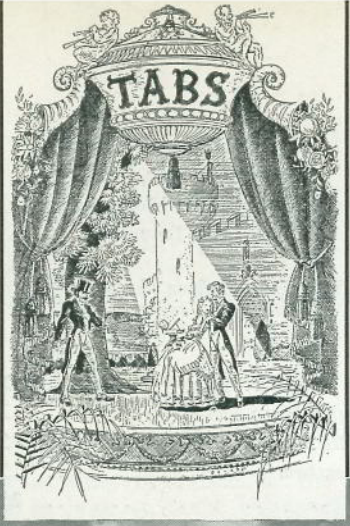

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Cover picture: Royal Elizabeth Hall Complex from photo' by G.L.C. Dept. of Architecture and Civic Design

Thespis Needs a Liaison

Each year brings its crop of conferences, congresses and seminars on theatre. Who knows of them and how? Who is entitled to attend? Some seem bespoke, others on the contrary appear to court a large attendance. Some take place in this country and many more abroad. At least two, the important Colloquium on "The Design of Theatres" at Montreal in June, and the International Theatre Institute one in New York, involve crossing the Atlantic.

Who invites who? Who supplies the money? The same names seem to crop up rather a lot in reports. Are these delegates accursed? Each a "Fliegender Theaterkulturman" condemned eternally to voyage at international expense from one conference to another until automated adaptability, in demonstration of some Totaltheater, through mechanical mishap their quietus makes! One thing is certain: wherever in the world the conference may be held, there one will find a team from the United States and a lone soul or two, from this Kingdom, if anyone at all.

What of the next ITI conference? We learned that there was to be such a thing purely by chance when travelling in America last year. We tried to track down the details the other day and, when our call disentangled from the National Theatre, whose offices the ITI share, we learned that the subject is Theatre Architecture, and that we must write to New York for information.

There are now a large number of bodies here and overseas whose work for the theatre should be complementary. All these publish reports and the like and from time to time hold conferences. The risk of wasting the limited resources of each in overlap and duplication is serious. The need is for some centre, not so much to co-ordinate for that might involve a sense of restriction of the right of any organisation to pursue whatever they have the will and keenness to do, but to inform. A centre where people who want to know can enquire and find out. The nucleus is there in the Theatre Centre in Fitzroy Square, reported on in our last issue, and further steps should be taken to recognise it and make its facilities known. Meantime TABS, with its wide circulation, is only too willing to continue to publish, as we have often done in the past and do so in this issue, short reports of important or unusual conferences.

THEATRE AND THE COMMUNITY SEMINAR

by Peter Moro FRIBA

The seminar organised by the Institute of Adult Education was held in January at the University of Nottingham. The participants, who were mainly men and women from this country but also included theatre people from abroad, talked, ate and slept in Cripps Hall—a hall of residence with dining hall and junior common room. This mock Georgian post war building was comfortable enough, but as an architect I found it a pity that our foreign visitors could not have been welcomed in a more worthy example of British architecture.

Unlike other conferences which I have attended in the past, the best things here were the working sessions themselves. Licensing laws and the cold weather were not conducive to the fun and games which make conferences abroad so memorable. Under the direction of competent chairmen, each session dealt with a particular aspect of theatre and community; the theme of the seminar. There were no prepared speeches. Instead, the participants, sitting in a big circle, discussed earnestly and to the point the subject on the agenda. It was the deliberate policy of the organisers not to ask for prepared papers and I am sure that this contributed to the success of the conference.

The discussions dealt with such themes as theatre architecture and amenities, publicity and public relations, sociological and market research into the composition of theatre audiences and experiments into the education of adults and young people, designed to interest them in theatrical activities.

Arnold Wesker, William Gaskill, Norman Marshall and John Neville were amongst those who opened the discussions on various subjects. Of great interest was the contribution by Monsieur Girard, Head of Research at the French Ministry of Cultural Affairs. He reported on the method and results of a far reaching survey which was carried out in France and which threw some light on the theatre going habits of that nation. This body is embarking on a definite course designed to make theatre accessible to all regions of France. In this country market research has also been used on a much smaller scale, notably in Coventry and the Sadlers Wells Opera House. Statistics however proved to be confusing and misleading,

particularly when it came to statements regarding the percentage of the audience which came from the so-called working classes.

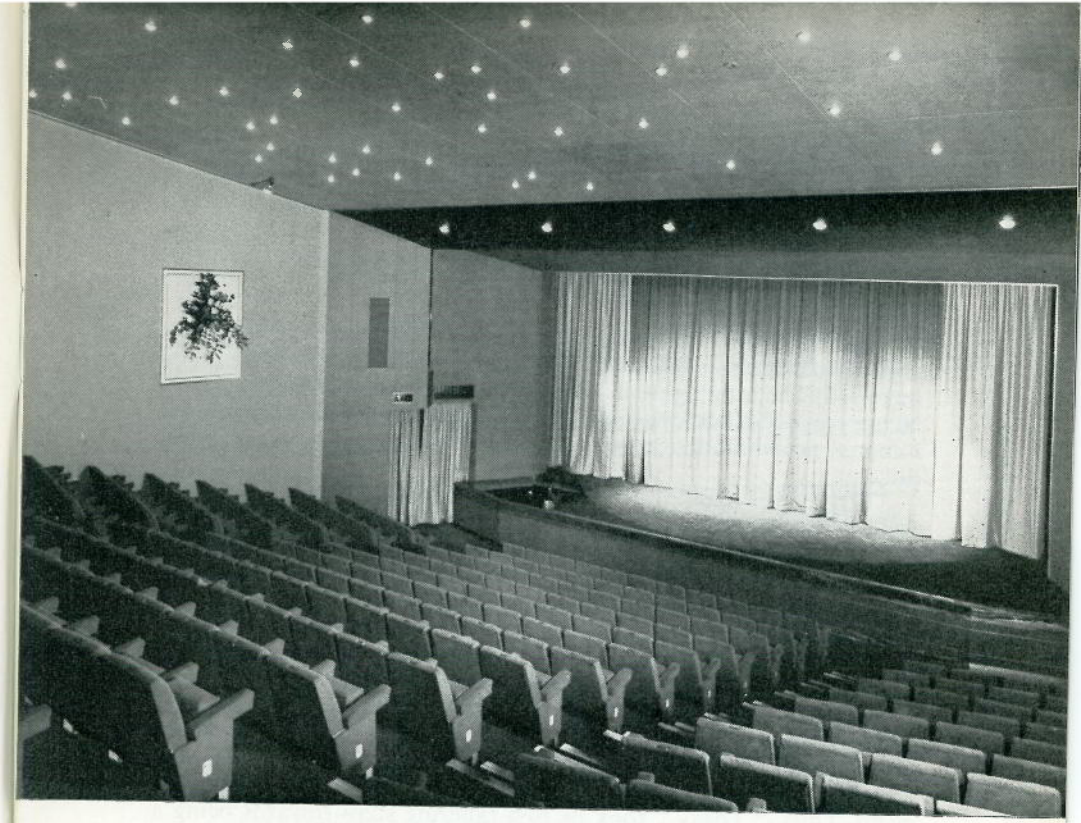
John Neville who, as director of the Playhouse, feels strongly about reaching the broadest possible cross section of the population talked about experiments which he made in order to achieve this end and also the steps he and his company has taken to catch young audiences. Other speakers took up this theme. Both Colin George, director of the Sheffield Playhouse, and Peter Cheeseman at Stoke-on-Trent, reported that they successfully filled their theatres by putting on dramatised pieces of local history. They demonstrated that in the regions it is possible to build up a regular audience, which seems to be impossible in the anonymous metropolis; as Peter Cheeseman put it, to put on a play in London is like playing in a railway station full of strangers.

Two of the Iron Curtain participants made their mark, the Rumanian director, Radu Beligan, by making the funniest contribution and Ota Ornest, director of the Municipal Theatre in Prague, the wisest when he pointed out the dangers of advocating organised support for the theatre by the State, industry or trades' unions.

When discussing new forms of theatre which, it is always assumed, are badly needed, the question of whether the pressure for this came from the playwright, the director or the actor remained unanswered. It was interesting to note that Arnold Wesker stated that he enjoyed working for the proscenium theatre which he found a suitable vehicle for his plays. Admittedly it would be wrong to conclude from this that this was typical of all the younger playwrights, but none of the directors present had strong views on the subject either.

John English gave some interesting figures—speculating on the future scale of public participation in the arts. On the example of Birmingham, he explained that the population did not fully use the buildings available for the enjoyment of cultural activities and that, in fact, only 1 per cent made any use of them. If the interest in such activities doubled and 2 per cent used the existing plant, this would fill all existing buildings such as libraries, theatre, concert halls, etc. to capacity. He concluded that if our efforts in educating young people to enjoy their ever increasing leisure were successful, it might be necessary to provide new buildings with several times the present capacity in order to deal with a situation where 10 per cent of the population were seeking artistic experience of one kind or another. In other words, the question was not should we build a theatre or not, but should we build half a dozen or more?

Part of the discussion dealt with how to get people to the theatre and part how to get the theatre to the people. A visit to the packed Nottingham Playhouse, which was included in the itinerary, illustrated the first and a visit to the Royal Shakespeare Company's travelling Theatre-go-Round illustrated the second part of this question.



ADELINE GENEE THEATRE

by W. F. Kemp, ARIBA of W. B. Starr, Clifford and Carman, Nottingham.

A couple of days ago I received a telephone call from Strand Electric; would I like to write a short article as the architect for this theatre, " Do you mind if we have the article within a week or ten days, we would like to put it in the March edition of TABS otherwise it will be ' old hat '? " The theatre opens to the public on February 1st, 1967, at the end of February it will be " old hat ", *sic transit*, etc. You know the sort of thing, I was told, " Something like the one John Brownrigg did for Guildford." I had, of course, read this article some time ago, but I immediately read it again. What a great deal of sound sense it contained; parallels with my own efforts were soon apparent.

The history of the Adeline Genée is similar to that of " Topsy " and, it would appear, of so many other theatres; it just " grewed and grewed ". In 1962 I was approached by the Directors of Bush Davies Schools Ltd., in whose grounds the Theatre stands. The school was rather short of studio space for the dance and would it be possible to erect some form of building which was basically two large units. These under normal circumstances would be studios, but for certain occasions could be converted to the two main functions of auditorium and stage. Ingenious methods of movable raked seating were investigated and so the scheme began.

The site was magnificent, a gently sloping field surrounded by tall pine trees in a rural and exclusive part of East Grinstead. I was a little dubious that we would even be allowed to build. However, sketch plans were prepared, and discussions took place with Godstone R.D.C. who were and continued to be most helpful. In August 1962 planning approval was received for the erection of a " Studio Theatre ".

Bush Davies Schools Ltd. had, early in 1962, raised some £6,000, and it was considered that possibly a further £15,000 might be raised. The total figure in the original brief was £20–25,000. It will be appreciated therefore that although the site offered no excuse for minimal accommodation in the final scheme, money very definitely did.

Up to this date, all the money raised had been entirely by the School, its pupils and their parents. It soon became obvious that the net would have to be cast wider. Discussions were held regarding the possibility of the building (I call it this specifically as it did not " grow " into a theatre until much later) being used by the local operatic and dramatic societies. If this were to be the case then some form of dressing room accommodation, other than the use of the existing school premises, would be required. It also meant that people other than school parents could use the " auditorium " section, and consequently toilets, etc, were required. Most of what is now the ground floor foyer and Genée Gallery were then chair stores, etc., where materials were to be placed when no performance was being given. Thus ," Topsy " took its first faltering steps towards being a Theatre.

The efforts of the school directors soon became known in wider circles and with the interest shown more ambitious things were considered. All successful appeals must have a focal point, the building was to be erected in the grounds of the School of Dancing, what better than that it should be named after one of the great names of the dance.

Dame Adeline Genée was approached and graciously lent her name to the Scheme. Many well known people in the world of stage and music were also approached and their patronage sought. The response was quite remarkable, though many expressed the doubt that any sort of a " hall " could be built for as little as £25,000 and if it was it would certainly not be a theatre.

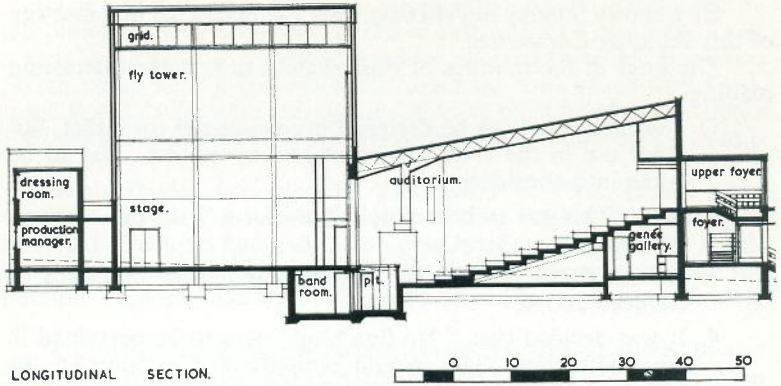
The next obvious stage in the raising of funds was for the scheme to be registered as a charity. A group of trustees was formed, mostly of local people and the long and tortuous legal formalities began. At this stage a former dancer pupil of Dame Adeline became interested—Beryl Maudling, whose husband was then Chancellor of the Exchequer. Initial meetings of the Trust were held at 11 Downing Street and a building sub-committee was formed with the responsibility of preparing some form of brief for the architect who had now been confirmed in the position of architect to the Adeline Genée Theatre Trust from that of architect to Bush Davies Schools.

On a snowy Sunday in February 1964 I attended the first meeting of this Building Committee.

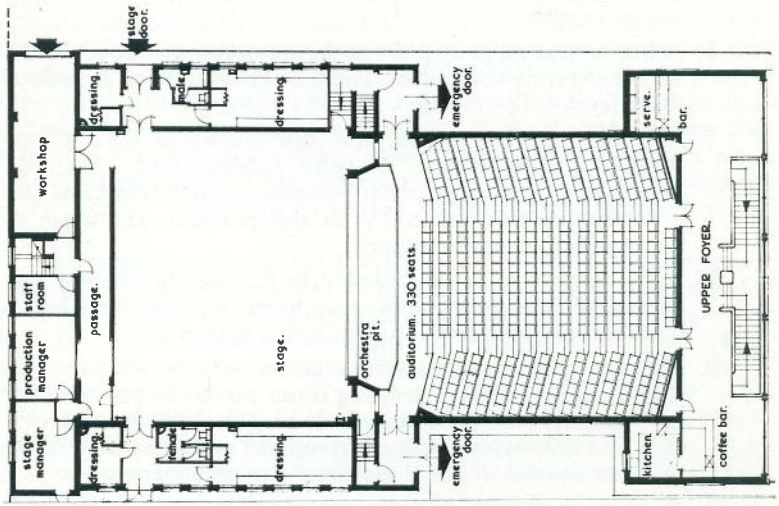
The brief in the minutes of this meeting now make interesting reading.

1. The theatre was to be designed pre-eminently for ballet, but other use in the form of drama and opera, etc., was to be taken into consideration.
2. Stage. This was to be a simple " platform ", devoid of traps, revolves, etc.
3. An orchestra pit was to be provided for an orchestra of eighteen people.
4. It was decided that " No Smoking " was to be permitted in the auditorium. This would simplify and economise the heating and air conditioning scheme.
5. The scheme was to include for a separate unit for the heating and air conditioning and not be an extension of the existing school system.
6. A bar was to be provided for the service of alcoholic drinks with a separate coffee bar. These to be situated at first floor foyer level.
7. A small room was to be provided known as the " Dame Adeline Genée **Room ".** Dame Adeline had graciously promised to give many of her possessions, and in fact has had a portrait painted especially for this purpose. The room to be, in effect, a small museum.
8. A fly tower was to be included in the scheme. Doubt was expressed regarding planning approval for this item but it was decided to attempt to obtain this approval.
9. The dressing room accommodation was to be enlarged slightly and a " Star " dressing room was to be provided for each sex. The usual toilet and washing facilities being provided, and hot water obtained from local points such as Ascot or other heaters in preference to a central boiler plant.
10. Storage accommodation for costumes was to be provided if possible within the main shell of the structure to avoid additional costs.
11. A workshop was to be built as a separate prefabricated area.
12. A small office was to be provided adjacent to the booking office for use of administrative management.

Details of recently erected theatres were considered and a form of cost analysis was prepared, based on costing figures of other theatres given in the *Architects' Journal.* Leicester had built its " Phoenix " for about £30,000, and it was thought that the scheme we were considering could be erected for approximately £40,000.



Adeline Genée Theatre 330 seats. Composite ground and first floor plan and section including back stage extension.



Sketch plans were prepared and ancillary accommodation was kept to an absolute minimum. Even at this stage it was thought that the theatre would only occasionally be used and that any equipment such as heating and ventilating must be capable of operation by a part-time staff; these possibly being members of the school staff.

Economy of installation and simplicity of operation was therefore the vital factor. If an untrained person could arrive an hour before a performance and throw a few switches and the whole scheme come to " life " this was ideal, running costs were not so vital as it was never envisaged that the building would be in constant use.

Finishes inside were to be virtually nil, painted brickwork in the foyers and auditorium with possibly second hand cinema seats as had been done at Leicester. The design of the fly tower had to be given careful consideration as the more usual solid construction was out on the grounds of cost. Noise transmission is, of course, the vital factor and being in the country the external noise problem was not nearly as serious as in the normal town theatre. The eventual use of a plastic-faced aluminium sheet on a steel frame with an internal lining of insulation mat, air space and regulation fireproof board is reasonably economical, but has as yet not been tried under fully adverse conditions. If it works, it is probably an economic answer to an expensive problem.

At this stage of the scheme even vital things like a grid were not possible due to lack of funds.

Again, early in the scheme and when sketch plans were nearing completion, I had the first of very many meetings with the Public Control Department of the Surrey County Council and also with Surrey Fire Brigade. As under the old Public Health Acts each county would appear to have its own regulations relating to theatre licences, many silly mistakes were avoided by this early and close liaison with the relevant authorities. It was indeed a pleasant relationship with people who looked upon it as their job to help and not, as in so many cases, to hinder.

Sketch plans were completed and approved in March 1965. The auditorium was of adequate size for the seating figures given in the original brief, the stage 50 ft. 0 in. wide × 40 ft. 0 in. deep was reasonable for ballet, although wing space in relation to full proscenium opening was a minimum, and will almost certainly be a point for criticism by those unaware of the initial struggles.

Ancillary accommodation, however, was where the financial limitations were most markedly shown. I had done a considerable amount of research on theatres and my Diploma thesis was in fact a ballet theatre combined with a school and club on the lines of the old Russian institutions. I was, therefore, fully aware of what an ideal theatre should contain and equally therefore aware of the very numerous shortcomings of the scheme put forward. It was not possible even to get from foyers to backstage without going through the auditorium. I tried, therefore, in my scheme to allow sufficient sections of " blank wall " to permit the addition of a small workshop, Green Room and back stage administrative offices should further money become available and this addition is, in fact, now being carried out.

By projecting the foyer and dressing room blocks beyond the line of the auditorium block it would also be possible to link the two sections with a passage and further offices should these be required. Working drawings were prepared and the necessary approvals obtained in July 1965. A local contractor, W. H. Price (Builders) Ltd. of East Grinstead, who was known to many members of the Trust, came forward and offered his services " at cost ". This offer was

considered by a full meeting of Trustees and accepted. This decision not to go to competitive tender worried me slightly at the time, but has since proved a very wise one. With his local interest, W. H. Price has gone to untold lengths to save money and to accept with great equanimity the numerous alterations and additions which have taken place in the later stages of the work. Trial holes were dug and the site prepared in the summer of 1965. At a special ceremony, Dame Adeline Genée herself " turned the first sod ". After three years we were at last under way.

Almost immediately we had our first trouble. In spite of the fact that the trial holes had remained bone dry, the orchestra pit was filled with water, as soon as the excavation for it was complete. We had struck an underground spring.

The first change came at the excavation stage when it was decided to incorporate a band room adjacent to the pit. This was included, and the additional space allowed us to provide a small room for the dimmer racks under the stage. Cost and the use by amateurs had precluded the use of a front of house lighting and sound control box and these were then to be situated on a platform above the stage manager's corners.

From here on things went reasonably to plan, and by mid-summer 1966 the shell of the building was virtually complete. At this point two things happened which completely changed the whole concept of the scheme. A young Director, David Ambrose, was appointed and Helena Lonsdale-Hands offered her services together with those of the vast Lonsdale-Hands Organisation to produce schemes for the interior décor. Almost overnight, and without anyone really becoming aware of the situation, the scheme became a full-time professional theatre. Things which I considered adequate for the amateur theatre were now obviously going to be most inadequate for the professional. I became horribly aware of the various omissions and limitations of accommodation and equipment and in particular the stage lighting and machinery.

These had been forcibly pointed out to me by Elizabeth Sweeting, but my reply even at this late stage had been that money simply was not available, there was about £40,000 available, and the building and car park had already crept up to £62,000.

In the autumn of 1966 two further things happened. Firstly, the Trustees made one of their many wise decisions and on the recommendation of David Ambrose, John Wyckham was appointed as lighting consultant. Secondly, through the good offices of Reginald Maudling an almost undreamed of amount of money became available.

My first meeting with John Wyckham was rather alarming. We stood together on the stage of the Genée, and in about five minutes I was a much wiser but humbler man. Here was a man who obviously knew the theatre inside out, he could say not only what was wanted but tell you in detail how to do it, the rare combination of theorist and practitioner. It became obvious that the original opening date for

Adeline Genée Theatre. Auditorium showing No 1. *Spot Bar over stage and FOH lighting slot. System SP* 3-*preset* 2-*group* 60-*channel* (20 *FOH*, 40 *Stage*) *control is housed in room above the left-hand exit.*

November 1966 was hopeless, and in spite of the inconvenience the Trustees and Director were realistic enough to appreciate this and we were given three months' grace. A very great deal of work now had to be done and many decisions taken. The Trustees appointed a small local sub-committee empowered to take decisions to avoid the necessity of calling full meetings to endorse actions taken.

A gala opening was fixed for January 29th, 1967, and the brief was now that whilst economy was still paramount we must produce as near perfect a theatre as was possible within the limits of the shell of the building already existing.

John Wyckham and I got together and decided that several very drastic things must be done within this shell. A grid was to be provided although economy allowed us to cover only the width of the proscenium opening instead of the full stage as we would have liked. The front of house lighting which had originally either just hung from the roof or had been screwed to the side walls, was now to be masked. With the co-operation of Helena Lonsdale-Hands alterations were made to the suspended ceiling and perches introduced each side of the proscenium, these opening directly from back stage during a performance. They were not only considerably more

practical but also enhanced the appearance of the auditorium.

A futher electrician's gallery was installed on stage left opposite the fly gallery and the decision was taken that both sound and lighting control should be front-of-house. Fortunately, earlier in the summer the Trustees had decided that it would be wise to incorporate a ciné projection box, and the small gallery I had included for operating follow spots was enlarged and divided into three sections for lighting control, ciné projection and sound control. This I feel has worked reasonably well, although the access is rather hazardous.

John Wyckham's brief was originally for the stage lighting, but I began to lean more heavily on his experience and knowledge for the hundred and one things that go to make a theatre, from the finish of the stage floor to the design of the conductor's desk. An extension was planned backstage to include a 20 ft. high workshop, Green Room, stage and production manager's office and additional dressing room. This is now in course of erection. During the latter two months of 1966 many meetings were held with the Lonsdale-Hands Organisation and work on the interior gradually progressed.

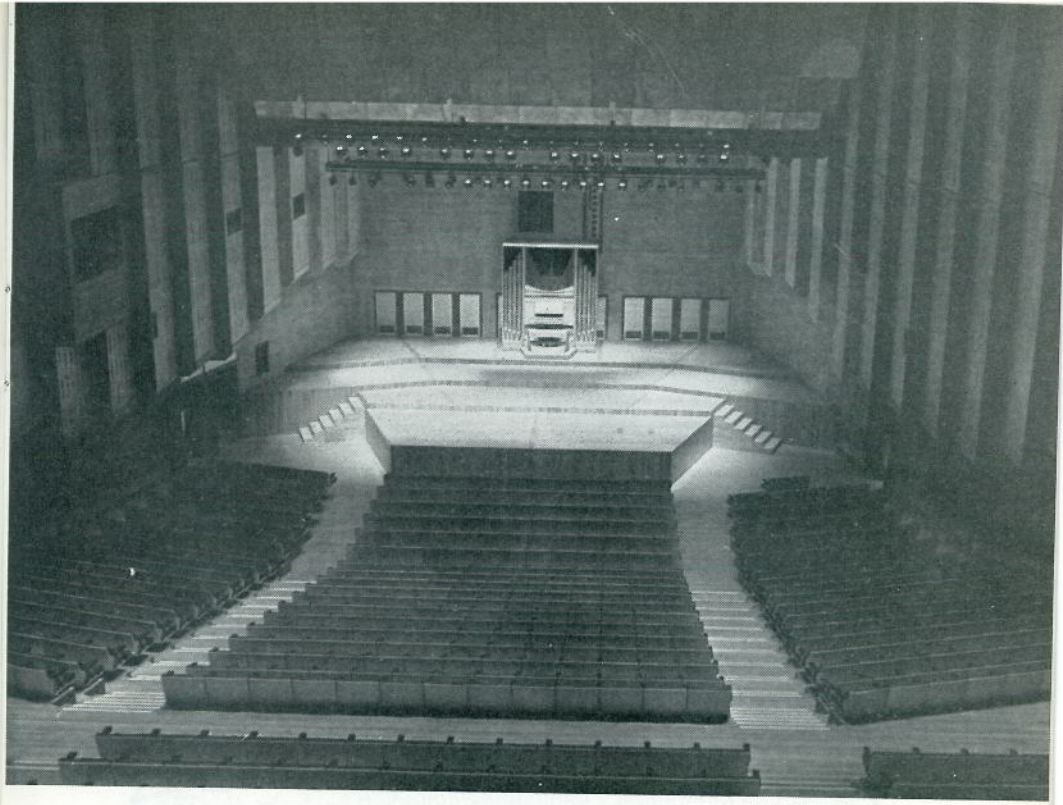
In December it was announced that the Gala Performance was to be attended by H.R.H. Princess Margaret and Lord Snowdon and that Dame Margot Fonteyn was to dance. We had indeed come a very long way from " two studios " to a full-time professional theatre graced by a Royal Gala Performance.

What I have tried to write has not been either a graphic or technical description of the theatre, this is there for all who wish to see with its obvious good points, failings and omissions, but rather a theatrical " Honeywood File " on one particular building. I am quite certain the theatre will receive criticism, but I hope what I have written will partially explain some of the reasons for the decisions taken and the sins of omission. I thank the Trustees for giving me the opportunity to take part in what I have personally found a most exciting and challenging enterprise.

A theatre is possibly as complicated as any building type that can face an architect, but the end result can be its own reward. Theatres are comparatively rare types of buildings, and I have been asked " Would I like to do another one?" My reply at the more heartbreaking times would have been " No ", but on sober reflection and with certain provisos it would be very, very exciting to be able to profit by one's mistakes.

"Stage Lighting" by Theodore Fuchs

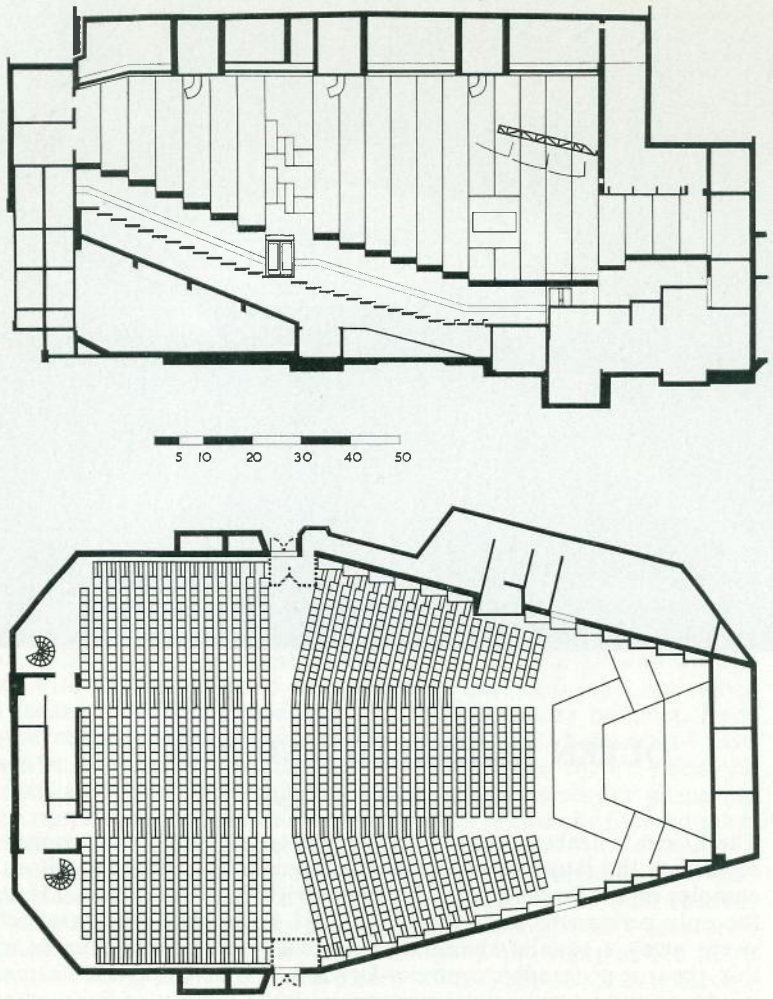
Books on this subject are rare and TABS readers may, like we did, rush to pay the rather large sum of dollars demanded for this work. They should be warned that this is *an exact photo reprint* of Mr. Fuchs' famous work was published in 1929. Too much technical development has taken place in the intervening 38 years to make it anything but a work of historical reference. (Editor.)



QUEEN ELIZABETH AND PURCELL

by Frederick Bentham

The Queen Elizabeth Hall, which opens to the public this month, represents the latest stage in the development of London's cultural complex on the South Bank. This began with the Royal Festival Hall, the only permanent building of the 1951 Festival of Britain which swept away a squalid shambles of derelict warehouses situated in this, the true geographic centre of London. It is here that the Thames sweeps round to make a promontory with the Houses of Parliament and the Abbey on the left and St. Paul's and the City on the right. Nothing more important was done for London than when this site was claimed for Entertainment; and the uninspiring and uninspired walls of the six thousand offices of the Shell Centre have since arrived to convey to us the dread warning of what might have happened to this area and did in fact happen to part of it. However, entertainment retains the waterfront, and we now have the Festival Hall, the new Elizabeth Hall and its companion recital room, the Purcell Hall, and the National Film Theatre, which lurks under Waterloo Bridge, surrounded for most of its existence by a battlefield of building activity.



Plan and section Queen Elizabeth Hall.

The word " battlefield " brings to mind the National Theatre itself, at present crammed into the Old Vic just down the road, which one day will occupy a palace of its own along this same waterfront. If the National Theatre, when it makes up its mind what forms its two theatres are to take, is to be housed in a multi-tiered palace by Mr. Denys Lasdun, then we shall have some remarkable contrasts in the architectural presentation of entertainment. In the middle there will be the pavilion style of architecture represented by the Festival Hall,

Queen Elizabeth Hall. View from platform showing ventilation scoops, television perches on side walls and control room with projection room above at rear.

to one side of which lies the gaol-like windowless bunker of the new concert hall, with an outcrop of spiky glass cold frames on the rear roof to remind us where the Hayward art gallery, as yet incomplete, lies.

It is the job of any architect who is an artist to express himself in terms of his building and not to set out to build what he thinks will please the public, but in so doing he is obviously going to clash with those who disagree and are not afraid to say so. Thus Sir Basil Spence's architectural statement at Southampton, with his brick proscenium, of the division between stage and auditorium seems to me, although a lover of the facilities a proscenium stage may offer, to stress rather than play down the drawbacks of the form. So it is with the Queen Elizabeth Hall; here we have a fine example of a form of architecture carried out with integrity which nevertheless seems completely at odds with the nature of the public rite that is to take place there. The hall is intended for intimate music with a chamber orchestra and chamber organ. This music will not hector, harangue and intimidate; that is the job of the 3,000-seater Festival Hall. There the mighty Harrison organ of 103 stops can roar and shriek, but here the little Flentrop organ of 15 stops tootles and flutles. Not that the Elizabeth Hall is small; it seats 1,106, and there is the Purcell Hall alongside, seating 372, for the really intimate stuff.

Against the background of my own notion of what is to go on there, I find the new halls hard and intimidating architecturally, and all the lighting, including that large part with which I have had some

Purcell Hall. Walls of platform join those of the hall itself without a break, entrance being from centre doors flush with the panelling.

Purcell Hall. Concealed spot lighting apertures are set in the strips of white in the concrete ceiling. The large circular fitments are for ventilation.

concern, only emphasises this. The exterior gives an exact foretaste of the things to come within. The main entrance is in hard concrete, beautifully executed, revealing the pattern of the woodwork shuttering, and relieved only by equally hard white marble—the whole being bathed in cruel white cold cathode fluorescent lighting. The entrance hall is a great circular concourse which sweeps round to form two

arms terminating in rather mean doorways to the main auditorium. Plenty of room, but not a place to linger in—except of course by day, when those lucky enough to be seated on the red side of the hall pass a series of promenade deck type windows, overlooking " the view ", the finest in London.

One enters the hall, in this case at the transverse gangway half-way level, and the steeply stepped seats climb up and down on either side. In black leather, they and the uncarpeted gangways alone are directly illuminated, and that by a mysterious light from invisible sources. It has always been a condition that only the seating was to be lit and that the sources must be invisible. In practice this is asking for the impossible, for units immediately overhead must be visible when one looks up. It was my task to think up a way of doing this for the L.C.C. engineers, and the result, as carefully adjusted under the supervision of Eric Baker of Strand Electric, fully realises the intention. Except, that is, for one fundamental change: originally the seats were to be upholstered in a " sand colour " material which would have given a much brighter and warmer appearance. The diffusion would have also imparted a glow to the wood panelling in much the same way that happens with the reflection from the floor at the platform end

The same form of lighting is used in the Purcell Hall. One curious side effect of this lighting system is that as one is only aware, out of the corner of the eye, of the two or three lamps immediately overhead, subconsciously one imagines that just those are lighting the entire hall.

The lighting unit used is an adaptation of the Patt. 23 Profile spot directed nearly vertically downwards and fitted with a special conical front hood finished in specular black. These spots hang so that the cone passes right through each aperture in the white plaster ceiling, thus ensuring that no light is spilled thereon. There are five rows of spotlights. I said that these were nearly vertical; there are two reasons for not making them exactly so. Down the length of the hall this would certainly be an advantage, and it would have lessened the risk of their being visible on entering and on walking upwards (away from the stage). Unfortunately, the structure above the ceiling did not allow the rows to be spaced as one would wish and there is in fact one complete row between numbers 3 and 4 missing (numbering, that is, from the stage). In the other plane the angling of 20° is intentional; firstly, to get under certain side wall projections and light the side gangways, and, secondly, to make the effect less hard on the features. The vertical light from overhead, necessary to get this effect without glare, is not beautifying, to say the least. To reduce unbecoming shadows in the eye sockets, and so forth, the lights are angled across the hall so that when one looks along a seat row at one's neighbours some amelioration is provided.

If a lot of trouble has been taken to conceal all the auditorium lights, then the reverse applies to the lights over the stage and to the ventilation over the auditorium. Row upon row of giant galvanised

iron (at any rate that is what it looks like) ventilation scoops thrust below the ceiling. The acoustic canopy seems to be made of the same material and is formed as three motorised sections which permit their angles to be altered for acoustic reasons.

By the architect's express wish, the platform lighting consists of Patt. 123 Fresnels finished black and hanging in full view. I suspect members of the audience will say, " There you are, Strand Electric again—look at that lot—why couldn't they conceal theirs like the auditorium people did?" Well we did both, and personally I dislike seeing lanterns so prominently featured. Apart from anything else, the barrel and wiring trunking is, of necessity, so heavy. If only the wires could be of gossamer and the suspension bars of glass, so that the lot could float aloft like elongated crystal chandeliers, that would be another matter. This effect one can attain with the new minispots, but not on this scale. As it is, the lanterns and suspension engineering out in the open marries of course with the concrete surfaces, exposed grilles and all the rest. The floors are not carpeted and are of afromosia. There is some panelling of the side walls, but quite frankly I neither recognise nor like the wood—said to be coffee bean veneer on blockboard.

All in all, with its black seats, eerie and/or harsh lighting, the place evokes Bertold Brecht rather than Saint Cecilia for me. But this should not be so, for this like the Royal Festival Hall, is designed first, last and all the time as a concert hall. The platform is motorised in 13 sections to take up various step formations and can even level out and provide a stage with an orchestra pit in front " when chamber opera is being performed "* but no provision, except a suitable sized main, has been made for stage lighting. It is my belief that there is no such thing as a concert hall dedicated solely to music—they all have to stage dramatic performances at some time or other, and the Festival Hall nearby is the classic example. There the makeshift stage, which completely ruins the auditorium architecture and is so difficult to work on, is in use for three months or so every year. In the Queen Elizabeth Hall surely chamber opera may require scenery or at least entrances for performers up stage.

The new Queen Elizabeth Hall, resembling as it does a giant Mermaid Theatre, all on one excellently stepped floor, demands experimental use as a theatre. Further it should be so used, difficult though it will be, both by Sir Laurence Olivier and the National Theatre Company and by Peter Hall and the Royal Shakespeare Company before they build their " end stage " homes. It is an opportunity to confirm or upset one's theories about contact between actor and audience. Here there is a complete lack of embrace by audience of performers, or by audience of audience for that matter. Here one sits alone, unconscious of and unobstructed by one's neighbours.

Does this clear view make up for distance? Certainly it seems to in the lighting control room which runs across the back of the

Quote from official handouts.

hall. Here too, is an opportunity to try the balcony effect proposed for the Barbican theatre. To me the stage appears nearer when one is in the control room than in the rows of seating below, although the room is in fact farther away. Maybe this arises from not seeing all those rows of seats fall away from one. Should one break seating arena or terrace fashion, rather than stick to continuous stepping? Certainly all those designing one floor theatres should look at this one. Here we have an elongated rather than wide form; so it does represent, at nearly 100 ft. from front of platform to back row, an extreme case of distance for 1106 seats but a useful test one.

The Purcell Hall recital room permits interesting tests, too. At 372 seats it is far from small, and the format is more nearly square. Is this a happier situation because of shape or size? The décor is more or less the same, except that the platform lights are not exposed so much to view. For yet another audience performer relationship there is the Festival Hall, where the greater width allows a proportion, though only small, to face across the hall from the boxes and terraces at the side. These are my favourite seats for music; I should hate them for theatre as, while this kind of thing gives a good view of the audience, it gives a rotten view of a proscenium stage, as any visitor to a traditional opera house can testify. Because there are none of these in the new hall, would it make a better theatre than a concert hall? Certainly for those plays that remind one that life is hard, life is hopeless.

Anyway, go and see for yourself, essentially when the audience is in, as the animated and colourful crowds are a necessary foil to this concert hall which is so obviously a machine for listening in. The trouble is that when I was there the audience was equally obviously not gay and colourful, as they came in blue with the cold outside. Mind you, it is going to be marvellous in summer, with the ability to go outside and stroll around on the terraces. All the area has well integrated access at two levels, one building with another and with the Waterloo stations behind. But above all there is the easy and exciting walk which joins it all to the North Bank along Hungerford or Waterloo bridges.

What of the acoustics? I have only attended the first tuning concert with full audience and I would need to attend several concerts when the process is complete before deciding. In any case, my opinion on that subject would not be worth having. Indeed this may all too likely go for the rest of my comment in this article. This is a hall to visit for a stimulating experience and one cannot help feeling what a remarkable body the London County Council, and particularly its architectural department, was. For this, and all other cultural activity on the South Bank, is an L.C.C. enterprise, no matter how long it may take its successor, the G.L.C., to complete the task.

The Architect to the G.L.C. is Hubert Bennett, F.R.I.B.A., and the Group Leaders for the project are E. J. Blyth and N. Engleback. The Director of Electrical and Mechanical Services is C. A. Belcher, F.I.E.E. The Divisional Engineer is P. C. Hoare assisted by R. W. Caparn and D. H. Walters.

TWO YEARS AT EALING

by Alfred Emmet, Hon. Director The Questors Theatre

For the purposes of this article I shall take an " open stage " to be one where the audience is on more than one side of the acting area. This excludes the " end stage " from which, as from the proscenium stage, the actor can face the whole of his audience at once.

The new Questors Theatre, with its flexible staging possibilities, was opened in April 1964. Before then, both in the old theatre and in the temporary playhouse established in the 46 ft. by 27 ft. " Stanislavsky Room ", a considerable amount of experiment with the open stage had been carried out over a number of years.

Between April 1964 and December 1966, thirty-nine productions have been presented in the new theatre, of which twenty-two have been on some form of open stage as defined above. Considerable variety of stage form has been achieved, including in-the-round. The plays performed have included works by Ibsen (" Brand "), Shakespeare, Shaw, Tchekov, Euripides, Wycherley, T. S. Eliot, Pirandello, Stanley Houghton, James Saunders, Anouilh and Osborne.

This is the background of experience drawn on for the views expressed in this article.

The first, and greatest, difficulty that we have experienced has been to get directors and designers to think sculpturally—three-dimensionally, instead of picture-wise—two-dimensionally. Most directors and virtually all designers think in terms of visual images. Such images are almost invariably seen from one viewpoint, and that viewpoint is practically always from centre front. This is a deeply ingrained habit of mind which it is most difficult to overcome. The first attempt to do so usually only succeeds in substituting some other fixed viewpoint, say from one side instead of from the front, or an effort to run round the perimeter, either in imagination or in fact, to see that it " looks all right " from all sides.

This difficulty does not exist for the actor, who usually, once he has surrendered himself to the feeling of being surrounded or nearly surrounded by his audience, finds great imaginative stimulus from the freedom to play directly to his fellows instead of having to present a false continuous face to the audience, as in the proscenium stage convention.

This gives a clue to the director's escape from his dilemma: he can start by directing the play from the point of view of the actor, internally, as it were, from the middle of the acting area, instead of from the point of view of the audience, which implies from the point of view of one particular section of the audience. A director who, when working on a proscenium stage, would meticulously plot every move before a " blocking " rehearsal, will find when producing on an open stage that the moves have to come much more from the actors themselves in the course of rehearsal, or from his own subjective association of himself with the actor's state.

The designer's problem is more difficult. Nor is it really the answer to think in terms of sculpture. In the case of a free-standing sculpture, its totality may be achieved by the viewer walking all the way round it and adding up the impressions received from this experience. But in the theatre, the viewpoint of any individual member of the audience remains fixed. The problem is one of a multiplicity of viewpoints simultaneously existing, not of a changing viewpoint. The totality has to be realised from many different viewpoints at the same time.

This leads towards the hypothesis that representational scenery as we know it, placed upon the stage by the designer for the purpose of making a visual statement is, to say the least, not appropriate to the open stage. Indeed, experience at The Questors Theatre does suggest that the open stage may be most effective when scenery in the accepted sense is reduced to an absolute minimum or even dispensed with entirely. The effect of the spatial relationship between, for instance, a number of well chosen and carefully placed items of furniture can be most evocative, provided that the audience can see the whole of the stage floor and is, therefore, aware of such relationship.

It would seem that the designer's prime function in an open stage is the organisation of space rather than the filling of it with

decoration, though some decoration on the floor itself may be practicable.

In regard to the acting space itself, our experience to date has led me to three *tentative* conclusions (one should not draw absolute conclusions): the acting space should not be too large, it should be well defined in itself and it should be apart (i.e. not confused with the audience space). I elaborate on these below.

When working on an open stage, practically every square foot of floor can be used at any time. This is far from being the case on a proscenium stage where one has to string the actors across the stage in such a way that probably quite half of even a deep stage is liable to be masked or otherwise unusuable at any one given moment. One can probably deploy as many actors satisfactorily on an open stage 8 ft. by 12 ft. as on a proscenium stage with an opening of 24 ft. and a depth of up to 20 ft. A crowd of thirty to forty looked very thin and inadequate on The Questors open stage of about 460 sq. ft. An acting area appropriate to the play or scene can readily be created *within* the total area available, but if it is too large it can result in a loss of concentration, difficulty in finding physical character relationships (actors having to play too far away from each other) and a slowing down of the action.

A clear definition of the acting area, whether in the literal sense of establishing the precise boundaries of a room, or in the more general sense of an actor who is making an entrance knowing exactly at what point he is in relationship with other actors already on the stage, is necessary to avoid confusion to actors and audience alike. Such definition cannot be achieved by lighting alone, save in very special circumstances, because of the inevitable spill and bounce of the light. But the definition can be clearly established on the floor.

When a smaller acting area is established within the total stage area available, a result is a surrounding " no man's land " between the audience and actor. To the extent that this merely increases the distance between the audience and the action it has not, within the dimensions of The Questors Theatre, been found to be a handicap. It has not had the effect, as one might have supposed it would, of making the action seem too remote and therefore less immediate, doubtless because in the empty and relatively unlit intervening space, there is nothing by which the eye measures and registers the distance. To the extent, however, that there is established a neutral area through which an actor must pass, within view of the audience before arriving at the true acting area, some difficulty can arise. To overcome it involves the most careful and accurate timing of entrances (exits are usually less of a problem).

In terms of open stage work one often hears bandied about such words as " intimacy ", " audience participation " and " involvement " and it is tempting, once the old barrier of the proscenium arch has been removed, to go further and try to spill over any boundary line that remains between audience and actor. Practical experience suggests that it is important to maintain a clear line of

demarcation and that when an actor oversteps it, the result tends to be one of embarrassment and unease among the audience. The effect is to alienate rather than to involve.

This dividing line may be marked by a slightly raised stage, but experience has led us generally speaking to prefer an open stage area at floor level, as it definitely results in preferable sight lines and is easier to light. An acting area below the level of the front row of audience would often be better still. Even on a flat floor and without any artificial barrier such as a rail, there is no difficulty about defining the limits of the acting area, for instance by a floor cloth of a different colour from the surrounding auditorium carpet.

One limitation of the open stage is that direct contact between actor and audience may be more difficult. In the round it is, of course, impossible for an actor to be directly in contact with the whole of his audience at once, and in a direct speech he has to compromise by, as it were, sharing his lines out to the various blocks of audience around him. This may or may not be a serious loss depending upon the particular circumstances. On a three-sided open stage direct contact can just about be achieved round an arc of 180°, though only from the back of the stage. We have found it particularly effective when the actor is raised up at a high level. The quick " aside " to the audience is particularly difficult on an open stage and there is usually some loss of effectiveness here.

By the same token, " playing out " by the actor is in general seldom satisfactory, either to those of the audience whom he is facing and who may have a feeling of unease that the actor may be going to break the " rules ", or to those on the other side of the auditorium, who may feel they are left out and missing something. The great strength of the open stage in my opinion is that it enables the actors fully to play in to each other, to the great gain of their performances and to the greater involvement of the audience who, precisely for that reason, are drawn more strongly into the play.

I referred earlier to entrances and exits. One difficulty with the open stage is to find a satisfactory equivalent to the quick entrance or the surprise entrance, where this is required by the script. This occurs usually in plays written for a proscenium stage with realistic scenery, and generally involves an actor being on the other side of a solid door, invisible to the audience. In an open stage, if this has to be interpreted literally, it may involve the introduction of representational scenery and we are back to square one as far as the design of set is concerned. On a three-sided open stage a door will almost certainly have to be set in some kind of back wall and the single, front viewpoint begins to assert itself again. On the other hand, actual doors are seldom as necessary as may at first sight appear, and in the great majority of cases can be readily dispensed with, often with considerable imaginative gain.

Other production problems may require the development of techniques particular to the open stage. For instance, the positioning of two actors in line with the audience gangway in order to minimise

masking; the use of a slightly curved line of advance to another character instead of a straight line; the justifying of small movements by the actors in order to avoid being too static. There is nothing inherently more difficult or more artificial about such techniques than there is about corresponding techniques to enable actors to be seen on the proscenium stage.

It would, of course, be absurd to pretend that an open stage has no limitations or that sometimes compromises are not necessary, but as far as The Questors are concerned any such limitations and compromises seem far less hampering than those met with on a proscenium stage, however well equipped and well designed.

EDUCATIONAL TELEVISION STUDIO REQUIREMENTS*

by P. R. Berkeley MIEE

Head of Engineering Projects Group ABC TV Ltd

While the detailed specification for a broadcast television studio can now be defined from experience, the equivalent requirements for an educational studio are less certain. Generally the full broadcast specification would be too elaborate—and expensive!

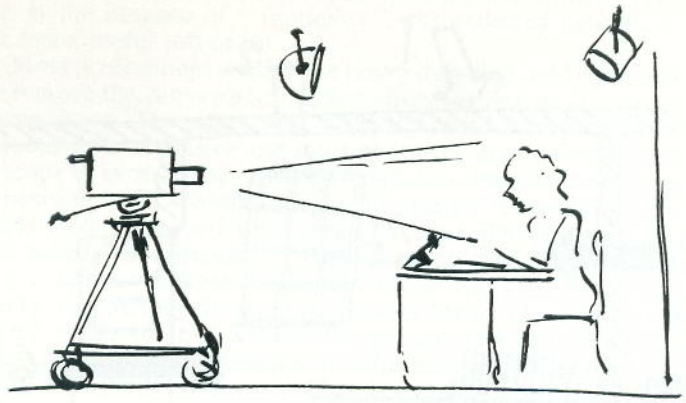
The problem when planning an educational television studio is to know how many of these elaborations are really required and to what extent the specifications can be relaxed. First let us look at some of the special features of the studio and try to see why they are so special and to what extent these factors apply to an ETV studio. Right away we meet with the problem of defining what sort of studio we require for educational TV, but let us hedge the question for a while and just say " a simple one ". When TV was first developing all sorts of places were converted into studios—but the most likely places were theatres, film studios and large public halls. All these gave a large volume, some measure of sound-proofing from external noise, and a source of electricity, all basic requirements. A simple check-list of requirements will help clarify our ideas.

Volume. It takes a space about 10 ft. by 6 ft. by 8 ft. high to set up a single vidicon camera to give a head-and-shoulders shot of someone at a desk. Anything less than 15 ft. by 20 ft. makes camera movement very restricted; 12 ft. is a reasonable ceiling height for such a small studio, but height is valuable.

Access. If you are using scenery make sure it can be brought in and out without damage. A grand piano is a standard item to consider in access problems. Fire authorities should be consulted before you get your plans too far advanced.

Noise. There are two distinct problems, keeping out unwanted external sounds and providing adequate " microphone " acoustics

*This article is an extract from a booklet on the subject which Strand Electric intend to publish in June.



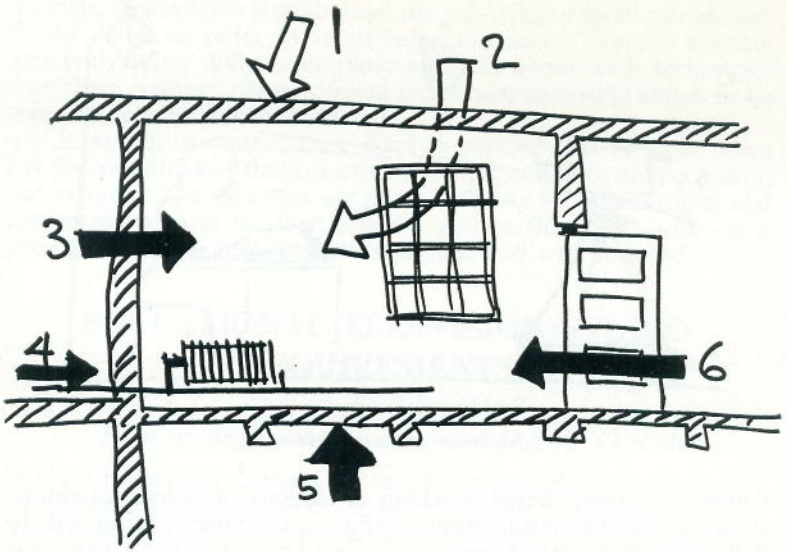
10 *ft. approx.*
Minimum space requirement.

within the studio under working conditions of scenery, lighting, cameras, etc. Obviously heavy traffic or machinery noises will be difficult to eliminate. Aircraft have become part of the urban noise burden and generally are accepted as inevitable. If programmes are recorded or distributed to quieter places their noise may appear out of place. While something can usually be done to improve internal acoustic properties, a solid structure is essential for keeping out external noise. Structure-borne noise is also extremely difficult to eradicate and possible sources must be carefully checked.

Power Supply. For a rough rule-of-thumb estimate of total load allow 40 watts per square foot of studio area for image orthicon and Plumbicon cameras and 100 watts/sq. ft. for Vidicons. Add an extra 2·5 kW per camera for all the auxiliaries, plus an extra 3 kW for each telecine. Then add 5 kW for luck. All technical equipment should be on a single phase if possible, as then the " six foot between phases " rule will not cause problems. The supply should be reasonably constant and particularly must be free of sudden surges—upwards or downwards.

Control Areas. For a small studio there is everything to be said for having the control rooms at studio level. Always allow plenty of space for additional equipment. If the authorities cannot be persuaded by logic then allow plenty of technical stores and other areas, strategically placed for expansion.

Studio Design. Assuming then that the proposed area meets these requirements and that it is adequate for all foreseen production requirements, detail planning can proceed. The TV studio is a special kind of work-space. It requires some of the mechanisms of the theatre (but generally no audience), acoustic qualities approaching those of a concert hall, and lighting equipment in excess of a photographic studio. There are three distinct zones of activity—the



Noise Penetration
1. *Through walls, roof, etc., from outside*
2. *Through windows and doors from outside*
3. *Between rooms through walls*
4. *Carried by pipes, steel work, ducts*
5. *Vibration through the structure*
6. *Through internal doors*

floor, which is occupied by cameras; a thin layer stretching between about 7 and 9 feet from the floor devoted to the movement of microphone booms, and above that the volume occupied by lighting equipment. Scenery, of course, will stand on the floor and project up into the other zones, also some lighting units will be placed on the floor, but these three " layers " are a realistic and convenient way of considering studio design.

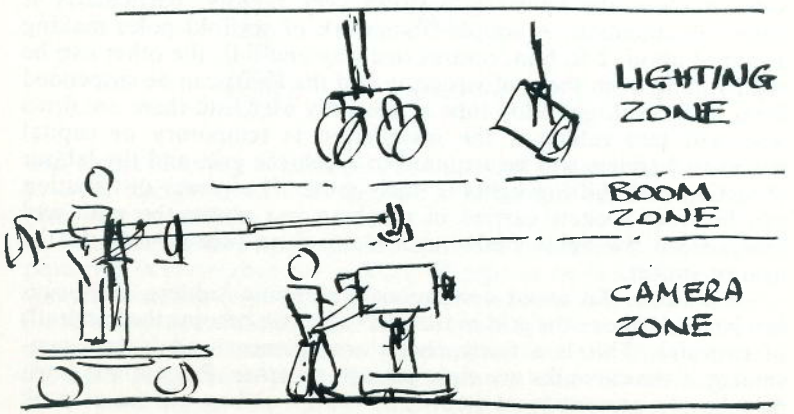
The Floor. Unless you can be content with static camera positions, a studio floor must be flat enough to allow a camera to be tracked without the pictures wobbling unduly. Obviously steady camera mountings with adequate diameter wheels are essential and the tripod placed on a piece of wood with three domestic castors is a poor substitute. In film studios (where the floor is used to nail down scenery) special tracks are laid for cameras to be moved along—hence the term " tracking ". There is no time for this in TV, so a really flat floor which is kept in good condition, becomes essential. It must also be durable and be able to take water paints if realistic settings are to be used. Since you cannot track over carpets or cobblestones, these have to be painted—and washed off afterwards. The floor also must be quiet to walk on and not creak under

the weight of the camera. Also it should be neutral or light in colour, since in the absence of " footlights ", the reflected light from the floor has a useful job to do.

Most professional studios use heavy duty lino, laid by specialists who remove the canvas backing and allow the lino to lay flat before sticking down. The seams are rolled tight and a very fine floor in produced. It is expensive and must be looked after. There is seldom any scope to experiment with other materials, but hardboard, rubber composition, PVC composition and special cement-based compounds have been used with varying success. The flooring used in buses called " Treadmaster " appears to be even better than lino, but is much more expensive. Wood blocks are seldom satisfactory for very long as they dry out and become loose. The sub-floor must be very stable to take a lino surface and generally heavy grade asphalt on concrete or terrazzo machine finished concrete is used as a base. Flatness of $\pm \frac{1}{16}$ in. in 12 ft. is the sort of standard of finish in big studios.

Microphones. While desk or neck microphones are quite satisfactory for most lecturers, they must be supplemented by stand and boom microphones if musical or dramatic productions are to be attempted. A static boom (or " lazy arm ") is a useful way of placing a microphone, but the boom really comes into its own when following moving speakers or singers. The microphone boom is a much more subtle device than appearances suggest—also it takes up a lot more room than you expect. The operator requires considerable skill to place the microphone in the correct place, keep it out of shot and prevent shadows falling on the scene.

Lighting. Lighting for television is rather a cross between theatre and photographic techniques. For the purposes of planning we need simply to know that softlights are used to build up the basic illumination, while spotlights add the directional light that shows up the modelling of the scene. We also need to know what



sort of camera tubes are in use, how long the studio will be operated continuously and how frequently a change of scene will demand a change of lighting arrangements. Vidicon cameras are simple but not very sensitive. Every kilowatt of light produces a kilowatt of heat which must be dissipated, and some form of air circulation will be required if the studio is small in relation to the lighting load, and this load is left on for long periods.

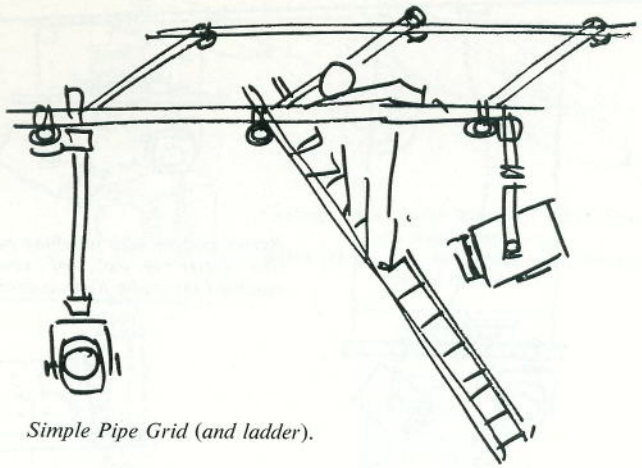
One kilowatt of heat will raise the temperature of 3,000 cubic feet of air 1° Farenheit per minute, and a 10°F rise is about as much as is comfortably suffered on a hot day. A simple calculation will show how much airflow is required, and the duct sizes can be calculated on a basis of an air velocity of 750 ft./minute. It may be cheaper to use Plumbicon or Image Orthicon cameras which are more sensitive by about $2\frac{1}{2}$ times, but more expensive in first cost and in tube replacements. Certainly in tropical countries the cost of air-conditioning must be taken into account when calculating camera running costs.

Lighting Equipment. The techniques for lighting will be dealt with in detail elsewhere, but we must concern ourselves with the support of the lighting units (which variously are called lanterns, "instruments" or luminaires—the last being the official term) and the supply of power to them.

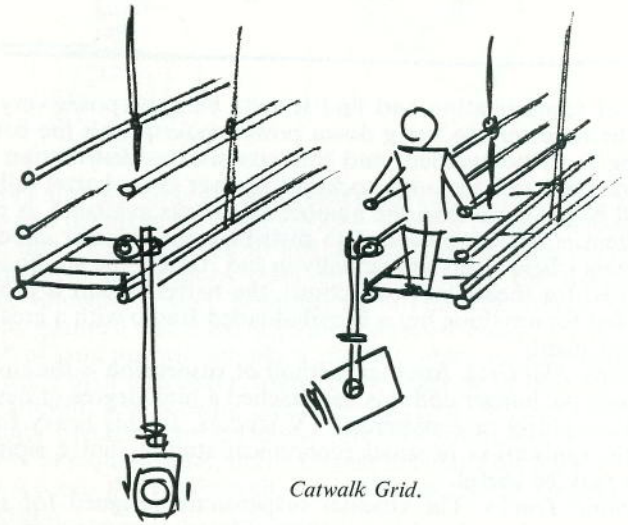
Supporting the Lights. Exactly as in the theatre, the use to which you intend to put your studio and the amount of money you have to spend are the major factors in deciding how to support the lights. If the cameras are to be moved freely about the studio, floor-stands must be avoided at all costs. They not only are an obstacle in themselves, but the cables to them are a serious restriction. The lights must be hung from the roof in a way that gives the degree of flexibility of positioning required. Only backing and cyclorama lights should be operated at floor level.

Pipe Grid. If the settings and their lighting rigs are to be left in place for weeks on end, then it is not particularly important to be able to place the lights in position very rapidly, particularly if labour is abundant. A simple framework of scaffold poles making a grid of about 2 ft. 6 in. centres one way and 5 ft. the other can be rigidly hung from the roof structure and the lights can be suspended from the grid. Light alloy tube is generally used and there are firms who will hire tubing if the installation is temporary or capital is scarce. Ladders will be required to reach the grid and the labour of setting and shifting lights is fairly great. The power distribution can be from sockets carried in trunking just above the grid, and cables from the lights can be run along from tube to tube to the nearest socket.

Catwalks. To avoid continuously climbing ladders, walkways can be made above the grid or the grid tubes can become the handrails of catwalks. This is a fairly cheap arrangement and is very convenient if the catwalks are close enough together. Precautions must be taken to prevent loose items like clamps falling off the catwalk



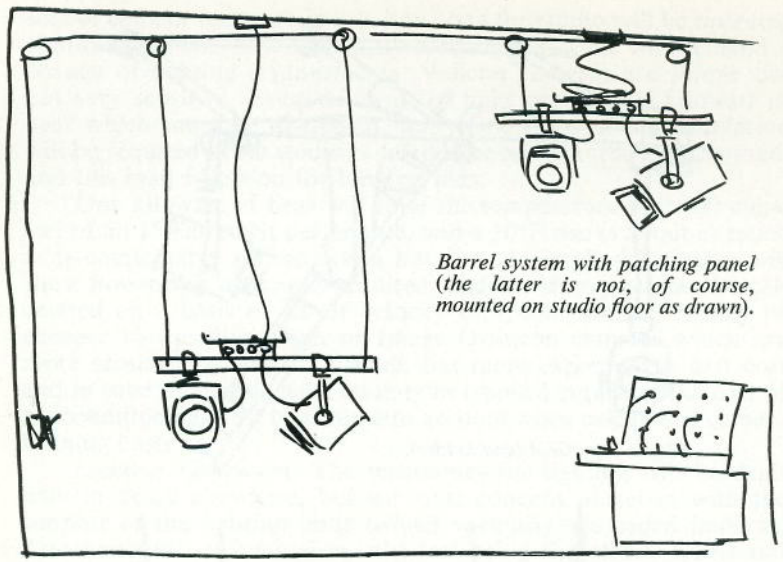
Simple Pipe Grid (and ladder).



Catwalk Grid.

and secure flooring is essential. The catwalk system requires height to walk upright above the highest scenery and lights—and this is often not possible.

Barrels. Where height is not available a refinement of the fixed pipe-grid is to arrange for sections of pipe to be lowered to a convenient working level—rather like the stage barrels. Since settings for TV are not "facing one way" (unless it is a TV theatre, of course) the long theatre barrels are cumbersome, and shorter lengths are used. Suspension can be by simple lines with counterweights or by electric hoists. The BBC have brought this system to a high



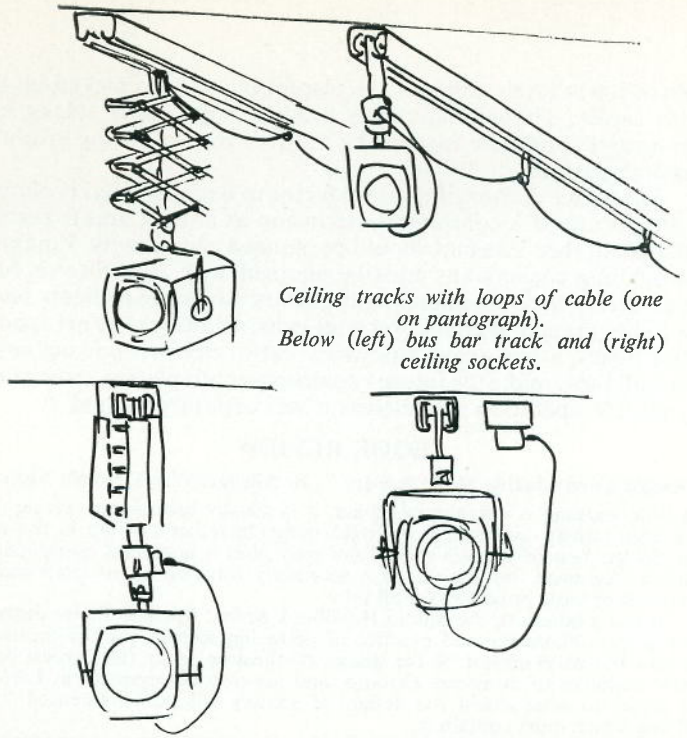
Barrel system with patching panel (the latter is not, of course, mounted on studio floor as drawn).

degree of sophistication and find it suits their purposes very well. It will be necessary to bring down power sockets with the barrel if climbing is to be avoided, and this complicates distribution since there will have to be enough sockets to power every barrel fully and this will be far more than the number of circuits available. A patching system is therefore needed to distribute the dimmer circuits to the barrels where lights are actually in use. Unless the studio is also being used for theatrical productions, the barrel system is probably unjustified for anything but a heavily-loaded studio with a great deal of capital plant.

Simple Slot Grid. Another method of suspension is the slot grid and telescopic hanger and this has reached a high degree of development particularly in commercial TV studios. In this heavy form it has little application in small economical studios, but a simplified version may be useful.

Ceiling Tracks. The channel suspensions designed for sliding doors can be adapted to hang lighting. Electrical connection can be by loops of cable and up-and-down adjustment by pantograph or other folding suspension. One great advantage of this arrangement is that very little height is wasted, but the connecting cables are rather an untidy detail. By using the bus-bar tracks designed for factory hoists and power tools, connection can be made to the lights without the use of cables at all—but the expense is greatly increased.

Studio Outlets. In addition to electrical outlets for lighting, there will have to be arrangements made for connecting cameras, microphones, talkback, cues, loudspeakers, power and vision for



Ceiling tracks with loops of cable (one on pantograph). Below (left) bus bar track and (right) ceiling sockets.

monitors and probably for demonstration equipment. Also a water supply and drainage may be desirable, while if constructional work is to be done, a compressed air line is useful for tools and spray guns.

All these connections must be run through the studio walls without allowing sound penetration, so the duct-ways must be carefully planned and filled with an acoustic " bung ". A polythene bag full of sand pushed into place after all cables are laid will usually seal a cable duct effectively. Metal ducts must be broken by a small gap to prevent sound being carried along the metalwork, with earth continuity preserved by a flexible link. As additional services will probably be required later, outlet sockets are best fixed into removable panels set into the studio wall, hinged for access to the rear of the connectors.

Earthing. Equipment suppliers will be able to advise on the best procedure for their equipment, but in general the " technical " and " mains " earth connections are kept apart through the installation, only coming together at the central earthing point. This will involve isolating vision and sound connectors in the studio from the trunking carrying mains cables and arranging a separate " technical earth " cable to maintain continuity to the equipment area. This isolation of earths is required because of the small voltages involved in vision circuits carried by coaxial connectors. A mains fault causing earth leakage could easily damage vision equipment or cause " hum " to appear on pictures. Sound circuits are usually balanced but are

often at lower levels still and are susceptible to hum picked up from mains cables. Thyristor dimmers produce some fairly strong interference and should be earthed by a direct path avoiding vision and sound equipment.

Expansion. A most important factor to be considered is planning for the future. If a continuous expansion as annual grants permit is anticipated, then schemes should be planned accordingly. Equipment and building conversions must be planned with regard to its future use as well as the immediate requirements. Simple expedients such as Tee joints instead of elbows on duct runs, additional panel space on outlet boxes, a few spare fuseways, extra elbow-room on control desks, all these make the future expansion or adaptation more simple. If your TV operation is a success it will certainly expand.

BOOK REVIEW

" Designing and Making Stage Scenery ", by Michael Warre. Studio Vista. 35s.

If a little learning is a dangerous thing, it is usually because the wrong things have been taught—or because the right things have been taught in the wrong way. So the best of primers should not only offer a first class introduction to absolute beginners, but also have a secondary function as an irreproachable handbook of basic principles for all time.

In this addition to the Studio Handbook Series, Michael Warre deals with the history, philosophy and practice of designing scenery for the theatre. He sketches the development of the design of theatres from the earliest known Greek examples to Stratford, Ontario, and his own achievement at LAMDA, and shows to what extent the design of scenery has been influenced by the building which must contain it.

He reasonably assumes in his readers a very elementary knowledge of carpentry and painting, but deals with their application as stage techniques from first principles in a fresh, informative and stimulating way. Mr. Warre stresses at all times the practical nature of the designer's job, although he never loses sight of the balance of art, craft and magic: " Vision and imagination are useless alone, without the common sense to fulfil the imagination and realise the vision." The notes on how a designer should approach a text and collaborate with a director are full of straightforward wisdom.

Sketching of designs, model making and the preparation of ground plans and working drawings are all dealt with, as well as building, painting and texturing the finished scenery. The warnings are as good as the positive advice: " Sketches may be attractive or formidable, delightful or awesome, but if you do not know how to carry out their implications when scaled up in three dimensions, lit and acted in, they will remain merely sketches." An awful lot of them do! Perhaps, however, the section on materials should have warned about the idiosyncrasies of local authority safety regulations. In some places Polystyrene is acceptable only if the self-extinguishing grade is used.

The book is splendidly illustrated with line drawings and plates, and the discreet use of both British and American terminology in the main text as well as in the Glossary should ensure a useful export life without too many Transatlantic misunderstandings.

Mr. Warre has limited the scope of his handbook to comply exactly with its title and has refused to be side-tracked into the discussion of related but separate matters. Lighting, for example, is referred to in its context as affecting the final look of a piece of scenery, but not dealt with in any detail. The book has been skillfully constructed in fact, in accordance with Mr. Warre's own design maxim: "Selection of the significant detail and rejection of the unimportant comment "—and a first class bibliography shows the reader where he can go from here.

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