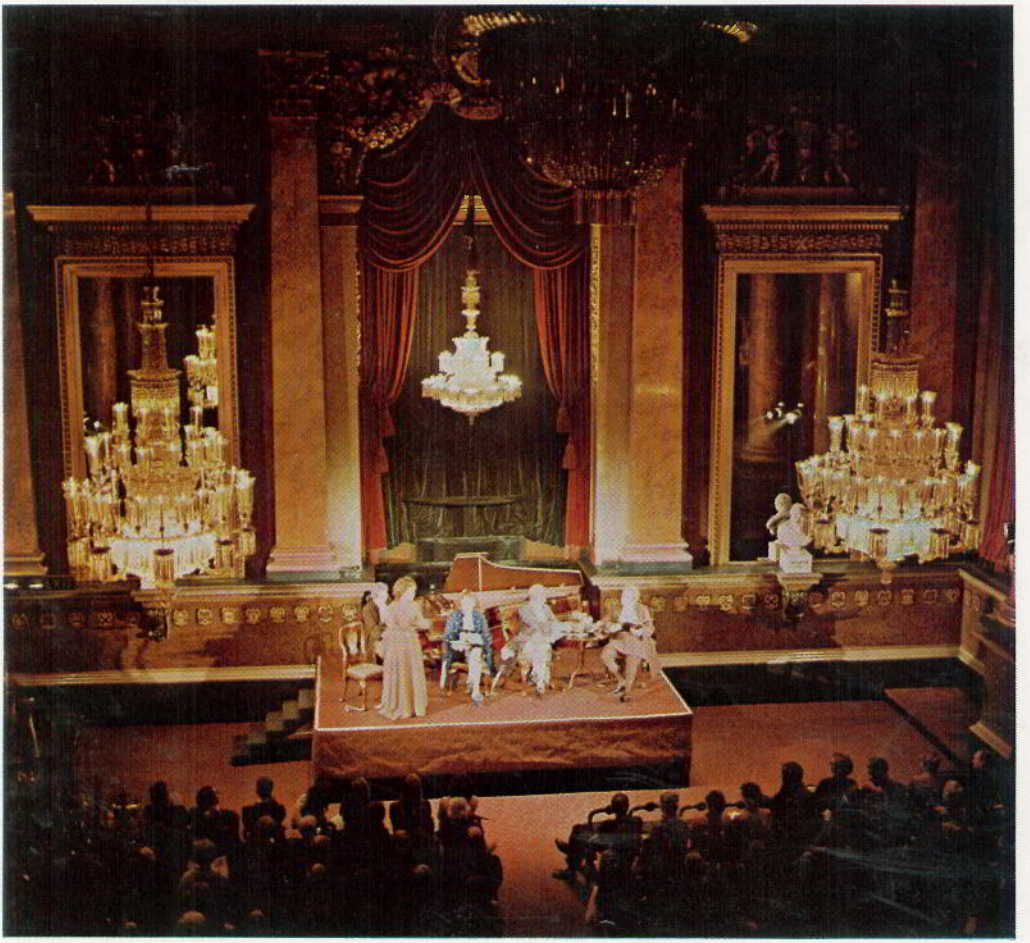
TABS

March 1973 Vol. 31 No. 1



TABS

Published by Rank Strand Electric Limited

Editor: Frederick Bentham
TABS
29 King Street, Covent Garden
London WC2E 8JH

March 1973 Vol. 31 No. 1

Editorial

Cover picture: *The Grand Tour* at the Livery Hall of the Worshipful Company of Goldsmiths. The Prospect Theatre Company in performance for the **Fanfare for Europe** celebrations. Hall built in 1835, architect Philip Hardwick.

Bugle Call Rag

One of the things which gives us a lot of pleasure in our perverse way is that no part of Drury Lane Theatre is in fact in Drury Lane. Now that there is once again a theatre in Drury Lane (the New London) we, who find ourselves directing visitors to our town, are going to have to probe rather inquisitatively into their entertainment interests. The Strand Electric was another example of the same ambiguity for it never was in or really near to the Strand—either the street or the theatre. The firm's name was little use as a clue to its business even with "and Engineering Co. Ltd." to complete it. The addition of "Rank" to the front end in 1968 did not improve this aspect. "Electric" covers a wide field and what is really missing is the word "Lighting" for that is what we really do and have always done—let other talents come and go as they may. Notwithstanding—or perhaps as a result—our name has remained memorable.

In much the same way we recall that the initials of a chap known to us for years and years as Jim were H. O. in fact. Or again in the case of a certain Cyril B——, the B didn't stand for anything, he, Cyril B—— that is, merely thought its addition would make his signature look more impressive. Bureaucrats have gone berserk at this. The "B" must stand for something they wail—not only in anguish but in French.

Now that we are common market, cold logic may become important. Hurrah therefore for the Principality whose fanfare for Europe is to make Welsh the second language on their road signs.

While not wishing to imply that the EEC is not a good thing, we feel that it manifestly carries one drawback—in short the big one: it is larger! All the talk is of larger markets, expanding this and that—leading to greater efficiency—not at all intimate, illogical and humanly memorable. To carry all this largeness about we have to have larger trucks, larger aircraft, larger documents and larger bills to pay no doubt. One thing is certain, TABS isn't going to get any larger and if we go on much more like this about larger organisations we might become so small that you won't see us at all.

Never mind, it is here now, and it is up to us to enjoy it; so how do we in Rank Strand proclaim our newly won European brotherhood? Well, there it is for all to see upon our notepaper. A flag? a pennant? or even a burgee? Well no—just the number 310021 to comply with the regulations of the EEC "As and from the first day of January in the year Nineteen Hundred and Seventy Three there shall be affixed 'Registered in London under No. 310021' to all papers . . ."—and that is a lot of affixation.

It seems inefficient to keep both a name and a number—especially as our firm's name doesn't describe what we do anyway! So if you fancy a 2001405 with 313590410 hanging from a 2648307 then all you may have to do one day is to write to lovable old 310021 at Box 70, TW8 9HR or why not drop in if you happen to be in WA3 2PN or G3 8DN or of course WC2E 8JH!

Bedtime Stories

This summer the TABS editorial staff will put to bed the hundredth issue. First published in 1937 its pages form a unique archive—maybe as important for what it does not cover as for what it does. On **Tuesday, March 6th at 7.00 p.m.** a lecture is to be given by its present Editor, Frederick Bentham, who will be joined on that occasion by his most faithful contributor Percy Corry.

This will be rather out of the run of our normal lectures, being of its nature reflective and anecdotal rather than merely informative. Since it is also in the nature of a celebration it seems fitting that it be announced in the pages of TABS itself and that such an announcement should constitute an invitation to contributors and readers alike to exchange their thoughts theatrical in person as well as on paper.

A Machine for All Seasons

Shortly after lift-off on one of the Apollo missions a BBC interviewer remarked on the ready way in which the astronauts seemed at home doing their many tasks. Von Braun replied that, "It goes to show that the human body is very adaptable", and went on to say that the doctors had originally had all sorts of "horror stories". This does not surprise us who were around in the thirties at the time of the Schneider Trophy Races when the hair-raising effects on man of a speed of 340 m.p.h. were discussed at length in the press. But why go on? Much the same appears to have been said when the railways went all out to go slow with the 24 m.p.h. of Stephenson's *Rocket* at Rainhill. It is probable that even greater feats of human adaptability at the same time as at least one of the moon shots have been shown by the passengers on the strike-bound Southern Region of British Rail. To get nowhere slowly requires an adaptability equal to that of getting somewhere very fast.

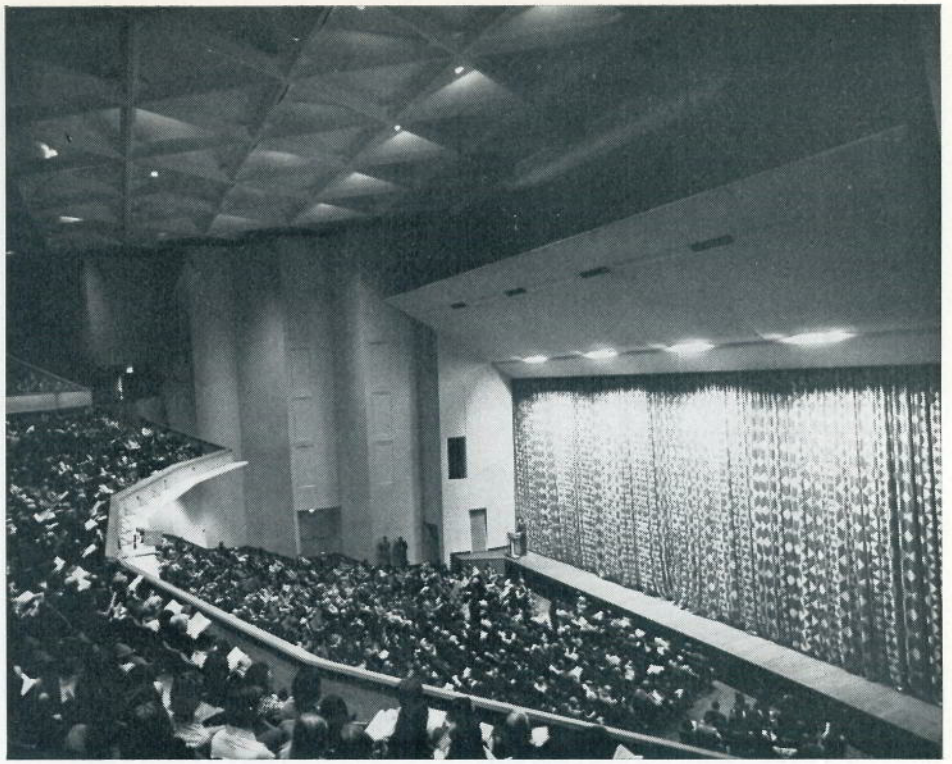
Testing the endurance of our own readers to the limit we now come to the point at last! Much ingenuity, time and treasure is expended in designing machines to be as versatile and as comprehensive in action as is humanly possible. Indeed it would seem that we endeavour to endow such machines with human attributes. But with this difference: we do not allow them anything but the rights of a slave. More and more they are designed to respond without question to the slightest whim of man, likely or unlikely, rational or irrational. These thoughts are provoked by work in that most irrational of human activities—the theatre. Nor is it just our own work—there are many others who bend their brains to engineer equipment for that wayward master or mistress.

It is the stage-lighting-control experts who probably provide the ubiquitous example of the striving after "perfection" but sound systems are now following closely on their heels. Sound consultants assemble tape desks, turntables and faders together in order to allow man to take in sound from anywhere inside the theatre, mix it with pre-fabricated dollops purchased from outside and then re-issue it to any part or parts of the theatre on a time scale which may be now, one hour hence, tomorrow, next week, next year or never! What never? Yes, never and this applies to much of any gadgetry—it may never be used. It is there for the ultimate user should he think up or rather blunder into a situation in which he needs that combination of facilities.

To this end the best brains in design have been gathered around the conference table, there to thrash out every conceivable likely and unlikely requirement—to provide the control that never can be caught out, a control adaptable to every pomp and circumstance.

Now each task requires some means by which the operator can signal to his mechanical slave what is required of it. This either implies typing the instruction out in the stilted jargon now associated with computers or picking out requirements off the end of a cathode ray tube display or pressing the appropriate button. Applying a one button one job philosophy, these may become very many indeed. What sets out to be a device to make life easier for the simple man or woman to do lighting or sound may present a fearsome appearance because it contains the means for *X* to do *Y* one day. Since *X* may never turn up and the opportunity to do *Y* neither, there may well be a number of redundant buttons.

All this is very sad because *man* is very adaptable and responds to any challenge (certainly any challenge the theatre is likely to throw down) always provided the tools that have to be employed are recognisable—are well within the compass of a familiar drill—provided that is he feels at home with them. It behoves us to remember that the most adaptable thing in the theatre is man himself. The more comprehensive the facilities we provide him with, the less comprehensible to him they may be and the less of a stimulus to his adaptability they will present.



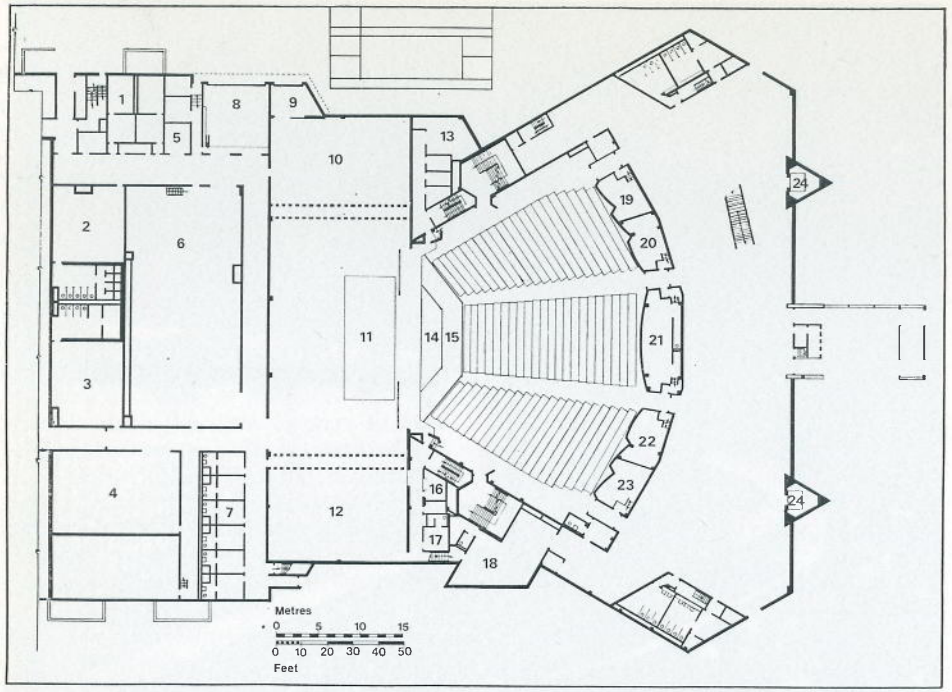
Aida with Elephants

Frederick Bentham

Surely nothing shows the difference between the American scene and our own better than the new Hancher Auditorium in the University of Iowa. Granted that our own universities are "famed" for the oddity of their theatres, nevertheless one can only gasp at the thought of 2,680 seats! Britain has in recent years given up all idea of theatres—even opera houses—with more than 1,500 seats and prefers to work at half that number or below.

The very plan of this building itself—the fan shape—is regarded over here today as something out of a museum of cinema history. Yet it would appear to be just what is wanted and, as the photographs show, is full of audience. Curiously when on that continent even the visitor finds himself thinking big. Having consumed—or gazed in despair at—a steak so large as to be almost anatomically recognisable, followed by a long short journey in a long wide car—a true automobile (the very word is bigger than ours) one is ready for an *intimate* auditorium of over 2,000 seats—it is all a question of scale.

I have to confess at this point that I have not seen this particular auditorium or even this university though I have seen others over there evocative of the present example. But I have been struck by the immense amount of material sent us in the shape of press handouts and technical descriptions. For example, I can even tell you that, **"In areas where the terrain is very steep, crown vetch is used as a ground cover to**



Ground floor plan: Hancher Auditorium, University of Iowa—Architects: Harrison and Abramovitz.

GROUND FLOOR PLAN

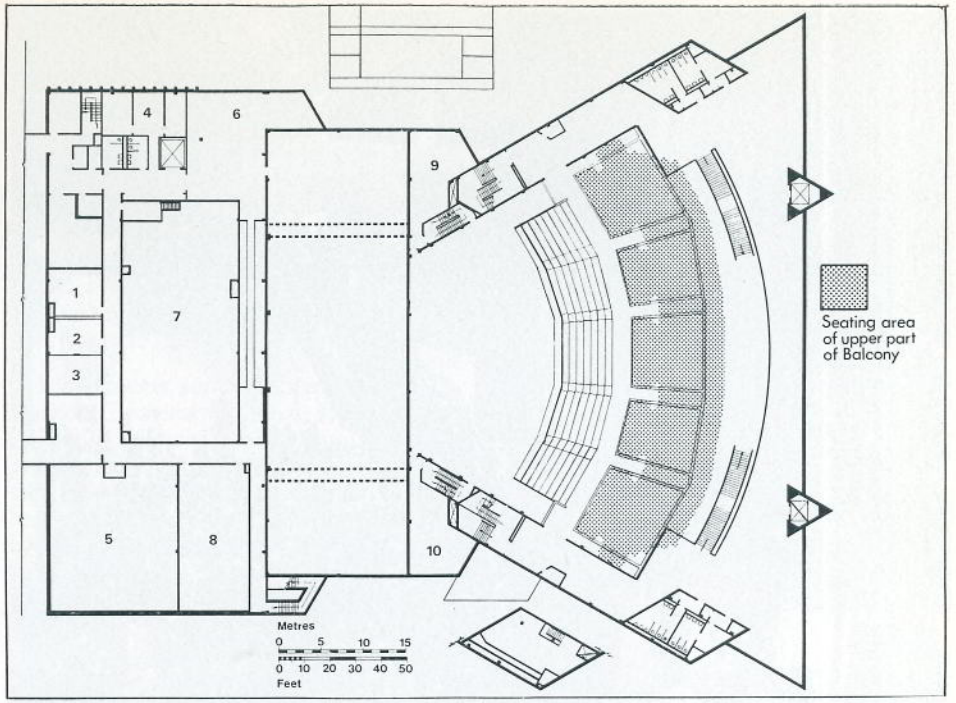
1. Staff Dressing and Locker Rooms
2. Women's Chorus Dressing Room
3. Men's Chorus Dressing Room
4. Rehearsal Room
5. Freight Elevator
6. Scene Shop
7. Dressing Rooms
8. Loading Dock
9. Loading Dock
10. Side Stage
11. Trap Area
12. Side Stage
13. Stage Carpentry Shop
14. Inner Lift
15. Outer Lift
16. Patch Panel
17. Conductor's Dressing Room
18. Green Room
19. Student Viewing Room
20. Broadcast
21. Projection Room
22. Lighting Control
23. Student Viewing Room
24. Elevators

FIRST FLOOR PLAN (opposite page)

1. Designers' Office
2. Laundry
3. Designers' Office
4. Management Offices
5. Rehearsal Room (upper)
6. Costume Storage
7. Scene Shop (upper)
8. Costume Shop
9. Audio Control Room
10. Dimmer Room

minimise erosion and eliminate hazardous mowing."

The site sounds splendid with a lot of trouble taken to landscape it: **"The building itself is located in a riverfront setting of uncluttered natural beauty, where the Iowa River flows through the heart of the University campus."** I cannot say whether this resembles The Backs at Cambridge with the Cam meandering by but it seems more probable—from the dark references to **"a state agency which regulates floodplain construction and the United States Army Corps of Engineers"**—to be something like our image of the Mississippi rolling on, with a two-hour crossing by Show Boat to get to the other side.



First floor plan: Hancher Auditorium, University of Iowa—Architects: Harrison and Abramovitz.

However the transport side has not been forgotten:

> "The facilities at Hancher Auditorium include approximately 90,000 square feet of sidewalk and a 780-car parking lot. Plantings will be used to screen the parking area, and strips of greenery will subdivide the mass of surfacing needed for a parking facility of that size. . . . With soil and plantings as the primary decorating materials, the landscaping includes what Don Sinek (the landscape architect) calls "earth sculpturing". The South side of the auditorium complex—facing University Theatre —is graded in an elongated depression several feet deep.
>
> This provides variety in a previously flat, uninteresting piece of land, Sinek says, and also provides a 'transition area' between the theater and auditorium complex which tends to unite the two buildings."

Thus we see that there already is a theatre (built in 1936 with a 36 ft. revolving stage and 56 ft. grid); the auditorium we are now examining is an additional "facility". Indeed there is a recital hall as well seating 720. However, the presence of a theatre must not suggest that the new auditorium is only used for large-scale productions. *Sleuth*, and *Marcel Marceau* have been staged there and one wonders how they "go" with a 70 ft. proscenium opening (28 ft. high) and all those seats on just two tiers. We are assured that, **"The hallmarks of the auditorium are flexibility and intimacy. The stage can accommodate the world's largest performing groups and in only a few hours can then be converted for use by a solo performer."**

The truth is that the brief must have begun with a very large audience and the shows that are put on the stage are those expected to attract that large audience. Whether the ambience is right is secondary —a show is for people to go to and who is to say that this is not the right way round? It is better to have seen Marcel Marceau

"The Hancher Auditorium foyer and mezzanine at intermission—a single enclosed space which doubles as an art gallery."

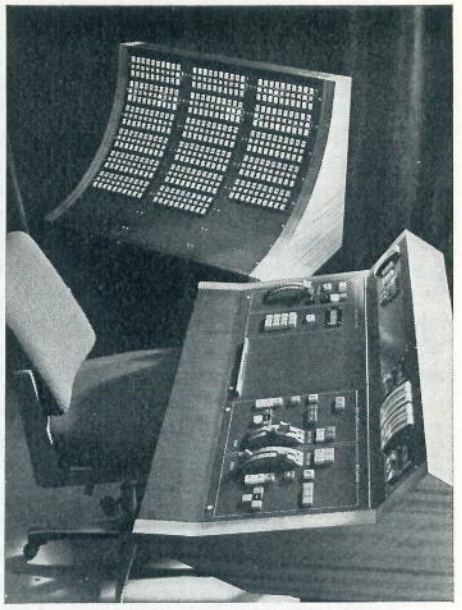
at a range of 125 ft. perhaps than never to have seen him at all. His art is a particularly good problem to pose for the large auditorium because he is all sight—no sound. We recognise that it is possible to amplify and redistribute the human voice and that if this is well done it can be quite acceptable. On the other hand television monitors would be an intolerable intervention. Incidentally the acoustics in this case seem to have come in for praise certainly where music is concerned.

Already over here in Britain we find a tendency to design theatres with very wide proscenium—50 ft. or so—simply to get the audience as near the stage as possible but that nearness can only be in respect of the front edge of the part of the stage closest to the particular person! There is a maxim here that no member of the audience in a newly designed theatre should be further away than 66 ft.* from that rather unspecifiable area, the stage, or 98 ft. for musicals and opera. This is in much the same way that the distances to London on the road signs assume that one wants to go to Hyde Park Corner!

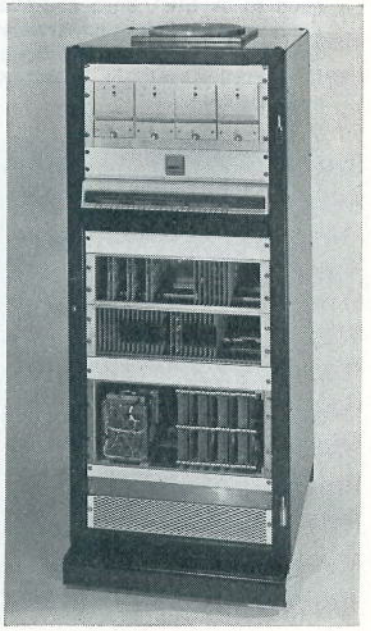
The Hancher auditorium is, like all such auditoria, extensively used for concerts. A thing unknown over here but very common over there; a band shell encases that part of the orchestra or choir under the stage tower. It has always been a mystery to me how opera singers when working upstage manage not to lose their voices up there, yet for symphony concerts band shells are considered *de rigeur* for an auditorium. The present one can be used at depths of 16 ft., 32 ft. and 46 ft. Music justifies the vast proscenium opening and it is obviously no idle claim when they say, **"Given the resources and the livestock, the Center would produce *Aida* at Hancher —with elephants."**

I regret that I am immediately confronted with a vision of the set for *Sleuth* in the middle of all this. Does it really work? The cast for *Sleuth* is, to put it mildly, small. With a much larger cast and almost exactly the same number of seats even the Brook/Schofield Lear encountered sheer disaster when the Royal Shakespeare Company opened in the New York State Theatre some years ago. No one who knows that particular theatre, however apt it might be for the ballet, has a right to be surprised at that! Interestingly the present auditorium is by architects of another part of the Lincoln Center, Harrison & Abramovitz, who were responsible for the 2,858 seat Philharmonic Hall—though the kernel of that hall, the auditorium, was a prey to the

*Theatre Planning, *page 16. Published by the ABTT, 9 Fitzroy Square, London, W1P 6AE.*



System DDM and its computer below. This particular model is the 240 channel model for the Adelaide Festival Theatre, Australia.



acousticians and has since been re-modelled so as to be unrecognisable.

I suppose the next thing I would want to comment on is the use of the fan-shaped plan and the absence of side boxes to bring the audience round close to the stage—though to judge by the photograph these walls have been rather neatly designed to destroy their over-large scale and in fact contain concealed lighting slots behind those "blanked out windows". One is not conscious of acres of walling; it is only when one looks at the man at his lectern on the stage in the photograph on page 3 that the true scale becomes apparent.

All this is so to speak theorising from mere paper evidence and so it is but fair to put in that the architect himself has said of this that, **"Theaters must be scaled, lit and ornamented with people and night in mind"** and to add that,

> "Byron Belt, New York critic-at-large for the Newhouse News Service, has described Hancher as 'an auditorium worthy of the greatest cultural center anywhere'. Composer Meredith Willson, in town for the opening of the University's production of his *Music Man*, called the new theatre 'too good to be true'. Such first-season headliners as Isaac Stern and Artur Rubinstein have lauded Hancher's facilities and decor, its acoustics, and the enthusiasm of its audience."

A black and white photograph also lacks the necessary warmth so we quote:

> "For the theater-goer, an event at Hancher is something of a total aesthetic experience. At night, interior lights reflect from brilliant red carpeting, casting a soft glow of color across the surrounding campus area. The foyer and mezzanine are a visual delight—geometric forms in ceiling, walls and windows, the straight lines of long carpeted stairways, the sweeping curve of the balcony railing. Woodwork, trim and lobby furnishings are of oak.
>
> The two-level lobby, a single enclosed space, accommodates a full-house intermission audience with ease. The white expanses of foyer walls are used for a striking display of modern art works from the University's collections. The Green Room looks out on lighted campus walkways which link the building units of the fine arts campus along the river."

All this poses the question as to who the place is for. Granted that the University of Iowa is probably enormous nevertheless the use of this hall is not restricted to students.

> "For series events, the season subscription sale last spring was limited to approximately 2,000 of Hancher's maximum 2,680 seats, with the balance of seating for each performance held for sale on an individual performance basis.
>
> For both season subscription and individual performance sales, students are given first priority to purchase tickets, at the special rates available to them. Ordinarily, a student may purchase only two tickets. A student ID and current registration are submitted when student tickets are presented for admission.
>
> For student-priority events, non-student mail orders are accepted by the box office on the beginning date of the student priority sale. At the conclusion of the student purchase period, accumulated non-student mail orders (and telephone orders for subsequent box office pickup) are filled concurrently with over-the-counter sales. Orders are filled in the order of their initial receipt by the box office. Through this procedure, ticket availability is extended to both local and out-of-town patrons on an equal basis.
>
> Faculty and staff members are encouraged to use the campus mail in placing ticket orders. Filled orders are returned through campus mail . . .
>
> In addition to the lighting control room, enclosed 'picture-window' spaces under the balcony at the rear of the hall permit students and instructors to see, hear and discuss performances in progress, in isolation from the audience."

The technical equipment of the theatre is as one would expect extensive on the sound side and there are a fair number of mechanical aids on the stage though nothing of course remotely touching the kind of thing a German theatre or opera house would expect. A permanent 50 ft. cyclorama **"may be raised off floor 30 ft."** and there are twenty-four double-purchase counterweight lines and twenty-four motorised spotline sets of five lines each. With these one can do a number of things and it would appear to be an extension of the flying system George Izenour first launched at the Loeb, Harvard. In addition to this there are four motorised light pipes (barrels over here) 4 ft., 16 ft., 26 ft. and 36 ft. from the proscenium. The gridiron is eight storeys high (75 ft.) with a height of 27 ft. in the wings.

There are fifty-nine Fresnels in three sizes from small to large and ninety ellipsoidals (profiles to us). In addition there are twenty beamlight projectors—ten of large diameter (16 in. no less)—and then of course cyc. border and footlights. In all, 460 circuits are provided for the stage lighting. And this is where we come to the nub of the matter. The lighting control itself is none other than our new system DDM with (you will remember) the lovable computer.

So far so good, but then comes in that American peculiarity—there are only 90 dimmers—70 by 3 kW and 20 by 12 kW. The dimmers serve the 460 circuits through a "standard cross-connect panel". TABS readers will already have encountered DDM in our descriptions of the new Royal Shakespeare installation a year ago.* As far as the control facilities—the ergonomics—are concerned there are some modest improvements, but on the technical side—the electronics—the strides have been enormous even in the short period of time that has elapsed! Where the Royal Shakespeare had two racks of equipment Iowa has only one. Speaking personally I was surprised that there were only two racks for the Royal Shakespeare. Nor in the present case must the retort be, "Ah! but Iowa only has 90 dimmers". This reduction in rack area applies just as much when there are 240 dimmers—as is the case with another system DDM which we have recently supplied to the Adelaide Festival Theatre and illustrate on page 7.

The auditorium gets its name from the late Virgil M. Hancher who was President of the University from 1940 to 1964 and who very early on in his tenure of this office described the need **"for a facility for theatre, music, opera and dance presentations"**. We who have waited so long for many of our enterprises over here can have some sympathy with the fact that they had to wait some twenty-seven years before this came to pass.

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*TABS, *Vol. 30, No. 1*

Per Ardua Ad Astra

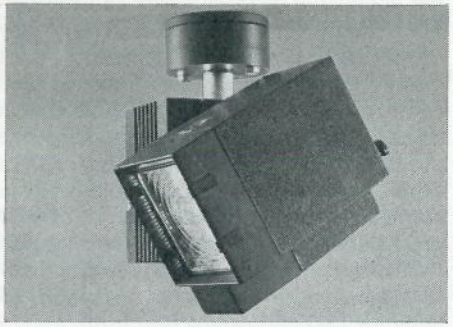
The Editor

We were first drawn to this new museum on what was once the famous airfield at Hendon by the knowledge that many of our Minispots were in use there. We soon discovered that these make their presence felt by being almost completely invisible and therefore did not make a good photograph, so we have had to content ourselves with a photograph of some of the aeroplanes. We use the word quite deliberately for Hendon was an aerodrome, and it was not until the war that people learnt that aircraft was the proper term. Hendon is no stranger to the theatrical approach, for once a year there used to be a very popular show—the Hendon Air Display.

Many of the aircraft on view in the Museum must have had their first introduction to the public—their Farnborough—at Hendon but what I remember most was the grand finale which always enabled the RAF to bomb out of existence some "uncivilised tribe". It seemed that the solution to any problem was to call up the RAF and drop a few bombs with great spouts of earth and explosions. The display discontinued when it became obvious that the real threat was from the "civilised"—from people looking exactly like ourselves—from fellow Europeans.

A fascinating feature of the Museum is the way it is housed in a very large hangar with lattice girder beams of wood, presumably dating from the steel shortage of the First World War. The whole interior has been painted white and makes an exactly appropriate background to the Service colourings of the aircraft. (If it moves salute it, if not paint it white?)

From the lighting point of view a simple but ingenious notion has solved a particular problem—or rather two problems in one shot. The floor is also painted white—a veritable lawn of white (or should one say a runway?) but with footpaths interspersed so that one can walk round and see the exhibits. The white floor stops one leaving

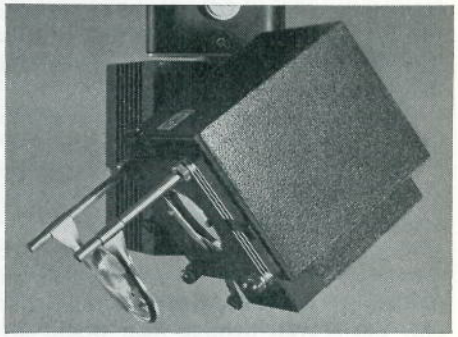


Mini Fresnel with integral transformer.

the kerb to walk over and touch the aircraft—it has the disciplinary effect of keeping the public at wing's length, but also serves the equally important purpose of reflecting the light back on to the underside of the wings; thus the aircraft are perfectly lit from a series of industrial fittings high in the roof. These, like the acting area floods of the spectacular theatre of the 'forties and 'fifties, point straight down and flooral reflection does all the rest. It is a most elegant solution deserving of full marks.

This is all very well, but what of the Minispots we originally set out to describe? These are hidden in various diorama displays which form part of the side galleries, along with equipment and other aeronautical archeology. On pressing a button a tape springs to life and an automatic slide display is brought into action. This is accompanied by much pickings out on the diorama model. Thus when the talk is of "dispersal" this area is picked out on the model and it is the job of the Minispots to do this—which being the Patt. 101 profile spots they do very well.

The commentaries are languid in tempo and seem to be given by actors well known for their RAF impersonations. This side of things could do with some whipping up and one would like to see one day some further animation in the shape of moving clouds



Mini Profile with integral transformer.

which before long Minispots are once more going to provide. There can be no doubt that the return of Minispots has opened up whole new areas of lighting experience. One wonders whether the tale of their first introduction in 1968, their subsequent withdrawal and of adventures with the lamp manufacturers to ensure a source with a life of 2,000 hours, is not an echo in its own way of the RAF's motto!

Tabs Index and Bound Copies

It has been our practice to publish an index so that readers who wished to have their copies bound could do so. It is in fact easy to get one-off binding done—even to the extent of having TABS and other information blocked in gold on the spine. The result is not expensive, especially when one takes into account that the literary content costs nothing!

We do ourselves have some complete volumes ready bound for sale. Volumes 28–30 covering the years 1970–1972 appear as one book at £2, and Volumes 25–27 (1967–1969) at £2.50, post free in U.K.

The index itself for those who wish to get their own copies bound is issued free on application to this office.

Am I Lit Here?

Francis Reid

My one unfulfilled ambition as a lighting man is for an actor to break off in rehearsal and address me in the following terms:

"Don't you think there is just a little bit too much light on me here? Of course it's fine for me personally but is it right for the atmosphere of the play?"

Certainly my actors do favour me with little rehearsal speeches but the text is usually a variation on the theme, "Am I lit here?" These questions never take me by surprise because they are inevitably prefaced by much screwing up of the actor's eyes accompanied by darting head movements reminiscent of the mating dance of a muscovy duck.

I admit that an actor did on one occasion ask for less light, but the request was:

"Look, can you take down the light on me . . . the blankety-blank author seems to have forgotten that I am in this scene!"

Very often the way to deal with the dark spot down left is not to increase the light on the left but to reduce it on the right. But only the bravest lighting man would say this to an actor, and it is a sure way of finding out whether the director has much lighting experience. Rather than speak forth honestly and retire to lick his wounds, the wise lighting man will merely say:

"Don't worry. I'm sorry that we have some balance problems but I'm working on them."

He will then scribble furiously in his notebook, but whether he makes an intelligible note will tend to depend on his own rather than the actor's or director's judgment of the situation; 80 per cent of my own rehearsal notes are pure rhubarb.

To a large extent, the art of lighting or rather the art of being a lighting man is not so much the handling of watts and lumens as the handling of people. Theatre people in general and actors in particular are by the nature of their calling sensitive and self-analytical. Unfortunately the contemporary theatre has produced a breed of insensitive directors (I will not call them megalomaniac charlatans) who prey on this sensitivity of actors and turn self-analysis into self-criticism which rapidly produces a feeling of inadequacy.

The best directors work by *building* the self-confidence of their actors and production teams. They keep their cool—they smile and encourage. But perhaps most important of all they accept blame and admit mistakes (even if they know that it is not their fault) in order to keep the production flowing smoothly forward. In other words they use psychology in a constructive way to build the actor and production into a happy and harmonious *natural* unity rather than use it destructively to impose *their concept* of unity on an unhappy cast and production team.

And it is the duty of we lighting men to try and use psychology in this positive way. We normally learn the hard way. Or at any rate I did and do.

Some years ago, I had to transfer a long-running play from one London theatre to another. The second theatre—although having much better F.O.H. lighting positions—had a shallower stage, and so we had to set the scenery tight to the proscenium, leaving no room for perch lighting. Now the star lady spent a long part of the play seated at a table facing the perch lighting and over the months had become accustomed to the glare of these lamps in her eyes, although they did not light her particularly well. In the second theatre the box boom position provided a much better lighting angle but the lights did not shine in her eyes.

The inevitable happened: speeches on the theme of "Am I lit here?" soon developed via, "Well if there's light here I am having trouble finding it", to "Well if I am expected to play this scene in a blackout . . .". In vain did I (and the director, bless him!) explain the situation.

"A float spot," she cried. "If we cannot have perches let's have a float spot."

And then I leaped in with both feet:

"A float spot would make distorted shadows of you on the ceiling which would distract the audience so that they looked at the shadows instead of you."

There was a pause while she drew herself up to her full 5 ft. 7½ in.

"Darling," she declared icily, "I think you will find that when I am on, the audience will look only at me." So next morning, a spot went into the floats, the lens was removed, frost inserted and the 100W bulb run at point 3 on the dimmer. It was not an effective light source, but she could gaze into it while seated at the table. I am told that I took her resultant "I-told-you-so" speech very well . . . .

The floats are in fact a key area in the affairs of lighting men. To the audience they are the primary source of stage lighting, to the actor they are a source of comfort, and to people attending lighting lectures footlights are question number one.

Actors seem to get a confidence lift from floats. Often this is just in terms of a rather ill-defined warmth, although one famous comedy actress told me that she liked the floats as a friendly protection against her audience whom she described as "those devouring monsters out there". On the other hand this particular lady always establishes an immediate contact with her audience—a contact which is more immediate and more constant than that often achieved by some theorists who profess to love their audiences and leap about on thrust stages failing to project their performance beyond the third row.

As actors are so aware of floats and they are of little value as a positive lighting source, it is a good place to pander to their colour prejudices. All actresses over a certain age are liable to become mentally unhinged at the mere thought of amber light and in the more extreme cases they are liable to regard even delicate 52 gold as an amber. So do I ever put amber in the floats? Colour 36 is rather more difficult. "Ah, so you are the lighting man" (whisper). "I need lots of help from you" (unconvincing gestures of protest from me). "Now I hope that we are going to have lots of that nice surprise pink," *or* "But we are not going to have any of that nasty surprise pink nonsense, are we, darling?"

Whatever she wants, the place either to put it or not to put it is in the floats—the only place that she will notice it (and it helps to write the number on the Cinemoid in jumbo chinagraph letters). I have had a play with both these ladies in it and, in choosing which one to play off against the other, I remembered that in those circumstances the word *darling* is not used as a term of endearment but as a threat.

I had to use floats once (a circuit of blue at half check) in a five-roomed multiple set to help an ageing actress find the audience but I admit that this was rather an abnormal use of a lighting source. More fundamental is the use of floats to contain comics' props: a random check at a recent pantomime found that floats were harbouring (in addition to 5 microphones, 4 u.v. tubes, 3 flash boxes and a strobe) a fishing rod, a pair of pistols, an aerosol foghorn and a packet of instant whip. In fact the theatre in question has no floats and had to construct a dummy timber masking piece along the front of the stage.

Where floats are of no value whatsoever is in the treatment of the white light syndrome. This disease is normally accompanied by side effects taking the form of prejudices against anything that could remotely be considered traditional. Common causes of the disease are fear of colour or fear of lighting men; sufferers have been known to grow out of it, but the only real cure is to be forced to do a commercial "drinks table behind the sofa comedy" under the supervision of what is known on Broadway as a "participating prodoocer".

In fact the tragedy of white light people is that instead of regarding white as one possible lighting style they think of it as the only style—because of course the first problem of a lighting man approaching a production is to identify the production style and find a matching lighting style. Conversations with the director often produce a lot of literary rhubarb which boils down to a suspicion that everyone is going to act sort of normal. "Ah!" you say, tugging your beard (a more useful prop to a lighting man than an extra spot bar). "Heightened Realism?" The director looks

grateful and if you have succeeded in gaining his confidence, within minutes he will be using the phrase to the actors at rehearsal.

In practice there are three basic lighting styles to fall back on: Rosy Cosy Glow, Operatic Steel and Swetm. *Rosy Cosy Glow* is a smooth general coverage in warm tones usually with some attempt at dimensional quality. Its usefulness lies in the cosy credibility which it gives to fading scenery and fading performances. *Operatic steel* favours extensive sidelighting to disguise the facial contortions that accompany the production of sustained vocal tone. It is noticed by music critics who call it imaginative; it certainly is dramatic and therefore particularly favoured by those opera directors to whom the music is an undramatic intrusion. *Swetm* is easy: ninety spots in 54 rose, five in 17 steel and five in 47 apricot. All open focus and set as a flat blanket across the stage. All dimmers are at point 9 (but only to increase the lamp life). Not a trace of selective atmospheric dimensional illumination anywhere but commercial impresarios love it.

I am sorry if all this seems to have a stylistic flavour of *heightened cynicism* but it is necessary for the well-tempered lighting man to note and analyse such matters if he is to keep his cool in the face of such tragi-comedy situations as the *great American musical myth.*

I am rather tired of reading of the superiority of Broadway production teams in creating musicals; such teams work by trial and error in an atmosphere of subdued hysteria. Life becomes a continuous day and night conference where the dialogue has all the studied flatness of an Apollo mission and the most frequent phrase is, "We have a problem". Gradually every piece of the show is rewritten, re-orchestrated, re-choreographed, re-designed, re-costumed and re-directed several times, gradually getting worse and worse. Finally, when all else has failed, the entire production team round on the lighting man and say, "What this show needs is more dynamic lighting." At this point the psychologically orientated lighting man must not say, "Look I know the lighting is bad but it is no worse than the rest of the show."

No he must just tug at his beard and swing into the relight. This should commence with an hour's feverish activity with ladders, changing colours . . . nothing very drastic—just a few of the more extreme colours into spots which were not doing very much anyway. Having quietly cautioned the switchboard not to lose the original plot, go through the show cue by cue doing some dynamic alterations like changing cyclorama colours and reducing the odd full-up to a couple of splashes of magenta and green. The production team will be enthusiastic, the actors less so. It will cost a lot of money in overtime (none unfortunately for you the lighting man) and during the next few days you will slowly move back to the original light plot. It may not be dynamic but at least you can see the actors.

But in the last analysis, being a lighting man is really a matter of inspiring confidence. The difficulty in doing this is that the lighting man is the last of the production team to make his contribution. The value of the actors, of the direction, of the set design, of the costumes, of the sound can begin to be assessed at relatively early stages in rehearsal but until the very last days the lighting man can only produce a plan to back-up his expensive estimates and who shall blame a director for his nagging fear that if the lighting man's contribution is ghastly it will be too late to do anything about it.

The wise lighting man keeps popping into rehearsals, remembering that the frequency of his visits is more noticeable than their length. He also distributes lots of copies of his lighting plan, remembering that too immaculate draughtsmanship often arouses suspicion.

When you get into the theatre, remember that the lighting man, because he does his bit last, is expected to make up all the time lost by the other technical departments. Mention it, accept it but do not shout about it.

As you prepare to plot the cues, expect the designer to want the opposite to the director. There are three possible situations: first when the director and designer are in total harmony over their conception. Secondly, when the director wants the action shadowy and the designer would like to see every set detail exposed. Thirdly, when the director wants his actors bathed in a great bash of light but the designer would like his set clothed in atmospheric gloom. Numbers two and three are the more common and it is the fate of the lighting man to devise the necessary compromise—a decision which is not simplified by advice from the assorted committee of self-appointed experts who appear in the stalls by magic at the mere suggestion of a lighting rehearsal.

To the lighting man, I can recommend one effective if unpleasant remedy: chicken-pox. I once sat lighting in the stalls of the vast Liverpool Empire with this infectious disease while my supporting committee retreated to the dress circle. The braver members occasionally shouted advice from their heavenly heights but it did not penetrate my temperature-induced haze. An effective ploy, but drastic and lacking the subtlety of the true lighting psychologist.

The Grand Tour at Goldsmiths Hall

Michael Outhwaite

"Goldsmiths Hall," said the taxi driver, "Foster Lane, back of St. Paul's, Sir. Easy to find—always has a striped canopy out the front for special do's". Well *The Grand Tour*, Prospect Theatre Company's contribution to *Fanfare for Europe*, did not apparently warrant a striped canopy but there sure enough down this narrow back street we found that mini-Mansion House complete with imposing columns of Portland Stone and literally corps of commissionaires. We really felt like a wandering vagabond troup engaged for light entertainment after dinner in the Grand Hall. Our "quarter" was the members' cloakroom all marble, brass (or was it gold?), mahogany, mirrors and hundreds of *real* towels, the whole only slightly marred by the discreet plashing of the urinals.

Our quartet of players, Isla Blair, Julian Glover, Derek Jacobi and Timothy West with Richard Burnett on the Clementi (a beautiful antique piano)—who were to sing songs and read suitable Johnsonian drollery about the whole of Holland being like Clapham Common and Boswell getting the clap all over Europe—were suitably bewigged and rigged out in best Nathan's Eighteenth Century and set up on a 10 ft. by 15 ft. by 3 ft. high rostrum complete with decanter, glasses, wine and grapes (the usual decadence.) The entertainment, devised by Jane McCulloch and directed by Toby Robertson was performed twice at the Goldsmiths Hall and once in Edinburgh at the Royal High School and much approved of by the patrons and the press. The Grand Hall, as you will see from the photograph (our cover picture), was exceedingly sumptuous and from my point of view, being responsible for illuminating the show, remarkable for the chandeliers.

Often in the theatre we get shows that call for candles, candelabras, even chandeliers and then the battle starts.

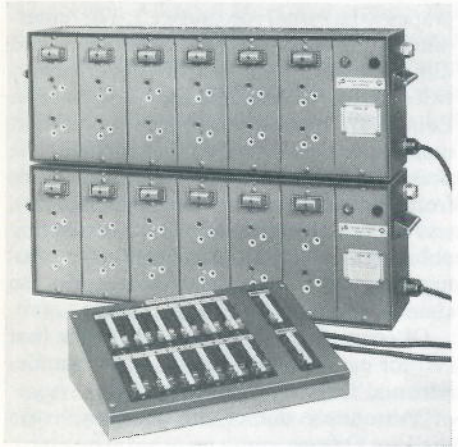
"Absolutely out of the question," says the Fire Officer.

"But its vital to the ambience, dramatic feeling and action," say we, and if we are really lucky one miserable, guttering candle—no taller than 3 inches—wired to everything in sight and surrounded by an army of fire officers breathing heavily in the wings is graciously permitted.

"Would you want the candles lit?" asked Mr. Williams the very helpful "Intendant" of Goldsmiths Hall. If there was one there were two hundred and with due pomp and ceremony just before "the half" a large "A" ladder was brought out and the candles lit by means of the taper

on a long pole. Suddenly the hall was alive. It really was magic; this rather sombrely ornate hall complete with stained glass dignitaries on one side and gilt framed royalty on the other "warmed" and mellowed and breathed. My Patt. 264Ws tucked behind pillars began to look a little self-conscious even though Kennington had very carefully sent me gold painted stands—nice touch that (unfortunately the huge mirrors conspired against me), but they did the job and provided the necessary "lift" to the group on the rostrum.

The hall has a small gallery (from which the photo was taken) and this is where we put the 12-way Mini-2. Cables were run out over the 14 ft. high double entrance doors and tucked "out of audience reach" behind the pillars running down each side of the hall. This was of course to meet with the G.L.C. licensing requirements.



The resident electrician provided us with a 60-amp single phase feed which was more than adequate. They even found us a side "stage door", and a service lift to the hall (first floor) or balcony (second floor) levels.

BBC's *Midweek* became interested and came to film an excerpt.

"How many foot candles have you got?" asked the cameraman.

"Difficult to say," I hedged. (Couldn't admit after all those articles by Mr. Bentham on lux, lumens, etc., that I had no idea!) "We don't use them—all done by eye."

"O.K. I'll get my boys to run the meter over it and we'll probably bring in a few of our own." Then they arrived with a dozen Q.Is and blasted the hall out of everything in sight. I just can't believe that what to the eye looks desperately flat and leached of all colour and shape can possibly be compensated for by a film stock which must be as insensitive as the heel of my boot. It would account for what one often sees on the box. They took-over for about four hours with a director, a cameraman, an operator, a puller, assorted sound bods and at least two figures who were simply "there" dressed up in their smart, dark blue, quilted-nylon anoraks and hush puppies. Good old BBC—never like to send one man when six will do. I wondered what Hans Haas does under water with only Lottë to do his pulling!

Eventually the magic "Wrap!" was called and off they went leaving us to rehearse. After the glare of their lamps my brave band of Patt. 264s gradually persuaded our pupils to open a fraction. The six chandeliers in the hall all have an assortment of lamps varying from those lovely carbon lamps which one rarely sees nowadays to 100-watt clears for workers. We only had candles in the pair nearest the rostrum and for the performance switched off all the rest except some "uplighters" on the pillars and the carbon lamps in the bottom half of the candle lit chandeliers. There is no master dimmer for house but as a fair proportion of light was left on, this was not the abrupt problem it sometimes is.

Often we are afraid that too much candle or oil-lamp light will be too distracting for an audience and smoke the downstage face of the chimney so it was amazing to me to see so many candles flickering away yet not feel they were in the least distracting. On the contrary they added so much to the quality of the evening that on reflection to think (as we did) of not using them at all was nothing short of criminal. It was in the event a memorable evening, and from now on I shall be hooked on lighting ballroom scenes with *real* candles.

Hungarian Rhapsody

Peter Fitzwater

If you are flying in from the west, the letdown takes you over the north of Budapest and you cross the Danube where the Romans established their amphitheatre and baths upstream from Margaret Island on the Buda side of the river. Buda is the hilly part of the city, and Pest the flat part. A friend recently summarised the topography of the city and the country as being either all up and down or flat. This gem of observation was delivered between spasms of heavy breathing caused by a too rapid assault on the Castle District in Buda.

Harmashatár-hegy and its summit restaurant (from where you get a panorama of the whole city over a beefsteak bélszin Budapest módra washed down with a fine red Egri Medoc Noir wine) slips beneath the right wing and you settle down over Pest's large housing estates and many factory chimneys for the approach to Ferihegy Airport. As hegy means hill, you tighten your seat belt that extra bit and put your trust in the adrenaline already flowing to get you out of the wreckage when movement ceases. But all is well, and the plane glides down and a bit up to match the peculiarities of the start of the runway before it finally settles amid the rumble of wheels and the terrifying roar of reverse thrust on terra firma. You now appreciate the hegy part of Ferihegy!

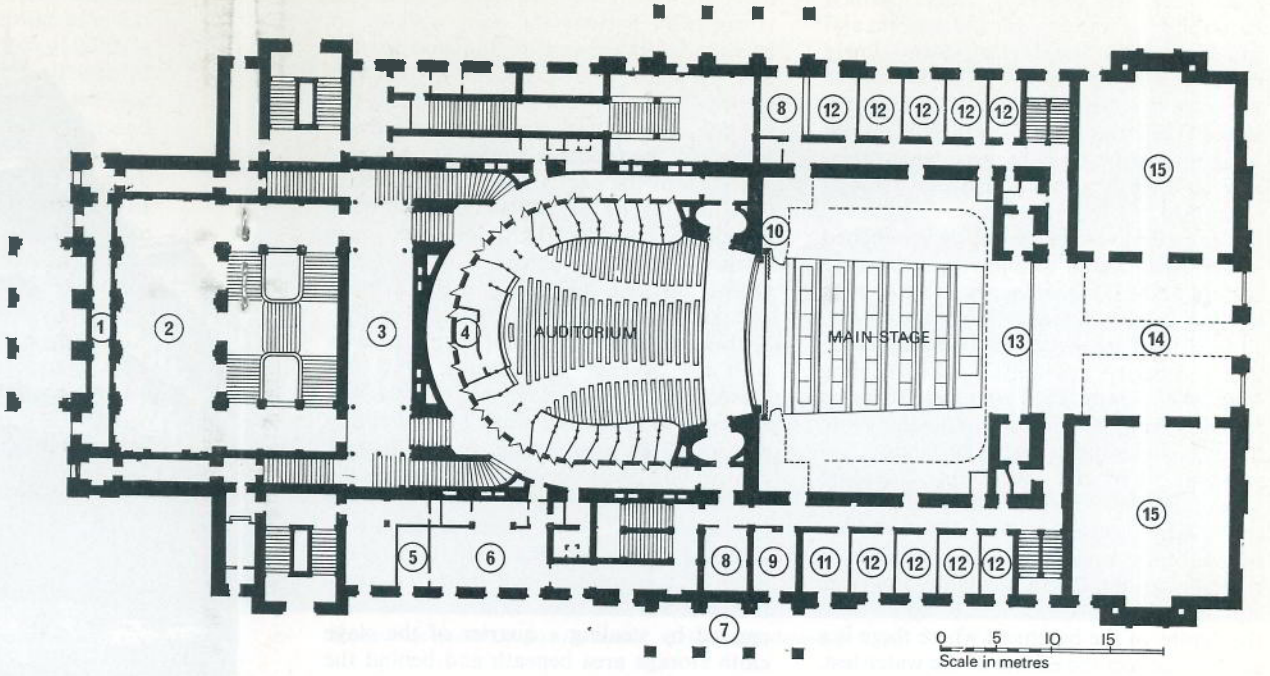
The wise traveller will have completed his visa application form before arrival, and early presentation of this triplicated document together with two photos to the girl at the visa desk may cut the best part of an hour off the waiting time in the arrival lounge. Coffee, as it should be, and stronger refreshments are available at the bar and a duty-free shop provides for the needs of those waiting at reasonable prices—stocks permitting. Sooner or later, you get your passport back and present it to Passport

Control together with two of the original three sheets you filled in. Another round of rubber stamps and you emerge into Customs clutching passport and the vital exit paper. Never having lost the latter in some twenty trips to Hungary, I dread to think what would be set in motion in the way of forms and rubber stamps if the fear became a reality. Customs deal with you quickly as you are not a Magyar bringing gifts from the West, so you struggle through the expectant recipients in the main hall and out into the fresh air at last. There is no point in being angry over the time taken to accomplish this feat; just accept that things take longer where the pace of life is slower.

Exactly a hundred years ago Buda and Pest were combined into one city and ten years later the Opera House was completed to the designs of Miklós Ybl. Built in a beautifully proportioned Renaissance style, the decorations of the marble foyer and auditorium provide a perfect setting for the paintings of Károly Lotz. A recent extensive restoration programme has just been completed in the foyer, main buffet and auditorium and, wisely, smokers are restricted to a panelled oak hallway off the main buffet.

It is in this buffet and its surrounding passages and sweeping staircases that the audience congregate during the lengthy intervals which punctuate performances. Going to the Opera is as much an opportunity for social intercourse with friends as it is for seeing the show. Champagne, continental sandwiches, coffee and light refreshments are available to those who wish. All the tongues of Europe can be heard during the interval in the buffet and in the summer season the unmistakable tones of America ring out. I remember on one occasion hearing a delighted drinker exclaim to Elmer, in an uncommonly loud voice, "They've got *real* Californian orange juice!" Occasionally, a cherub on the ceiling gets a sharp reminder of the patrons below as a champagne cork ascends amid a burst of bubbles and merriment. Baroque expresso machines continually clear their throats and produce minute quantities of strong, black káve.

1. Smokers' alley (and main Entrance under)
2. Audience Buffet. (Foyer under)
3. Cloak Room (large because of cold winters)
4. Lighting Control and Director's Box
5. Singers' Rehearsal Room (for dashing in to try over a few notes)
6. Artists' Buffet
7. Stage door (Street level)
8. Electricians' stores.
9. Props store
10. Stage Manager
11. Medical Centre
12. Dressing Rooms
13. Upstage iron curtain; down during the show
14. Ramp down to Street Level for scene loading
15. Scene storage (workshops on the floors above and below)



Just off the buffet can be found the hall housing the Franz Josef exhibition, where the paraphernalia of a royalty now past is displayed amid the scent of the linseed oil preserving the surrounding oak woodwork. Outside, beneath Népköztársaság útja another tribute to Hungary's last king runs, and that is the first Underground in Europe. It was built to carry visitors from the river to the Great Exhibition of 1896. Late last year the second Underground was opened linking Buda with Pest.

The Opera season runs from September to the end of June and the company has sufficient strength to run two houses, the Opera seating 1,100 and the Erkel Theatre seating about 2,500. Performances at the Erkel are beset with difficult working conditions because the place was actually designed as an assembly hall and cinema. At the Opera, the repertoire for a month can hold two different ballets and about twelve complete operas. If needs be, an opera can be recalled to the repertoire in 24 hours. During winter, this occasionally happens as 'flu incapacitates the principal singers for a particular production. Generally, Hungarians favour the classics of Opera and Ballet and they are not too keen to accept modern adventures in the medium. A few years ago, Alwin Nikola brought his particular brand of ballet to the Opera and was met with a polite but unenthusiastic audience. About the same time, a world première of *Crime and Punishment* produced by the Opera with music by Petrovics, a Hungarian, also met with disaster because the music was totally modern in concept. The present favourites in repertoire* and on tour are the ballet *Spartacus* with scenery by Forray Gabor and choreography by Seregi László and the three Bartóks, *Bluebeard's Castle*, *The Wooden Prince* and *The Miraculous Mandarin*. Forray and Seregi worked on these also, under the direction of Mikó András. Many European audiences have acclaimed these productions to be of world standard.

A nucleus of firemen is in permanent residence at the Opera and during a performance a man is stationed on each side of the stage. Smoking areas are defined absolutely, and irregular patrols are carried out to detect transgressors of the law wherever they may be within the Opera. The punishment is swift and direct: instant dismissal and a heavy fine.

Maintenance is carried out in the summer break and every year the stage fire control system gets a practical test which is attended by interested technical staff as well as fifty firemen.

After all the spots have been removed and the battens and cyclorama lights have been draped with canvas, the drencher system lever is pulled and a stopwatch started. Within about three minutes some 91 cubic metres of water stored in the roof will have descended onto the stage drenching everything in the most spectacular downpour you ever did see. Time checks are made to see if sufficient water appears seconds after pulling the chain and the flush has to meet the specified duration. To add to the fun, firemen on the fly galleries contribute to the deluge with fire

Both the Ballet and Opera Companies are coming to the Edinburgh Festival this year.

hoses and the working lights, which thankfully are waterproof, add sparkle and rainbows to the scene. The storm slowly abates and for the next few days visits to the stage are best conducted beneath an umbrella of stout manufacture. It is no fun being hit on the head by very large drops of water after they have accelerated through eighty feet.

Electricity to the stage outlets is switched off for three weeks to allow everything to dry out and the stage boards to settle back to their former flatness. Before switch-on, all load lines are meggered to check insulation and earth continuity. Luckily cabling from the eleven JTM dimmer racks is removed from the output terminals before this test takes place. All 220 circuits are rated at 5 kW and the correct fuses are always used to protect the dimmers.

The grid system and the stage lifts are hydraulically operated by equipment installed when the Opera was built. The stage equipment goes down three floors into the depths of the basement where there is a sump to collect the efforts of the water test. Over the decades the carbon in the cast-iron cylinders below has seized the valves and pistons so that the stage lifts can no longer be used. The necessary skills to fabricate replacements have been lost, but the grid hydraulics still work with the help of recent repairs. The system operates from a pressure reservoir which is charged from the town mains on the soda water bottle principle. Every three sets of grid lines share one piston and the two lines not being used are locked off at their top deads. Thus cloths not needed for the particular performance can be stored on the grid or if they are required in a later act then the appropriate piston can be attached to the lines and the cloth or whatever lowered in. It is always wet on stage right because the grid control is just above the Stage Manager's area of operations. There is the story, now legend, of the night when the main valve on the grid hydraulics developed a very slow leak and the contents of the grid supported by the system slowly descended, bringing the cast to their knees and the house down—literally!

Rank Strand control systems and lanterns are not new to Hungary. Indeed, a vintage CD System has been working in Miscolc,* 150 km east of Budapest for the past ten years. That particular system was copied by local talent to produce the lighting control at Szeged in southern Hungary. Then there is Studio 1 of Magyar Televizió in the capital, where another CD (but needing its second sixty transformer dimmers) provides light of the right intensity for the cameras. In 1967 the Opera decided to bring their lighting system up to date as the tracker-wire operated dimmers could not keep pace even with the Wagner productions. Only the season break of just over two months was available to rewire the whole of the lighting and install the new system. A new lighting control box had to be built out front as the old system was located over the Stage Manager. That poor man! If it wasn't dripping water from the hydraulics on his head, it was molten wire from the auto-transformers! A new dimmer room was created by stealing a quarter of the stage cloth storage area beneath and behind the stage.

Our past promptness and perfection at Miscolc won us the contract for the lighting control. The system decided upon was a 220 channel 3-preset LP control located at the back of the stalls, feeding 11 JTM dimmer racks loaded with all 5 kW C-core filter thyristor dimmers 98 metres away down in the dimmer room. The LP was designed to accept a System IDM intensity memory so a fourth preset was built into the second lever wing to provide readout from the Automatic, as it came to be known in the subsequent years. While installing the system, I must have walked the equivalent of half way to the moon on my many trips between Lighting Control and the dimmers before mastering the art of calling out channel numbers in Hungarian over the interphone. Another early problem during the installation was the small size of a JTM dimmer rack; once inside the rack, there was nowhere to retreat to when greeted with a garlic-bated "Good morning!" The cure was simple: eat garlic.

*TABS, *Vol. 19, No. 1.*

Hungarian State Opera, Budapest: auditorium from the stage.

The manual LP control was switched on on schedule, and then the Batten Mystery came to haunt the electrics. During certain fades to blue in *The Nutcracker* and *Eugene Onegin* which started the new season after the traditional Háry János opener, flashes of what appeared to be sheet lightning assailed the scene—but before you could do anything about it they had disappeared. However their presence did correlate with certain configurations of group and master levers on the control. In effect when the thyristors holding the blue batten circuits were at half-conduction point during a fade, hey presto, lightning. Boglári Muskotály, not a curse but a smooth white sweet wine and fogas, a fish from Lake Balaton eaten at the Vasmacska restaurant near Arpád Bridge in Buda provided suitable surroundings in which to meditate. Up came the reason and it was absurdly simple. All the battens were four-colour and there were eight of them. They were supplied via three phase and neutral cables from the thyristors which passed through a huge junction box half way up the proscenium wall. This meant that most battens had a phase line accompanied by a neutral derived from a different dimmer to make up the fourth colour. Next day, armed with this knowledge, I was able to predict the availability of lightning according to the disposition of the batten levers on the preset wing and, by identifying the circuit flashing, was able to get a return voltage measurement on the disconnected feed cable for that circuit at the dimmer rack. Naturally with this wire out there was no flashing; when it was in, the induced voltage on the line was sufficient to get back to the dimmer trigger card through the gate transformer and turn on both thyristors intermittently. A beautiful piece of cause and effect if ever there was one! And all because continuous pairs of wires had not been used to feed each batten outlet.

Unbeknown to me, a three-phase distribution had been planned for the battens to save wire. Eventually, after much pantomime and a bit of dramatic acting centre

The 220 dimmer channels at the Hungarian State Opera, Budapest. On left, master desk; on right, wing housing Preset 111 of the L.P. with levers for the I.D.M. (the automatic) underneath.

stage I got the essence of the problem across to Menyhárt Istvan, the chief electrician, with the welcome help of Tolnay Pál, the retired technical director, and phases were changed over to get the right neutrals with the right feeds.

The installation of the intensity memory system IDM brought to light stability and temperature problems of a high magnitude, despite the fact that the prototype of the system worked well in demonstration and is indeed working today in Australia. After several transplants of electronics the total system had its baptism of fire (luckily not literally) in front of the audience for, of all operas, *Crime and Punishment*. We got through the evening unscathed, and to cover for whatever crime the electronics might attempt, I busied myself with keeping the right-hand presets updated with the next cue should we be forced back to manual control. In summer, we often finished a performance with the memory covers off and a fan providing that extra bit of cooling which kept in the flying heads of the memory drum.

More productions were committed to memory, the three Bartóks were followed by the Opera's then most ambitious production, *The Tragedy of Man*, which ended up with 136 lighting cues and some tricky bits which I would not like to do on manual only. This opera was originally written as a dramatic poem by Madách Imre in 1861. While it already had been performed on stage as a dramatic reading, its première as an opera set to the music of Ránki György occurred in Budapest during the 1970 season. The stage set was a segment of a sphere 20 metres diameter and 2·5 metres above stage level at the centre, representing the world. The chorus were accommodated beneath the front of this world and numerous photographic projections and oil slides provided backings to match the dreams of Adam on the evolution of Society as inspired by Lucifer.

Most of the lighting at the Opera comes from the main Bridge and Towers just inside the proscenium. Excellent gallery positions are available for cross-lighting ballet but the F.O.H. outlets only number sixteen because the building is considered to be a museum and hence the walls of the auditorium must not be marred by the chasing in of extra circuits. A long campaign to get more circuits and some up-to-date lighting units out front will have to wait until the man from the Ministry sees the light. Cyclorama, battens and dips account for nearly half the stage outlets. Footlights are only used for tab dressing and as safety lights during ballets.

During the summer break in 1971, the IDM Mk 2 electronics and memory were installed in an air-conditioned room immediately beneath the lighting control and the automatic master panel was updated with dipless cross-fade and autosequence cue number call-up for Record and Playback. Paper tape (dump store) handling was improved to present day standards and the lighting control room was connected to the system airconditioner. The recurring electronic bugs had been eliminated from the system at last, and the great day finally came round when the technical director, Borsa Miklos, happily accepted the system as meeting specification. I congratulate him and his staff on their understanding and patience with all the Rank Strand engineers who served their time in the Budapest Opera and I would like to thank Szabó-Jilek Ivan for supplying the plan and the photographs with which this article is illustrated.

Nowadays the Automatic gets daily use nearly ten months of the year and an extensive library of tapes has been accumulated covering all shows in the repertoire. Visiting theatre companies show great interest in the system particularly because of the ease with which their lighting plots can be adapted onto it. The Opera lighting operators still keep their state plots of each cue up to date for checking the intensity of circuits during performances. This is the best form of insurance with any system, be it manual or automatic. Everything considered the performance is only as good as your lighting operator.

Hungarians take their culture very seriously and with a population of two and a half million Budapest has twenty-five theatres catering for all aspects of the art, from opera and ballet as you have seen, through drama and comedy as performed at the Madách, the Vigszínház and the Pesti Színház to name but a few, to cabaret and satire as seen at the Vidám Színpad. Even puppetry may be found at the Allami Bábszínház!

I hope you have enjoyed this brief tale from Hungarian theatre; I have enjoyed relating it.

Uppingham Theatre

*Christopher Richardson**

Plays have been done under fairly trying conditions at Uppingham in the past. The School Hall, a vast barn-like building with a flat door and a stage 4 ft. high complete with choir steps and organ pipes, was used as a fit-up theatre with the help of an ingenious dexion framework. The framework took many hours to put up and the audience sitting uncomfortably in wooden pews could neither see nor hear very well. The back row some ninety feet away was really very out of touch with the proceedings.

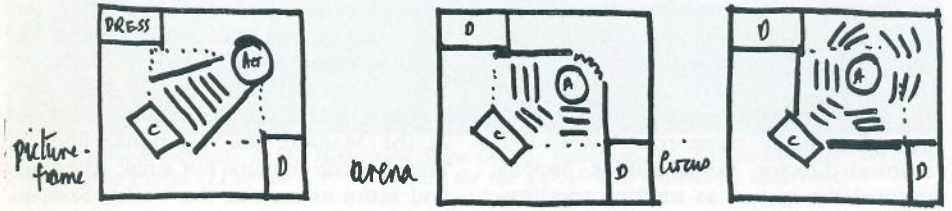
It could at least be said that it was adaptable. Three-storey structures and revolves were erected in the body of the hall leaving the stage to the audience, but this put the hall effectively out of commission for some time for music or assembly and we certainly couldn't nail things to the floor or the walls. Portraits of former headmasters were in constant danger of alien paint or falling flats. I well remember a production of *Thieves' Carnival* which used light skeletal outlines hung from a wire stretched tentatively from 4-inch nail to 4-inch nail (we daren't use 6-inch) wedged in the top of the oak panelling. During the first act the screens floated down on the actors in true "coarse theatre" tradition

**Christopher Richardson, an interior designer by training, is a master of Uppingham School and one of the prime movers behind the new theatre. He is also Warden of the Thring Centre there which, among other facilities, has its own drama workshop and small television studio.*

and to the delight of a juvenile audience.

So there was a powerful lobby for a permanent theatre, led by the headmaster and including those who thought that drama took up too many late nights. The sole purpose of this building was to be for drama and not for films, assemblies, exams, lectures or music. Rehearsal times usually clash with one or more of these activities and it is the stage and lighting crews who get left with the late nights and the bad temper.

Few people, least of all schoolmasters, agree about the style of theatre: in-the-round, arena, thrust or picture frame. There was as yet no money but there were many



dreams of what a theatre should be and our first sketch idea tried to pacify all minds and a shallow purse. We proposed a large spacedeck umbrella 80 ft. square, with simple cladding to keep out the weather. Two sheds or caravans, one marked "his" and one marked "hers" and a third on stilts and marked "control" were to be parked under this umbrella. Two simple screens, each hung from two pivoted runners which moved in tracks at right angles to each other, formed the adjustable space. The seating was by scaffolding on wheels.

This tentative scheme produced some horror, perhaps because it merely replaced one fit-up situation with another and, after our bitter experience of a multi-purpose hall which fitted no purpose well, there was a very understandable desire for a fixed auditorium with fixed seats from which all could see and hear in comfort.

At this time the school launched a general appeal for a building programme and the prospects for a theatre at Uppingham looked rosier. Several fanciful but extravagant schemes were sketched out for sites in the centre of the school, let into the sides of hills and nestling in sixth-form centres, but we had not yet asked ourselves any real questions. Why did we want a theatre and what precisely was it to be for?

We now began to ask some of those questions and a detailed brief was prepared.

The following is a summary of some of the more important tenets of that brief:*

A school theatre (a teenage theatre) has problems special to schools and to young users.

It is not a professional theatre although it may at times be used by professionals. For us it is first a workshop for drama, here a boy may get his first experience of theatre as a watcher or a doer.

The building is used intensely in short bouts of time. There are no more than some forty hours each week in which boys can use it and it is therefore desirable that several things can go on at the same time.

The users are unskilled and therefore systems and equipment should be simple and self-explanatory and should be safe.

Although the number of times an audience will be invited is small, it is vital to work out the relationship of performer to audience. The young performer must be on a platform high enough to feel some dominance over his onlookers, but the more steeply the audience is raked the more intense is the spectacle and the better all can see. If the rake of the auditorium is parabolic in section, something of both positions can be achieved.

It seems reasonable to suggest that a young actor can command what is in his cone of vision—about 60 degrees.

No spectator should be more than 35 to 40 ft. from the centre of the action if we are to be mindful of voices not fully developed or trained.

The front of the stage would never need to be more than 35 ft. wide but should be adjustable.

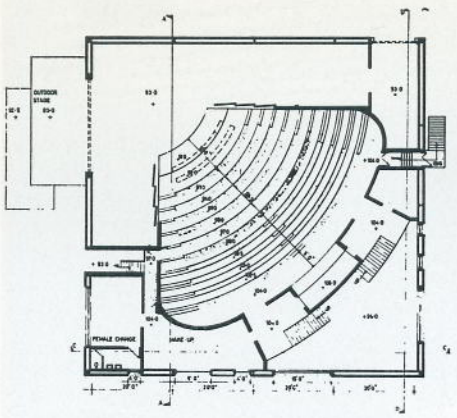
This suggests a plan shape which is a 60 degree wedge, the outer edge of which is 40 ft. from the centre of a circular acting area. This limits the seating capacity to some 250 to 300.

The atmosphere in the auditorium should be intense; there should be a feeling that something exciting is bound to happen—an air of dark expectancy.

A continental seating layout is required to increase the togetherness of the audience.

Bench type seating should be used to allow for different sizes of spectator.

*The complete brief was published in *Architecture East Midlands*, Sept./Oct., 1970.



From this brief Keith Allsop of Gotch, Surridge and Saunders (in collaboration with the author) prepared a scheme for a new theatre. The seats are actually one of the more successful features of the present scheme for they allow one to take up one's own comfortable position rather than the one imposed on one. We didn't get the fabric right. We used leathercloth which can make inelegant noises in tight dramatic moments!

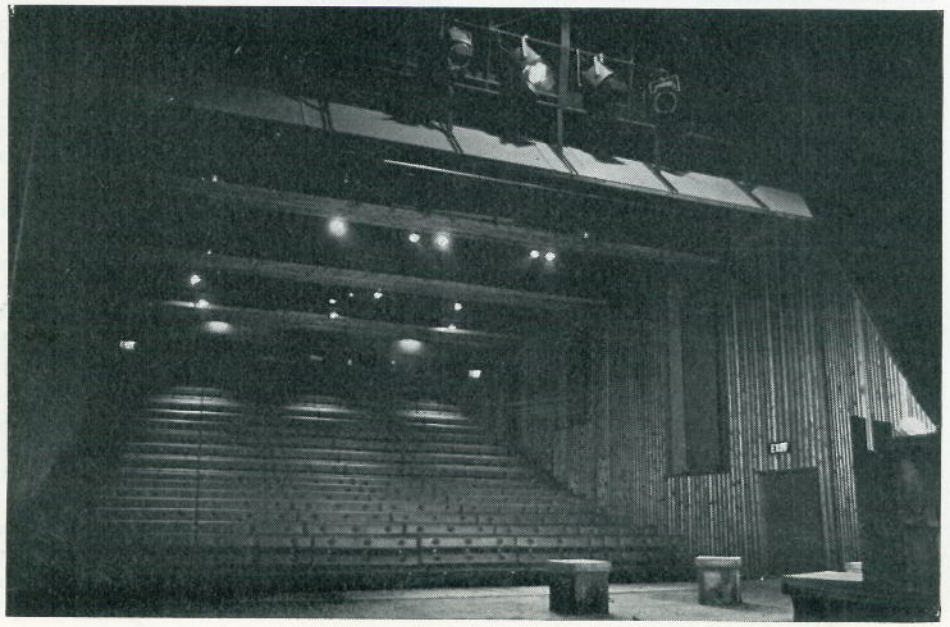
As this scheme was taking shape, a sports hall was being built as part of the appeal and it was felt that a gymnasium should be added to this complex so vacating the old Paul David Concert Hall, a building with a fine acoustic, based on the Leipzig Gewandhaus, but used for most of its life as a gymnasium. A committee was set up to revise the first brief and with Tony New of The Seely, Paget Partnership a working study was done to see if this building could be converted for use as a theatre. New buildings are nice but if you have a building which is even nearly suitable to your requirements and which, anyway, must be heated and maintained, wisdom cautions against building anew and it was this argument which eventually carried the day: so we started to convert the old gym to something closer to its original purpose.

The shape of the building forced certain compromises on us. We could not sensibly have a fan-shaped auditorium and there were certain other features of the earlier scheme which we could not retain but by throwing out wings (buttresses were needed anyway to ensure the safety of the roof) we had a very sizeable stage. The stage is flexible and we can alter the size and shape of the audience view using hinged vertical side panels which have sliding leaves and by adjusting the three angled horizontal baffles. The first baffle is at a fixed height but the upstage two can be raised or lowered by winch. The upstage baffle carries a lighting gantry.

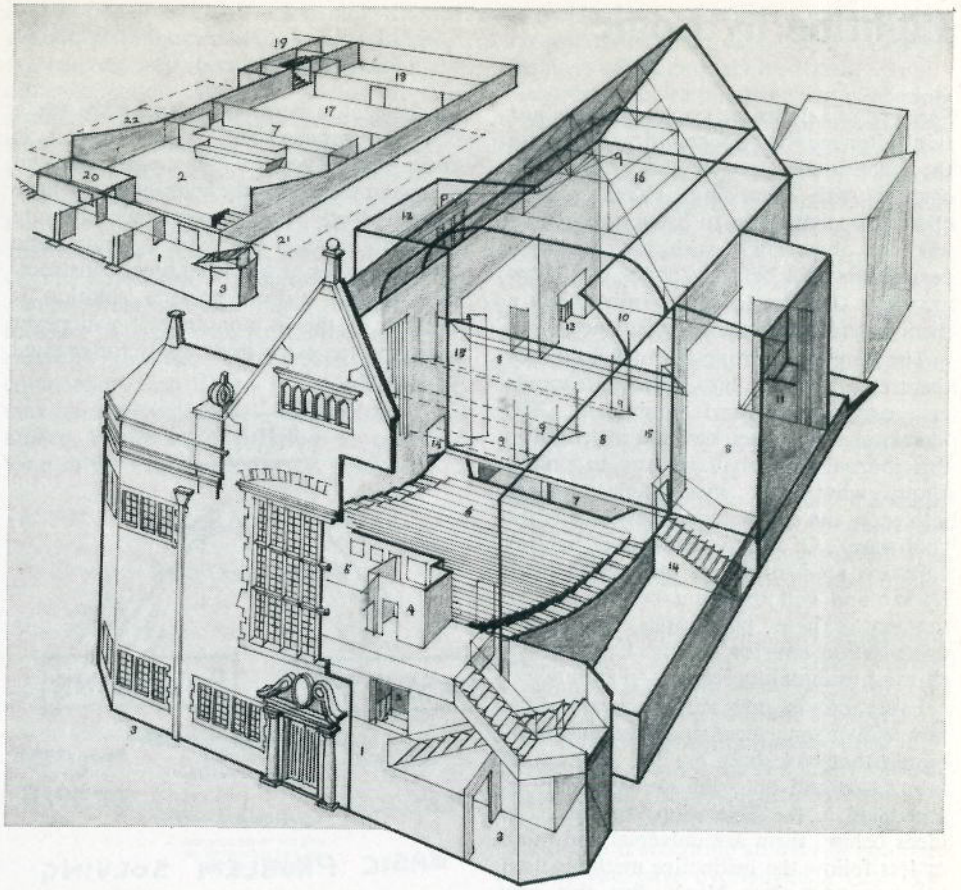
Access to the three F.O.H. lighting bridges and the on-stage gantry is direct from the control room and we hope soon to complete another on-stage bridge so that the majority of work can be carried on without disturbance to the stage or auditorium. Lighting control is from a JP40 × 3 with one rack of twenty in commission at present but with patching at the rack for all wired channels. We hope to increase the number of circuits to 106 and add the other rack of twenty with a rather more comprehensive patchboard. The JP board is laid on its back rather than wall standing in order to give the boy operator the chance to see exactly what he is doing without removing his eyes too far from the controls. I wish this were a standard alternative!

There is a grid with provision for a sixteen line double purchase counterweight system (three fitted). This is an expensive but very useful luxury for the sort of turn round we may expect.

We are on the fringe of good theatre of course; Nottingham is an hour away and London and Stratford are two hours from



Uppingham Theatre showing (above) adjustable proscenium and (below) FOH lighting bridges behind ceiling slots. In the foreground part of the stage gantry.



1. Lobby
2. Foyer and Bar
3. Washrooms and W.C.'s
4. Viewing Room
5. Lighting Control and Projection
6. Auditorium
7. Orchestra Pit
8. Stage and Wings
9. Lighting Bridges
10. Workshop Area
11. Scenery Dock and Loading Bay
12. Apparatus for Flying Scenery
13. Stairs to Dressing Rooms
14. Front of House Exits
15. Adjustable Proscenium
16. Framework for raising and lowering scenery
17. Under Stage Storage Space
18. Dressing Rooms
19. Actors cloaks, Property Store, Lamp Room and Stage Entrance
20. Cloakroom
21. Armoury on two floors
22. Store for pieces of constructed scenery suitable for re-use

us. Very close is the Phoenix at Leicester (in my humble opinion the best theatre building exercise we have seen in this country—the greater the limitation the better the result perhaps?) but it is very much hoped that our theatre will be a service to the local community. Our first guests have been EMMA (The East Midlands Theatre Company) who have performed for us before with one act plays but who this year will be coming for several days to rehearse and to give us a preview and the first night of a full length play, for their new season, *A Lover of Distinction.* In February we have the Brum Studio Theatre and this is followed by our staff play and a school opera. In the summer we hope to see the National Theatre's travelling company with *Twelfth Night.* A boy production of *Rosencrantz and Guildenstern are Dead* closes our season which seems full enough by anyone's standard!

Lighting by Logic

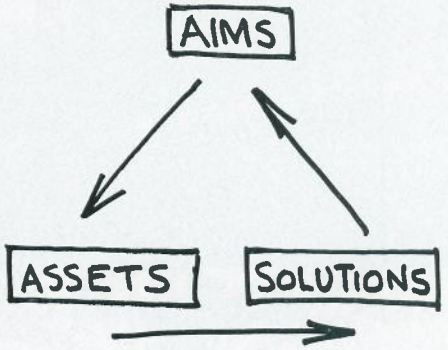
Bob Anderson

Some people do, some teach and some just think. For me the opportunities to practise the practical arts are few and I have to be content with theorising. Faced with a chance to contribute to TABS, theory ran wild, so this article with your Editor's permission, will be juicy bones for fellow armchair thinkers to worry rather than a distillation from practical experience.*

Thinking and writing about lighting for theatre falls easily into three categories; art, organisation and equipment. The "hardware" has been covered at length in this journal so I shall venture to preach about what that inescapable modern influence, the computer industry, calls the "software". Of the two aspects of lighting software, art is of course the most difficult by far and will therefore be left for the moment. These paragraphs are about organisation and for the most part about its most essential ingredient—planning.

Everybody by now must be aware of the powerful management and planning techniques that have been evolved to get man into space and onto the moon exactly as scheduled in the Television Weeklies. The ideas behind them are universal and more or less follow the instinctive methods used by managers since Noah. But this new process of formalising them into routines suitable for computers seems to have helped by making the ideas themselves much more reliable—and consequently more powerful for manual use—than was previously realised. What do I mean?

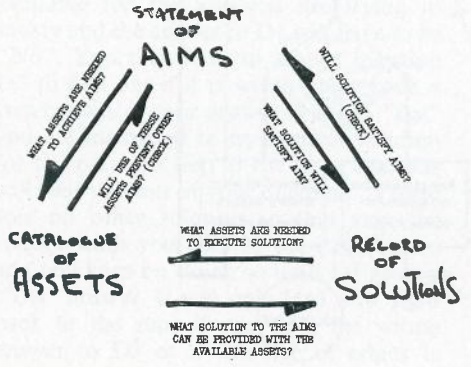
Look at Fig. 1. It illustrates the universal problem-solving circuit. If you want to apply logic to a practical problem you need to be clear what the problem is; you need an AIM. You also need something to solve the problem with; equipment, time, money, knowhow. These are your ASSETS. From these two sets of information you can propose a SOLUTION. But only the innocent stop here; experience calls for a checking process and so the circuit is completed. If you are lucky, each time you go round the circuit the solution gets a little better. Mostly it will never reach absolute perfection and, if the work is being done by a computer, it will need precise instructions to tell it how good a solution is needed. If this is not done it will never stop and the same must apply for manual operation.



BASIC PROBLEM SOLVING CIRCUIT Fig 1

Quite often there will be no solution at all. The procedure then is obviously to change the problem! This can be done very easily by changing either the AIMS or the ASSETS. Unfortunately, our school training is to go on worrying a problem convinced that there must always be a correct answer somewhere. This rarely works on the complex problems of day-to-day life. If a few attempts at the problem solving circuit do not seem to be getting anywhere, change the problem just enough to make it worth trying again! One more circuit of the triangle should tell you if the change has done any good. If it has, try another change in the same direction. If things still will not get better, try the circuit backwards. Indeed, try starting anywhere and progressing in either direction. This can shake off the straight-jacket of applying stock solutions from force of habit. It might even be what Edward de Bono calls "lateral thinking".

A final point on this simple circuit is that it is almost impossible to use it *without* changing the AIMS and ASSETS at every circuit! Knowhow is a major factor in the ASSETS corner and each circuit adds a new measure of experience to it. And however carefully the AIMS have been defined, comparison with a new possible solution may show that the real essence has been missed. Figure 2 shows a more generalised form of the Problem Solving Circuit.



UNIVERSAL PROBLEM SOLVING CIRCUIT Fig 2

To use these ideas on a stage lighting problem prepare written or mental lists in order of priority for two of the corners of the triangle. These will usually be the AIMS and the ASSETS. AIMS cover a surprisingly wide field. Intent to meet an agreed time-table and not to exceed the budget belong here. Intent to comply with the law and treat people with normal humanity should be listed. Artistic factors will be set out at length in some form of language able to deal with the visual aspect of the job. Personal priorities, career or family must be decided and, sometimes a critical point, the extent that you wish to please other members of the production team.

ASSETS are more familiar. Top of the bill is Money, because it is so easily convertible into almost any other asset. Then come the assets that you get with the job. The theatre design and its hanging arrangements, your stock of lanterns, your switchboard, the power available. Time is an asset even when you have not got enough of it. People are assets. If you have some say in what they do, they should be positive assets. If you expect to have to work against them they are negative assets.

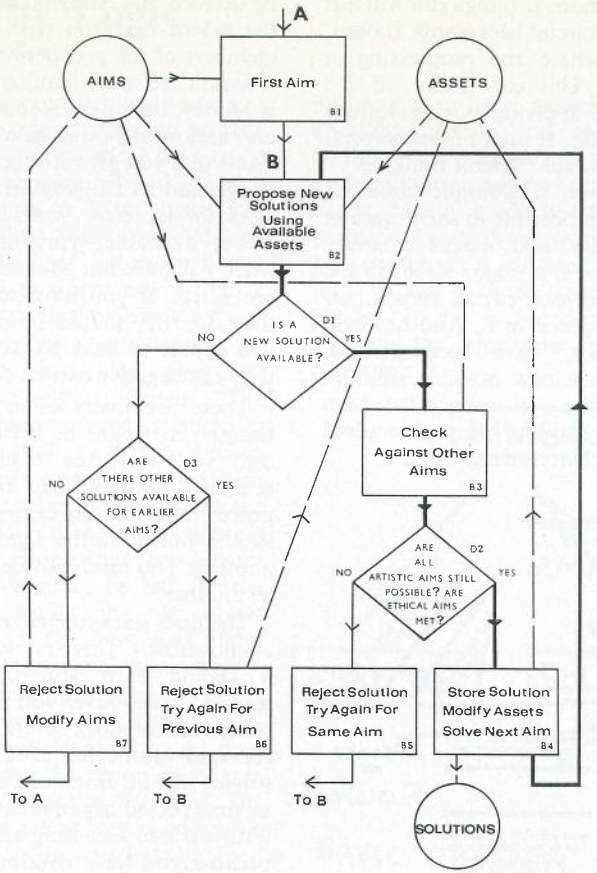
There are many other negative assets, things you would be better off without if only you were free to choose. An over-sensitive overload trip on the incoming power might be an example. A photocall in the midst of the lighting rehearsal is another. Too much advice can occasionally be another.

The final asset you will want is experience —knowhow. This is valuable because it should earn you co-operation and respect. It also saves you time if you have a ready fund of stock solutions to speed your constant journeying around the problem-solving circuit. But it can also be a trap and an unexpected negative asset because it can lead you into accepting an inferior solution because you have overlooked a vital new factor that was not present last time you solved the problem. Next time you start to plan a show think these points out and then deliberately try to use them to see if anything new comes up.

It is a help to divide your AIMS into "artistic" and "ethical". The distinction is obvious and the dividing-up is to make it clear which are the new aspects of the problem. The ethics will only rarely change and fit best into the checking stage of the task. The artistic problems change with every show and should be tackled first.

Begin with your most important lighting problem and try a solution using the ASSETS as listed. Check it against your full list of AIMS and if it is O.K. go on to Artistic Problem No. 2. Obviously you will have used up some of your resources,

In fact Bob Anderson is of course one of the lighting designers for the Questors Theatre and has written for us before (Vol. 28, No. 3).



and this will get worse each time round. Eventually you may find that there is no suitable equipment left, or perhaps that you have used all the available switchboard ways. You then need a sub-routine and things begin to look complicated. We now need a new version of the diagram.

The heavy line in the diagram above is the basic problem-solving circuit slightly disguised. The square boxes describe the activities needed to deal with the various stages of the problem. The diamond-shaped boxes require simple Yes/No decisions. The circles are the stores of information. The solid lines with arrow heads show the order in which the stages are dealt with and the dashed lines show transfer of information to and from the information stores. Think of it as "Logical Snakes and Ladders" or perhaps better still "Logical Monopoly" in which the game will be won when you have acquired answers to all your AIMS using the rules printed on the board and without bankrupting your stock of ASSETS.

Start at "A". From your store of AIMS pick the most important, as before. Block B2 tells you to propose a new solution for this AIM. Since this is your first attempt any solution must be new. The dashed line shows that you will need information from the ASSETS store.

When you have a solution the question in diamond D1 answers itself and you therefore obey the instructions in block B3 with the view to answering the question

in diamond D2. If your solution will satisfy all your ethical aims and does not look as though it will block any of your outstanding artistic aims proceed to B4. This tells you to note this aspect of what you hope will be the final solution in the output store and to remove any assets used up from the ASSETS store. You then move back to B2 and propose a solution for your next AIM and, of course, this has to be checked and recorded by following the same routine. Follow this circuit for as long as you can—that is, until the answer to D1 or D2 has to be "No". This is the situation envisaged earlier on and we now come to the promised sub-routine.

Should you run out of resources before anything else goes wrong you will have to admit that you do not have a solution available for the AIM you are trying to satisfy and the answer to D1 will have to be "No". You then have to answer question D3 to find out if it is worth going back a step or two. If your answer to D3 is "Yes" you are instructed to try another solution for the previous step in the hope that this will lead you out of your dilemma. If there was no other solution to that step the routine leads you back to the stage before and will keep on doing so until D1 gives a "Yes" answer. It will only lead you right back to the start if you gave the wrong answer to D3 or if this line of attack is really impossible. If this does happen the answer to D3 will become "No" and you will be instructed to modify your AIMS and start again at "A".

The other possibility is that you will propose a solution to an AIM that conflicts with earlier solutions, or is obviously going to prevent you meeting a coming AIM. This solution is thrown out by a "No" answer to question D2 and instruction B5.

Perhaps you now see why computers have to answer questions at a rate of millions per second?

Do I seriously expect you to plod mechanically round and round this routine? Well, no! You already do it automatically quite unconsciously for most of your decision making and—and this is of the greatest importance—you do it with the benefit of all the subtle refinements and short cuts that have been programmed on to your personal portable computer over the years. But do you do it when you stop and really try to think hard? Do you acknowledge that a problem can be unsolvable if your idealistic opening aims are not changed, and do you make regular use of lists of assets and checking routines?

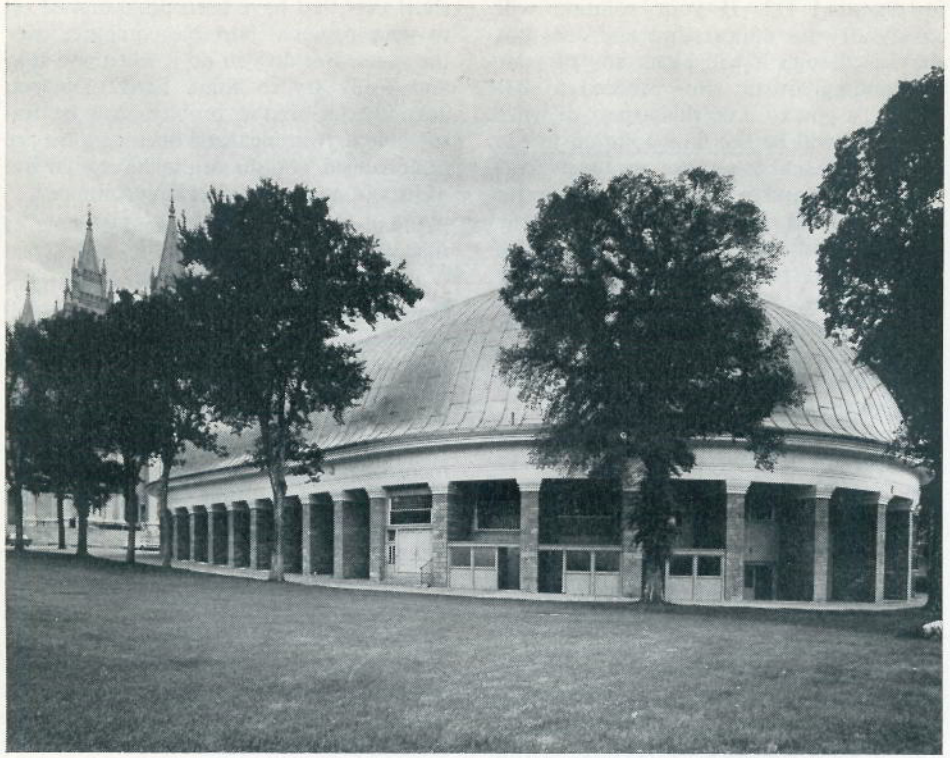
Finally, what should the end product of this process look like?

The most familiar product will be a lantern plot. This will (or should) show all details that will be necessary to rig, connect, colour and focus the lanterns. If it is done well using intelligible symbols, a large crew will be able to work rapidly and accurately to get everything ready for focusing in the shortest possible time. And, with a proper record of what has been completed, any last-minute change can be thought over to consider all the possible consequences and to find the easiest way of getting it done.

There should also be a rough board plot. This will show blackout and dimmer groupings, memory content (if you have memories) and, with a little experience, a guess at the dimmer settings. Each cue can be prepared if the producer has given a reasonable description of his intentions and, from this, the best way to use the master controls worked out and put down for trial. The lighting rehearsal can then be devoted to detailed balancing and embellishment of the rough plot and to rehearsing and marking up timings. Of course, this can only work properly if everybody else thinks ahead to plan and anticipate difficulties.

Then hire lists can be worked out, cinemoid and lamp orders sent off in good time and, if extra crew are needed, a good man can be given the notice he needs—instead of having to use the only man you can find in the small hours of a Sunday get-in.

And timetables! Not those head to tail lists of arrivals and departures that railway archaeologists like to collect, but full CPA or PERT networks that look a bit like the railway system itself. But this will have to wait!



The Mormon Tabernacle

Ron Olsen

As a child growing up on the plain in the Midwestern United States, the radio (remember the radio?) was the only link to the rest of the world. Among the few special programs one was allowed to listen to (for the batteries ran down too often) was the broadcast from the Mormon Tabernacle in Salt Lake City. "Music and the Spoken Word" has been broadcast weekly since July 1929 and features the famed Tabernacle Choir and the great organ. As a child, however, the most impressive visual picture had to do with the great Salt Lake, where one could swim, even if one couldn't! After a visit to Temple Square in Salt Lake City which is coming into its own as far as attracting visitors is concerned (more than two million last year) with other famous squares of the world, the earlier impression of the lake fades away. One is then asked to make a choice of what feature is the more fascinating: the architecture of the Tabernacle, the acoustics of the Tabernacle, or the great organ.

Last year the Mormon Tabernacle was designated a National Historic Civil Engineering Landmark by the governing board of the American Society of Civil Engineers; it is the first building to be so designated since the beginning of the awards in 1964.

The Mormon Tabernacle was begun in 1863 and was used for the first time in October, 1867. The building was described at dedication by historian B. H. Roberts as ". . . an immense auditorium, elliptical in shape and seats 8,000 persons. It is 250 ft. long and 150 ft. wide and 80 ft. in height. Its self-supported wooden roof is a remarkable work of engineering. It rests upon pillars or buttresses of red sandstone which stand 10 ft. to 12 ft. apart on the whole circumference of the building. The pillars support wood arches, 10 ft. in thickness and spanning 150 ft." The arches are lattice-truss construction and are held together by wooden pins and rawhide. The structure was built entirely by hand and all of its materials were hand-fashioned.

The ceiling is also a unique architectural design made of plaster embedded with horse and cattle hair which was laid on lath nailed to rafters and in turn to little wooden hangers suspended below the lower-most struts, braces and ribs of the framing system.

The floor structure is a relatively simple column-and-girder system. The butted plank floor is nailed directly to joists spanning between log beams and rises 16 ft. calculated to provide for unobstructed sight lines.

The balcony is an elongated horseshoe. Sloping balcony girders are carried on columns set on independent granite footings. Beams span between the girders to support the tiered floor of the balcony.

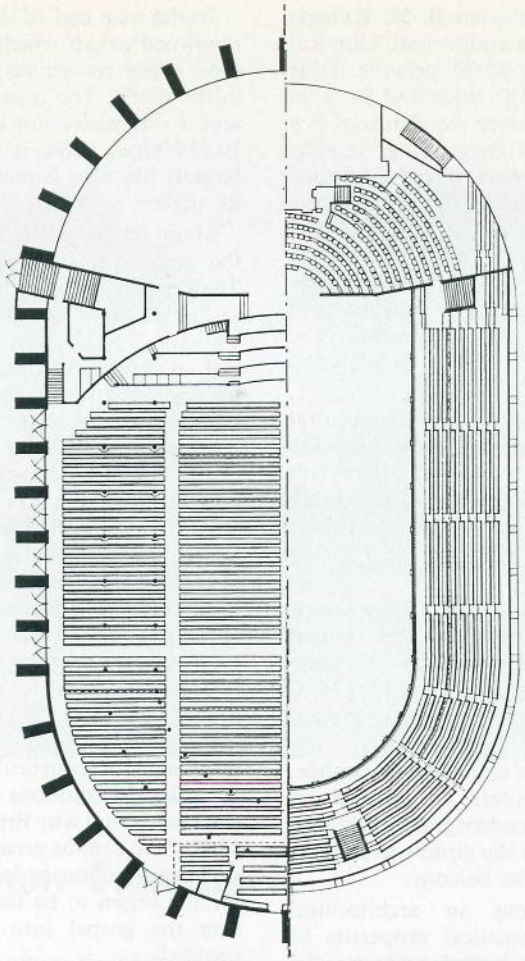
Apart from being an architectural masterpiece, the acoustical properties of the Tabernacle are legend and are the result of both shape and material. The concave ellipsoidal surfaces above the organ and choir blend and hold instrumental and vocal sounds, projecting the reflected waves cleanly throughout the auditorium. The auditorium is so sensitive that a person standing at one end of the room can hear a pin drop at the other end, 200 ft. away. How much of this acoustical excellence is a matter of luck and how much technical skill we shall leave to the acousticians to judge. Without question, the Tabernacle ranks with the Baptistry at Pisa and the Greek Theatre at Epidaurus as among the several acoustical wonders of the world.

In the west end of the Tabernacle is the renowned organ which might well be the most easily recognised musical instrument in the world. The organ has four manuals and is impressive not only for its size (its 10,814 pipes make it one of the world's largest) but also it may be recognised for its quality.

Many of the original pipes and much of the original casing are still in the organ. The century-old instrument was originally fashioned by a Britisher, Joseph Ridges, who was assigned by Brigham Young the task of constructing an instrument suitable for the Tabernacle. The original was put into service as early as 1867 and was completed in the late 1870s. By 1885 the organ had been enlarged and parts of it rebuilt. Sixteen years later a pneumatic action was installed and numerous pipes added. By 1916, the organ was running on electricity and the pipes were expanded to its approximate present size. In 1949 the organ was rebuilt, but as mentioned earlier many of the original wood pipes have been retained. Visitors to the Tabernacle are invited to attend daily organ recitals, and the music emanating from this instrument in its superb acoustical setting cannot fail to strike the emotions of the listener. One can understand why Brigham Young said in 1867, "We cannot preach the gospel unless we have good music. I am waiting patiently for the organ to be finished; then we can sing the gospel into the hearts of the people."

Internationally acclaimed singers and instrumentalists have performed in the Tabernacle and since its dedication all Presidents of the United States except two have spoken or visited.

The reputation of the Tabernacle Choir has spread throughout the world. In addition to singing for weekly radio and television broadcasts, the touring appearances of the choir are impressive. One need only consider the logistics of touring with 375 members. The choir has made recordings and films and has been featured on several network television productions. In 1962 the Choir was selected to participate in the historic inaugural intercontinental



Mormon Tabernacle. Split level plan showing left main floor seating and right choir and balcony plan. Seating capacity 8,000.

"Telstar" satellite broadcast from Mt. Rushmore, South Dakota. The most extensive tour by the Choir was through Europe in the summer of 1955 when the members sang in Great Britain, Holland, Denmark, Germany, Switzerland and France.

The Tabernacle, until recently the largest auditorium in the city, has served as an unofficial civic auditorium throughout these many years. The Tabernacle is also the home of the Salt Lake Oratorio Society, The Utah Symphony Orchestra, The Mormon Youth Symphony, The Mormon Youth Choir, and serves as the meeting place for the General and Auxiliary Conferences of the Church of Jesus Christ of Latter-Day Saints.

In an attempt to preserve and enhance this glorious edifice and to allow for improved lighting for live and broadcast productions, the Architectural and Engineering Department of the Office of the Building Committee determined to install a new rigging system in the latticed beams of the Tabernacle. It was imperative that the cables and wiring of six lighting battens pass through holes which were originally left for maintenance of the ceiling of the Tabernacle and in no way impair the acoustics of the auditorium. The design and installation of the special rigging system was overseen by Steven Call, Chief Engineer. The lift mechanism was installed entirely above the ceiling of the Tabernacle using winches which travel 50 to 60 ft. per minute. These winches may be controlled from a separate panel containing six controls or from the position of the units themselves in the beam structure.

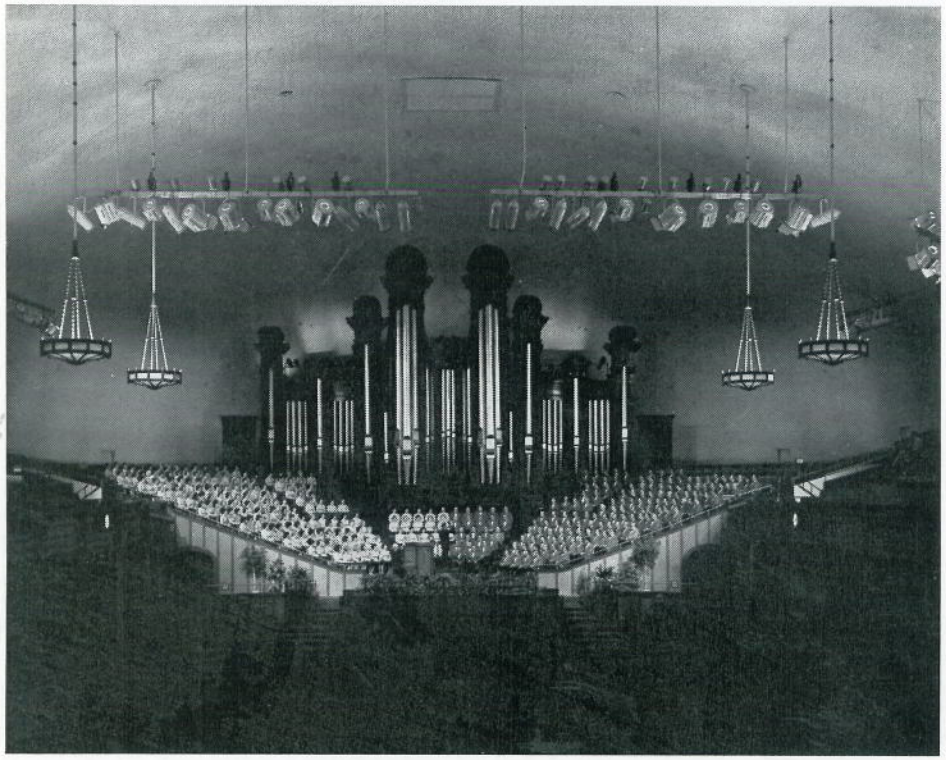
In close collaboration with Mr. Call and Mr. Ned Huntsman who is responsible for the lighting and control equipment for television broadcasts, experts with the television and theatre departments of Century Strand tackled the problem of re-lighting the west end of the Tabernacle, and designing a lighting control system which would be adequate for the various types of productions held in the Tabernacle.

Mormon Tabernacle. The 120 dimmer channel wing is larger than would be usual for this type of Memory System as in this case playback is displayed directly on a dial above each lever.

To provide the 250 to 300 footcandles* required for lighting for television, installed on the battens were twenty-three 5 kW Fresnels, twelve 2 kW Fresnels, forty 1 kW Fresnels and twelve 2 kW Lekolites which provide the overhead lighting. On the perimeter sides of the balcony are twenty-three 1 kW Fresnels and two 1,500 W follow spotlights. The west end of the dome ceiling is lighted by a ninety-six light (1,000–1,500 W *per lamp*) cyclorama striplight in three colours, to provide background colour wash of the dome directly behind the organ. The lighting control system is a Century Strand Memo-Q containing CCR thyristor dimmer racks with thirty 12 kW and ninety 6 kW dimmers permanently assigned to lighting loads. The control centre is located in a control room just off right of the organ and choir area, with the electronic memory rack directly below the control room. The console includes 120 controllers in a separate wing, with playback and miscellaneous controls on the desk surface. The memory provides for instant recording and recall of 135 cues (presets), and a separate remote playback control may be employed from the rear of the auditorium.

There is much to recommend that the traveller make a stopover in Salt Lake City to visit one of the enduring landmarks of American culture, and to listen to the stirring music.

**Multiply by ten to convert to our EEC lux (or by 10·76 if you take numbers really seriously). (Ed.)*



Mormon Tabernacle showing new lighting installation. The towers to the organ case are 48 ft. high.

BOOK REVIEWS

Preparing a Brief for a Theatre Building. Published by SACLAT, 36 Old Queen Street, S.W.1 and obtainable also from the Theatres' Advisory Council, 9 Fitzroy Square, London W.1.

This is an important little booklet, and being little everyone can read it right through without trouble. Furthermore at 10p everyone can afford it and, when necessary, afford to buy it to plonk on someone's desk when that someone is about to build or influence the building of a theatre. Civic authority is itself responsible for the publication and a committee under the repellent initials SACLAT has been responsible for the slim but wise content. These initials when interpreted become "Standing Advisory Committee on Local Authorities and the Theatre"—"the theatre" in this case being the Theatres' Advisory Council which represents *all theatre*.

Safety Checklists for Theatre Managements. Published by the ABTT, 9 Fitzroy Square, London W1, price 30p post free.

This is a strange publication consisting of an outer cover and loose leaves. Each of these is headed with the title of some department of theatre, e.g. "Housekeeper", "Electrician and/or House Engineer", "Wardrobe and Wig" and so on. The reason for the separate lists becomes clear when it is realised that these should be hung up in the office of those concerned.

The introduction begins gloomily:

> "Few people have worked for long in the theatre without first-hand knowledge of either a nasty accident or a narrow escape and it is not realistic to hope that accidents of this kind can ever be completely eliminated. They can, however, be reduced to a minimum and it is the object of this booklet to suggest ways in which this may be done"

which does explain the purpose of these sheets —and very valuable they are. We mention them here because we feel that this value extends well outside the professional theatre.

Synopses

Bugle Call Rag

Rien dans le nom de Strand, et plus récemment de Rank, ne révèle qu'il s'agit d'éclairage théâtral. Pourtant les deux sont aujourd'hui devenus inséparables. Dans l'anonymat encore plus grand du C.E.E., les entreprises sont connues non par leur nom, mais par un numéro; et l'Editeur exprime l'espoir que quelque individualité et identité pourront être gardées, pour le moins par la Compagnie 310021 Londres.

Der Name der Firma Strand Electric und seit kurzem **Rank Strand verrät nichts von** dem Wesen des Geschäfts: Theaterbeleuchtung, dennoch ist er damit unzertrennlich verbunden. In der grösseren Einheit der EEC können Firmen nicht mehr mit Namen, sondern nur mit einer Nummer identifiziert werden. Der Redakteur hofft fest, dass die Identität individueller Firmen trotzdem erhalten bleiben wird—nicht minder die der londoner Firma Nummer 310021.

A Machine for All Seasons

La réaction humaine face aux machines construites par l'homme révèle constamment à l'individu la capacité d'adaptation de l'espèce humaine. Il est regrettable, dans ces circonstances, que l'homme persiste à se concentrer non pas sur l'exploitation de cette capacité d'adaptation, mais sur l'invention de machines capables de travailler à sa place!

Die Reaktion des Menschen gegenüber Maschienen zeigt immer wieder die Anpassungsfähigkeit des Menschen. Es ist daher schade, dass der Mensch sich durchaus nicht damit befassen will, diese anpassungsfähige Reaktion auszunutzen, sondern stattdessen anpassungsfähige Maschienen erschafft, die ihm dieses abnehmen.

Aida with Elephants

Par intermédiaire, l'Editeur examine le dernier exemple de ce phénomène américain "The Auditorium" à l'aide d'innombrables articles de presse, de photos et de plans. Dans une salle de 2.680 places, le succès de la tournée "Broadway Musical" ou même de *Aïda* est assuré, mais qu'en serait-il de *Marcel Marceau* ou de *Sleuth* . . .?

Der Redakteur behandelt aus zweiter Hand und mittels vieler Artikel, Photos und Pläne das neuste Exemplar jener typisch amerikanischen Spezialität: "The Auditorium". Mit 2680 Plätzen sind bestimmt Broadway Musicals und Opern wie *Aida* gut dafür geeignet, aber *Marcel Marceau* oder *Sleuth* . . .?

Per Ardua Ad Astra

L'Editeur décrit l'éclairage du nouveau musée RAF à Hendon, où plusieurs anciens avions sont exposés. Dans les divers dioramas, des mini-projecteurs attirent l'attention sur telle ou telle partie d'un modèle, d'un intérêt spécial, et le tout est coordonné avec un commentaire enregistré (son et lumière).

Der Redakteur beschreibt die Beleuchtung des neuen Museums der Royal Air Force in Hendon, wo eine grosse Anzahl alter Flugzeuge ausgestellt sind. Bei Dioramas werden durch Minispots besonders interessante Aspekte an Modellen herausgegriffen und wie bei Son et Lumiere mit Tonbanderklärungen verbunden.

Am I Lit Here?

Une enquête badine de Francis Reid sur l'aspect psychologique du travail d'un directeur d'éclairage.

Francis Reid schreibt aus eigener Erfahrung humorvoll über die psychologische Seite des Beleuchtungsmeisterberufs.

The Grand Tour

L'entrée en Europe a donné lieu à quelques représentations théâtrales remarquables. Michael Outhwaite décrit comment il monta l'éclairage de l'une d'elles derrière l'auguste porche du Goldsmith's Hall de la Cité de Londres. Que ce fut une réussite est visible sur notre couverture.

Der Eintritt in die E.W.G. hat einige ausserordentliche Theatererlebnisse hervorgerufen. Michael Outhwaite beschreibt, wie er ein solches hinter den ehrwürdigen Pforten der Goldsmiths Hall in der City of London beleuchtet hat. Das gelungene Resultat ist auf dem Titelblatt zu sehen.

Hungarian Rhapsody

"Les Hongrois attachent une grande importance à leur culture générale. Budapest, avec une population de moins de deux millions, possède 25 théâtres, couvrant les différentes formes de l'art." Dans ce numéro, Peter Fitzwater raconte ses aventures dans cette ville, alors qu'il installait un jeu d'orgue dans le Magyar Allami Operhaz, de 1.100 places.

Die Ungarn nehmen ihre Kultur sehr ernst. Budapest hat bei 2 Millionen Einwohnern 25 Theater für alle möglichen Arten der Kunst. Peter Fitzwater erzählt in dieser Nummer von seinen Aberteuern. Er hat im Magyar Allami Operhaz zu Budapest ein Beleuchtungssteuersystem mit Speicheranlage eingebaut. Das Opernhaus hat 1100 Plätze.

Uppingham Theatre

Le théâtre scolaire opère dans des circonstances différentes de son pendant professionnel, tant au point de vue des locaux que du but. Christopher Richardson décrit les solutions et compromis que ces conditions imposèrent lors de l'aménagement d'un théâtre dans la vieille salle de concert Paul David dans son école de Rutland.

Bei Schultheater und Berufstheater ist nicht nur der Ort, sondern auch der Zweck verschieden. Christopher Richardson beschreibt, durch welche Lösungen und Kompromisse diese Bedingungen in dem Entstehen eines Theaters in der alten Paul David Konzerthalle in seiner Schule in der Grafschaft Rutland erfüllt worden sind.

Lighting by Logic

Bob Anderson explore l'emploi de la logique d'un ordinateur, non pas pour la mémorisation des données de l'éclairage, mais pour la tâche non moins complexe d'assurer pendant toute une représentation l'utilisation maximum d'un ensemble de possibilités dans l'éclairage.

Bob Anderson befasst sich mit der Anwendung von Computerlogik, nicht für Speicherung von Stimmungen, sondern für eine ebenso komplizierte Aufgabe: zum Prüfen, dass in einer Vorstellung eine bestimmte Gruppe von Beleuchtungsgeräten im vollsten Masse ausgenutzt wird.

The Mormon Tabernacle

Ron Olsen décrit le nouvel éclairage du fameux Tabernacle de Salt Lake City, avec son jeu d'orgue Memo-Q. C'est un bâtiment, unique du point de vue architecture, dont la salle elliptique contient 8.000 places.

Ron Olsen beschreibt eine neue Beleuchtungsanlage mit Memo-Q Steuerung in dem berühmten Tabernacle in Salt Lake City—einem einzigartigen Gebäude, dessen elliptisch geformter Zuschauersaal 8,000 Sitzplätze enthält.

Printed in England by The Whitefriars Press Ltd., London & Tonbridge. 791.24.5M