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Technical Theatre Review 48

July/August 1987 £1.75



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Cover:  
Glyndebourne's first time *Traviata* is directed by Peter Hall and designed by John Gunter. Much careful attention to small detail has produced four entirely convincing and realistic sets which compel our belief in matters of scale, period and atmosphere.  
Photo: Guy Gravett.

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# CUE

**Technical Theatre Review 48**

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## BECKMESSER, MA

The City University (the one in London City . . . the one where they invented arts administration) has announced a new degree – an *MA in Arts Criticism*.

Only time will reveal whether the Maxwell and Murdoch presses will make the degree a mandatory qualification for their showbiz reviewers.

Meanwhile those with a tendency to paranoia about art being removed from the control of the artists will find their worry beads activated if they pick over the advert soliciting students.

The students are to be recruited from “those with experience of criticism and evaluation in the arts”. How long before the graduates are recruited to arbitrate on who deserves subsidy and sponsorship?

And those of us who thought that education was a process of discovery will twitch over “Students will be *trained* (our italics) to improve their knowledge and appreciation of the arts, their analytical skills and modes of perception, and to write clearly and effectively about their chosen art form”.

In places where cue givers and cue takers meet for contemplation, there has been increasing concern that our theatre may be getting too introspective. Consequently we await with considerable interest the debut of the City’s first masters and mistresses of arts criticism.

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## Pictures from Prague

This year the USA walked off with the Golden Troika at the Prague Quadriennale.

A gold medal for design went to France (Yannis Kokkos) and a silver to Gt Britain (Ralph Koltai).

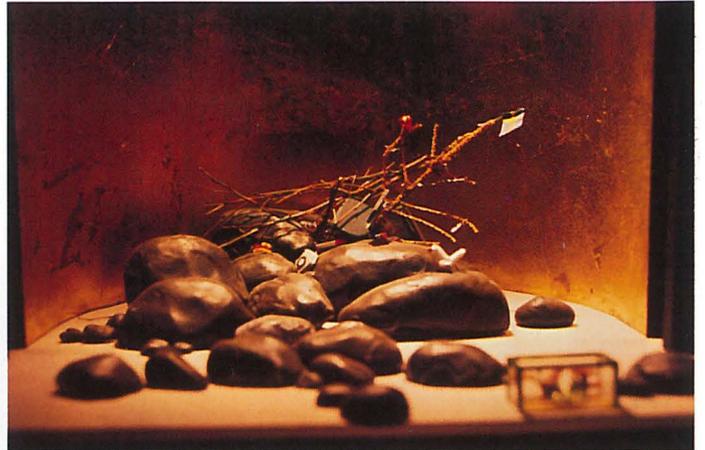
The gold for costume to Finland (Luisi Tandefeltova) and the silver to France (Agostino Pace). The specialist theme this time was designs for Chekov plays with gold and silver medals awarded to USSR and

W. Germany respectively.

The international jury cannot have found it easy to adjudicate on such a variety of excellent entries coming from more than 30 countries this time. CUE takes a look at some of the non-prize-winners among them which caught the attention of Jenny Bolt and Ingrid Angel whose excellent photographs are reproduced here.



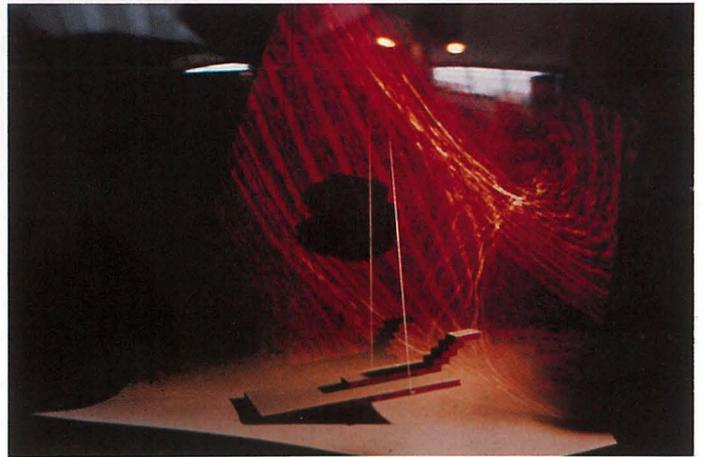
Costumes – Luisi Tandefeltova (Finland)



Summer Nights on the Earth – Ulla Kessiuss (Sweden)



The Cherry Orchard – Valen Lavental (USSR)



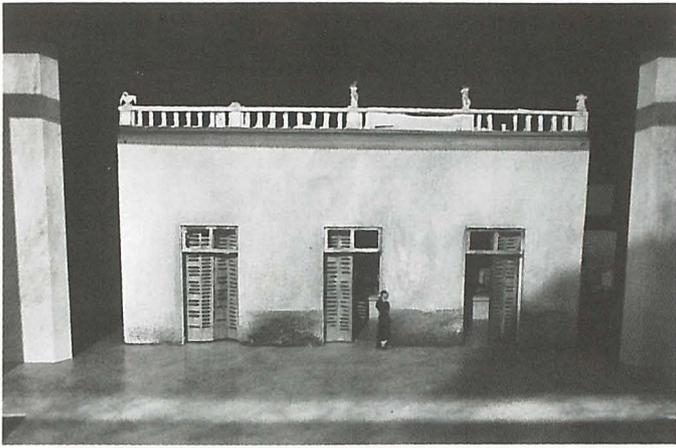
Odysseus – Svoboda (Czechoslovakia)



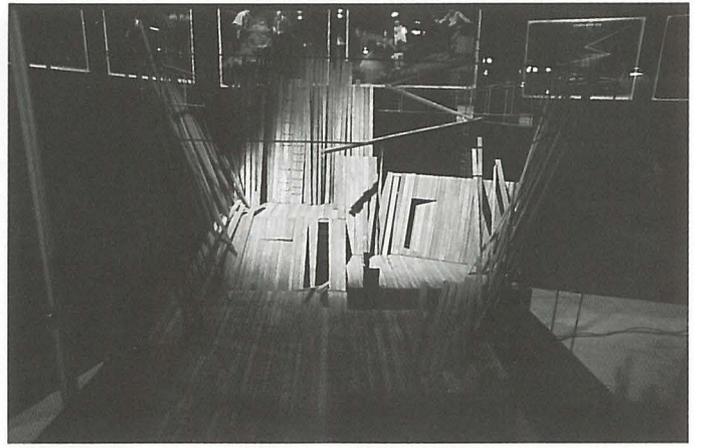
Ivanov – Borovsky (USSR)



Ignac Vono – Csaba (Hungary)



*Electra – Yannis Kokkos (France)*



*The Bride from the Mountains – Jozef Ciller (Czechoslovakia)*



*Zoyes Apartment – Konecny (Czechoslovakia)*



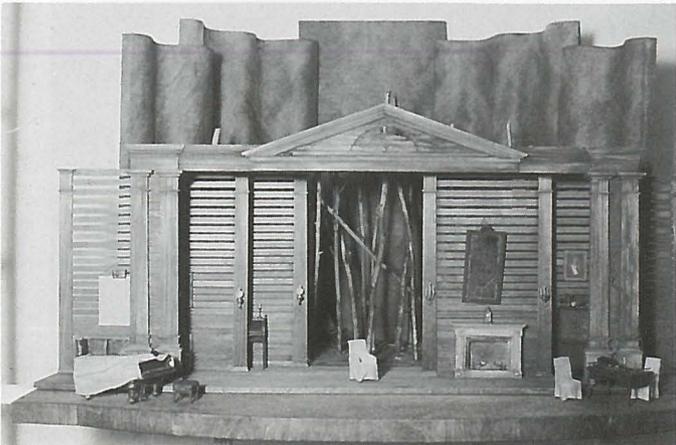
*January – Dobrev (Bulgaria)*



*The Little Green Bird – Tartaglia (Switzerland)*



*Ethnic Masks – (Laos)*



*Three Sisters – Kocergin (USSR)*



*Urfaust – Sagert (E. Germany)*

# STAGE DESIGN

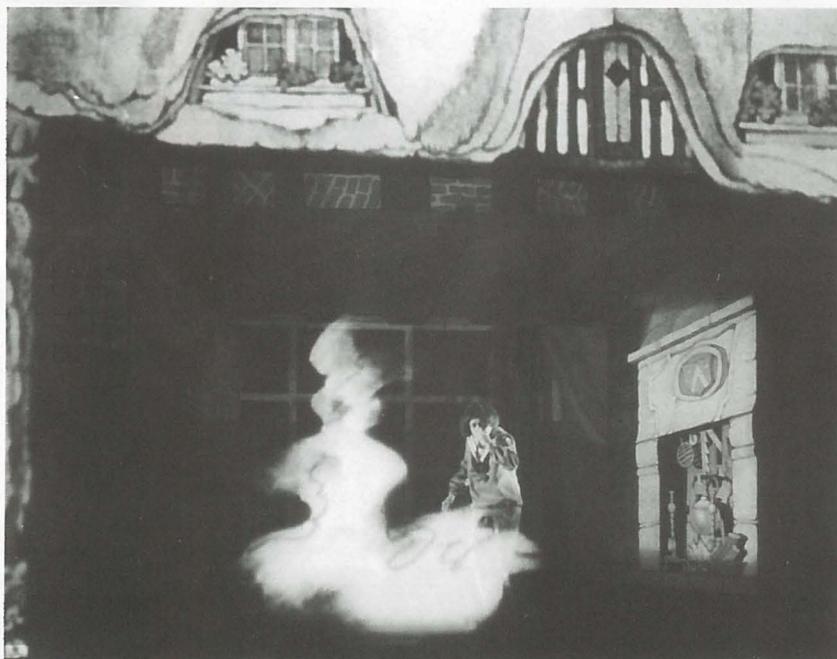
DAVID FINGLETON

A beautifully realised *Traviata* from Glyndebourne □ *Alice* successfully choreographed at the Coliseum by Canada's National Ballet □ A unified and cohesive view of *A Small Family Business* at the National Theatre □ Boots and black bikinis at the Barbican □ Marathon dancers at the Mermaid □ High technology plus lots of money equals an exuberant *Follies* at the Shaftesbury Theatre □ The Theatre Design Degree Exhibition reveals an abundance of talent at the Central School of Art and Design.

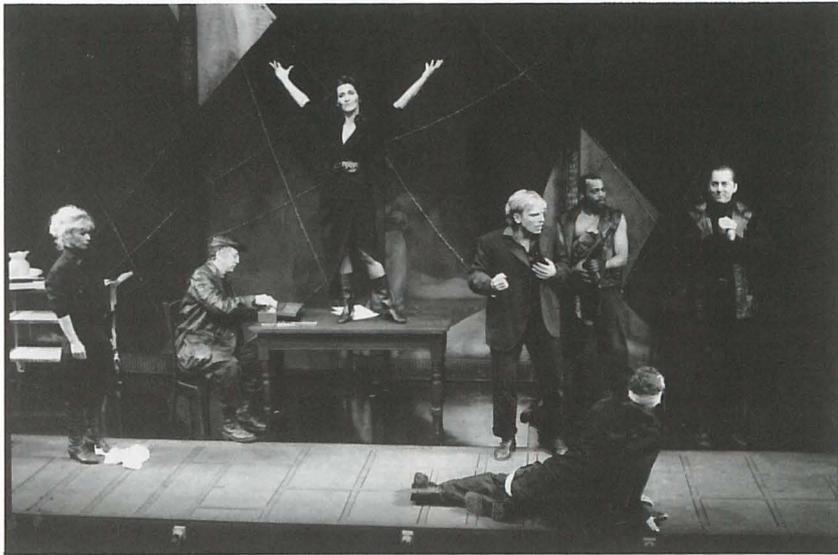
Given the costs of seats at Glyndebourne Festival Opera – £50 was this year's top rate – and the cost of both getting there and being there, and given too that those who do go there are probably not the world's most operatically educated audience, it is hardly surprising that the management should aim to provide its customers with something of a show. But, that said, there is a great deal of difference between a show that enhances the opera in question, and makes it easier to enjoy and comprehend, and one that actually replaces it. Glyndebourne's two new productions this summer provided examples of each. The season's opening production of Verdi's *La Traviata*, being seen at Glyndebourne for the first time in the festival's history, was directed by Sir Peter Hall and designed by John Gunter. Gunter's work at Glyndebourne tends to be straightforwardly realistic, rather than ambitiously stylised, and is certainly none the worse for that. For *La Traviata* he provided four different settings and each one felt absolutely right, both in period and social milieu, and was thus entirely convincing. Hall saw the opera in terms of a clock ticking Violetta's life remorselessly away, and there was thus a clock-face prominent in each scene, the minutes ticking away in double time. Both Violetta's opening party, and her friend Flora's later one, which possessed a higher degree of decadance, with under-age prostitutes and death-masked dancers, felt absolutely correct in terms of scale, period, and atmosphere, and Hall showed his habitual command of the full depth of Glyndebourne's stage. Costumes were exquisitely accurate, and so too, for once, were the wigs, and the fact that these parties were taking place in an intimate, rather than grand opera house environment heightened the dramatic impact. Violetta's country retreat in Act 2 was beautifully realised by Gunter: the room impeccably proportioned and furnished, an attractive and useful enclosed terrace beyond it, and beyond that a gloriously depicted rolling landscape. The working fireplace and dulled mirror above it showed laudable attention to detail, as did the partially removed furniture in Violetta's bedroom in the final act. Clearly the bailiffs were already knocking at the door, and for once we could believe in her demise as readily as in her earlier success. Added to all this was David Hersey's habitually imaginative and technically flawless light-



*L'heure Espagnole (Ravel) Glyndebourne.*  
Conductor: Simon Rattle, Director: Frank Corsaro, Designer: Maurice Sendak,  
Lighting: Robert Ornbo, Photo: Guy Gravett.



*L'enfant et les Sortilèges (Ravel) Glyndebourne.*  
Conductor: Simon Rattle, Director: Frank Corsaro, Designer: Maurice Sendak,  
Lighting: Robert Ornbo, Film animation and slide design: Ronald Chase,  
Choreographer: Jenny Weston. Photo: Guy Gravett.



The Balcony (*Genet*) R.S.C. at the Barbican Theatre. Director: Terry Hands, Designer: Farrah, Photo: Ivan Kyncl.

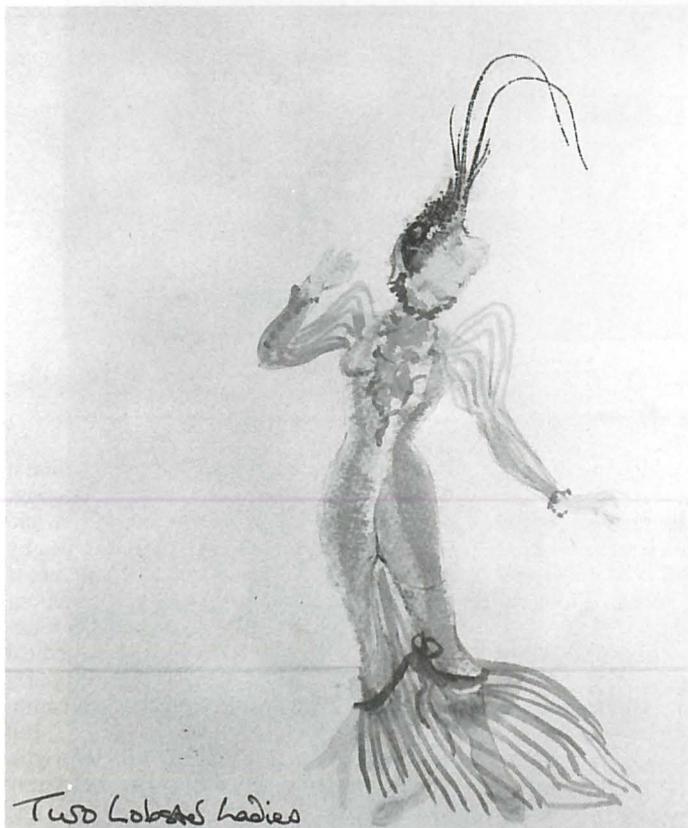
ing, and the total effect was to make the opera more dramatically vivid and readily understood than usual, and thus to enhance the pleasure of the audience.

On its opening night the audience certainly seemed to enjoy the other new production — a double bill of short operas by Ravel — with equal enthusiasm, but I felt less happy about them. For here the impression was that director Frank Corsaro, and, above all, designer Maurice Sendak had simply taken the two operas over and turned them into a visual display. *L'Heure*

*Espagnole* received the less elaborate treatment of the two, being given a toytown setting and suggesting that the action was actually taking place inside a clock. The overall effect was initially attractive but fussy, and thus progressively irritating: happily the piece lasts less than an hour. So does *L'Enfant et les Sortilèges*, but it is an altogether stronger work and far less in need of the kind of design pyrotechnics with

which Sendak fitted it out. The entire opera took place behind a front gauze, an alienating feature at the best of times, supplied here as a screen for projections, movies and laser shows. Even before the opera had begun we were treated to a tableau vivant of a child's birthday party which I found totally redundant, and were then taken on a cinematic journey through the woods to reach the cottage where the child learned his lesson from the household effects. Robert Ornbo's lighting was highly skilled and depicted the fire superbly on the screen, but time and again I felt my attention being drawn to the effects and away from the music. Here the design seemed to diminish the work and to turn it into a kind of operatic Tom and Jerry cartoon, which is hardly what Ravel can have intended. We all know about the beauty of *Where the Wild Things are* — Sendak's books are a joy — but what about the beauty of the opera?

The difference between strong design personality smothering or enhancing a production could be seen in National Ballet of Canada's brief visit to the Coliseum with *Alice*, choreographer Glen Tetley's latest full-length ballet. Here, from the outset, one felt that there was a strong, unified view of the work by both choreographer and designer which at the same time as it took a different approach to Lewis Carroll's story, equally presented it to the audience in terms which they could recognize. Bayliss provided a blessedly open setting with



*Alice* The National Ballet of Canada at the Coliseum. Choreography: Glen Tetley. Costume design for Lobster Ladies by Nadine Bayliss, Lighting: Michael J Whitfield.



*La Traviata* (Verdi) Glyndebourne. Conductor: Bernard Haitink, Director: Peter Hall, Designer: John Gunter, Lighting: David Hersey, Photo: Guy Gravett.

topiary hedges and a mirrored tunnel to Wonderland which offered both mystery and space as well as enhancing the choreography. Costumes, though clearly derived from Tenniel, had a distinct character of their own and those of the Wonderland figures, such as the Caterpillar's, moved superbly well with the dancers. The whole work set up an atmosphere very much of its own, yet consistent with the work in hand, so that those who had doubted whether Alice could actually be turned into a ballet were confounded. Moreover Michael J Whitfield's subtly precise lighting was an object lesson in what can be achieved by a visiting company in a strange theatre if the basic concept is sound.

The importance of sound basic concept was vividly illustrated in the contrast between the National Theatre's new Ayckbourn play, *A Small Family Business* in the Olivier and Simon Gray's new play, *Melon*, at the Theatre Royal, Haymarket. Working with Ayckbourn himself as director, designers Alan Tagg and Lindy Hemming had taken a unified and cohesive view of the play which was greatly to its advantage. Tagg used the Ayres and Graces family furniture business to provide the basic framework for the five family units that worked in and lived off it. He gave us one of those modern housing estate, four up, four down, residences that are so drearily familiar from advertisements, and with the discreetest possible use of the revolve, plus a total absence of decorative taste and the use of an occasional and highly apposite prop, made it an entirely credible home for whichever of the five couples happened to be living in the set during the scene in question. Ms Hemming's costumes skilfully delineated both generation and character without ever descending to caricature, and Mick Hughes' subtly understated lighting added to the cohesion and unity of the production. Their achievement was the more appreciable when I saw *Melon* a few nights later. Here Liz da Costa's tricky setting had a self-conscious modishness and unnecessary complexity, added to an alarming mixture of realism and stylisation that made only for distraction and confusion. Even on its own terms it failed to work; for from an admittedly poor seat at the side of the dress circle, some of the left and most of the rear of the set were obscured. I never really understood the layout of *Melon*'s office and found the whole staging irritating and confused.

The Royal Shakespeare Company clearly refuse to be daunted by their current financial difficulties and have recently come up with two entirely new productions for their two larger London auditoria, at the Barbican and the Mermaid, which up till now has been taking transfers from the Swan at Stratford. I hope that they will both prove to be crowd-pullers, but will be a little surprised if Terry Hands' second staging of Jean Genet's *The Balcony* does. His latest version has Farrah as its designer and adopts a lavish, bread and circuses approach. Genet's brothel is on two levels, with the upper one containing an orchestra behind a



*They Shoot Horses Don't They?* (Horace McCoy adapted by Ray Herman) R.S.C. Mermaid. Director: Ron Daniels, Designer: Ralph Koltai, Lighting: Chris Ellis, Photo: Michael Le Poer Trench.



*Follies* (Stephen Sondheim) Shaftesbury Theatre. Director: Mike Ockrent, Designer: Maria Bjornson, Photo: Michael La Poer Trench.



*A Small Family Business* (Alan Ayckbourn) National Theatre. Director: Alan Ayckbourn, Designer: Alan Tagg, Costumes: Lindy Hemming, Lighting: Mick Hughes.

screen. The customers are huge and elaborate puppets making skilful use of stilts, and the girls wear such attributes of sexual deviance as boots and black leather bikinis. With Hands' and Barbara Wright's new translation of the text being resolutely British in style, and the lighting being bright and brash, the overall effect is of a grubby television spectacular, with Genet's brothel less a house of illusions than the incensation of the bawdy British seaside postcard with fashionably 1980's camp overtones. I did not enjoy it. The RSC's *Mermaid* production is of *They Shoot Horses Don't They?* which deals with the dance marathons of the American Depression and was the basis of a successful film, starring Jane Fonda, a few years ago. Here, directed by

Ron Daniels and designed by Ralph Koltai it is given a determinedly 'verismo' staging, again on two levels with band above, and with the stage surrounded on three sides by the audience, which also contains members of the cast who participate in the action. Koltai's setting is commendably uncluttered, with the management and medical offices seen beyond the dance-floor, and it transfers smoothly from dance hall to camp-bedded 'rest-room' when required. But somehow, abetted by Chris Ellis's bright, cheerful lighting, it all seems too agreeably sanitary to convince, and though the dancers' costumes become progressively tatter, and bandages appear on their limbs, there is no sign of sweat and little visual sense of suffering, which on stage, rather



than on screen, has perforce to be stylised.

I had no such doubts about the staging of Stephen Sondheim's *Follies*, recently opened at the Shaftesbury Theatre. Mike Ockrent's production, superlatively designed by Maria Bjornson, has all the Broadway bazazz one could desire. Ms Bjornson, having strongly evoked an about-to-be demolished New York theatre by shrouding the stage boxes with scaffolding and heavy polythene sheets, then creates on stage a series of gloriously exuberant Broadway effects, with brilliant use of a revolve which contains a hydraulic lift. In the second act the instant change, before our eyes, from shrouded and decrepit theatre to silver-sheeted 'Loveland', the world of *Follies*, has the touch of genius. How wonderful to see the latest technology, and masses of money, put to such rewarding use.

But for how long will the money be available? The recent Theatre Design Degree Exhibition of the Central School of Art and Design at the Jeanetta Cochrane Theatre was pointedly entitled 'Seventeen Designers in Search of a Job'. It made it abundantly clear that the future of stage design in this country is in wonderfully capable, imaginative and enthusiastic hands, and demonstrated that these young designers, though clearly well taught and aware of current styles, have very positive ideas and styles of their own. Their technical competence in both set-model making and costume design was highly impressive, and some of their major projects were admirably ambitious and inventive. But how much work, I wonder, can such talented young designers as Kevin Knight, Jessica Rufus, Julian McGowan, Mary Montagu, Harriet Spice, and Jane South expect to find, despite their manifest talent, given the government's current miserly policy on the arts?



Theatre Design Degree Exhibition at the Jeanetta Cochrane Theatre  
 Costume design for *Joyces Exiles* by Jane South. Set design for *Haydn's Il Mondo Della Luna* by Mary Montagu and *Paradise Lost* by Harriet Spice in association with Yolanda Sonnabend.



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# FORTUNY IN VENICE

FRANCIS REID

This summer's exhibition at the Museo Fortuny in Venice is **Fortuny e Cambra: Costumi di Scena 1906–1936**. These costumes were not designed for specific productions. Indeed they are not even designed for specific characters in specific plays but are general stock from which productions could be dressed. Thus the 94 costumes displayed on dress stands were labelled in very general terms. Some as periods (Medioevale, Settecentesco, Rinascimentale etc); others as function (Mantello, Kimono, Tipo Ecclesiastico etc).

The result was a consistency of style that one would not normally expect to find in a costume exhibition – even a one man show. However these costumes are not mere historic dressmaking: the artist's eye of Mariano Fortuny, textile designer and man of wide theatre interests, ensures that there is a transformation. Nevertheless the total impact of this exhibition seemed less than the sum of its parts. One's eye caught felicitous details but there was little to cause a catch in one's theatric breath. Perhaps it was the reality – possibly the lack of theatrical heightening in many of the designs, and certainly the lack of artifice in their construction. But then this was a wardrobe from which wide ranging seasons were, and still could be, dressed.

What did however quicken this particular theatric tourist's pulse was the group of architectural models, not exhibited but used as a bit of ambient theatricality to set the costumes off against.

But what props! I first saw these models skulking in a dark corner of the Museo Fortuny some years ago, and noticing their absence on a later visit remarked in Cue 38 that I hoped they were under restoration. Alas, not yet.

The models develop intriguing concepts. One is a fairly straightforward addition to Bayreuth of a solid engulfing cyclorama dome. Another is a splendid hybrid. The exterior suggests the twentieth century looking at the form of an ancient theatre such as the Theatre of Marcellus in Rome: while the interior looks at the Roman auditorium through the renaissance eye of Palladio's Vicenza. This faces a huge domed cyclorama with the remains of lighting groundrows masked by some rather tatty scenic groundrows. Stage and auditorium are separate units to allow access. There are remains of the rheostats for the lights.

This is very important historical material. I venture to suggest that it has a much more significant place in the history of theatre than Fortuny's costumes.

Has the full contribution of the cyclorama to staging styles of the first half of the twentieth century been fully researched? By

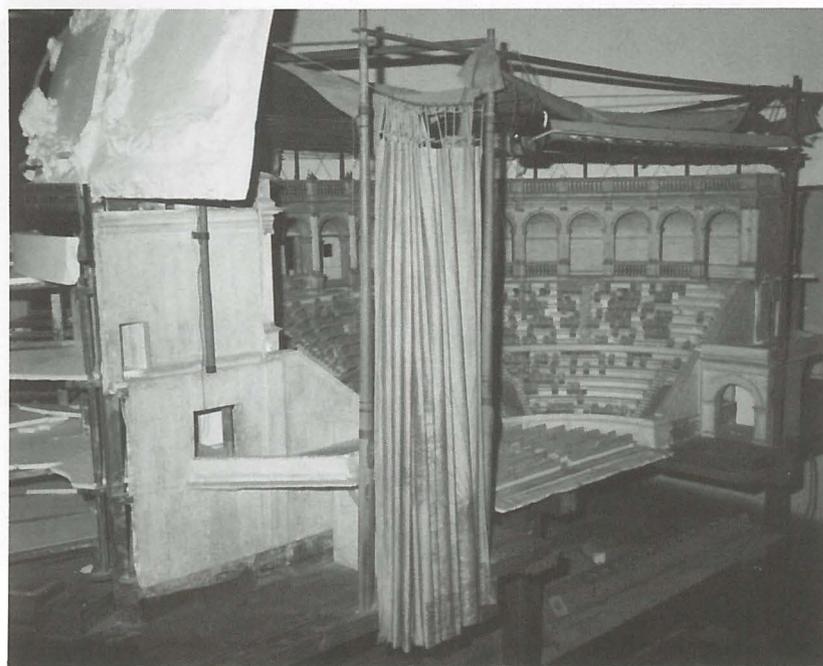
*cyclorama* I am not referring to an ordinary plain skycloth with, perhaps, the ends turned downstage for a couple of feet. Nor am I really thinking of the full cycloramas still to be found in central European opera houses – the kind that can be wound on to a vertical shaft in either downstage corner of the stage, and can totally surround the stage and complete its vertical masking for the worst seat in the front row. No. I mean the full plaster cycs, often domed, which were a fixed integral part of the stage structure. And especially I mean the way

they were used: the interrelation between them and the staging. Their contribution to the visual look of the productions.

The equipment has all but disappeared. And the surviving people are getting old. Have we made a good enough record? It is something of a test case for stage archaeology.

Perhaps I worry in vain. Somewhere there are probably several splendidly researched theses. Someone has assuredly gotten his doctorate for an analysis of Fortuny's contributions to scenography. I missed the *Fortuny Nella Belle Epoque* exhibition in Florence in 1984 but the catalogue hints at various delights including a model at (?of) the Teatro della Pergola with a full cyc dome.

Museo Fortuny will doubtless mount an exhibition of Fortuny's Theatre Technology in due course. I do hope they will publicise it beyond the Grand Canal.



# The Gospel according to St. Margaret and St. Richard

A look at Mr Luce's 'welfare state mentality' in the arts,

by ANTHONY McCALL

The recent fuss about cuts in the Government grant to the Arts Council and the growing use of that new buzzword 'challenge funding' (using taxpayer's money to attract new cash) are curious developments, in a way. For Richard Luce, the Arts Minister, is clearly pushing for certain changes in the way the arts world operates – without spelling out what this means.

There are three possible reasons for Mr Luce's woolly explanations so far: first, he is having great difficulty in putting across his carefully thought-out new arts policy (possible, but unlikely); second, he has no new arts policy at all and therefore cannot explain it, no matter how hard he tries (more plausible); or third, he has one or two ideas and opinions, most of them half-baked,

which because they are simplistic defy implementation, unless we run the whole show simplistically and see where that gets us (the most likely reason by far).

We should recall, before looking at what Mr Luce's changes are likely to imply for those working in the arts, that his prescribed dose of Thatcherism is really not surprising. The surprise, if anything, is that the changes were so long in coming. We are in our eighth year of Tory government, after all. But apart from that, other sectors of British society have been or are being subjected to the Thatcher revolution: industry, the Health Service, education, unions, to name but a few.

Few would deny that there is need for change, across a wide spectrum of our national life. Naturally there are outdated working practices and attitudes in some areas, and some people adjust to our rapidly-changing world more quickly than others. This, quite legitimately, includes the arts. But what has been the Tory solution to the various ills they seek to address. Boiled down to the essentials, they could be summarized thus.

1. Apply common sense: a very underrated commodity, except that with unflinching regularity, its penny-wise wisdoms seem to fall short of the mark because life needs fine tuning with something called experience, as well.

2. Stick to straightforward, no-frills approaches that enshrine pre-war style attitudes to the world: think how your grandfather would have reacted to a given problem: with hard work and pride, but of course, very little understanding of today's complex issues.

3. Lastly, two central paradoxes: on no account interfere, this is a non-interventionist government. Market forces

## NEW ARTS POLICY

Hard on the heels of the last Cue, where we put forward Dame Peggy Ashcroft's elegant solution to the problem of arts funding, came the Arts Minister's announcement of policy for the next term of office. Dame Peggy's proposal was that a transfer tax be levied on the sale of all art whose copyright had entered the public domain. For instance, paintings and manuscripts, often by artists whose lives had been spent struggling for survival, now exchange ownership at ever-increasing prices. But the arts rarely profit.

Regrettably, the new arts policy had neither the clarity of thought nor the altruism of Dame Peggy's idea. Despite a number of opportunities to elucidate the plans, few if any observers in the arts community have managed to grasp the minister's full intentions, even after several weeks. The overall message appears to be that the most financially successful companies will be most generously supported by grant aid, from now on. Understandably, this ruffled a few feathers, since it sounded more like an economic policy than an arts policy.

In early August he announced: 'There are sections of the arts that are still deeply inbred with the mentality of the 1960s and 1970s. They think the state owes them a living and if the state doesn't give them what they want, then the government and parliament are a lot of philistines. This attitude of mind needs to change.'

More controversially, he put forward the proposal that a proportion of all arts funding would be distributed on an incentive basis. Organizations would in future need to raise extra funding from alternative sources (sponsorship, local authorities, commercial investment), in order to get all their money. Failure to raise extra funds would mean the incentive funds would be blocked, in a rate-capping type measure. However it was administered, whether directly or through the Arts Council, this move would herald the end of the 'arm's length' principles of arts funding in this country.

'This is to help the arts world change their approach to the new climate, and enable them to see that by doing so they can raise more resources for the arts' he explained. This system is known as 'incentive funding', or 'challenge funding', and has been in operation since 1984, when government funds were first offered to business sponsors through the Association of Business Sponsorship of the Arts. The scheme offered one pound for every pound of expanded sponsorship programme, or for every new sponsor, three pounds for every pound put forward. This was the Business Sponsorship Incentive Scheme and it proved highly successful in wooing business clients. Now Mr Luce wants it to work in reverse for subsidized arts clients. Will it work?

Luke Rittner, Arts Council Secretary-General, has made some bland comments to the effect that the new policy is neither a big surprise, nor anything particularly new. But if it jeopardizes the arm's length principle, he'll have a 'serious conversation' with the government about it. But, warns Mr Rittner, if the Council's main grant of £138.4 million is in future to be disbursed as part of incentive funding, rather than this coming from an additional top-up fund to encourage entrepreneurial spirit, then there would be 'very serious anxieties and reservations'.

Depending on how the Arts Minister's statements are interpreted, one can draw almost any conclusion one likes. He told the Bow Group of Conservative MPs before the election that it would be possible 'to encourage a spirit of creativity and opportunity' with his plans, 'and on the other side of the coin, to give an incentive for ruthless pruning of existing activities of lesser priority'.

What concerns regional arts associations and arts employers is the lack of detail on how this policy will be carried out. In a recent newspaper interview, Robin Guthrie, chairman of CORAA (the Council for Regional Arts Associations) and a member of the Arts Council, summed up these fears as follows: 'The kind of damage I am afraid of is that we would be going back to the distribution of artistic opportunity that followed economic success, rather than the arts in some way compensating for the consequences of economic disaster'.



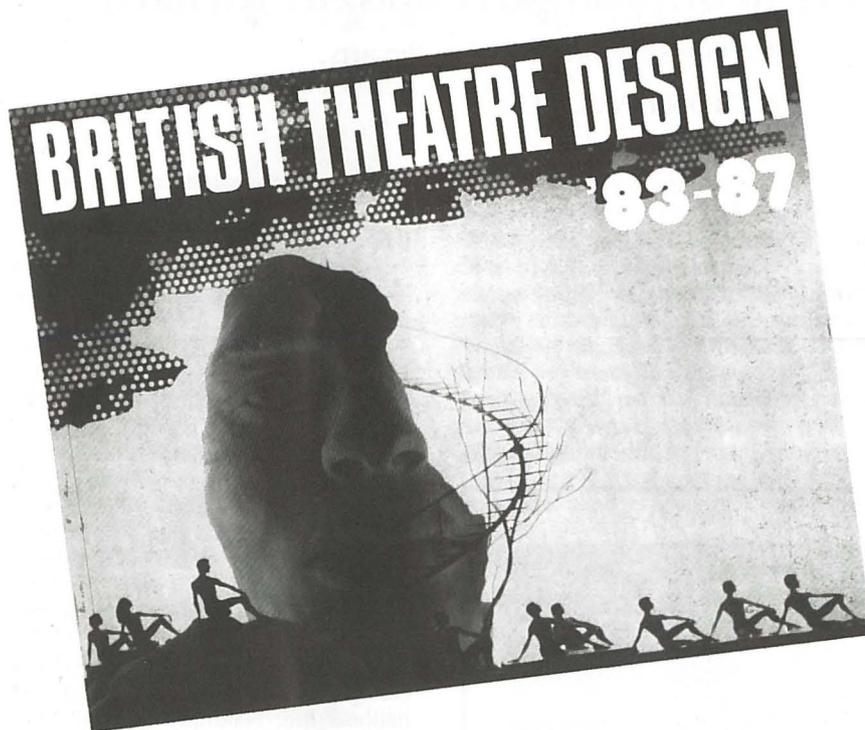
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must prevail. But, if they must interfere, then they confront. No time to waste on diplomacy, or talks. It's time we (out there) put our houses in order, and got on with running things profitably.

If you look at say, industry, the Health Service, education and the unions, the categories chosen a moment ago, a pattern emerges that can be seen once again in the arts. Simply put, the strong deserve to live and the weak must die (it is nature's way, after all). Don't listen to each industry's managers and their chorus of complaints, they're not the experts, they're biased and only want to save their jobs. Anyone who disagrees with these (strangely simply) government ideas either doesn't want to see common sense (remember that word?), has no moral fibre (grandfather would have said that) and refuses to stand on his own two feet, or else is not a Tory (presumably including Ted Heath, Norman St John Stevas, Sir Ian Gilmour, Michael Heseltine, etc. etc.) and therefore must be left-wing, which generally means they're plain silly or even dangerous.

So it is with the arts debate. You can feel yourself going round and round in a circle, with the words 'common sense', 'have you no pride?', 'stand on your own two feet' and 'left-wing loony' ringing in our ears. Perhaps it is not for nothing that the last good arts minister this country saw, Norman St John Stevas, nicknamed his leader 'the blessed Margaret', in that inimitable phrase of his. For like all saints she listens to God directly and does not need to

form her opinions through discussions with other human beings, and she is indeed blessed, since it often seems miraculous that she gets away with as much as she does.

Now, how does all this political wisdom affect us, concretely, in our respective area of the arts? I hope it will act as a central thread of logic, running through all the arguments or problems as they arise. Take training, for example. Training is something every government recognises as worthwhile. But this one in particular feels it can be overdone; after all, there's nothing like first-hand experience and a raw slice of life. So drama schools are okay (as long as they do nothing way-out) but mid-career seminars in management, business administration, computers, marketing, or refresher courses in lighting design are best forgotten, unless they're very short.

How is one supposed to improve those skills then? Life does not permit all of them to be picked up from experience, even if this were the best learning method. This question is often asked, but never answered. Which seems more than just odd, coming from the party that puts economic efficiency above all other virtues. But you reckon we've got problems? Be grateful ours is not a high tech field like computer software, biochemistry or electro-mechanical engineering, where key developments take place in ever-shortening product cycles and aggressive training like research and development spells life or death, success or failure, for even the largest companies. (Interestingly, by way of illustration, the

international high tech field is one where British companies shape up badly for lack of skills. But with the vision of a bat, no, of a mole, since it is in fact tunnel vision, this Government cannot see that: good training = skilled workforce; good workforce = chance of survival. It's beyond them. Survival comes from common sense, pride in your work . . . and off we go again, dancing to that old tune again). Perhaps I'll become a politician myself, and exchange this troublesome, unpredictable world for a comfy make-believe land of uncertainties. I could abandon the need to use my head, to understand things, and resort to little homilies instead, which people will try in vain to understand.

But back to the world of the arts. Mr Luce talks of the need for change (*see box for details*) yet one must doubt his understanding of the subject. For two reasons.

Firstly, unless he is to do away with the 'arm's length' principle of funding, he cannot dictate either directly or indirectly how the taxpayer's money is spent. If incentive funding, or 'challenge funding' as they call it, is implemented, there will be winners and losers. If the losers were all large-scale museums and companies in London and the big cities, one might well sympathize with his view. Why shouldn't such major players 'shape up' (to borrow the expression his Arts Ministry used recently)? True, this may entail popularising their output a little more, but they'll survive. (We'll come to that in a moment).

But the losers will also include medium

and small-sized companies in the regions. Many of these scarcely run to employing a trained arts administrator, or publicist, or stage manager. Sometimes one person will do all three jobs. How do you 'shape up' that one person's performance? Even if you could, what sponsor, commercial investor (for plays, say) or local authority would chip in any extra cash? Answer: none. Sponsors are rarely attracted, or suitable for such small-fry; commercial investors have the same problem; and local authorities are being obliged to cut back on all non-essential funding by Whitehall, through a simple system called rate-capping.

Secondly, unless the arts can attract good staff to run the various organisations efficiently they don't stand much chance of self-improvement. There is no shortage of dedication or vocation at present; but for some jobs there's no escaping the need for *more money*. By and large, this is the one commodity there is little prospect of obtaining. Especially with Mr Luce's Catch-22 view of the problem. If you don't sort out your funding shortage (which already hampers your activity), you'll have more money taken away. This is the message, in effect, although he doesn't realize the central contradiction in what he preaches.

These two yawning cracks in the central plank of Mr Luce's arts policy make it a poor springboard for greater things. They're pretty obvious reservations, it seems to me. But to name another, what happens if new artistic endeavour is obliged to become 'a little more popular' in its attempt to win greater commercial success? Yes, it may attract bigger audiences, as Mr Luce foresees. But then the companies face two gauntlets: fierce criticism of 'lack of originality' from the critics (whom Mr Luce will never control) and the arts world itself, which builds professional reputation, and similar comment from the different funding bodies, who are obliged to make these distinctions in defining excellence or type of work produced.

Sir Peter Hall outlined another vital point in a hard-hitting article in *The Observer* recently. 'The only way profits can be earned in the theatre is by flogging a single success every night until the audience fades.' (This is what the commercial theatre sets out to do, in the dozens of West End theatres that feed that particular audience, and taste.) He went on, 'the subsidized theatre exists precisely in order to do the opposite: to offer a varied programme; to make room for new work; to give artists

new opportunities; to stage big cast plays (like Shakespeare's) which the commercial theatre cannot afford; to take risks; to make available our rich heritage to the widest possible public.'

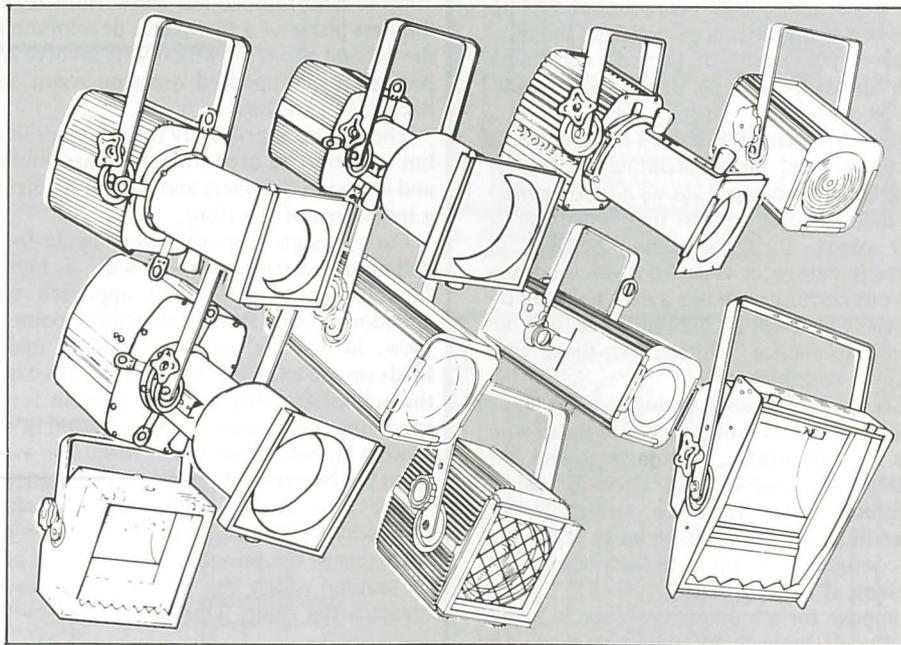
Sir Peter continued, 'The Minister does not seem to understand all that. He reminds us that government subsidy of the arts on the present scale dates only since the war - as if to say that we got on very well without such support. He omits to mention that it is since the war that the performing arts have been one of Britain's great success stories, earning us prestige abroad and many millions of pounds'.

There are more cracks, too numerous to list here, in Mr Luce's plank. Suffice to say that the Arts Minister is no philistine, as he is often accused of being. I do not doubt he loves his Mozart, Alan Ayckbourn and even David Hockney (I have no idea, I am guessing). The fact is however, he is ill-informed. And it is high time that that changed. 'Challenge funding' could accelerate change of the kind he wants in some of the big companies and organizations, with, I suspect, an accompanying drift towards popularisation and commercialization. But it spells doom for the majority of luckless organizations who have

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neither time, resources nor skills to heed his message no matter how ardently they may wish it. The only way for them to 'shape up', ironically, would be through increased funding.

Remember the fate of the Prospect Theatre Company, nearly ten years ago? Mr Luce would find its demise as curious as it was unfortunate. Their grant could only be justified for touring, since London's drama was already well provided for. Our top classical actors rallied round. The British Council sent them overseas. Yet despite their 'sensible', popular productions, they went under. Why? Because the stars, upon whom they relied heavily for their success could not take endless weeks on the road, in digs far from home, and lower rates of pay – without a stable 'home' in London to return to. Like a checkmate, there was nowhere for them to go on the Arts Council chess board. With the RSC and the National Theatre already providing large-scale drama in the capital, there were no regular funds for a third company. It was a complex and ironic fate.

Finally, let us sum up with Sir Peter Hall's words on the subject again, as a leading voice in the theatre industry.

'The Arts Minister's recent speech on his policy for the arts over the next five years must be the most alarming to come from a senior government official for many a long year. It is also the most ill-informed, misleading and, for want of a better word, nervous.

'It is alarming because it shows with devastating clarity that the man whose job it is to explain the support, the arts in public and in Parliament is not programmed to receive any arguments on behalf of the arts, however persuasive, if they do not chime with his leader's views on public expenditure as a whole.

'It is ill-informed because it does not seem to comprehend the outstanding success of the arts, and because it shows a fundamental misunderstanding of how they work and of their needs. It is misleading because in places it distorts or veils the truth. And it is nervous because it shows a man so stung by criticism that nearly half his speech is an attempt to silence, with threats, those who disagree with him.

'Sing my song, he is saying, or shut up – if you don't, you will suffer. But those who care for our culture, our language and our heritage must not shut up. Richard Luce's ludicrous speech has to be answered'. Sir Peter finally urges us all to write not once, but continually, to our local MPs, for selfish motives, if nothing else.

Suppose for a moment we were to apply Mr Luce's logic to his own situation. All MPs including the Prime Minister are paid out of taxpayers money. But apply 'challenge funding', with 25% coming from local constituents and businesses whom they represent, and we've started to ease the public purse.

## ST PAUL'S SCHOOL THEATRE



The new theatre has been created within the volume of an original school hall, on the first floor of a lightweight prefabricated building (CLASP system) constructed in the 1960's. The remodelled auditorium forms the first phase of a two phase development, the second phase of which will involve the provision of improved dressing room and backstage facilities.

The theatre is primarily for school drama, but is also to be used for school assemblies and occasional dinners and dances requiring a large area of flat floor.

Early design proposals were made for a galleried courtyard space with a highly flexible central well. This approach was abandoned both from a structural point of view, in that the galleries imposed undue loads on the existing structure, and because the school felt that an over-flexible form, involving the frequent reorganisation of the seating layout, would divert resources away from the business of mounting productions.

The final design adopts a thrust stage form which has changed the axis of the room from that of the previous Hall, with an area of seating which can be cleared away to create a flat floor. This is achieved by the

combination of a pit formed in a new raised floor and three rows of rostra above the floor, which are enclosed by a permanent gallery and gangways. The pit allows the position of the stage edge to be varied or can be filled in completely when a flat floor is required. The rostra and seating above the floor can be removed into an adjacent store when they are not required.

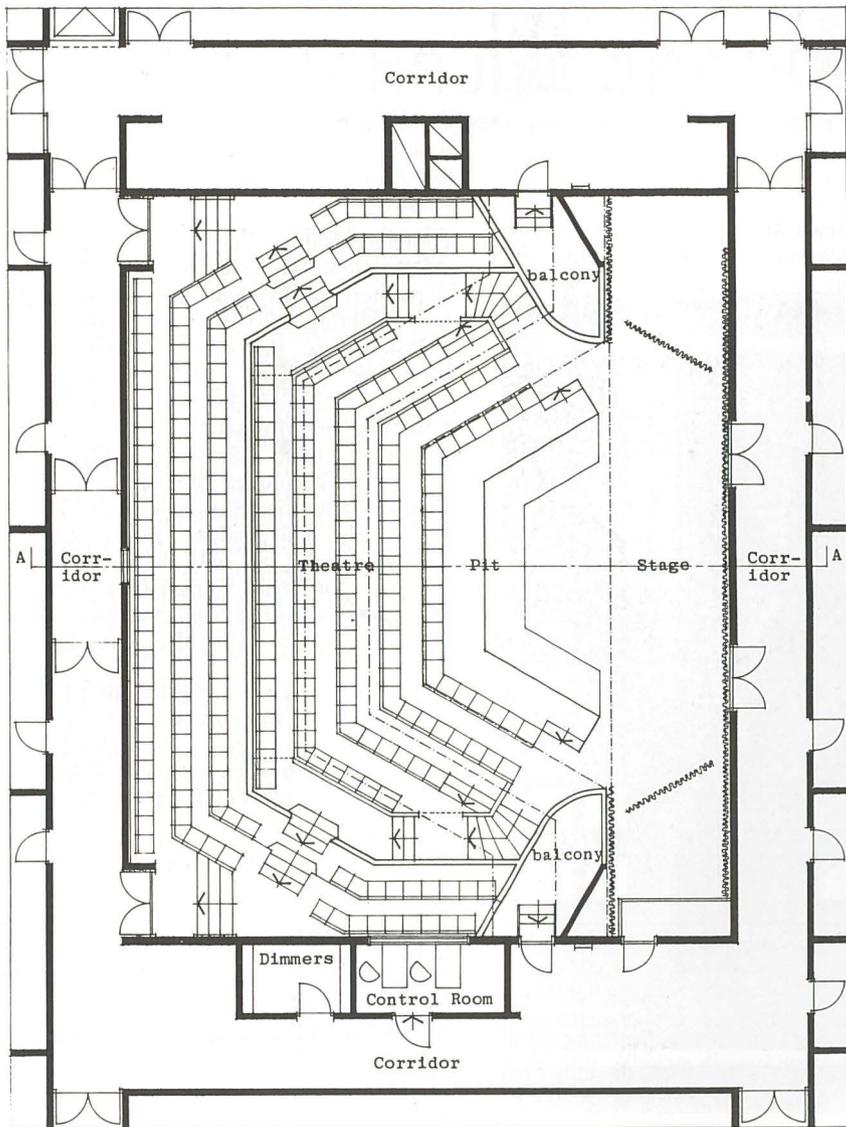
The permanent gallery is constructed in steelwork, which transfers additional loads back to the existing structure and avoids the need to carry new columns through to the ground. The steeply raked seating brings the rear of the new gallery up to the level of the existing second floor, and allows a foyer area to be created beneath it.

A new ceiling and lighting bridge have been inserted, together with fixed lighting bars, two winched lighting bars and a grid to which suspension lines can be fixed as required. A complete new production lighting and sound system has been provided.

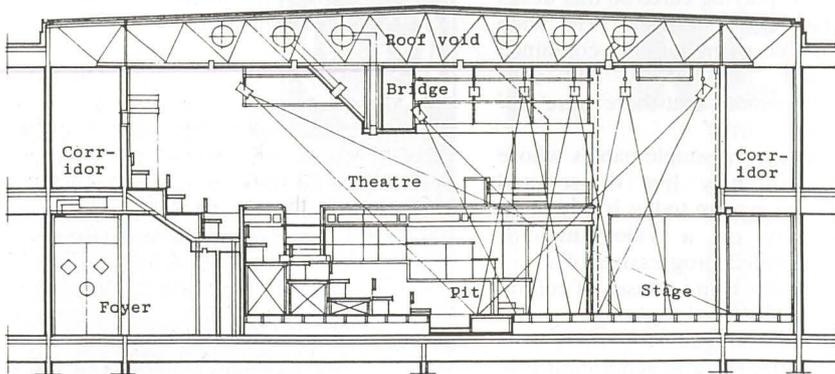
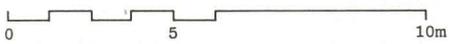
A new ventilation system has been installed. Air is introduced via grilles mounted in the back and bottom of the lighting bridge, and extracted through a plenum formed under the new gallery.

### Design Team:

<i>Architect:</i>	Tim Foster Architect
<i>Project Management:</i>	Ian Kennard and Co
<i>Structural Engineers:</i>	Andrews, Kent and Stone
<i>Services Consultants:</i>	Pell Frischmann Consulting Engineers Ltd
<i>Theatre Consultant:</i>	Theatre Projects Consultants Ltd
<i>Acoustic Consultant:</i>	Paul Gillieron
<i>Main Contractor:</i>	French Kier London Ltd

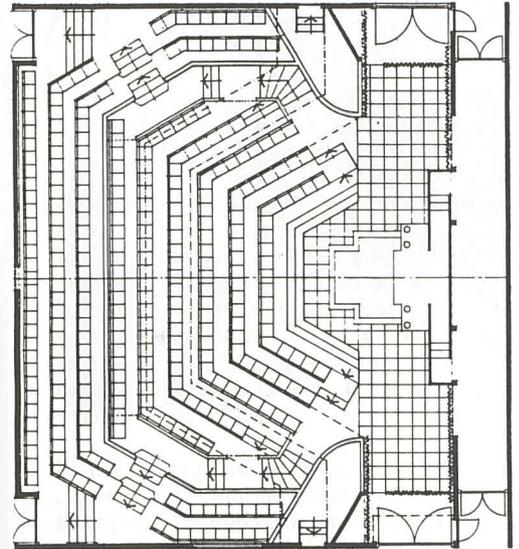


SECOND FLOOR PLAN

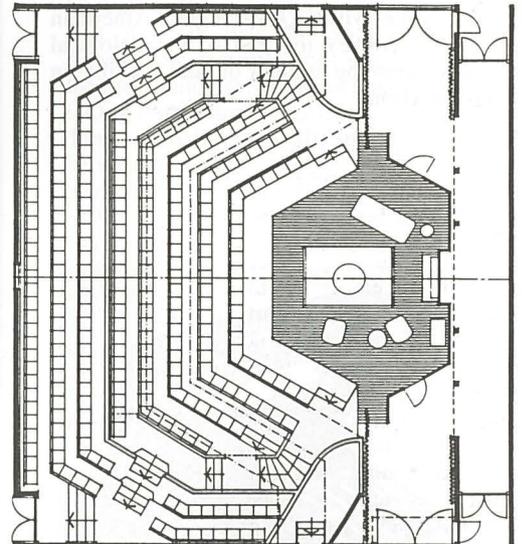


SECTION AA

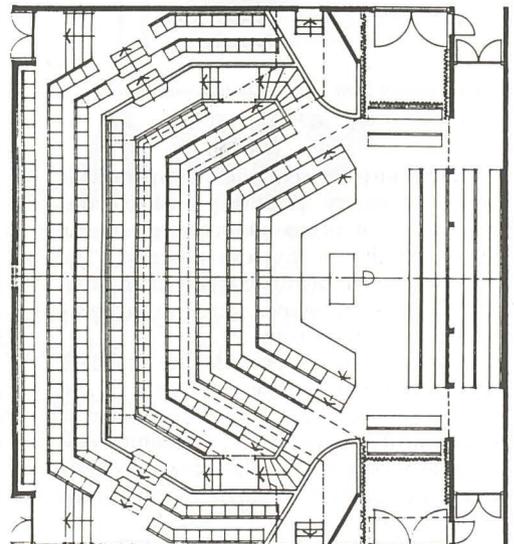
ALTERNATIVE LAYOUTS



1. DRAMA/ELIZABETHAN SETTING  
Forestage out 280 seats



2. DRAMA/NATURALISTIC SETTING  
Forestage in 260 seats



3. ASSEMBLY/AMPHITHEATRE SETTING  
Forestage out 280 seats

# CONTROL BOARD ALPHABET

Continuing Francis Reid's ABC for 1987



M is for **Memory** which has released operators from beat-the-clock feats of dexterity and drudgery. Dimmer levels are nowadays just one of the many types of information to be handled by a lighting board's **microprocessor** — but level memory is still the most fundamental breakthrough of the newer control technologies.

Electronic shrinkage brought a rash of product names based on 'mini' and 'micro'. The **Mini 2**, combining compact twin preset desks with multiple 6-way dimmer packs, opened new horizons in both low cost and portability. The **Micro 8** on the other hand was born of a somewhat misguided decision to miniaturise the Junior 8. At the other end of the scale, **Multi-Q** was a good American name to convey the end of technological limitation to the number of cues possible in a production.

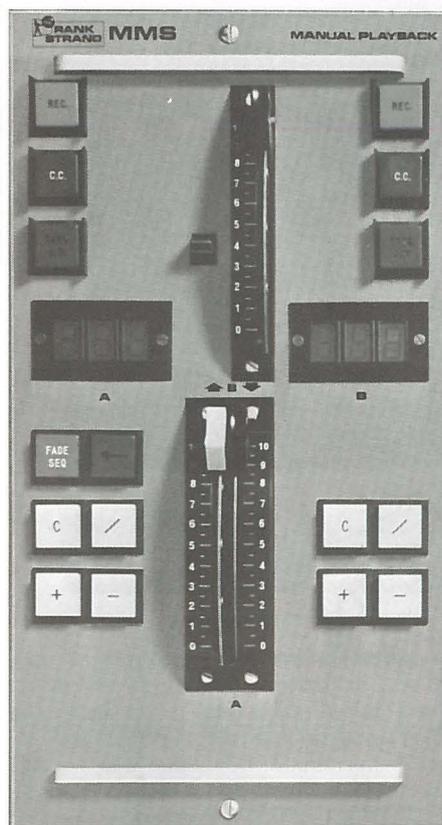


This version of Mini 2 predates the invention of "yuppie"

**Multigroup Preset** boards combined the channel memory pistons(qv) of electro-magnetic light organs with the electronic level presetting of thyristor dimmers. The absence of inertia(qv) reduced their flexibility and the prototypes were overtaken by the arrival of level memory.

**Multicore** cables provide the standard inter-connection between desk and dimmers, with each channel requiring its own control line. However, digital processing now allows a system's entire data to be transmitted down a single core to the dimmer room.

**MMS** was the Modular Memory System that enabled most professional theatres to be able to equate their aspirations with their



An MMS Manual playback panel as reproduced in the Strand card game MneMonicS.

budgets. Each desk was assembled from a selection of modules to provide a system customised in terms of size and facilities. Strand's marketing included printing the panel options as playing cards so that desks could be planned by shuffling. The wide range of possible permutations, combined with operators' individuality and consultants' zeal, ensured that there were few cries of 'snap!'.

Early **Mimics** were simple panels whose numerals lit to show live or selected channels, but no system today is without a dynamic display on a video monitor showing the detailed progression of every channel. In the repertoire houses of central Europe with their fixed lighting rigs on bridges, towers and galleries, there is a logic in laying out a mimic geographically. But for theatres with flexible plugging, a simple numerical progression is more appropriate.

The **Mouse** is a means of access that is gaining ground. This familiar tool of

computer graphics, pioneered in theatre by ADB, allows the operator to make the kind of painterly strokes that have more appeal to many lighting artists than button pushing.

Just before the dawn of the micro-processed thyristor, the options (much argued and alcoholled over) were **Magnetic Clutches** or **Magnetic Amplifiers**. The magnetic clutch allowed a mechanical dimmer to be moved remotely, while the magnetic amplifier allowed a choke dimmer to be load independent. Both could be remotely preset but only mag-amp moves were proportional. Siemens(qv) confused the option by using a magnetic clutch in the desk and a magnetic amplifier in the dimmer room.

And lastly but most importantly M is for the **Master** — the simple control surface that the operator activates to make the cue happen. At its best the simplest of devices, allowing full concentration on the cue's timing.



N is not for very much. Only **Non-Dims**, the channels which for one reason or another (usually because they are controlling a type of light source or motor that looks unkindly at a dimmer) are only switchable. They are usually independent of the board's mastering system, although located within the main control desk.



O is for the **Operator** without whom no lighting board has anything to offer a live performance. If I may get personal for the only time in this ABC: I would like to confirm that, as a lighting designer, I am not really interested in boards — only in their operators. Given a sensitive and committed operator, the most unpromising boards will perform anything I ask. Even boards with a penchant for amnesia seem to enjoy better health under sympathetic operation.

And O is also for the **organ** whose console became the first board to be a playable instrument rather than a technology-based electricity distribution system.



starts with the **piano-boards** which had none of the playability of organs but were the portable resistance boards which, mainly thanks to the continuing distribution of DC and the persistence of four-wall rentals, survived on Broadway until overtaken by memory.

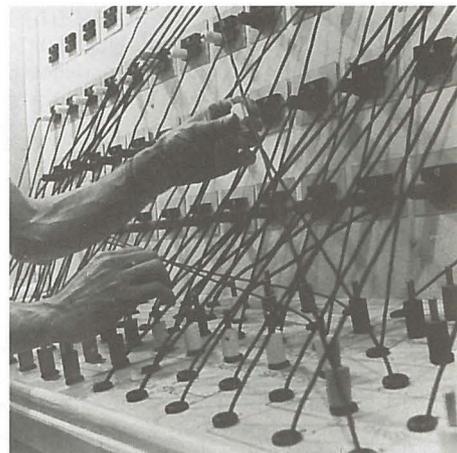
**Presetting**, whether manual or memorised allows preparation of a cue and reduces the number of operational hands required. The progress of a move to preset levels is **proportional**, ie all dimmers finish at the same time irrespective of distance of travel. With mechanically driven dimmers the move was non-proportional, ie since all the dimmers travelled at the same speed, those with shortest travel distance arrived earliest. Proportional dimming produces a more smoothly balanced cue: however in an ideal board each dimmer should be able to be given its own individual rate for each move – and in the most sophisticated systems this is possible.

One of the earliest dimmers was the **pole** on which candles were mounted behind each set of wings. By rotating the pole, the light could be diverted away from the stage. At Drottningholm all the candle poles can still be worked simultaneously from a master capstan in the prompt corner. Words associated with later dimmers include the organ **pistons** which allowed groups of channels (but not their levels) to be memorised; and **polarised relays** which, on the wheatstone bridge principle, allowed motor-driven dimmers to be declutched automatically on reaching a preset level. Resistance dimmers were very load sensitive and so their tolerance was given as a **plus-or-minus** (usually a third) appended to their kilowatt rating.

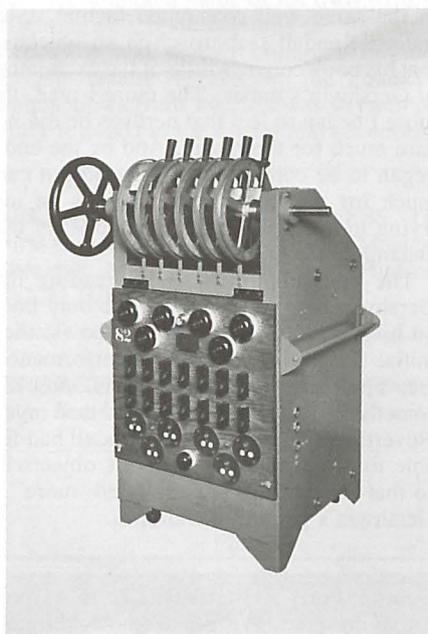
The earliest memory boards used **punch cards** to record the cue states. Inserting new cues was a simple matter of shuffling the cards but each time that one channel was altered half a point in rehearsal, the entire card had to be repunched. (And the printer was very noisy!). All boards need a **plot**, but with memory the plots use less paper and the plotting takes less time. It is only recently that **portable** has come to mean

what it says: the old portable dimmers were chunky trucks of 6 or 12 resistance dimmers and required multiple heave-ho to make them even remotely transportable.

**Patching** of loads to dimmers was always used rather more extensively in America than in Europe. Perhaps it was because the Americans tended to use a smaller number of higher quality dimmers while Britain opted for a large number of cheap ones. (Only subsidised central Europe could



*Patching.*

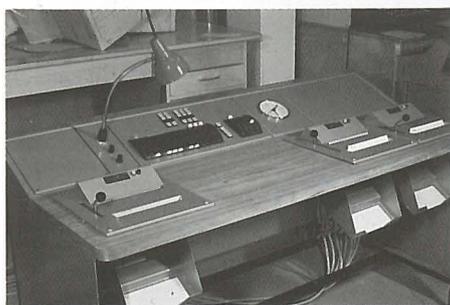


*Standard Strand 6-way interlocking portable board with slider resistance dimmers operated by tracker wires.*

afford a large number of quality dimmers.) Also the size of 110 volt cable encourages short runs. Certainly a patching frame enabled channels to be lined up for more logical working in an era of hand operation. And it was a useful means of transferring circuits from one part of the theatre to another. But load patching is now fading into history. Electronically it can be done manually by a **pin matrix** or it can be written into the microprocessor programme.

Which leaves **Palette** a word hijacked by Century for a product name but one which expresses the true function of each and every board.

*(to be continued)*



*Memo-Q desk with three punch-card readers for presetting (made by Grossmann and marketed by Strand in the early 1970s)*

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# REIDing SHELF

Sheridan Morely has subtitled his **SPREAD A LITTLE HAPPINESS** as the *The first Hundred Years of the British Musical*. His century is the one since the end of the Gilbert and Sullivan era. A bit arbitrary perhaps, but not without logic. And it certainly makes for an interesting book. I started with the pictures: well selected and well printed, a visual narrative in their own right. My eye, loosely taking in the graphic shape of the text, noted such an excess of italicised show titles that I feared that Mr Morley surely could not find space for any sort of significant analysis.

But his comments, however short, are perceptively to the point. His accuracy on the musicals that I have seen, and particularly on the flops with which I have been associated, give me confidence in his judgements on the ones I would have liked to have seen — particularly those of the first half of the century. Oh to be whisked back to the Gaiety for Lionel Monckton's *The Orchid*, with Hawes Craven scenery that moved from The Countess of Barwick's Horiticultural College to the Interior of the Opera House at Nice.

I enjoy the depth and polish of today's musical but I also rather hanker for the simple innocence of yesterday's shows. Sheridan Morley's book helped me to savour both.

I used the phrase *straightforward sequential life* in reviewing Alan Kendall's biography of Garrick. His **GEORGE GERSHWIN** is in the same well-researched factual style. Indeed Kendall's approach is so objective that his book conveys little of the excitement of Gershwin's music. The more I read, the more I began to feel that perhaps he did not care much for the music. And by the end I began to be convinced that he did not care much for the man either. Or was he just trying to avoid the trap of sycophancy that endangers the biographer's lot?

The particular pleasure of reading this Gershwin biog (and it is not the only book on his life) is the facts on the shows: their initial reception, number of performances etc. The flavour of the music is, after all, something for our ears rather than eyes. Nevertheless I do wish Alan Kendall had felt able to relax just a little of his objectivity so that we could have shared more of Gershwin's pains and triumphs.

George Perry's **BLUEBELL** is a more satisfying read. We get to know Margaret Kelly and share the highs and lows of her professional and personal life as she develops her dancing troupes. The book has been republished in paperback to coincide with BBC TV's re-run of their biopic series on Margaret Kelly and her Bluebell Girls.

Book and video complement each other rather well. I watched the original series and have caught snatches of the re-run while reading the book. The way in which Carolyn Pickles, without impersonating Margaret Kelly, adds dimension to the well documented character of the written biography is a fine example of how acting in a style of carefully heightened naturalism can increase our understanding of an historic figure. The book is well illustrated and again the archival 'real' photographs complement the designed 'heightened' images of television realism.

However the Bluebell story is really just the hook on which hangs an important record of how one aspect of performance responded to life before, during and after the war — the 'during' being an interesting insight into occupied France.

In **THE EVERYMAN BOOK OF THEATRICAL ANECDOTES**, Donald Sinden has assembled 357 tales about theatre persons from Christopher Marlowe to Maria Aitken. Most of the people and some of the tales are familiar but I am particularly pleased to be introduced to William Peer, the Restoration actor with a repertoire of but two parts. Sir Richard Steele relishes the quality of Peer's rendition of the prologue to the play within Hamlet and the apothecary in Caius Marius (Otaway's version of Romeo and Juliet). Peer also excelled as the Property Man: 'This officer has always ready, in a place appointed for him behind the prompter, all such tools as are necessary in the play, and it is his business never to want billet-doux, poison, false money, thunderbolts, daggers, scrolls of parchments, wine, pomatum, truncheons and wooden legs, ready at the call of the said prompter, according as his respective utensils were necessary for promoting what was to pass on the stage'.

In the heart of a rehearsal, David Belasco sometimes threw his watch on the floor and stamped on it: it was a dollar watch that he kept in stock for the purpose, but the gesture was sobering. It is such snippets as this (or Garrick's advice to a young actor to give it more passion and less mouth) that brings people alive.

Donald Sinden's anecdotage is a rich collection, with sources meticulously indexed, and a bonus in that one cannot read it without hearing the words rolling out of its editors resonantly articulated larynx.

Writing a book about jokes is even more difficult than telling them to the first house Monday at Glasgow Empire. It takes

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courage to analyse comedy but Tony Staveacre has had a good stab at it in **SLAPSTICK** – The Illustrated Story of Knockabout Comedy. His brief is the comedy of action: visuals rather than verbals, although it is often the juxtaposition of images and words that produces the laughs. Most of his chapter categories of comedy are self-explanatory, eg Inspired Lunacy, Visual Vulgarity and Victimisation. The book calls itself a story but it is also something of a history, starting with a chapter on *Tumbling Through the Ages*.

The complex mechanisms often employed in laughter construction are discussed in *Props, Traps, Tricks and Flaps*: and the author offers his own personal selection (from which few would dissent) of sixty Top of the Bill laughtermakers.

Laughter rarely stems from cold logic, although being a clown is a solemn business indeed. While it is always interesting to consider acting technique, my particular joy in this book was a simple re-living of the old chestnuts and a stimulated recall of the comedians who have kept me sane over the years.

Benedict Nightingale sat **FIFTH ROW CENTER** for the whole of the 1983–84

seasons in New York, on and off Broadway, for the New York Sunday Times. His response to this critic's year has now taken book form and a very interesting read it makes. His alien status as a Brit doubtless assists his objectivity but, although this is a cool look at New York theatre, his writing is full of passion for the theatric experience. He is the kind of critic who wants the show to succeed. And although he writes from a personal viewpoint, as must every commentator who wishes to be readable, he is never destructive for the sake of maintaining the entertainment value of his own writing. Nightingale's book captures the flavour of Broadway and reveals London's future if British theatre reverts to the financing philosophies from which it was so triumphantly released in the sixties and seventies.

**SPREAD A LITTLE HAPPINESS.** The First Hundred Years of the British Musical. Sheridan Morley. Thames and Hudson. £12.95 (UK)

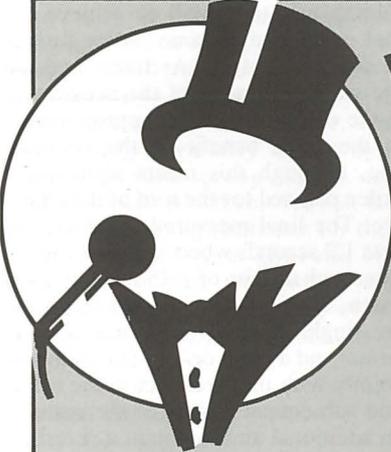
**GEORGE GERSHWIN.** A Biography. Alan Kendall. Harrap. £10.95 (UK)

**BLUEBELL.** The authorised biography of Margaret Kelly, founder of the legendary Bluebell girls. George Perry. Pavilion Michael Joseph. £7.95 (Paperback) UK.

**THE EVERYMAN BOOK OF THEATRICAL ANECDOTES.** Edited by Donald Sinden. J.M. Dent. £14.95 (UK)

**SLAPSTICK.** The Illustrated Story of Knockabout Comedy. Tony Staveacre. Angus and Robertson. £9.95 (UK).

**FIFTH ROW CENTER.** A Critic's Year On and Off Broadway. André Deutsch. £12.95 (UK).



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#### STAGE LIGHTING HANDBOOK

A Third Edition (reset and expanded) of Francis Reid's **The Stage Lighting Handbook** will be published in early autumn by A & C Black in London and by Methuen Inc in the United States.

Meanwhile a Spanish edition has just been published as **Manual de Iluminacion Escenica** by the Fundacion Diputacion de Sevilla. The translation is by Hector Morales who was a student of the author's at RADA.

A Swedish edition, **Teaterljus**, translated by Hans-Åke Sjöquist, was published by Entré of Stockholm in 1982.

# BRITTEN OPERA HOUSE

ROBERT HARRIS and DEREK SUGDEN

## *An Opera House Acoustic*

In 1900 Wallace Sabine produced the first empirical equations for calculating reverberation time and applied these equations to the design of the Boston Symphony Hall. Since that time great attention has been paid to the correlation between the objective measurement and the acoustic properties of auditoria and the subjective assessment of the quality of the acoustic. The major part of this work, the research, the papers, the books has been and is concerned with the concert hall; very little of the work is specifically concerned with the theatre or opera house.

This is understandable when considering the ritual we associate with the performance of European Art Music in the concert hall or recital room — a concern with the quality of the sound of music which makes all the other human responses to the performer, the audience and the architecture of the auditorium pale into insignificance. Not so with the opera. As Kenneth Clark writes in "The Pursuit of Happiness", the 9th Chapter in "Civilization", 'Opera, next to Gothic architecture is one of the strangest inventions of Western Man. It could not have been foreseen by any logical process. Dr Johnson's much quoted definition, which as far as I can make out he never wrote — "an extravagant and irrational entertainment" is perfectly correct'.

The greatest artistic creation of the 'Rococo', Opera had its beginnings in the 17th Century and was perfected as an art form by the genius of Monteverdi. It came to the north from Catholic Italy and flourished in the Catholic capitals of Vienna, Munich and Prague. It has absorbed all the theatrical and musical traditions of the Masque, the Commedia dell'arte, the Commedia erudita, the Sing-spiel of Germany, the Pantomime of England and the Music Theatre of today. It is an entertainment of ceremony and ritual where, when it achieves the greatest impact, the musical and literary ideas are not only of equal importance, they complement and sustain the essential idea of the opera itself. Words and music are equally important.

The architect and acoustician should not however be looking for a compromise between the theatre, where speech intelligibility is paramount, and the concert hall, where the 'flux of reverberant energy' is the primary aim, but an acoustic where the geometry is so carefully contrived as to provide reflections to ensure that those parts of the opera which must be intelligible are

heard, but against a background which does not reduce the richness and warmth of an orchestral sound and voice, and so threaten the drama of the occasion.

Acoustic knowledge, analytical and measuring techniques and subsequent theories have developed rapidly, particularly since 1950, but one of the most significant properties of an auditorium which can be calculated and predicted remains the frequency dependent reverberation time. All the other measurements and ratios used to define the quality of an acoustic are taken from models or the auditoria themselves, they are checks, but seldom effective design tools. Nevertheless from the correlation of these many measurements with subjective criteria there is confidence that the quality of the auditorium acoustic is very dependant on a powerful direct sound and on short delays or time gaps between the direct sound and the first and early reflections. It follows that the early energy in an auditorium is very important. It is this quality of high early energy which not only increases speech intelligibility, but improves the quality of both speech and music. Achieving this against a reverberation time long enough in the right frequencies to provide the warmth and richness for music, but not too long so that the words are masked or become unintelligible should be the aim for the geometry and acoustic of an opera house. This aim must also include a geometry which incorporates an approach to the orchestra pit design which ensures the fundamental criterion of the 'right' balance between the stage sound and the pit sound as far as possible throughout the auditorium.

## *A Teaching Opera House Acoustic*

Against the background of achieving an 'ideal' opera house acoustic for the Britten Opera Theatre was the added dimension of providing an acoustic for young voices being trained, and developing at the beginning of their careers; voices which may not achieve their potential for a truly mature sound for perhaps 10-15 years. Singers must also be trained to use their voice and develop a 'tone' for a wide variety of opera houses volumes ranging from 2000m<sup>3</sup> or less to 20,000m<sup>3</sup> or more and concert halls with a greater range, and all with acoustics ranging from the painfully dry to the reverberant 'bathroom'. It was agreed with the Architect and the College at one of the earliest meetings that the Britten Opera Theatre should not have a too "flattering" acoustic but be reverberant enough to

encourage the young voice and certainly not too dry and analytical so as to inhibit the young singer.

The compact size of the auditorium, between 400 and 420 seats in the original sketch design, simplified the acoustic design and made it relatively easy to realise high clarity, immediacy and intimacy. In the preliminary study, comparisons with other opera houses led to a recommendation to aim at a occupied reverberation time in the mid frequencies of 1.25 seconds. This is slightly longer than the Royal Opera House reverberation time of 1.1 seconds but appreciably longer when considered pro rata to its volume. It is very near to the reverberation time of the Buxton Opera House, Teatro la Fenice and the Markgräfliches Opernhaus Bayreuth, all of which have a volume between one and a half and twice the volume of the Britten Opera Theatre. Initial calculations and predictions indicated that the volume was too small to achieve the required reverberation time. After further design development the Architect and the College were persuaded of the need to increase the overall height by approximately 3m to the great benefit of the resultant acoustic, although this meant abandoning the garden planned for the roof of the Opera Theatre. The final measured reverberation time was 1.2 seconds when occupied, which compares with the aim of 1.25 seconds set in the design. The seated audience is by far the biggest single absorbing element in any auditorium and a great deal of attention was paid jointly with the Architect in the selection and subsequent testing of the seats. It was an additional aim to obtain a reverberation time in the empty condition as near as possible to the full condition. After careful seat selection based on recent experience in auditorium design, tests were carried out in a reverberant chamber, with and without an audience, using the latest techniques as recommended by Dr Orlofski following his recent research work at Salford University. This indicated only a slight increase in reverberation time in the unoccupied condition. This laboratory work was confirmed by the final measured reverberation time of 1.25 seconds in the unoccupied condition. This ensured that students were rehearsing without audience and performing with an audience in virtually identical acoustic conditions. The frequency dependant reverberation curves in the occupied and unoccupied condition are shown in Figure 1.

The geometry of this small opera house ensures strong reflections and abundant early energy. The convex profiling of the

balcony fronts was developed to provide useful lateral reflections, to introduce a degree of diffusion and to reduce the danger of echoes and focussing from surfaces which are concave in plan.

The pit is relatively large and deep due to the brief to accommodate 80 players. This is a very large band for an opera house of circa 2000m<sup>3</sup> and any attempt to place the whole pit in front of the stage would have destroyed the architecture of the auditorium, absorbed 800-1000m<sup>2</sup> of the stalls area and made the possibility of achieving the right balances between the pit and stage sound impossible to achieve, especially with young voices. This pit followed the ideas of a semi covered pit originally of course pioneered by Wagner in the Festspielhaus, Bayreuth, and recently at Snape, Glasgow and Buxton. A Mozart band can be accommodated in the open section between the orchestra rail and the edge of the stage but a large band requires the placing of the brass, some woodwind, tympani and basses beneath the covered section. This is not an acoustically comfortable position despite the incorporation of curtaining, carpet and absorbing elements in the rear of the pit. This remains an insoluble problem where large orchestras are now used in very small opera houses. There is no doubt that modern instruments aggravate this problem of balance, they are appreciably louder than the instruments of the 18th and 19th Centuries and in addition the young student players of our orchestras appear now to be playing with as much power as their colleagues in the professional orchestras!

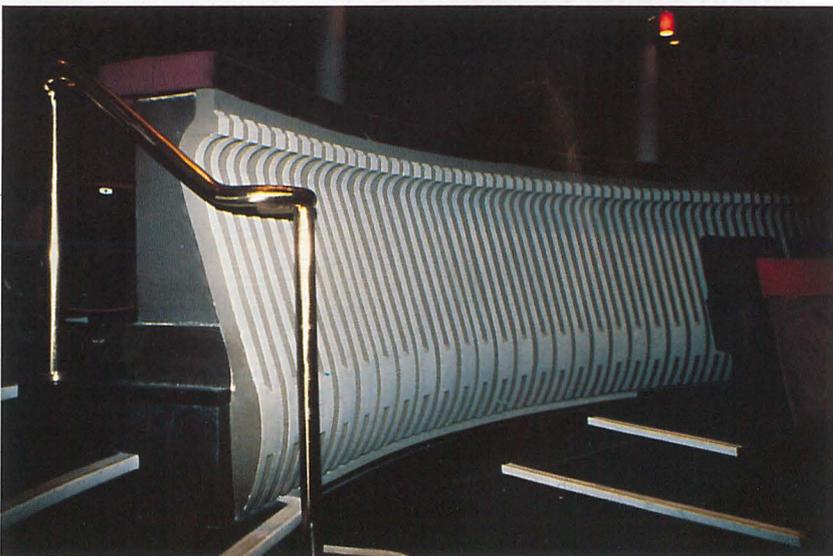
Attention in the acoustic design was also given to the stage and flytower. The maple stage, sadly invariably hidden by a stage cloth, is semi-sprung using composite isolation pads which ensures that the stage, while maintaining resilience for the Ballet, is quiet for the Opera. The soffit of the flytower is finished with sound absorbing material to avoid the danger of a double decay, particularly when the flytower is empty.

### *Sound Insulation*

At an acoustics conference some few years ago a few of those particularly concerned with auditorium acoustics were gathered together to discuss with Professor Lothar Cremer his views on the present state of the art. He was asked by one of the less retiring members of the group as to what was the most important factor in auditorium acoustics and the reply was immediate "why loudness of course" given in his typical didactic style. To achieve this, a quiet background is essential. The site was favourable with regard to transport noise, with surrounding buildings providing protection from traffic. There were no adjacent railways either above or below ground, a rare luxury today especially in Central London, and no aircraft directly overhead. Despite these advantages the theatre was built within the existing courtyard between the existing College and Imperial College and only a pipe's length of the organ from the existing



Britten Opera Theatre. Volume 2146m<sup>3</sup>, 405 seats.



*The convex profiling of the balcony fronts provide useful lateral reflections to reduce the danger of echoes.*

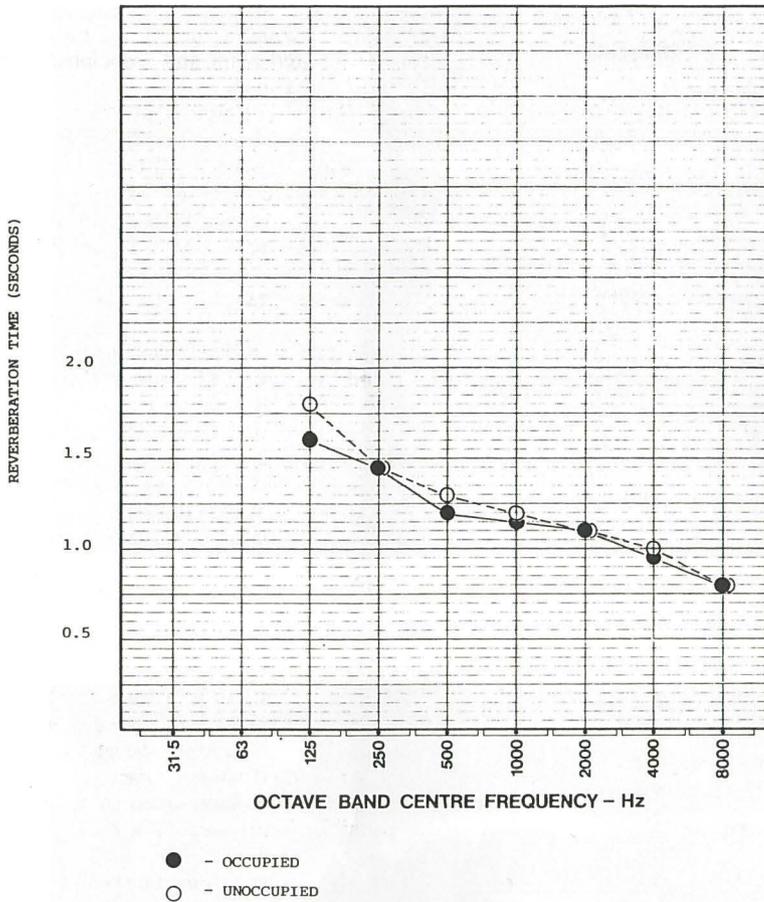


FIGURE 1 BRITTEN OPERA THEATRE - REVERBERATION TIMES

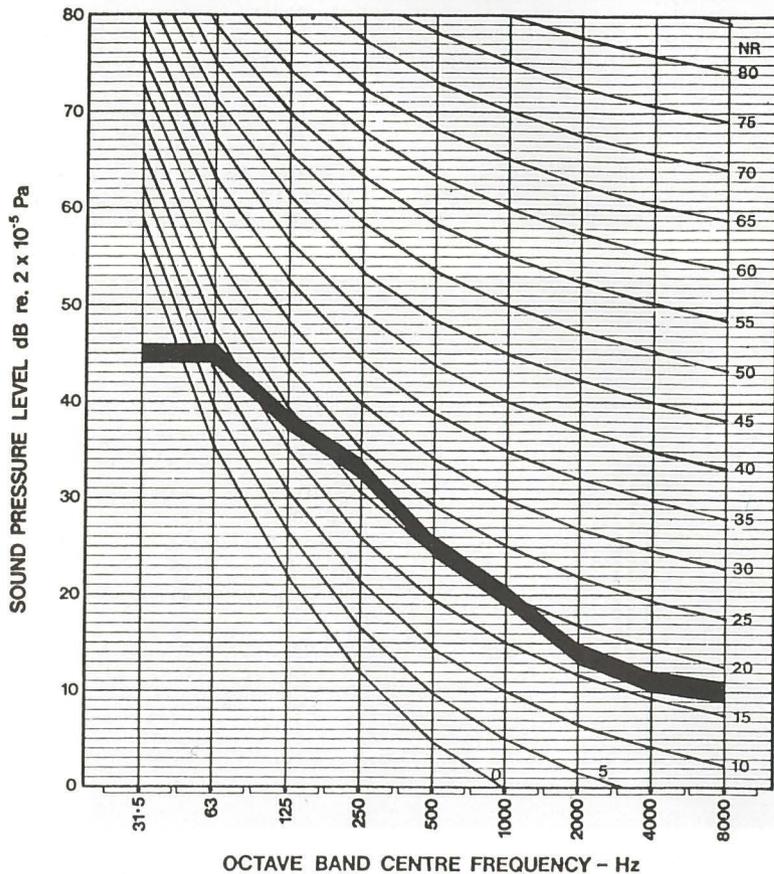


FIGURE 2 BRITTEN OPERA THEATRE - NR CURVE

concert hall and surrounded by a chorus of music practice rooms. The vagaries of the law relating to VAT on the extension of buildings combined with the insistence of the acoustic consultant ensured that there were no rigid links between the new theatre and the existing building. The roof was designed to match the performance of the masonry walls.

Particular care was taken to minimise noise penetration via the inevitable weak link of the stage lantern, by facing the opening lights inwards rather than outwards in the more conventional way and hence screened from the surroundings.

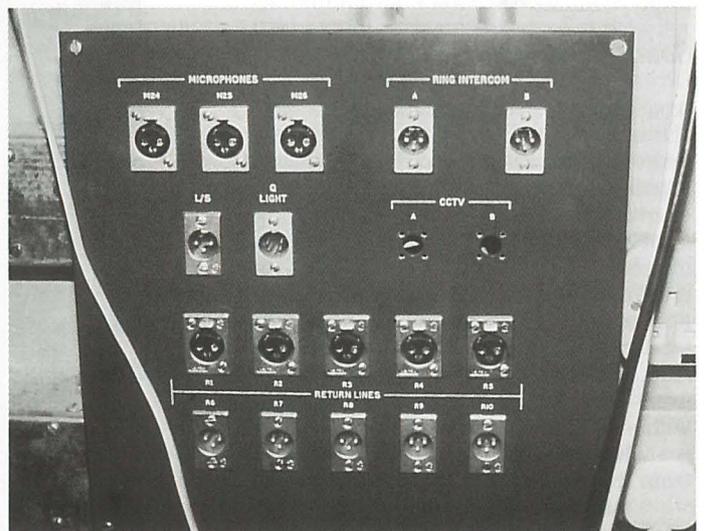
All access to the theatre, including access directly onto the stage from outside and from the workshop is via double doors and sound lobbies. The 6m high workshop doors were custom designed with steel frames and automatic drop seals. Acoustically these have proved very effective, but the weight of such heavy, hinged doors once moving does not, - to use current computer-jargon classify them as "user friendly".

The main plantroom is beneath the rear stalls and a 'floating slab' was cast upon the structural floor to prevent any sound leakage into the auditorium.

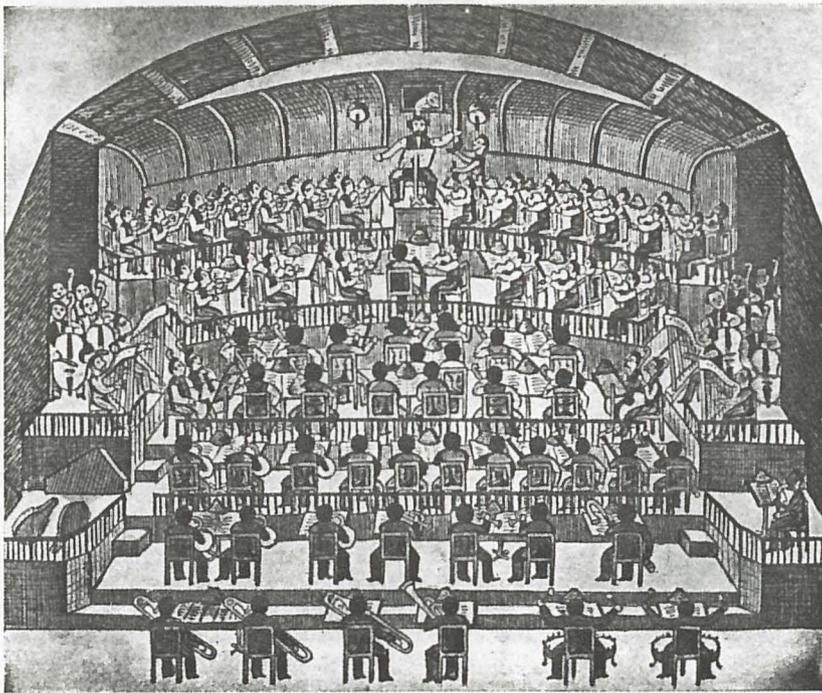
In the early stages of the design attention was repeatedly drawn to the necessity for dealing with sound insulation for an outside broadcasting unit. A letterbox entry was provided in the rear wall and it is hoped that the temporary stage cloth seal will eventually be replaced by a proper sealed closure!

### Services

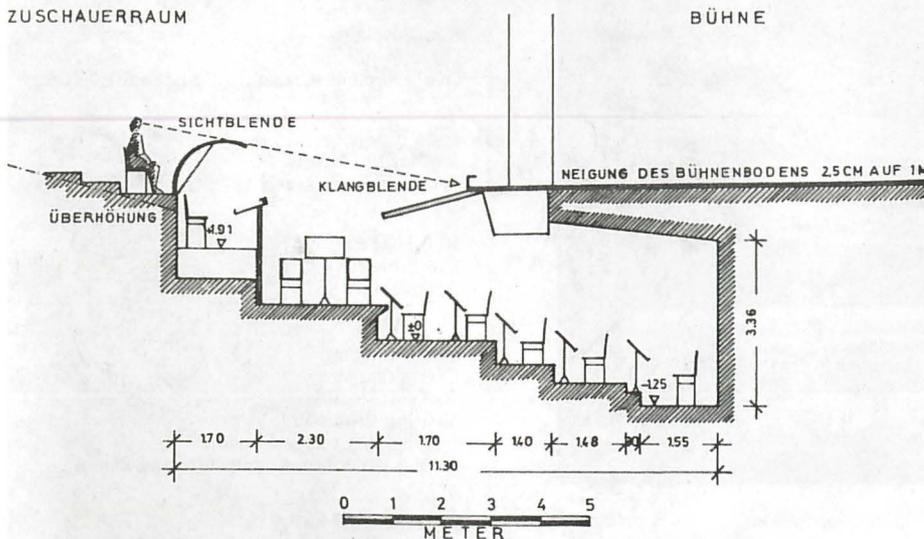
The theatre is mechanically ventilated but not air-conditioned. The limitations of the site and the compactness of the design presented great difficulties in incorporating the mechanical plant and large ducts required for low air velocities necessary to achieve the low noise levels specified. The fans are fully enclosed with primary attenu-



Basic show relay/paging and twin channel ring intercom system have been installed as well as CCTV



Orchesterraum, Tuschezeichnung · Orchestra pit, pen-and-ink drawing  
*La fosse d'orchestre (lavis) · 1882*



ators at the exit to the plantroom and secondary attenuators before the room outlets. All related plant and associated pipe-work is vibration-isolated.

A design target limit of NR20 was set for the noise levels. Levels between NR19 and NR22 were achieved in all but a few seats with NR25 in the lighting control room.

The measured noise levels plotted against the NR curves are shown in Figure 2.

### Sound Systems

Arup Acoustics advised on the provision of sound facilities. The use of sound in opera is not highly developed at the College, but 44 microphone lines (18 in the pit), 16 tie-lines and 23 loudspeakers lines have been installed for future use. To overcome the familiar visual intrusion of proscenium loudspeakers, three acoustically-transparent but visually-unobtrusive panels were installed each side of the proscenium arch, at stalls, dress and upper circle levels, with loudspeaker supports behind. With this installation the College can locate effects loudspeakers, etc. in accordance with the particular spatial requirements of the production. The building budget did not allow for a fitted sound control room but distribution routes have been provided for the possible future use of a room at the upper circle level.

Basic show relay/paging and twin channel ring intercom systems have been installed, as well as CCTV.

The previous Parry opera theatre, located below the concert hall, is being converted for use as a recording studio suite, to be linked by multiple audio cables to a patch-field located below the stage.

### Assessment

The general response of the College, performers and press alike has been good, with some particularly favourable press reviews and individual comments. These may be summarised as follows, with the acoustic consultants comments in parenthesis:

- Very good clarity and intimacy – if anything a little too immediate (as expected given the closeness of the performer to the listener).
- Balance slightly in favour of the singers (as designed – students tend to have less well developed voices but play instruments quite loudly).
- A little dry (expected, on account of the volume – a slightly longer RT in the higher frequencies, would have been preferred).
- Noise levels have not been mentioned by anyone, except by their absence, eg “the softest ppp is audible”. (!)

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Buxton Opera House. Volume 3100m<sup>3</sup>, 950 seats.



Markgräfliches Opernhaus, Bayreuth. Volume 5500m<sup>3</sup>, 650 seats.



Teatro La Fenice. Volume 4760m<sup>3</sup>, 1100 seats.



Royal Opera House, Covent Garden. Volume 12280m<sup>3</sup>, 2180 seats. Photo: Woodmansterne/Jeremy Marks.

### Postscript

The acoustic consultants have been in two minds as to whether they should go on sustaining the myth of the success of the acoustic due to the "goats hair beaten into the walls etc". This appeared in the quality press, (to be expected) and in at least one technical theatre journal, (to be regretted). As far as we are aware no goats hair was incorporated in the plaster specified and none was 'beaten' into the plaster or the walls. If it was we doubt very much if it would have had any effect on the acoustic whatsoever!

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