 1900 design. .



. . . Realised at the Exhibition. . .

expressionistic crowd drama in the Grosse Schauspielhaus in Berlin (1921) and a Facettenspiegel revolutionary event in Piscator's Berlin (1926).

The metaphor for the Nazi era is not a mirror but a shadow, with Schatten der Vergangenheit bringing together material from productions of recent years which commented on the Hitler period.

And so to the theatre of today – reflected in the **Spionspiegel**. But why the spy metaphor? Spying implies an audience observing in a detached way. The television screen may have analogies with the keyhole, but the contemporary stage is concerned, frequently to the point of obsession, with an audience contact often involving some degree of actual participation.

Certainly the width of today's developments in theatre is demonstrated. And we are not programmed through them. No sequential labyrinth. Swivel your eyes and select.

There are two rooms, furnished to match the eras of their respective technologies: television spyglasses in monochrome and colour. Seven video screens' on sentinel podia form a sculptural group of big brethern explaining the American Way of Life (with its Apotheose der Mittelklasse) through the media of the Beck's Living Theatre and Robert Wilson's Theatre of Visions. There is street theatre, olympic scale arena theatre, feminist theatre,



... and reflected in the Schonspiegel (note the fire exit sign-Brecht?)

puppetry, dance and all the forms and mixtures that are part of our current quest to widen the frontiers of dramatic communication.

And a stage for a series of performances that match the scope of these possibilities. The diversity of contemporary production styles is mirrored by the audience seating. A wondrous collection of chairs of every possible kind — elegant, functional, rustic, rocking even gynaecological.

Spiegel der Welt was one of the most stimulating theatre exhibitions that I have experienced. With Svoboda as catalyst, Theatre used its own visual techniques to explain itself. Often sparingly but always effectively. But why no sounds? There was not a single subliminal semiquaver and the ambience was consequently less than it deserved to be.

Light, Shade and Balance

FRED BENTHAM

A favourite work of reference of mine is the old Octavo and A5 TABS. This is not because I was the editor for its last sixteen years but because for the major part of the period 1937 'thru' 1973 there was no other technical journal devoted to theatre in these Isles. There are to my knowledge only four complete sets and one day some publisher is going to realise that therein lies a worthy subject for photo-repro. Anyway, what happens is that I go to my bound set to check a date or a detail of something or other.

Although I have enjoyed doing indexes for my own books, I am not by nature an index user; preferring rather to flip over in pursuit of some hazy vision of what the particular page looked like, or ought to look like. Soon in the present case one stopped short: George Devine on *Light, Shade and Balance*, I wonder what he had to say in April 1953? It isn't what I set out to look for; but a pause follows to find out what Devine did say!

LIGHT, SHADE AND BALANCE By GEORGE DEVINE

The more productions I light, the more I become endeared to the "pageant family of apparatus. I suppose I am lucky in that I never have to do much with "domestic interiors'' where, except through the window on a fine summer's day, I imagine the pageant would be a bit rude and crude amongst the tea cups. But for the threedimensional scene of a more open kind, the pageant or the narrow-angled acting area used horizontally are the only apparatus that we can satisfactorily use to give shape to our lighting in a dramatic way. (I am speaking, of course, of the acting area lighting and not of backings, backcloths or other special effects.) Another valuable asset of the pageant class is the punch for long throws: from fly rails or bridges for high cross or back lighting they keep their value. I wish there was a 2 kw. pageant. Perhaps there is, but no one I work for ever seems to have one.

Also the pageant is a bold and definite light. It doesn't pretend it isn't there, and why should it? It gives the kind of clarity which the theatre needs as it emerges from the muddy gloom of naturalism.

But this brings me to the point of what I want to say. As these strong definite lights become more and more used, another type

of apparatus becomes necessary, which we might call the "balancing light." How many times have we had to "check" a pageant, thus reducing its dramatic effect, because the light on the actor's face was too one-sided, and we had nothing to balance it on the other side? In the old Queen's Theatre, Shaftesbury Avenue, now derelict, there was in the proscenium wall on each side a series of six float spots let into the wall. They were situated within six inches of the edge of the proscenium, and were invaluable for just the function I am mentioning above. They did not "cancel out" a strong dramatic beam, but, by their proximity to the actor, one could use them to "balance" almost all over the acting area except, perhaps, centre stage. I strongly recommend all those concerned in the construction of new stages to consider this point deeply at the outset of their planning, as it is almost certain to involve architectural considerations. When we planned the new lighting at the Old Vic, we made the fatal mistake of leaving this matter too late, and discovered that no space had been left for just this type of light. In that case we were intending to use the new small mirror spots, which would have been more useful and flexible than float spots.

Another type of apparatus we need for "balancing" is a small focusing light we can conceal inside scenes, pillars, false prosceniums, etc. Apart from the old float spot, which is not very efficient or small, I know of nothing available here. I have seen some apparatus from the U.S.A. which serves this purpose well, but I have frequently been told there is some technical reason why we can't have such lanterns here. (Perhaps the Editor will fill this in by telling us the reason.) But I do not believe it will be long before these technical problems are overcome.

In the meantime we must wait and plan. The most important thing is to build our theatres and stages with these necessities in view.

Good stuff from the great man but seemingly the then editor, Hugh Cotterill, would not allow him to say it without an in-house postscript; for the story is taken up under the head "We reply –" and I continue reading and turn over and behold at the bottom are the magic initials F.P.B. So I have been reading myself and very sound stuff that was also! I must add that far from always do I find that I can agree with that chap who was me. There have been changes of mind over the years. I cannot understand why party politicians consider these inevitable changes of mind so contemptible.

We reply -

Mr. Devine's praise of the Pageant type of lighting, as he calls it, is really welcome and focuses attention on a style of lighting peculiar to this country and one with the introduction of which I, as a member of the Strand Electric, had much to do. It vexes me when people complain of striation in the Pageant's light, or above all when they complain that, using them from the circle front, they light up the orchestra with ghost light. Let it be said with all the emphasis I can call up that they are not intended for that — the mirror spot position.

The Pageant is a side lighting lantern which makes its contribution as much by the shaft of light of its beam as by the ultimate result where it hits stage or actor. The beam stabbing through the comparative darkness tends to obscure the outer reaches of the stage picture and give the mellowing quality of, without the barrier drawback of, a single gauze across the stage opening. At the same time the actor at the receiving end of the beam is lit in no indecisive manner.

Peter Brook's production of *Dark of the Moon* at the Lyric, Hammersmith, showed complete grasp of the Pageant lantern, and he used them in extraordinarily large quantities for such a small stage. I remember at the time thinking that a "Chorus of Pageants" ought to have been listed along with the cast.

Pursuing the correct line of development we have recently redesigned the Pageant not to soften the light, not to remove the striation, ghost light, etc., but to increase the intensity still further. By substituting a small masking disc for the spill rings used hitherto, we have put up the light output at least 25 per cent. Also the new lantern (Pattern 58) can be used with a 1500 watt tubular lamp when the angle of tilt does not exceed 22½ degrees and when the extra light warrants more expensive lamp outlay. This should answer one of Mr. Devine's queries.

² Correction to all this side lighting and the corresponding overhead acting area lighting is important. For the most part a really comprehensive nicely adjusted set of mirror spots on the upper circle front is the answer, but I agree that something else is needed.

Lately I have been wondering if sufficient use is made of the footlight position



and if more float spot points, each with a dimmer, should not figure in a first-class installation – seven or eight 100 watt spots housed between lengths of compartment float as a kind of miniature spot batten at the front edge of the stage, for serious use instead of for mere shadow stunts.

The proscenium position referred to is a valuable one, as I found while supervising the Lisbon Opera House scheme early in the war. There the proscenium column either side was hollow towards the stage and we concealed four 500 watt spots with dimmers in each. They were specially valuable because the columns were further from the acting area than usual, due to a vertical line of boxes actually on the stage between proscenium and house tabs. These historical curiosities did keep the artistes at respectable range.

Very often side spots are fitted under the side boxes of a theatre, but invariably they are too far from the stage, being almost circle spots, too few in number and the wrong type – usually Pageants! As they are on the side walls of the theatre managers are chary of hanging an array there, and even in the Old Vic, architecture came first and was allowed to make nonsense of most front lighting, as Mr. Devine confesses. Stratford-on-Avon is happier in this respect, real places of concealment being sited to give a variety of angles (*see* TABS, December, 1951).

Of course, lanterns available up to now have been bulky and somewhat of an eyesore, and the practice of using a sheet metal housing has aggravated rather than ameliorated these defects. The latest lantern, the baby mirror spot (Pattern 23), is as near good looking as a spotlight can be and is certainly small and compact. Therefore, I pray architects and others allow it to hang in the open, frankly as a spotlight, and in sufficient quantity for spotlighting to be used as spotlighting and not a "hope for the best" localised flood.

F.P.B.

George Devine CBE was a remarkable man who was able with every right to describe himself in Parker's Who's Who (another favourite work of reference!) as "actor, director and producer" and was particularly associated with the establishment of the English Stage Company at the Royal Court Sloane Square – Arnold Wesker, John Osborne and all that. Due to Devine's early death in 1966 at the age of fifty-six he had little experience of the surrender to the lighting designer. Peter Brook's Dark of the Moon was put on in 1949. We can see that the punchy lighting of today's massed beamlights, call them Parblazers or Rockettes or what you will, is not a novel concept. What is new is the much higher levels of light. We must take care that just as in sound we up the decibels so easily, our lighting does not become a tale of full up light and fury signifying nothing.

I think this chance to look back in wonder salutary. Incidentally, book flipping is something that the new age of computer reference may destroy. My only trouble is that at the time of writing I still cannot remember what it was that I went to that particular volume of Tabs to look up in the first place!

Stage and Scenery – Performer and Acoustics

WERNER GABLER

Acknowledgement is made to the author and our German contemporary Buhnentechnische Rundschau for permission to reproduce the following article from their December issue.

It is both surprising and refreshing to be able to note that at last a singer on the stage has advanced demands with regard to stage acoustics. At the 1983 Heilbronn Theatrical Congress a chorus-singer asked whether, "Scenery should really be constructed without regard to it's acoustic serviceability".

Anyone who has been closely connected with the theatre as an acoustic specialist for almost half a century, will have been astonished that the performing artistes, whether they be actors, singers or musicians, have not raised a more frequent voice against the unreasonable demands inflicted on them on stages and concert platforms. As if determined by the Gods, the acoustic conditions on platforms and stages are being endured, even though before the very first note rings out, it is clear to see that singers or even tonally limited instruments – perhaps indeed harps or harpsichords – are being placed on the most luxurious carpets, ceremoniously surrounded by pleated velour curtains. This

means that the first note to emerge is throttled, and has to be assisted in the auditorium after leaving the source of sound; this calls for manifold reflection. Should this aid be lacking directly close to the sound source, even the best acoustic theatre or concert hall will only be able to offer slight compensation. The performing artiste senses the shortcoming – most probably, instinctively and "forces", i.e. frantically seeks to raise his voice. He thus loses the dynamic fine shading up to pianissimo. A first violinist, of a municipal theatre also with an unduly muffled auditorium, recently complained that it was impossible to play any cantilena or any melody suitable for singing.

The artiste certainly has an awesome task when he has to play music or speak in an old hall, possibly of architectural merit, without the necessary acoustics in the auditorium. On the stage, however, it is the responsibility of the artistes and the technicians; they must appreciate and use the fundamental principles of acoustics, just as they have had

en meine licken grossen? ! Deublerkie !! Die grotten holes tommen von selles; Ox Kleinen holen und ihr Sext and die Olaugehaske . mit den Bubli Kum elisas sagen, sondeni more den anderen ; in Setterlgesperithen noch unden ader nech obein blirkend, noc Shill min gul, Jha Chelen Bayseult, 13 August 15%.

Fig. 1. Wagners final request in a note pinned to the door of the Festpielhaus before the first performance of the "Ring" at Bayreuth which he did not attend. This note concerned the clarity and truth to life of the acting and starts with his general precept that if we take care of the short notes the long ones will take care of themselves. to learn to master lighting technology, safety regulations and many other requirements of their professions. In many of these areas it is normal for the fire-brigade and other organisations to exercise supervision, - acoustics however, are not watched over by any authority, such authority is outlawed.

It is certainly remarkable that musicians only appreciate natural requirements as far as they are necessary for voice formation and instrument technique. It took until 1983 before a singer openly protested, and for this reason a detailed answer is to be given here, which, it is to be hoped, will be better accepted and followed, in practice, than the countless preachings of earlier years. Those employed actively with scenery and stage techniques were provided in 1955, - issue I, with rules for stage BTR acoustics, easy to understand and just as easy to apply. That which was proposed in the protest mentioned earlier, was for the greater part already in print almost 30 years ago.

The barely sufficient rules are to be repeated here, but in new form. There are also new construction materials to be mentioned and positive examples to be quoted, which have only been developed in the theatre world in the last decade.

Perhaps it is more tempting to provide examples of faults in malfunctions: In the Bayreuth Festival Opera House the style of production in the 50's has made it possible for an acoustically new type of sound field to emerge. The stage set of Bayreuth's early days was a hinderance to singers, because the sound was trapped in the side alleys and accordingly, for acoustic reasons, they sought the proximity of the apron to establish direct contact with the auditorium, and as we know, the Stage Manager Richard Wagner had to request, to stay within the scene (Fig 1).

Singers had already been very much relieved by the development of scenery with the use of 3-dimensional parts in the 20's and 30's, until finally New Bayreuth offered the partially complete open hall with, above all, the stage surface itself being formed plastically, so that singers were raised higher over the apron, with extensive sound reflection created by the floor formations falling away to the public. When however, the large playing area had to be enclosed all round by the cyclorama or even gauzes, the floor reflection alone was not always adequate to project the singing voices over the apron and the orchestra. As examples as to how the stage designer and stage manager can help, two scenes from Wolfgang "Tristan" 1957 production Wagner's should be mentioned: The sail in Act 1 was made not from fabric but from plastic, solely because plastic is a good sound reflector, especially in the higher range (illustration 2). In the final Act, which imposes especially on the performer of the title role, demands of endurance and expressive power which are almost superhuman, a wall was formed as a concave mirror, in whose focal point fatally wounded Tristan's bed was placed. The



Fig. 2. "Tristan and Isolde". Act 1. Bayreuth 1957. Stage design: Wolfgang Wagner Polystyrene film backcloth in place of the absorbent cloth material.

voice of the singer (the unforgettable Wolfgang Windgassen) was therefore able to be heard, even when the head was turned aside, or when it faded away with the death rattle. The ranges of possibilities for expression were extended for the performer despite the width of the hall, with the most intimate effects; on the other hand, it was possible for the vocal power to be used with deliberation in the fortissimo-cry, in order to ensure the further intensification up to the end. The sail's plastic material later also proved to be optically advantageous with the lighting rehearsal, as it allowed coloured effects by illumination from rear, front and side lighting, something a cloth material had not permitted.

Sound reflectors on the stage whether awnings or castle walls, with their reverse sound path, have for the performer the effect, that the orchestra can be clearly heard and without time delay. The careful acoustic scenery construction on the stage not only prevents shortcomings and disadvantages, but it also provides the right conditions for finely graduated effects, which must still be possible in theatres with large auditoria of more than 2,000 seats. The most easily memorable artistic experiences for the performer, as for the audience, lie in the right balance between the stage voices and the orchestra.

The scenery construction can thus anticipate and contribute to the successful outcome.

These practical examples from Bayreuth which could be repeated ad-lib, already make it possible to derive several generally valid rules:

- 1. The plans of the producer and the stage designer, should from the start include acoustic measures, and recognise acoustic requirements as the Acts develop, - only then will the necessary technically required aids blend smoothly into artistic production. The technical necessity is not then subsequent correction, but rather to stimulate new ideas.
- 2. In principle the realistic acoustic condition on the stage should always be greater than in the auditorium. The majority of our old theatres with several tiers have too little reflected sound for

music; the stage can compensate for this deficiency.

3. Speech and song are to be reinforced by sound reflecting surfaces in close proximity – and also on the floor –, through hard lateral or rear surfaces. Suspended ceilings, invisible to the audience, above and in front of the performers, can save the acoustics where scenery consisting of screens and drapes, have to be used.

These 3 rules require some advice as to which materials are more or less sound reflective for scenery construction, and therefore firstly the physical fundamentals are to be described in brief for general understanding:

For our theme we can primarily restrict the source of sound to the human speaking and singing voice, whose range for the musical basic tones extend about 85 Hz for bass, to 1,400 Hz for soprano voices. The well-known concert pitch has 440 Hz (with orchestras usually up to 446 Hz). The harmonies, upon which the characteristic timbre of each voice depends, and the speech consonants and sibilants extend up to above 14,000 Hz, the hearing capacity of humans ending between 16,000 and 20,000 Hz.

The oscillation frequencies per second (Hz), at any time, correspond to a certain wave length, which can be calculated in round figures, by dividing the sound velocity, in air at about 20°C, or 340 m/sec, by the oscillation frequencies. For the concert pitch this gives about 78 cm, for 100 Hz 3.40 m already, for 1,000 Hz 34 cm, and for 10,000 Hz only 34 mm.

It is quite evident that air vibrations with such marked differences in wave lengths also behave differently with propagation in air and when meeting material obstacles. Only the high tones propagate similarly to light – straightlined; sound energy with longer waves can bend round obstacles. If a performer on the stage turns away from the public, the sound volume is only slightly reduced, but the consonants are already difficult to understand to the side, and in the opposite direction are almost completely lost. The lower parts of the voice's sound mixtures bend round the obstacle – the head.

Quite remarkable and generally known, is the fact that long wave sound also penetrates a non-porous material plate with little loss of energy. According to the pitch, the energy is increasingly reflected back to the transmitting side, or is absorbed in the material. The example of traffic or neighbourhood disturbances through a window or a simple wooden door is well known; the deep hum remains audible, the upper registers fade. This most undesired effect also occurs in the theatre, when stage music sounds out from instruments out of sight or from a "Ghost chorus". This also applies for the concealed orchestra in the Bayreuth Festival Opera House. Even the sound curtains, often used with scenery changes, are mostly too light and allow the rumblings on the stage floor to penetrate audibly with only slight reduction.

These features are known to a certain

degree. What is not appreciated, is the fault of placing the sound-proofing material directly onto a non-absorbing base, - as fabric on a wall or as a carpet covering on the floor. The long wave parts in the tone mixture, be it music, speech or song, are filtered out by the reflection, because the deep notes behave as if only the base stands in their way, but the short wave upper registers are absorbed, each according to the thickness of the porous covering.

The different constructional materials cannot thus be easily divided into two groups, the one reflecting the sound, the other absorbing, but rather the reflection and absorption are frequency dependent occurrences, whereby certainly the porous solid bodies with increasing frequency always absorb greater percentages of the impinging energy. Thus faced masonry or a porous thin roughcast hardly absorbs 1% in the bass notes, but at about 3,000 Hz three to four times the amount. We also call it a non absorbing reflective surface. If such a wall is covered with a fabric without an airspace between, or if a heavy stage floor is covered with a thin velour carpet, then in the bass notes the reflection remains almost unchanged; the absorption can already, at 1,000 Hz achieve the ten-fold, and in the upper range 20 to 30-fold. Tapestries in many theatres have been torn out for some years now following reconstruction, because muscially the muffled tone without bounce was irritating, as speech audibility was made more difficult.

On the stage, the floor strip crosswise in front of the apron always forms the most effective reflector for stage voices – comparable with the sounding board above the preacher –, there, even a thin and narrow carpet runner is acoustically damaging.

The fact that the surface material reflects the top notes better than the low notes, is exceptional in architectural acoustics but not so for large pieces in scenery construction. That a framework covered with sackcloth or linen is sufficiently reflective for the medium and short wave sound, just with a covering non-porous paint bond, has already been mentioned above. This also applies for the full cyclorama surrounded with very dense cloth material, which is indeed penetrated by the bass notes but which, however reflects a significant part of the high notes.

The fact that hard foam in the form of sheet or solid blocks works equally well for stage acoustics, is one of the reasons why this new material has been accepted for use so quickly and with so little resistance. Hard foam is super-light and comprises more than 90% air, which in real form is enclosed, i.e. polystyrene material seals off the air in enclosed bubbles. Short wave sound transmitted through air hardly penetrates, and can be well reflected with the use of as thick as possible a coating of lime and gypsum additive.

Thin chip-board and plywood sheets, for preference less than 12 mm thick have similar favourable acoustic qualities. This can mostly be explained in analogy with

Table of Constructional Materials usually found on the Stage Assessed according to their acoustic behaviour - more or less reflective or absorbent. a) reflects all frequencies 0 weak • stronger • • almost 100% b) reflective, however absorbent in part in the low notes c) absorbent, however - low notes little, towards the high notes, increases significantly d) absorbs all frequencies 0 weak • up to 60% • • up to about 90% a) b) c) d) A Floor Constructional material or fittings 1. Wooden planking, more than 25 mm thick . . 2. Plastic, linoleum or film coverings . . 3. Dancing carpets, sprung, but with closed smooth surface 0 4. Coverings of thin textiles, linen, sackcloth or similar firmly attached 0 0 5. As 4, however, painted or filled in pores closed 6. Carpets, woven or knotted thickness 4 to 8 mm 0 7. Grass carpets B Vertical walls, tables, - Practicalities and Limitations of the Playing Area 1. Cyclorama - Plaster of Paris cylinder (rarely used now) . . 2. Cyclorama of dense textile - hanging unruffled 0 3. The same, of film or textile with latex on the 0 reverse side 4. Drops, transparent, single with few folds 0 0 5. The same, but multiple or with deep folds 6. Curtains in scenery, drapery - panoramic curtains few folds 0 0 7. The same, however with folds (for 6 and 7, mostly velour) 8. Drops in the pros. opening, covering the stage, sound transit slightly obstructed 0 9. Walls and set pieces of plywood or chipboard . 10. The same - light construction (frame with 0 0 0 painted canvas) 11. The same completely filled in and painted 0 . 12. Hard foam for walls, architectural parts, 0 0 rocks etc 13. The same, filled in and painted 0 14. Mirror and glass surfaces for windows, also plexiglass . 15. Foil mirrors 0 16. Metal surfaces, usually mostly of sheeting • C Upper area of the stage with grid 1. Disturbing sound only, where the features are not hung 2. Customary heavily hung features 0 3. Vertical borders, acoustically of little use, even when they reflect 0 0 4. Horizontal or slightly tilted ceiling, as B9 or 10 . 0 0 5. Textile awning 6. The same, in film, possibly thicker than 1 mm . 0 0

experience in instrument construction with it's capacity for resonance. Above 400 Hz even these characteristics are mostly lost by resonators; everyone at some time has been able to feel the resonance of thin plates, even of heavy window panes, by lightly touching them with the fingers. It is of no importance for the stage technician to appreciate whether the absorption of the bass notes can be explained by resonance or by the penetration of energy. It is, however, a widely held view, that resonance can strengthen stage voices; resonance uses energy and ends immediately following excitation by air sound. Only by mechanical release, — which is very high in energy, — can a resonator cause reflection of sound transmitted by air, as for example, in many theatres, a shot on the stage causes the iron curtain to vibrate for several seconds, the explosion wave having hit the sheeting.

The acoustic evaluation of the constructional materials

In the table alongside, an attempt has been made, in the vertical columns a) to d), to evaluate realistically the acoustic behaviour of various constructional materials. On the stage, close to the sources of sound, the surface is the most valuable which returns the high and low tones, i.e. a wide frequency band, to the auditorium without loss. This is indicated in column a) by two points \bullet \bullet . This occurs infrequently in the table as it appertains to a dense non-porous material with more than about 5 kg surface weight, which understandably is not often present with scenery subject to changing.

In practice it does not matter when the reflection of the high notes is given that a part of the low notes penetrates, - indicated by one point \bullet in a) and by 0 or by \bullet in b) in the table, as the voices overtones and the high frequency speech and singing consonants and sibilants, have to be cultivated most carefully. The materials, assessed as being good, in column b) are therefore just as good if not more valuable than those in the first column. They fortunately occur most frequently in lightweight constructions.

It is similar in columns c) and d): The absorber with 2 points in column 4 destroys high and low notes, thus does not perform in the sound field, but also does not change the sound field. On the other hand however, if as in A7, large carpets filter out the high notes alone from the total sound, then a well known metallic clear ringing voice reaches the listener, completely alienated, – an admired Italian sonorous tenor sounds soft, without bounce, – a clear feminine voice suddenly becomes deeper. The surfaces in A6 and 7, and in B5 and 6 are therefore to be absolutely avoided with large surfaces, and require the support of other reflectors in B and C (perhaps B9 or 13 and C4 or 6).

Practice and Theory, Appearances and Reality

Occasionally the specialist protests that everything may be right and appear to be so, but in actual practice, can unfortunately hardly be used! On the stage we move in a world of pretence, and the bedrock consists of "Boards, which mean the world itself". But however, even this expert feels it disturbing, when each wooden board rings hollow, whilst the performer strides over the marble floor of a church, when the Valkyries armoured on the Hünsruck Gneiss, wait for their angry overlords, or a chorus of smugglers nightly traverse the Pyrenees. One is aided in that boulders are optically presented, but footstep muffling cork or soft foam plastic is placed underneath.

Dance carpets, introduced for some time now, with a smooth slideable skin placed on a thin elastic layer making the wooden flooring inaudible even with jumping thereon, have made it possible for pirouetting, turning and doing the splits. This special carpet is space-acoustically valuable, as the sound of medium and higher frequency is quite well reflected. Should it not be technically possible so to emboss or colour this covering skin, that at a certain distance the deception is there, -a woven carpet for example. Even if optically a luxuriously furnished room must appear, the voices of the performers should not suffer because of this.

This also applies to Groups B1 to B7 in the accompanying table, where the stage designer has prescribed lateral closure curtains which are detrimental there as voice absorbers. With some thought, it should be conceivable to have velour pleat edges only turned towards the audience, with mat printed sheets behind. When exceptionally the whole playing area has to be hung about with gauzes, then today there are transparent films available, which are acoustic or at least, preserve the reflection of high notes. With fabric panoramic curtains the deception with film has not completely succeeded, as even a matt printed film retains a slight gloss with incidental light; but then consideration must be given as to whether reflectors, invisible to the audience, could be used, and in certain cases perhaps, invisible ceilings in the upper space of the stage (illustration 3). Also a few reflective standing walls are conceivable within the curtained stage, when perhaps Kundry appears in the enchanted garden in a sound shell, camouflaged as a floral grotto, or when Sarastro. far behind the chorus has to dominate with his final aria. Then the acoustically necessary sounding board can be arranged above and in front of him, perhaps decoratively as a baldachino. Often individual reflectors, of very few square metres extension are sufficient to make a call or scream audible in the auditorium, when the performer's face has to be directed towards the depths of the stage, - when Senta hastens after the disappearing Dutch ship. When the reflector is brought to within a

Fig. 3. Schematic outline of the 'Black Cabinet'' - Example and Counter-example



Optically black, but "sound-proof"



Reflectors in curtain rows and ceilings above the playing area.



few metres of the source of the sound, it only needs to be quite small to have an amazing effect out over the apron (illustration 4).

A further example of practical experience comes from the memory of a Fidelio rehearsal in a large opera house where a soloist without adequate sound carrying voice was directed by the producer to go downstage towards the apron but without the expected success, as his voice had been absorbed in the orchestra pit and by the front stalls' upholstered seats. Only then was the advice of the acoustic specialist followed, to place the soloist about 3 metres behind the apron, the hard stage base acted as a reflector and the voice "arrived".

The drift to the apron, which Richard Wagner, begged his performers to get out of the habit of, most probably occurred in the back-drop and border days. The covering over of a part of the orchestra pit in Bayreuth is useful, as a reflector to the singers. The open orchestra pits of today do not help the singer. The balance between stage voices and orchestra is best ensured when the apron in front of the playing curtain projects one to two metres over the pit. That too has been proved in the Deutscher Oper, Berlin, in a very expensive experiment, when the apron was subsequently cut off despite all warnings.

It was quite wrong however, when the attempt was made in certain theatres, to lay carpets on the orchestra floor to mute the orchestra. The sound was not reduced as a whole, only the high notes. During the rehearsal of an operetta, the acoustics specialist, who had not then seen the carpet, asked, from the front stalls, whether the orchestra had replaced the oboes by saxophones. That was not the case; the oboes, directed downwards, had lost their upper tone range. The error was remarkable and





Fig. 4. "The Flying Dutchman" Bayreuth 1957 — Final scene.

Stage Design: Wolfgang Wagner The projected image of the ghost ship becomes smaller going away into the open sea. In the projection surface, just a few square metres large, a reflector has been let in, so that Senta hurrying after the ship, remains audible in the auditorium until the very last beat.

convincing, and what was more, the musicians could hear that their instruments were not so easy to play, and as an unconscious consequence they forced their playing. The orchestra was not muted to the benefit of the stage voices, but it sounded darker, muffled and solid. In the immediate proximity of the source of sound, absorbers are harmful, especially those in column c) of the table. The conductor alone is able to notice the balance, restrain the musicians, cultivate the beauty of the piano playing, and with the music making, to listen to the stage voices and adjust. Artificial means of acoustics are to be rejected. To this belongs the introduction of loudspeakers into the

SUBSCRIPTION FO	RM
CUE	
To Twynam Publishing Ltd., Kitemore, Faring	don,
Oxfordshire SN7 8HR.	
Please send CUE Magazine for one year (6 issues) and -	Access
1. I enclose my cheque/postal order for £	
2. Please send me an invoice to the address below	
3. Please send me a bankers order form to the address below	BARCLAYCARD
4. I authorise you to debit my credit card account with	VISA
*£ My Barclaycard/Visa/Access account number is	
NAME (Mr. Mrs. Miss)	
ADDRESS:	
· · · · · · · · · · · · · · · · · · ·	
SIGNATURE:	
DATE:	* Subcorinti
Receipts sent if specifically requested.	rates are overle

orchestra, by which means the stage voices would be audibly reinforced; the orchestra musicians would no longer be able to appreciate whether the balance was there or not.

When stage designers and producers have not thought about the natural acoustic consequences in advance when designing the scenery, then with the first rehearsals, using the scenery, some acoustic experiments ought to be arranged. Often, music deficiency is compensated for with trifling corrections, changes of material, or with reinforced coats of paint.

To the three rules mentioned at the beginning, a fourth should be added:

4th rule: To the first scenery rehearsals belong acoustic tests which take into consideration the intended placing of the performers, especially when scenes are planned for the depth of the stage or otherwise right away from the central playing area. Here it must be considered whether the chorus or crowds shield the reflectors, important to the main performers, by being absorbent masses.

With the application of rule 4 direct observations should be made during the tryout period. There will be objections that there are already superabundant scenery, lighting, costume and orchestral rehearsals so why in addition should the stage acoustics be tested. The simple answer being that the critical ear can observe the effect of the fixtures and furnishings on the spoken and singing voices, especially when the stage direction calls for extreme positions on the edges of the central playing area. The testing of the acoustics is only one of the many critical items which the stage managers and musical conductors should consciously heed. A few examples will illustrate this: Sarastro's final aria in the "Magic Flute" is not the only already well known example, where an especially musically effective Coda has to reach the auditorium from one performer at the depths of the stage through a festive chorus group and crowd. When the crowd often clothed in an expensive manner cover the reflecting surfaces laterally and on the floor, when a free passage in front of the singer appears to be all too conventional to the director, then there only remains additional acoustic aids, such as raising the singer a few steps, or covering his position with a reflecting baldachino.

The acoustic deficiency, is thus often first evident in one of the last costume rehearsals. At this point stage designers and technicians should be able to bring, in suitable sound mirrors, imaginative yet with the clear technical purpose of heightening the performance.

It is not always possible to conceal this acoustic correction from the audience, as Wieland Wagner did with the first entry of Elisabeth in "Tannhauser". (illustration 5). Following her entry she had to walk a long way from the back wall of the hall - which was constructed of high walls without visible ceiling - forward up the centre of the stage. Her greeting had to sound spontaneous upon entry. A large sounding



Fig. 5. "Tannhauser" Act 2 Bayreuth 1954 Stage Designer: Wieland Wagner Invisible ceiling as sounding board above the main playing area, correctively hung up during a rehearsal.

board, invisible to the public, approximately over the central playing area directed a beam of sound rays towards the auditorium, which otherwise would uselessly fade away in the grid. The quite inexpensive sound technical trick was achieved without disturbing the scenery or the production's intention. Just a short pause was sufficient to raise up the reflector, which was then also of service to the chorus and to the other soloists.

Rarely with musical theatre productions, more frequently, however in plays, is an effective scene detail selected where the proscenium border is as low as 4 metres internal height in order to accommodate the "wide screen picture" of the films. Perhaps this notion was prompted by the overwide stage up to 33 metres of the Grossen Festpielhauses, Salzburg. If behind a low false proscenium the depth of the playing area is used, then there is the danger that the performers' voices will be caught up behind the framework; an all too small a part of the sound energy reaches the listeners out over the apron. Here the horizontal hanging ceiling, already mentioned more than once. helps, which must be fixed as close as possible behind the proscenium framework. This sound reflector must thus be arranged mostly in strips between the lighting bridges, as the top light is essential from the front. Technology has the double task to solve - to make possible the direct incidence of light, and also sound reflection.

The knowledge regarding, the natural laws covering sound distribution in space, absorption and reflection on the material surfaces, resonance and echo, in short -acoustics, has been comprehensive and sufficiently complete for many years, to allow successful predetermination of all plans for the theatres themselves, and for the stage furnishings, especially before the actual execution of the work. Later, complicated and costly experiments in daily practical operations, can no longer be justified today. On the other hand, acoustics remain the servant of the artistic fantasy of architects and stage designers. the Following a success no-one enquires as to the part of it which the acoustic measures have contributed. When nothing is said about the "good acoustics" everything must be in order.

REIDing SHELF

Richard and Helen Leacroft's **THEATRE AND PLAYHOUSE** is absolutely indispensable. No one, seriously interested in the nature of theatrical experience, can fail to be fascinated and informed by this pictorial history of the development of stage and auditorium. I am certain that I shall be returning to its pages again and again for the rest of my life. And so will future generations.

I am not surprised by my enthusiasm for the book. Richard Leacroft's cut-away isometric drawings have always been by far the best way to experience a theatre if a visit is impossible. And in the case of theatres that no longer remain to be visited, his reconstructions are based on a degree of scholarship that ensures confidence in the credibility of his conclusions.

The Leacrofts have no punditorial axe to grind: they do not wish to impose their concept of an ideal theatre upon us. Their book is content to set out to describe the development of theatre building from the Greeks to today - as it happened and with an explanation of the circumstances that made it happen.

It is basically a picture book: three hundred and fifty illustrations of which some ninety are cut-aways. The text is spare but tightly to the point. Indispensable. And affordable: thanks and congratulations to Methuen for making such an important book available in paperback at such a bargain price. Absolutely indispensable. The theatrical renaissance that accompanied the 1979 restoration of Frank Matcham's Opera House is a fine example of the interaction of the arts and the architecture in which they are housed. The Opera House story has received widespread journal coverage but now **THEATRE IN THE HILLS** sets it within the context of Buxton's total theatre tradition.

Like most local theatre historians. Ros McCoola has to adopt a creative approach to the eighteenth and early nineteenth centuries. Her clues include playbills, gravestones, tithe maps and account books at Chatsworth. Even when these help her to prove only that a print is misdated or that a building on it has been traditionally but wrongly identified as the second Buxton theatre, there is a positive gain and her credibility is enhanced. Grafting on to the slender Buxton facts her knowledge of contemporary theatre elsewhere (with standard illustrations of Richmond, Hogarth and Kean), Ros MacCoola promulgates a picture of Georgian and Regency theatre life in Buxton that carries a ring of truth.

But with the coming of this century there are more detailed records, whether of rep at the Playhouse or the Old Vic festivals at the Opera House from 1936 to 1942.

The eighty illustrations include colour of the restored Opera House and such goodies as the Sunlight Gas Panel, the Strand Grandmaster, Matcham's original section and a rep company of faces that are now





more renowned than they were in 1948. Every town with a theatric past to add to their illustrious theatric present should have a book like this.

My lighting for Michael White included a smash hit (Sleuth), a scandal (Soldiers), Glenda Jackson's only ever flop (Fanghorn), an opportunity to work with Hilton Edwards (Philadelphi Here I Come) and La Mama (Tom Paine), the chance of pushing a single preset choke control to its limits (So What About Love) and one (Man from the West) that is not even mentioned in his autobiography although it played to nothing but EMPTY SEATS.

I therefore enjoyed the book enormously, reading it in a single train sitting. That I could do so is a tribute to a writing ease which suggests that, if he had not been seduced by theatre, Michael White might well have succeeded at his original determination to become a novelist. However this would have been a pity. Novelists we have in plenty, but entrepreneurs with theatrical flair are scarce. Alas, we are developing a theatre that does not encourage them — and will not until we can induce a more flexible approach to public accountability.

Anyone who has lived through the last quarter century of British theatre, or aspires to contribute to the next, will find much fascinating background detail. The big agonies are here and so are some of the highs. But impressario aspirants beware: Michael White does not dwell on the daily grind of getting so many productions on to the stage. Only one quibble: a chronology of his productions could have raised this book from the important to the essential shelves in any library of theatre history.

Sandstorms, earthquakes, avalanches, erupting volcanoes, crashing trains, sinking ships – disasters of all kinds (and the heroic rescues that resulted) were the visual core of melodrama. Bernard Shaw, as a nineties critic campaigning for a new drama, referred to the flood in 'The Two Little Vagabonds' as *that silly sensation scene* with the result that its artist designer Bruce Smith acquired the nickname that explains the title of the biography "SENSATION" SMITH OF DRURY LANE by his grandson Dennis Castle.

Smith was apprenticed in 1872 and painted until 1934 when he retired at the age of eighty. These were the days when several artists would contribute to a production, each being responsible for designing and painting their own scenes. He worked mainly in the paint room at Drury Lane and the Macklin Street Studios, sharing the frames with all the great scenic artists of his age including Hawes Craven, Henry Emden, Joseph Harker and William Teblin – and in due course Alick Johnstone became his apprentice.

Although particularly renowned at Drury Lane, both for sensation scenes and pantomime transformations, Bruce Smith also painted for the straight playhouses and for Covent Garden opera seasons. His long professional hours were part of a full life that included seventeen years in the Volunteers (rising from private to major), comedian (being vice-president of the Concert Artistes Association for thirty years) and casanova (to use the word favoured by the book's subtitle).

His biographer gives us a composite picture of all these activities, capturing the flavour of Victorian backstage and its interaction with the world 'outside'. Sensation Smith was one of the great artist designers. What a pity that none of his models have survived!

I recommend readers of Hugh Morrison's **DIRECTING IN THE THEATRE** to start with pages 157 to 159. If these 'conclusions' had been printed as a preface, I suspect that I would have found rather more focus in a text which is full of buried truisms. Even when first published in 1973, this book seemed to be promoting a directorial

approach whose formality belonged to an earlier style of rehearsal. Additions for the second edition have but a cosmetic flavour and so it has a restricted value as a study of the director's role. Embryonic directors seeking a how-to-do-it method for rehearsing and staging a production will find a surprising lack of structure. Surprising because writing, like direction is much concerned with structure and readers, like audiences, have to be identified.

Although 'Directing in the Theatre' has more than a hint of being a loosely structured book for a poorly identified readership, it is a must for the reading list of any aspiring director. But for the many truths that will stimulate the reader's personal thinking rather than for any overall concept of what directors do and how they do it.

Peter Barkworth clears away the hocus pocus that surrounds the job of acting. He acknowledges the instincts and describes the techniques. This column has enthused over First Houses and About Acting. Now MORE ABOUT ACTING provides us with even more understanding of the acting process. Particular insight comes from interviews with Judi Dench. Alec McCowen, Edward Petherbridge, Anna Massey, Wyn Jones, Alison Steadman, Patience Collier, Roger Rees, and Prunella Scales. In response to Barkworth's perceptive questioning, these artists reveal their creative processes in a way which cannot fail to fascinate anyone with a curiosity about theatre.

THEATRE AND PLAYHOUSE. An Illustrated Survey of Theatre Building from Ancient Greece to the Present Day. Richard and Helen Leacroft. Methuen. £6.95 (Paperback) (UK).

THEATRE IN THE HILLS. Two Centuries of Theatre in Buxton. Ros McCoola. Caron Publications, Eccles Road, Chapel-en-le-Frith, SK12 6HB. £9.95 (UK)

EMPTY SEATS. Michael White. Hamish Hamilton. £9.95 (UK)

SENSATION SMITH OF DRURY LANE. The Biography of a Scenic Artist Extraordinary, Engineer and Inventor of Stage "Disasters", Soldier, Comedian and Chelsea Casanova. Dennis Castle. Charles Skilton. £14.95 (UK)

DIRECTING IN THE THEATRE. Second Edition, Hugh Morrison A & C Black (London) Theatre Arts Books (New York). £5.95 (Paperback) (UK)

MORE ABOUT ACTING. Peter Barkworth. Secker & Warburg. £8.50 (UK). £4.95 (Paperback) (UK)

Theatre Archaeology at CSSD

JOE AVELINE

Some 3 years ago I found myself charged with lecturing on 'History of Staging' at the Central School of Speech & Drama. My first thought was to take the words literally. I decided 'staging' embraced not only the shapes of stages but also the machinery and mechanical devices used at different times in and around stages. History has always been one of my passions, particularly the fascination of dissecting events and seeing how they fit into a larger overall pattern. The overall pattern is always there because human wants tend not to vary greatly in the long term. Equally well, in the theatre we are still in the same pursuit of means of surprising an audience and creating spectacle or even 'magic' that we were 2000 or more years ago. We become more sophisticated in our expectations as technology allows updated applications of old principles. The 'deus ex machina' would probably creak a bit now and might even get a laugh in certain circumstances. Nowadays we expect scenic effects to be silent and jerk free in operation.

Taking this long look at staging history it appears as though there are only two really important periods of activity. The first being the development of the Ancient Greek theatre space and the second the bringing of theatre 'inside' in the 16th Century. If one looks at this for a moment it becomes a less contentious statement. The Greek Theatre developed and led to the Roman and the changes were probably occasioned more by the advance of building techniques than changes in performance needs. For several hundred years the concentric rows of seats were 'de rigeur' even in the occasional covered space. On the other hand once the theatre came 'inside' we have spent the last 400 years or so tinkering about with all kinds of seating layouts, but we are not seriously considering taking theatre outside again.

Having had these profound thoughts it seemed that architecture was the obvious jumping off point, 'staging' only being possible within the space and constraints allowed by the architect. Given that my students were intent on pursuing a career in the theatre we would need to look at machinery as well, but not delve back in this regard to the classical period. Within the architectural sphere the Ancients are certainly necessary as the performance of works from that period still continues. The general pattern of what was to be taught was taking shape, through the architectural area in the first term followed by work on machinery in the second term in which an outline of changing styles of theatre was also planned. This left the last term to be decided and after a lot of mental thrashing I decided it had to be project based work.

In my first year the project was a very simple one - we built a large open model box and different students inserted various different elements such as sloats or sliding flats. We were not working to any specific scale but simply demonstrating that we knew how various different pieces of machinery functioned in principle.

machinery functioned in principle. One of the things that concerns us is understanding the use of this word 'principle' and keeping it separate from 'technology'. This applies especially in respect to machinery. Technological advance may improve bearings and lubricants but the principles in which they are being used remain the same.

In the early months of 1983 we made contact with the owners of the Playhouse Theatre, Charing Cross, knowing that there was Victorian stage machinery intact below the stage floor. Our original intention was to have one visit, take pictures, observe the machinery, and do some measuring. The visit turned out to be extremely successful after a slight early hassle wiring in the floods we had brought with us. The theatre itself is charming and young eyes marvelled at the mechanical lighting control, lifts, traps and, for the intrepid, the drums and shafts in the grid. Near the end of the afternoon we found a small room up under the eaves full of papers which, fortune as ever favouring the bold, we removed.



View of grave trap model showing pulley offcentre carrying hauling line from spindle of drum to end of bridge.



Picture of our first model, simply a large box with elements like lifts, tumble cloth and flying shafts being installed. Box made of softwood. Elements made of balsa and cord.

Luckily at that time we had several keen model makers who were now itching to have a go at the lifts and bridges. Others wanted to research other aspects of the building's history and the lighting control. A small group wanted to start cataloguing the retrieved documents which, it had been agreed, could be stored at Central for their own safety and indexing. The 1983 project had set itself.

They were planning to make models of all lifting machinery, being a single trap downstage prompt side and grave trap centre, two bridges upstage of the grave and farthest upstage a row of three separately operated platforms each one being 4×8 .

In the end these were not all completed owing to the more conventional workload of stage management students, perhaps enthusiasm got the better of practical conmodellers Initially the siderations. concentrated on taking detail photographs and measurements. Then scale drawings were made at the scale (1:12) the models were to be. The individual pieces of wood could then be cut to match the drawings. Obeche, spruce and pine were to be used in the construction. The most significant advantage that we held was that we seemed to be the only people using the building. I imagine that being alone in this empty theatre, deserted and yet still equipped, albeit a generation out of date, was a major part of its fascination. One problem we had to accept at that point was that the 'sliders' or lids to the traps had been rendered inoperative by additional joists being placed through the middle of them. In addition, the BBC in their tenure of the premises had laid a hardwood strip floor over the existing floor and extending over the orchestra pit. What with this and time constraints we couldn't adequately ascertain the details at the upper end of the bridges and traps.

At the end of this part of the work in 1983 we had a working grave trap and bridge. The upstage trio of platforms was made but not all working, and the pieces had been cut and partially assembled for the remainder. We were in fact pleased with the work because it had been thoroughly done and we had gained as a by-product drawings which will expedite future work.

What needs to be done is to finish a model of the floor, complete with sliders and link it to the machinery, and move on to the thunder run, which lies upstage of the lift machinery. By the Spring of 1984 when another batch of students were ready for project work, the hardwood floor had been lifted and we could see and precisely measure the sliders and apertures. I personally felt a genuine excitement at standing on the floor, covered for so long and now exposed. I have seen and worked in theatres with similar machinery but invariably the upper end of the system had been covered in order to suit the needs of later generations. Bear in mind that all of our work is intended to actually 'work' so the individual wooden elements of models are not merely cosmetic but doing the same job as their life size counterparts. The importance of doing this is easy to emphasize. Here we have a situation where the genuine artefact still exists and the model can be precise. I say this because, having worked the Theatre Royal Bristol before its machinery was removed I have a sneaking suspicion that the model displayed in the foyer is not absolutely correct in all detail!

We have also been able to make detailed drawings of both the Dress and Upper Circle cantilever systems and a model of the Dress Circle steelwork. This was possible because by April 1984 the architects and builders had extended their exploration of the theatre's structure beyond test holes dug in the basement and had made access into some of the building's voice spaces. This led to our undertaking a detailed study of the



Researcher inside Upper Circle cantilever taking measurements.

support system for the Dress and Upper Circles. This is a relatively early example of cantilevering. The students crowded into both the cantilever areas dragging measuring tapes behind them as well as photographic equipment. I can only say that I have rarely seen such dirty people! This model is made of card sliced by a guillotine and then fabricated into the various sizes of steel beams. The beams are then glued together and given the faintest hint of black spray paint.

The real value of the cantilever model is as a teaching aid to explain one of the most significant technical advances made available to designers of auditoria. Which soon became one of the watersheds in the history of theatrical buildings.

The grid of the Playhouse also provided fodder for investigation. We had procured copies of drawings prepared by the GLC architects dept one of which showed the



Model of the cantilever steelwork supporting the Dress Circle at the Playhouse Theatre, Charing Cross, installed 1905. Girders are made of white card with a fine black spray applied. The black card at rear and right represents the brick walls of the building.



Model of upstage part of grid with two drums.

grid. In a very short time we found the drawings were incorrect in some detail aspects. So we re-measured and set about making a model of the upstage drums and shafts. As only one student was working on this part of the project half the grid seemed more than enough. As you can see from the illustration there are many bits of wood in a grid! Again this is an area where some extension of the work could take place especially as some of the support detailing downstage is quite interesting. However the plans for the redevelopment of the theatre entail the removal of the wooden grid to make way for a modern counterweight system. As this is written, plans for the building works are being made and we now hope that we will be able to get there in time to complete this part of the work.

Running parallel to the work on the machinery models we have also started a collection of old lighting artefacts. It must be said that Central School had the beginnings ready to hand! What we do here is completely strip down each unit, and as appropriate, paint or polish each part before reassembly and wiring. Cannibalising enables complete instruments to be made up.

In this part of the work there is the added factor of detective work. A lot of pre-war manufacturers either made equipment on behalf of others or didn't put labels on so identity is not easy to establish. Our one real success was with an arc-lamp retrieved from the Bradford Alhambra. It was completely covered in dirt of all kinds, including organic! No name, or serial number appeared during cleaning. However by a process of diligence and one slice of luck we tracked it back to R. R. Beard Ltd., who no



The Mechanism of the R.R. Beard Arc Spot (1930). The mechanism made primarily of brass is mounted on a flat bed which sits within the outer sheet steel casing. The rotatable knobs on the left controlled both the alignment of the carbons on the right and could move them together to the left or right. One control function is missing which could raise and lower the burning point to the centre of the lens.



Restored Arc Lamp built by R. R. Beard circa 1930. The wheels at the bottom of the casing controlled horizontal and vertical shutters and an iris. The four handles at the top of the picture are attached to wires running across the top of the lantern and down to colour frames hung above the lens at the front. Raising the appropriate handle will lower the required one of four colours into the operative position.



The Lighting Control from the Playhouse Theatre, cleaned, repainted, and rebuilt at Central School of Speech and Drama. The area to the right of the control drive wheel contained a few dimmers driven by a chain drive system. These were cannibalised to complete the left hand side. One channel on each shaft has been wired up to control one of the old lanterns located in the now vacant right hand side.

longer manufactures for the theatre. One of the senior employees dated it positively at 1930 having inspected the mechanism. He was even able to point to the spot where it would have been built 54 years ago! It was a most satisfying result.

On the other hand we have other items as yet unidentified including our largest piece, the lighting control from the Playhouse. This is not to say that we don't know who made it, we do, but we don't know its history. On the face of it, the board is simply the control left over from the theatre's last days as a public venue with some relays installed by the BBC. But is it? Considerable doubt lurks in my mind. Firstly, the theatre was still on a DC supply when the BBC started operations in 1950. One of their obligations was to facilitate the change over to AC. Within one of their internal memoranda is a reference to a particular dept, having a 'lighting control suitable' for the AC supply. Secondly, the only dip trap mountings seem to be contiguous with a 1954 installation. There are no other holes visible in the floor and the floor is the 1907 one! Thirdly, amongst the documents found was a proposal drawing from Strand Electric for a housing to contain spotlights on the Upper Circle Front. This work was



Model of one of the two downstage bridges at the Playhouse, Charing Cross. The timbers run from the basement floor to the underside of the stage. The bridge is seen in its 'down' position which is a few inches above a mezzanine floor in the real installation. The rope from the top of the drum runs down to the right in the picture; pulling this string/rope will raise the bridge platform. Omitted are counterweights at the corners. Dark objects on bridge are hexagon nuts acting as weight to assist the downward movement.

not carried out. However when we first entered the building there were two spotlights on stands in the front of the Upper Circle plugged into 5 amp outlets on the audience side of the rail. (The BBC did not use the Upper Circle for audience.) Add to this the fact that the Theatre Inspectors would not have allowed sockets in these positions if people *were* to be admitted and we must deduce that the majority of the wiring was done during the mid 50's by the BBC. So is the control the original adapted, or another brought from somewhere else (where?) by the BBC? Investigations are being pursued.

We have also gathered amongst other things a number of Strand Electric Patt 44 lens spots. In fact we have a run of 5 examples completed, each one of which varies slightly from the other as the manufacturers attempted over the years to reduce the man hours taken in the making. As far as we can gather the advent of new bits of stamping machinery or detail changes in construction were not noted so all we can do is place them in order of labour intensity knowing that the most recent would be from the early 1950's.

This part of the work is most interesting and our search for fresh articles to work on is continual, so we tend to keep only one example of a completed type in order to keep finding space for new arrivals.

One may ask why this emphasis on bits of out-dated gear? Well, if we are training people for the technical management side of theatre it seems necessary to offer as many means of solving problems as possible. There are, for instance, characteristics in the Victorian bridge mechanism which still hold true now, i.e. the use of weights on each corner to balance the load or the use of one pulling line to operate the motion which then gets transferred to the lifting points on the bridge. The ability to resolve technical mechanical needs comes from the ability to understand the principles of movement and how motive power is transmitted. Equally well one has to understand when and how loads are being transmitted. In this sort of stage machinery these things are readily seen. It is not beyond possibility that some of these principles might prove useful in some future context.

I also firmly feel that the Higher Diploma type of course we have at Central provides the best springboard for this sort of work. We have a more practical base than the more academic drama degree courses and yet maintain enough mental rigour for the research to be adequately thorough. In a purely selfish world I might however want the students to stay for longer, for as soon as they are really adept at the work they move on to their careers!

The main benefits other than the personal ones, are on the one hand, the ever increasing amount of practical teaching aids we can use which in turn increases year by year the amount of information we can successfully impart. On the other hand, the work when indexed will become a useful part of the body of knowledge about the theatre as a whole.

Try this simple test on any other gel.

'All new generations of theatre and television lights place additional heat stress on gels.

This increases the risk of fire. That's why our test is so important.

Simply take a sample of colour film from any other manufacturer along with one of ours and apply a lighted match to the edge of each.

You'll notice that Supergel extinguishes as soon as you remove the flame.

Most other gels will continue to burn and shed flaming droplets.

That's because most gels are only surface coated which makes them a fire hazard.

Supergel, on the other hand, has its colour and flame retardancy element impregnated all the way through the copolymer resin base.

This ensures that the colour is highly resistant to fading.

And that it can never become a fire hazard. It's the first truly self-extinguishing filter that fully complies with British and European fire safety standards — including those of the GLC. But there's more to Supergel than just safety. It allows you a greater range of colours and diffusers than other gels, including our own Roscolene — that's creative freedom. So what you have is a gel that's better, that

lasts longer and that's safer as well.

Who says you can't be all things to all men.

Please send me a free swatchbook, Colour Media Guide, and Technotes.

Name_____ Company_

Address_



Alaska – a Theatre Capital of the World?

PATRICIA ECKERT

Alaska Repertory Theatre Anchorage, Alaska

In the past eight years, theatre lovers and supporters in Alaska have built one of the nation's top resident theatres. Operating 4,000 miles from Broadway, Alaska Repertory Theatre produces some of the best professional theatre to be seen in America today. Alaska Rep launched its ninth season last October with the West Coast premiere of NOISES OFF, one of the funniest comedies to be written in recent years, and it won't be the first premiere or current Broadway hit produced by the Theatre. Past productions include West Coast premieres of Lanford Wilson's TALLEY'S FOLLY and Ted Talley's TERRA NOVA, as well as concurrent productions of Broadway shows such as THE ELEPHANT MAN and DEATHTRAP.

At first I thought Alaska Rep's location would be a disadvantage. But it is actually an advantage to our audiences and to those of us who run the theatre," says Robert J. Farley, who signed on as Artistic Director in 1976 and has provided the artistic leadership for the company since then. When the Theatre is negotiating for theatrical properties with New York producers, Alaska's distance from other theatre capitals helps. "We just pull out the maps and point out that national tours of Broadway productions won't come to Alaska because it's not just a simple one- or two-day trip out of the contigous United States. We have become trusted and known in theatre circles, and have had the honor of mounting productions of many shows while they are still running on Broadway.

Theatre audiences in Alaska were more than ready for the Rep, says Mr. Farley, even in small remote communities where the Rep, in keeping with its commitment to statewide performing schedules, toured. "When we first started, my charge was to convince people that the effort to get dressed, find a babysitter, and drive to the theater was better than staying home to see sitcomes on television." Alaskans were convinced fast, says Mr. Farley.

"The audiences in Anchorage, Fairbanks, and the smaller communities where we tour are wonderful," he says. "They're not pre-conditioned and they don't prejudge shows. They are the most vocal people I've ever seen. They tell me when they love the Theatre's productions and they don't try to let me down easy when they don't tike something. The best thing is that they truly appreciate top-drawer theatre." For several years now, Alaska Repertory Theatre has enjoyed the highest per capita subscription rate of any professional theatre in America.

"Challenging, to say the least" is how Production Manager Bennett Taber describes the Theatre's statewide producing efforts. "We face the same extra expenses that every Alaskan individual or business faces. Everything costs more because it has to be sent here. That goes for all the supplies we buy locally — every can of paint used on the scenery, every piece of lighting equipment, the materials used in construction. Transportation expenses for the artists from out of state add up quickly, too. Shipping



Operating 4,000 miles from Broadway, Alaska Repertory Theatre produces some of the best theatre in America. Last October the Rep launched its ninth year with a West Coast Premiere, NOISES OFF.'

and transportation expenses, whether direct or included in the price of the things we buy locally, account for close to one-fifth of the Theatre's annual budget," says Mr. Taber.

Alaska Repertory Theatre may have the most experience of any American theatre in mounting professional productions in unusual performing spaces in out-of-the-way communities. "We can turn any gym into a theatre in three hours," says Mr. Taber. "We start from ground zero and end up with dressing rooms, wigs and wardrobe rooms, a complete communications system, lighting, sound, scenery, and rigging." The Rep's only requirement for 'performing spaces is that they have at least a standard size door. The road boxes of costumes, scenery, and lighting equipment that fill two semi-trailers are designed to clear a normal doorway. For tours in Southcentral and Southeastern Alaska, the semi-trailers are carefully chosen for their ability to fit onto the necessary ships of the Alaska Marine Highway. For tours to Western and Northern Alaska, equipment must fit into standard airline cargo containers.

Alaskans love the Rep. The Alaska State Council on the Arts generally provides three times more funds per citizen to arts organizations than the next closest state arts council. In 1987, Alaska Rep will become a major tenant of a showcase performing arts complex now under construction in Anchorage. The new performing arts center is expected to clear up the current crunch on performing space in Anchorage, home to half the state's population and the major center for Alaska Rep. It will be just one of the many spaces in which the Theatre performs across the state. "As soon as possible, I'd like to be producing theatre year-round across the state," says Director Farley. "Like other theatres, we need to build on long-range plans. One of our greatest challenges in creating and performing theatre in this state is to maintain an annual presence in the communities where we must perform. Over the past eight years, the adventurous Alaskan audiences have embraced the concept of professional theatre so well that our biggest hurdle is simply providing enough theatre in enough places.

Alaska Repertory Theatre is a professional nonprofit resident theatre. The Theatre gratefully acknowledges support from the Alaska State Council on the Arts, the State of Alaska, the Municipality of Anchorage, the Fairbanks North Star Borough, the National Endowment for the Arts (a federal agency in Washington, D.C.), and thousands of contributions from individuals, corporations, and foundations.'

PRODUCT NEWS

New Power Amplifier from Spectrum

Spectrum Audio Limited announce a new power amplifier in their professional FT range. The new FT100 is the low output impedance companion to the already highly successful 100V line transformerless output FTL100.

The FT100 is 2 units high and fits a standard 19" rack. In terms of power output the FT100 will deliver 120 watts RMS continuous into an 8 ohm load or 200 watts into a 4 ohm load.

John Oliver the designer of the amplifier has included an unique power integration circuit which protects the output circuitry during load fault conditions without degrading the normal distortion characteristics.

The FT100 includes a number of additional features normally associated with more expensive units, for example: delayed turn on to reduce loudspeaker 'thump'; excess LF and DC protection of the loudspeakers; and thermal overload protection.

Spectrum Audio Limited are confident that this very comprehensive package will find its way during the coming year into a large number of systems and may even outsell the FTL100.

Spectrum Audio Limited have combined a careful blend of standard proven circuit design with a degree of innovation to produce a reliable comprehensive, nononsense power amplifier that should find favour with designers and end users alike.

Further information from Vic W Dobbs, Spectrum Audio Limited, Leeside Industrial Estate, Garman Road, London N17 0QP. Telephone 01 801 7461

Samuelson Communications acquire Theatravisual

Following on their 1.6m stake in Theatre Projects Services the Samuelson Group announce a further expansion of their equipment rental business with the purchase of the audio-visual rental business of Theatravisual Ltd.

As part of the transaction Samuelson Communications and Zenith Lighting, another Samuelson subsidiary, will supply audio visual, non-broadcast video and lighting equipment to Theatravisual's parent company Infocom Group.

ABTT TRADE SHOW 85

The Association of British Theatre Technicians is returning to the Riverside Studios, Hammersmith, London W6, from 28–30 March 1985 for its seventh annual exhibition of theatre equipment, services and supplies. Trade Show 85, however, will be three times the size of last year's show, with three separate exhibition areas and well over 50 exhibitors.

The ABTT Trade Show is unique in displaying the equipment, crafts and materials which provide the technical back-up to theatrical performances and in using a theatre venue for this purpose.

The Show is used by manufacturers to launch their new products and rumour reaches us that there will be some on view this year, alongside a whole range of old favourites.

Among the products and services which will be on display will be lighting equipment and accessories of all kinds, sound and communication equipment, scenic paints and materials, scenery fittings and hardware, special effects, props and prop making, stage flooring, costume fabrics, make-up, drapes and tracks, projectors and screens, transport services, music stands.'

The opening hours will be	
Thursday 28 March	10.00 - 18.00
Friday 29 March	10.00 - 20.00
Saturday 30 March	10.00 - 15.00
Free admission tickets can	be obtained
from	

Association of British Theatre Technicians, 4 Great Pulteney Street, London W1R 3DF Tel: 01-434 3901

New U.S.A. appointment by Cerebrum Lighting

Norman Wright, U.K. Sales Manager with Zero 88 Lighting Ltd. is leaving to join Cerebrum Lighting (Sales & Hire) Ltd., prior to taking over as U.S. Technical Sales Manager of Celco Inc., Cerebrum's recently formed American subsidiary.



Norman and his wife Alison will be moving to Long Island, New York, where he will be responsible for the Corporation's distribution network for E-F-S Celco lighting control systems, Powerdrive equipment stands and lighting towers and Thomas stage lanterns.

Any U.K. stage lighting manufacturer interested in a U.S.A. distribution network is invited to contact Norman Wright or John Lethbridge at Cerebrum Lighting, 168 Chiltern Drive, Surbiton, Surrey KT5 8LS. Tel. 01-390-0051 Telex 892337 CELCO G

VARI-LITE A Quantum Leap for Stage Luminaires

FRANCIS REID

My introduction to Vari-Lites was a televised rock video. The attention grabber was not the complexly orchestrated remote panning, tilting and focussing of their beams — or even the coming and going of their alternative gobos. It was their colourchanging

This was no conventional wheel or semaphore with a five-way choice. It was internal and with seemingly limitless choice. I now know that the range covers ninety colours whose saturation varies from pastel to primary. I know that the colouring is by a trio of dichroic filters. But I do not know how they work - and I am unlikely to find out because they are within the sealed end of the unit and Vari-Lites cannot be hired without attendant technicians. I can (and do) speculate, but not to any great extent: I have always been able to raise more interest in the possibilities of the light coming out the front of a box than in the technology packaged within it. So while I have only an idle curiosity about Vari-Lite technology, I am aglow with their visual potential for the stage.

Remoting is not new. Rods, tracker wires, chains and bicycle brake linkages are all mechanical devices with an honourable history, while solenoids and motors have been changing colours throughout the lifetimes of most of us. Motors with up/down/stop pushes were applied, particularly by the Germans, to the pan, tilt and focus of plano-convex spots and I recall marvelling, in 1961, at the application of polarised-relay presetting to these functions at the new Festspielhaus in Salzburg. Soon memory could be applied and it was around 1975 that I stood on the stage of the Akademietheater in Vienna, mind boggled by a Pani spot bar resetting itself. Then, as always, I found myself particularly entranced by the fact that all the spotlights reset all their functions simultaneously.



There are two motives for remotely controlling a spotlight:

- * Lighting Management rapid re-setting, without access, between scenes.
- without access, between scenes.
- * Lighting Design visual effectiveness during a scene.

Until recently most developments were in the management category. However the needs of the popular music industry have brought a demand for a lighting style where movement is incessant. Indeed (and I say this seriously although it may well be interpreted as cynicism) movement is the norm with stillness being reserved for an occasional dramatic effect. Microprocessing of the electrical supply to the lamp has provided flashes, flickers and chasers of a complexity limited only by filament heat delays. And developments like Charlie Paton's Pancan have put movement into the beams.

Now something of a quantum leap in lighting technology has been taken by Vari-Lite, produced to meet the requirements of the music industry who have financed its development and can afford to use it in their productions.

The light source is a 300watt (110 volt) compact source HMI discharge lamp delivering 600 foot candles at 20 feet. Being a discharge lamp it cannot be faded electrically, but mechanised shutter fading is no problem in a unit where so many functions are remotely operated. Full-off to on can be faster than half a second and blackouts are instantaneous without filament time-lag. It is a highly efficient light source and has high colour temperature which is maintained throughout a fade.

Focussing provides five hard-edged beam angles, ranging from two to ten feet diameter at twenty feet throw. And one, described as semi-soft, giving a twelve feet diameter at twenty feet. There are two standard gobo patterns: break-up and slot. Colour selection as already mentioned is by a secret dichroic filter recipe. Panning range is through 359° and tilting through 270°. Rotation time for 180° in either pan or tilt is three seconds. After being knocked by scenery, a Vari-Lite instantly resets itself. Each Vari-Lite unit weighs 45 pounds and has six mounting positions to allow for variations within standard bar and truss rigging methods. The units may be hung at a minimum of 19 inch centres. The manufacturers report that the equipment has proved that it stands up well to the rigours of the road - as indeed it has to, given the short-stand schedules of band tours.

Small truss mounted boxes provide both signal and mains distribution (for 240 volt operation, a power transformer is also required). Multiplexed control data for all instruments within a system is transmitted by a single two-wire shielded microphone cable.

Vari-Lite's microprocessor operating desk, for up to 96 channels, has manual controls for plotting the positioning of the



Vari-Lite's microprocessor control desk for up to 96 channels and 255 memories

lamps and their colours, intensities and beam sizes. There is storage capacity for 255 cues and the memory can be transferred to micro-disc for library storage. There are four playback modes:

- * Direct Cue giving immediate access to any cue state and allowing rapid stepping between sequential scenes.
- * Cross fade providing intensity crossfades between instruments, and movement crossfades of instruments from one position to another.
- Chase allowing timed or manual stepping through programmable sequences of cue states.
- Matrix permitting instruments to be grouped for intensity control into sixteen matrix scenes with eight faders per scene.

So you would like to try Vari-Lite on your next production? Well, the minimum rental period is a week and you have to take a minimum of 15 lamps at $\pounds 245(+ \text{ vat})$ each. (This reduces to $\pounds 195$ weekly for two or more weeks). The price includes the control desk, spare lamps and all maintenance. But not technicians: they come at $\pounds 600$ per week and are mandatory at the rate of one for every twenty lights. So your experimental minimum is a week of 15 lamps, their control and their technician for $\pounds 4275$ (+ vat).

Expensive? No, not really, if you consider Vari-Lite's development capital and its unique market position of nil competition. And the cost-effectiveness of its use in the high pressure touring of a megastar band where the box office potential is huge and the expectation of the audience is as high as the rigging time is minimal. The cost is certainly above the budgets that conventional theatres consider normal for lighting. However I, for one, would be prepared to have a go at many styles of west end musical with 15 to 20 Vari-Lites plus a bit of conventional fill from the foh (and perhaps a flood bar if the set required it).

But the real significance for Vari-Lite in

the theatre industry lies in future developments. The next generation is promised for 1986 but economics will presumably restrict this to an update for those areas of popular music and television which can provide an immediate viable market. However the history of stage lighting demonstrates that time and labour saving techniques get absorbed: there is an enormous potential cost-effectiveness from being able to abolish focussing calls.

Theatre lighting designers, particularly those in the playhouses, will be looking for refinements in areas like beam edge softening and perhaps operational noise. And there will be major concern about accuracy there are situations where a one degree error in the pan or tilt of a lamp on a bar at a dead of 20feet can mean a displacement of nearly one foot when the beam reaches an upstage actor. But let not any thought for the future take the edge off acknowledging what has been achieved now. I have been in the habit of saying, in Cue and elsewhere, that the only truly breakthrough luminaire developments in my thirty years of theatre have been the par can and the directional diffuser. I am now happy to add the Vari-Lite to that list.



ISSN 0144-6088 © Twynam Publishing Ltd., Kitemore, Faringdon, Oxfordshire SN7 8HR (Registered No. 988460 England) Phototypeset by Getset (BTS) Ltd. Eynsham, Oxford, and printed in England by Holywell Press Ltd., Oxford.