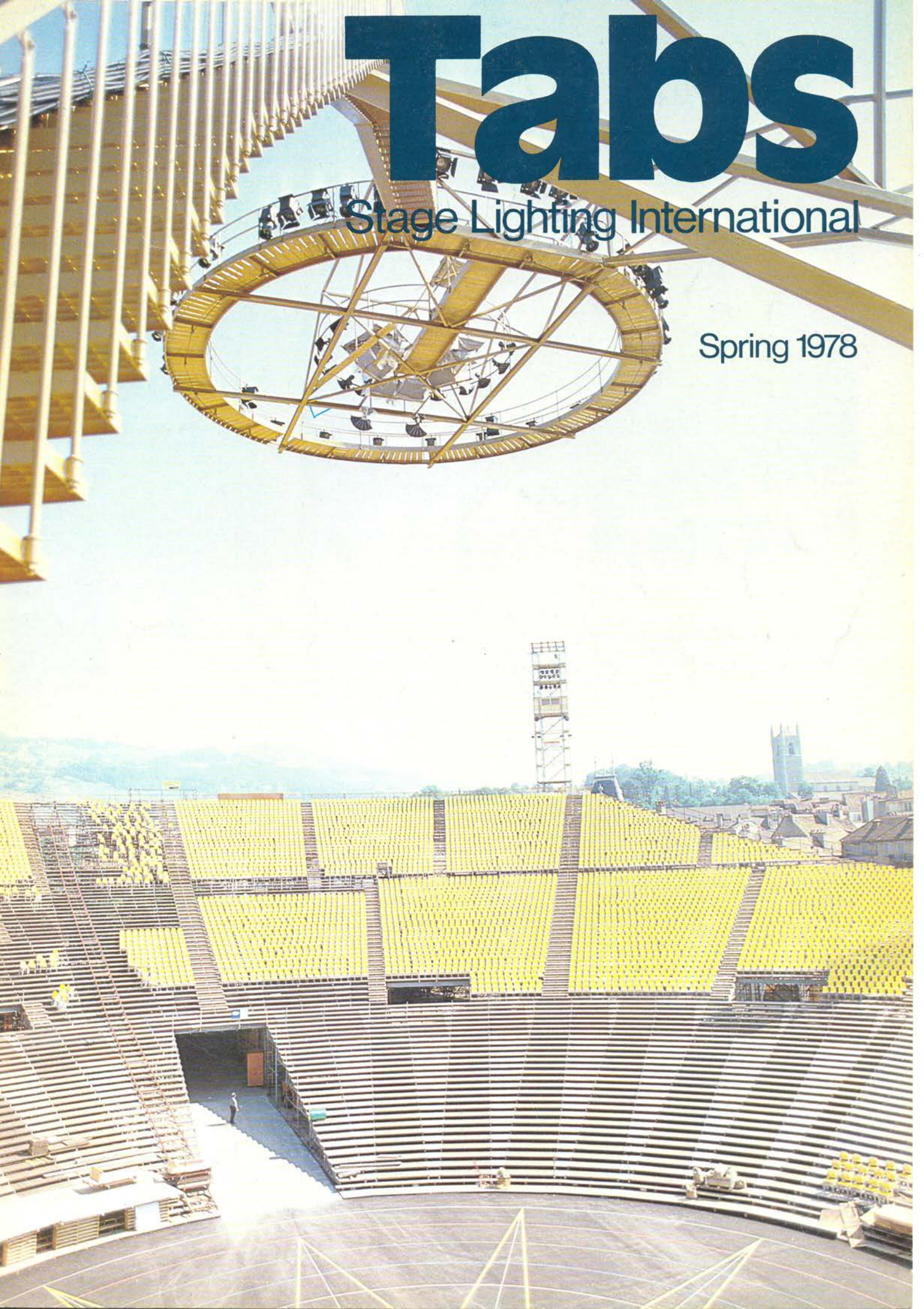


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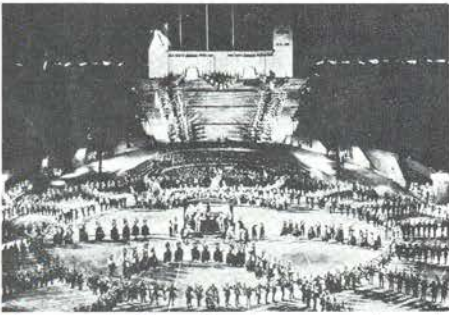
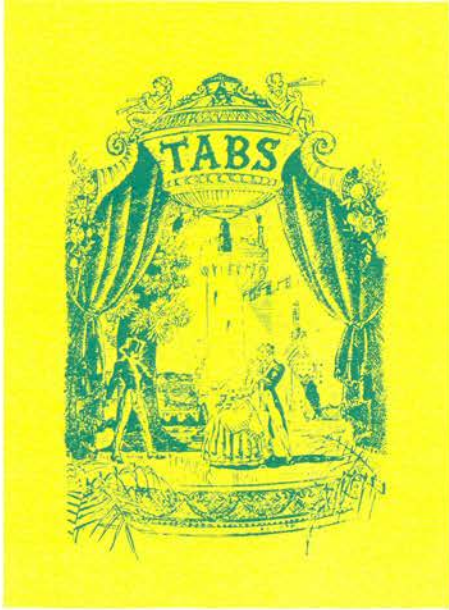
Stage Lighting International

Spring 1978



TABS

Spring 1978 Volume 36 No. 1.



The strange looking object in our cover picture is the "dinosaur", the pet name given by the locals in Vevey, Switzerland, to the lighting grid cantilevered over the arena for the Fête des Vignerons last summer.

This spectacular event takes place roughly every twenty-five years. The small picture above is reproduced from a 1955 TABS, and shows a Strand lit evening performance of that year. The 1977 pageant is described by Alex de Jonge in this issue.

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From the Shadows

So exit Tabulus, downstage right, modestly acknowledging the applause and curtain-calls so undoubtedly deserved. Study the last 12 issues of TABS, and his record speaks for itself. In them are mirrored not only the professional standards and inquiry necessary of a true journalist, but the fact that the man knows his stuff about lighting and most other aspects of the stage, too.

Under his guidance, TABS has continued to flourish. It will go on doing so for as long as it provides its readers with what they want and need. Tabulus's successor to this column is as aware of these facts as anybody else. While he finds them overawing, there is the compensation that they provide a goal at which to aim.

As Tabulus bows out the audience will no doubt feel it is entitled to introduction and statement of intent from his successor. So let me nervously emerge from the shadows, to strut and fret my hour upon the stage, to take Tabulus's theme. But while I welcome the introduction I beg some anonymity.

In declining to give information I do not intend rudeness. Rather I argue from the standpoint that it is unnecessary. Whatever my own experience and views it is not my lot to foist them upon readers. To do so would not only be presumptive and boring. It is contrary to my philosophy of journalism. This is fundamental to any statement of intent.

Another is the structure which surrounds TABS. For its existence it leans heavily on Rank Strand Electric. But then so much about stage lighting is also dependent on that company. To judge from back numbers of TABS the company has never sought unfair advantage through its pages. That situation is not expected to change.

So, having removed obstacles from the stage it should now be possible to proceed. It is the prime responsibility of TABS to inform, whether under the guise of

reporting, commenting, instructing or entertaining. And since this journal exists primarily for lighting people it will continue to communicate as fully as possible the systems, equipment and ideas in use around the world.

Yet a diet of such technical information, however clearly and concisely it is presented, must be interspersed with lighter and contrasting subject matter if it is not to cause indigestion. Art, dependent on senses for interpretation, and engineering, dependent on absolutes, make strange bedfellows.

Such a liaison produces an area of activity in which total agreement, even on a single aspect of it, is unlikely and partial agreement elusive. Everyone is expected to have their own ideas. Not only do advances of science in themselves need reporting; new equipment and systems which result from it provide new possibilities. They also need reporting.

As time goes by divisions between the separate activities necessary to produce an effect on stage may become more difficult to discern. But they must be discerned and defined. And however specialised one subject becomes it must be seen in the perspective of the whole. Specialists must not only be aware of their own fields but of others as well. This, indeed, is a happy hunting ground for subjects for articles. TABS will continue to cast its net wide. It will view the scene not only from inside, but as outsiders see it too.

So here I stand, for one brief moment under the spotlight, before hastening backstage. My role is to communicate facts and ideas, to prompt thought, and reflect opinion even if it is critical. It will be done without fear or favour.

Hopefully we will enjoy each other's company.

Thank you, Francis!

There was a time when the editor of TABS used to be anon — an identity only to be revealed on retirement. In fact, this unmasking ceremony was only called on to be performed once, in September 1957, when I thanked my predecessor, the late Hugh Cotterill. It now, oddly, falls to me to thank my successor, Francis Reid, when after four years of innovation he has decided to vacate the editorial chair. A chair that in the thirty-five annual volumes has only had three occupants. These words of mine are not now uttered from that chair — no re-cycling is in question — but from above the chair or behind it, or under it, wherever it is an Ed. Tbs. Rtd. goes.

One editor in his TABS plays many parts. And the one we have under our pen at the moment is no exception. In him we have learned to recognise Francis Reid, Tabman, Tabulus, F.R. and certain unsigned items. "Tabulus" sent me to my Latin dictionary. I cannot claim that book to be a constant or even a frequent companion but I do know where it slumbers: Sandwiched between my Liddel & Scott and a long row of those lilliputian Thinker's Library hardbacks published by the Rationalist Press at sixpence between the wars. Within the dictionary I am given the choice of either "tabula; a board or plank" or "tabularius; a keeper of documents". The latter I think must be it. However, speculation was not encouraged by the Rationalists. It was facts, facts and more facts. So what are they in this case?

Firstly, memory and the TABS archive confirms that Francis made his first entry in our pages minus his trousers. Not just minus those famous for the baggy downstage aspect they present when the occupier is facing upstage; but minus any trousers at all. The photograph in TABS of September 1961 shows it was the kilt he chose to wear for his first published appearance and there he is sitting next to



Dr. Richard Southern and very smart he looks too — Francis, that is. The occasion was the international conference on Adaptable Theatres held in June 1961 by the then three-month old A.B.T.T. This marks Francis out as something special — one of the few professionals who bothered to cross the river to attend the affair on London's South Bank.

At this time Francis was lighting director at Glyndebourne where he designed the new lighting control which we were to supply in 1964. That it was to his design is a tribute to his strong personality because special design was something the old Strand Electric did not encourage. Things went further, because Francis was also given five pages of TABS June 1964 to describe and illustrate the new installation. A particular feature of Glyndebourne was the portable rehearsal

control — "wherever the producer [*sic*] goes, the lighting man and his levers must follow". This was very appropriate where, as in this case, the lighting man was also going to work the control for the show. It really did begin a fashion; though not, alas, for the lighting designer working his own control, and where he doesn't I prefer the resident operator to have the fun of doing everything.

The next use of his pen (or was it that erratic typewriter?) for TABS came in March 1969 when he was commissioned to write a review of the new theatre in Eton College. Francis was by no means an obvious choice for this, and I cannot think why I made it — unless it was the tenuous Glyndebourne connection since John Christie had once been a science master there. After that I got Francis to cover several new theatres in areas he would be likely to visit and I didn't particularly want to. Eventually he declared he was fed up with new theatre architecture and didn't want to do another! It was writing on lighting at a down to earth level that best suited him and the first of these essays described opera, rather appropriately, in an English Country Garden.

In September 1973 we celebrated our 100th number. At this time also, the decision was taken to move the Company's main activities away from King Street, Covent Garden. This was curtains for Fredericus (Fredulus). But enter upstage left—Tabulus and before long the large (or economy size) A/4 TABS Stage Lighting International was born.

Now after four colourful years, as Tabulus exits downstage right, it only remains for me to say "Si monumentum requiris, retro-spice". Happily, a bound volume is to be made available for facilitate the happy task.

Long Live TABS.

F.P.B.





Swiss Spectacular

ALEX de JONGE

If we don't get to drink too much Swiss wine it is not because it doesn't travel, but because the Swiss prefer to drink it themselves. In like manner the Swiss have always sent out travellers and soldiers, such as Peter the Great's Genevan adviser Lefort and General Sutter who owned the land on which the Californian gold rush started, yet for all their wanderlust they believe, when all is said and done, in their own ways, domestic virtues and pleasures such as their delicious wine.

In order to ensure that the wine's quality remained high the vintner's guild, in the middle of the 17th century, decided to single out for special recognition those workers without land (and hence less inclined to maintain standards) who had done well. This is how the Fête des Vignerons started. It has continued to flourish because the modern Swiss are quite as keen on high standards in viticulture as their forefathers.

What is the Fêtes des Vignerons? The first word that springs to mind is pageant. But the idea of a pageant celebrating the achievements of outstanding workers, and

involving the active participation of thousands of persons parading and forming allegorical figures and patterns smacks more of Red Square or Peking than of Swiss Vevey, Switzerland being a republic of a very different kind. So let us say from the outset that although the Swiss pageant is ultimately a celebration of serious values such as work and wine growing, and though it does use carefully designed movements executed by large bodies of people to form allegorical patterns, nothing could be further from Vevey than the lugubrious manoeuvres of over drilled stakhanovites celebrating socialist achievement with a lot of elaborate gymnastics. The Fête des Vignerons is a very local and domestic affair. It is not even intended for tourists; if it were it would happen more often than its once in 25 years. The people of the region are simply out to have a good time and their idea of one is a magnificent pageant which they perform in a special arena. It requires the participants to spend hundreds of pounds on their beautiful and elaborate costumes, and took a guarantee of four million pounds to be staged — though this being Switzerland the festival went on to make a profit.

Yet for all the scale of the enterprise it remains an essentially domestic celebration. Local people dress up in clothes based on traditional regional dress, dance, parade, sing and celebrate their own conception of the good and rustic life. The effect is extraordinary; totally untheatrical and unprofessional it is the unashamed work of unashamed amateurs, local residents who never pretend to be anything but themselves. Sometimes the pageantry is banal enough for one to expect Benny Hill to appear clowning his way through the middle of it. Yet it can also be very moving. One is perpetually struck by the profound sincerity of these simple prosperous people who create an elaborate four million pound pastoral idyll performed by 4,000 participants utterly committed to the idea of a particular way of life and its celebration.

Each generation of the inhabitants of the region produce their own version of the Fête des Vignerons, and it takes on the force of a once in a lifetime experience for them. This version took four years to prepare, with music, script and choreography all the work of local artists. The essential theme, as always, was the celebration of the four

seasons and the cycle of life of the vine. Swiss republicanism didn't prevent the author from having a magnificent blond king on a large horse to act as the spokesman of the festival, introducing the various seasons with an elegance of theatrical French diction which suggested that this was not the first occasion on which he had spoken in public.

The four seasons were presented in terms of an elaborate symbolism combining elements from astrology, classical mythology and Swiss folklore. It sounds a dreadful and potentially embarrassing combination of the bookish and folkish, yet it worked, worked because of the enthusiasm, the sheer happiness of the performers who went through their elaborate movements quite unselfconsciously and with total precision as they wheeled, circled and stepped about. Yet it appears that there was no single permanent director of the entire pageant, that the participants except for the orchestra, were all amateurs whose available rehearsal time seldom amounted to more than two hours an evening and that there was only one run through. In other words one has to ascribe the precision and co-ordination attained to a miraculous combination of dedication, enthusiasm and temperament. It was the unity of the production as a whole that impressed.

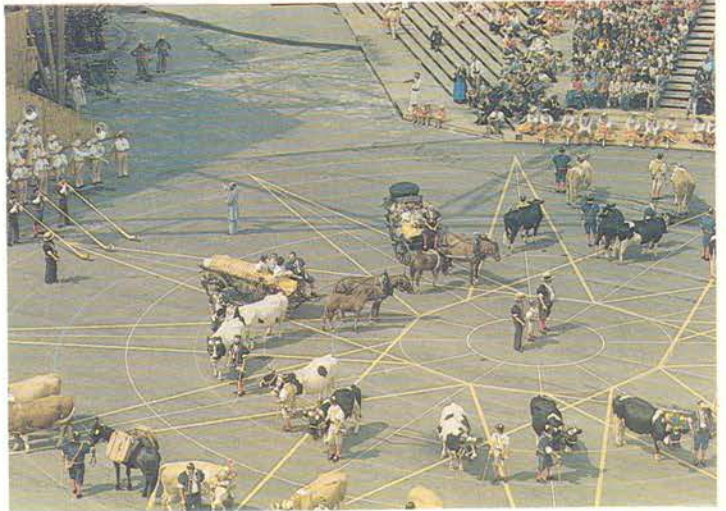
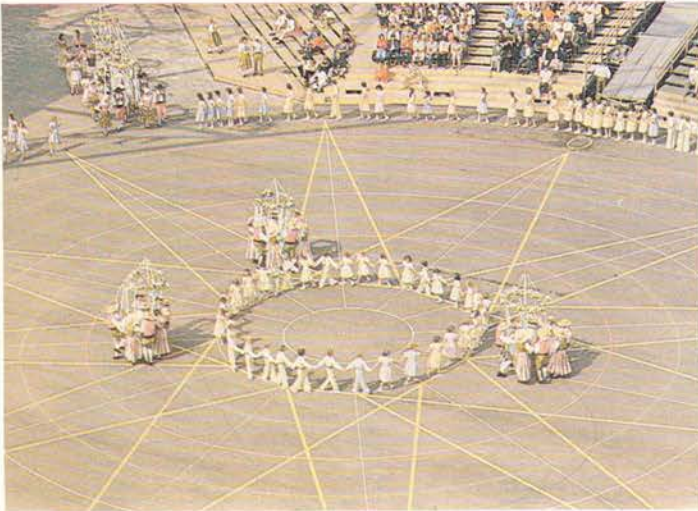
In abstract it is not easy to conceive a pageant which includes skateboards, cows and a flock of remarkably clean sheep (followed by people sweeping their traces away) with figures from classical mythology including a disturbingly ravishing young Bacchus. All are linked to dramatic moments in the life of the vine; vine threatened by disease in the shape of chaps with black banners, being chased away by insecticide or chaps with white banners, or thunderstorms, these being other chaps with long sheets of plastic which made a sinister sound. The story of the life of the vine was interwoven with love songs, the song of man, songs about harvest long ago, and stout peasants calling home their cattle. When the wine itself was pressed, a dramatic piece of staging involving large balloons being drawn into a gigantic wine press, the result produced a series of wild bacchantes who gyrated with the appropriate degree of lasciviousness under the influence of the local brew.

This strange mixture of do-it-yourself carnival, classical symbolism, sense of the turns of the year and celebration of local virtues attracted some 250,000 people through its twelve 3½-hour performances. With its choreography, superbly co-ordinated amateur performers, blend of modern and traditional music, and above all

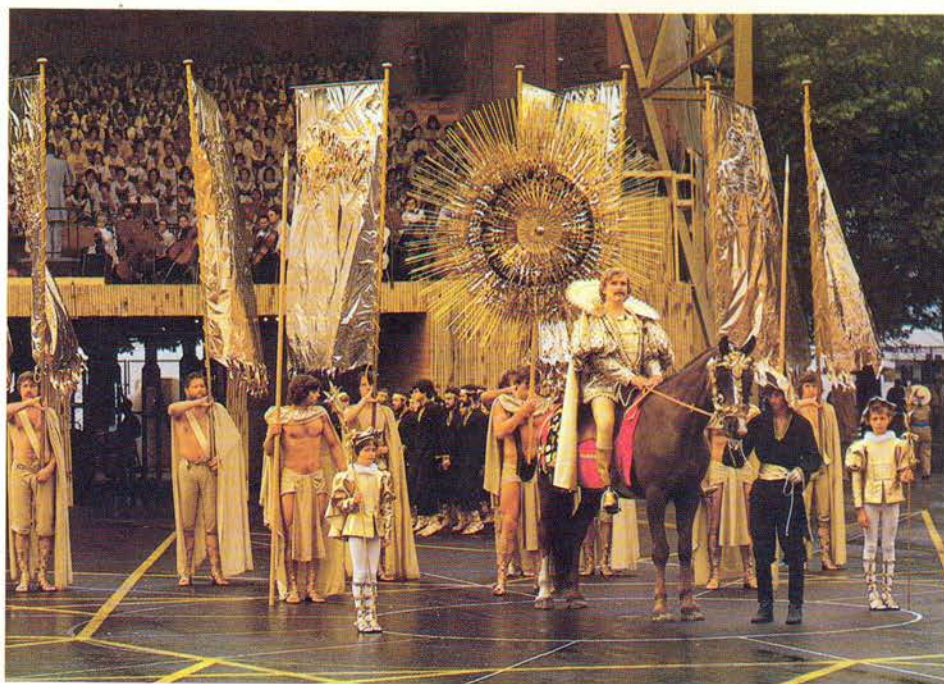
its extraordinary charm, it had all the ingredients to make up a splendid Swiss spectacular.

The five evening performances called for an elaborate lighting set up. The contract was won by Eclairage theatre, a subsidiary of Eichenberger Electric ag which had close affiliations with the firm that supplied the projectors and lighting control for the last festival in 1955. Lighting the latest fete posed its problems, and restricted the lighting designers' scope in various ways. The sheer area to be lit (1,500 sq. metres) posed a challenge, especially when it was decided that the lighting towers had to be kept outside the spectators' field of vision. There was an orchestra which faced the public, together with a choir, and this too made for certain difficulties. Finally, there was the fact that the set up was to be a temporary one, precluding the construction of heavy duty supports and requiring the exclusive use of rented equipment which was on lease for the minimum period. Into the bargain, planning, design, set up and rehearsal time were all severely restricted. Matters were not helped by the fact that the director in chief was first absent and then unavailable until practically the last minute, while the scale of the pageant, and indeed its importance put particular pressures on designers and technicians involved.

The four branches of the Vine of Life are depicted in a pageant of the seasons.



It was decided to employ a set-up which could provide uniform illumination of the area at maximum intensity, with similarly lit entrance lines. The area was divided into four distinct zones, making it possible to isolate various special effects. The design called for four lighting towers. Since the optimum angle of illumination was between 35 and 40 degrees the main lighting towers should have been about 70 metres high. It was felt that this would be unacceptable to the stage designers, and would also set them so far back that a tremendous light output would be required. It was decided to reduce



The Sun King, impressive spokesman of the festival.



One of the four lighting towers on which were mounted a battery of 10 and 5 kW spots as well as follow spots. This one also housed the MMS control.

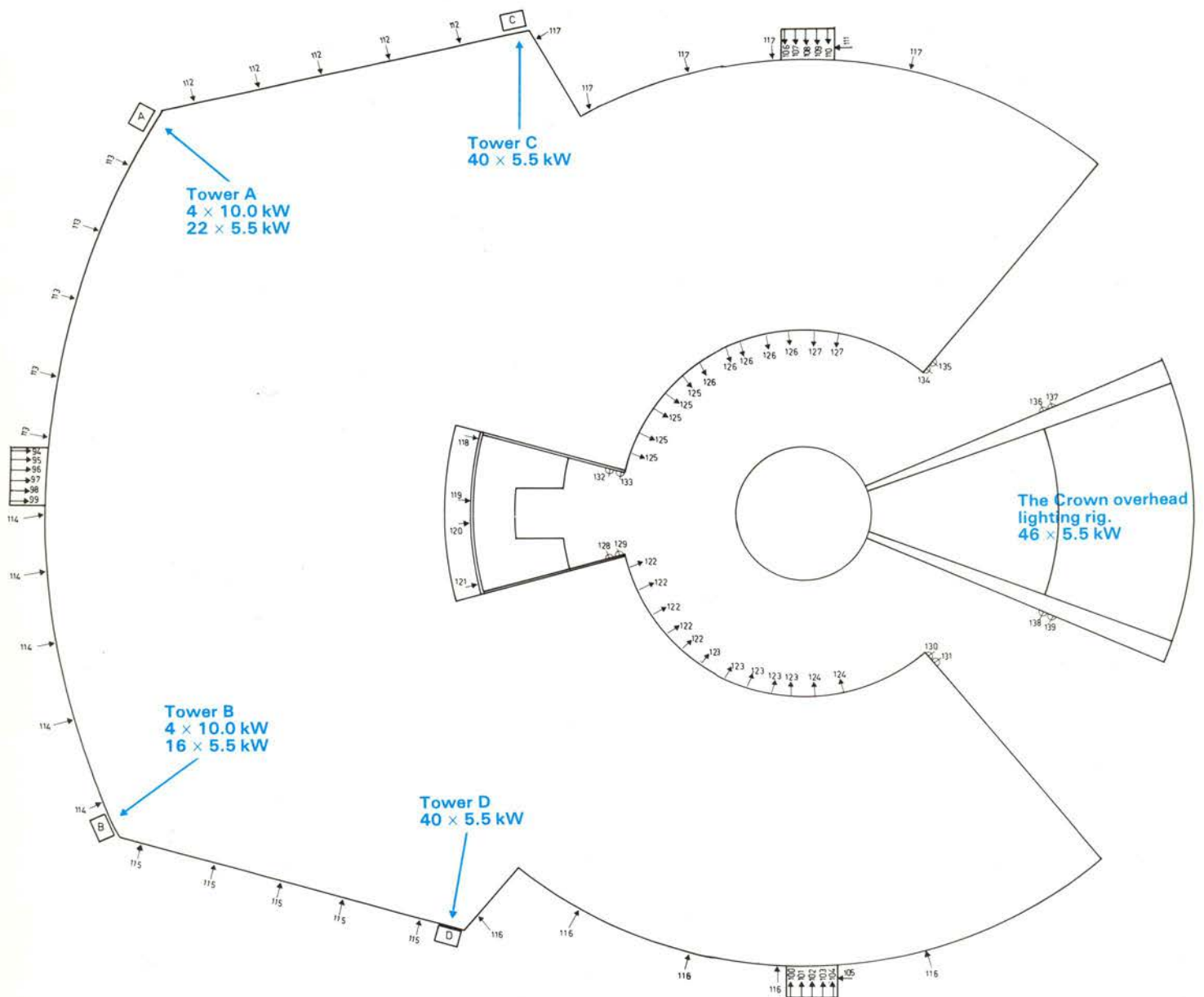


The MMS control included a pin patch enabling many special and last minute changes to be effected right up to the final run through.

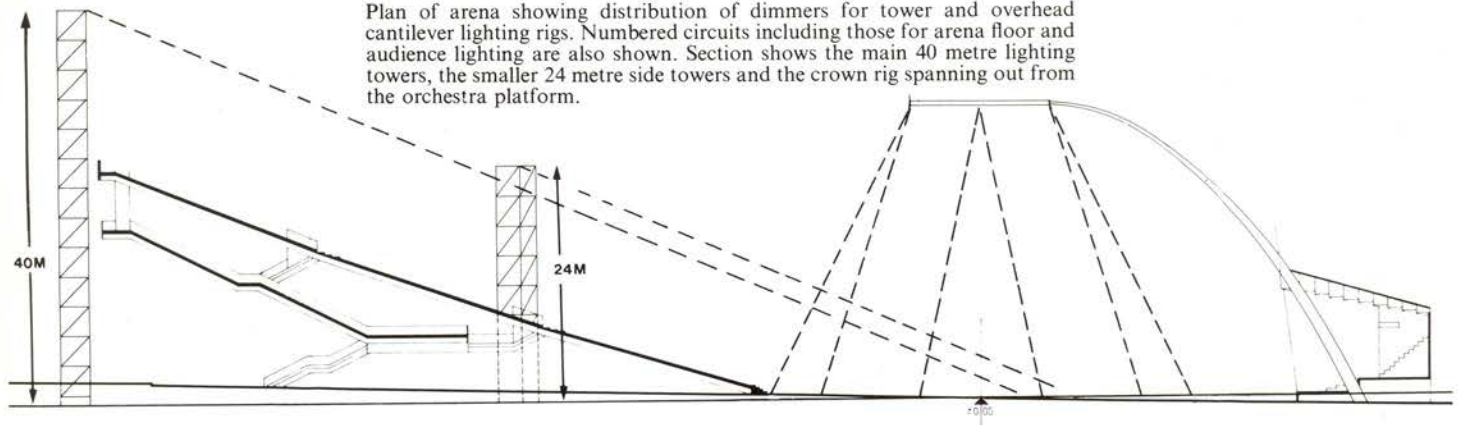


These Pattern 253s used on the Dinosaur have an unfamiliar look with their special weatherproof shields.

the height of the main towers to 40 metres, giving an angle of illumination of 23 degrees. The lateral towers were brought down to 24 metres giving an identical angle. However, with this arrangement it was not possible to light the area in front of the choir and orchestra without dazzling the musicians. Nor was it possible to light circular areas with any precision — a vital point since the choreography was largely based upon circular patterns. Moreover, it was impossible to provide any back lighting without dazzling the audience, and back lighting was basic to the concept of the production. Therefore it was decided to provide an additional lighting rig — known locally as the dinosaur, an overhead system above the acting area placed in such a way



Plan of arena showing distribution of dimmers for tower and overhead cantilever lighting rigs. Numbered circuits including those for arena floor and audience lighting are also shown. Section shows the main 40 metre lighting towers, the smaller 24 metre side towers and the crown rig spanning out from the orchestra platform.



that it did not interfere with the sight lines. This permitted the illumination of specific areas with the utmost precision and dealt also with the other problems.

The main towers A and B each carried four 10 kw and ten 5 kw Quartz Color Ianiro Spots supplied through Rank Film Equipment. Another twenty of these 5 kw spots were located in each of the two side towers C and D, with another ten in the Crown or Dinosaur above the arena. Six Clémanson HMI follow spots were also

operated from the four lighting towers.

Completing this multi-lantern complexity were some 38 Patt. 253 Profile Spots, 20 of the latest T spots, 20 Patt. 743 and 10 Patt. 123 Fresnels, plus another 20 Patt. 750 Beam lights.

The MMS control with 240 channels and 360 memories also included a pin patch. The great flexibility of the MMS system proved invaluable, for without it and given the limited number of rehearsals, the designers feel that the lighting would certainly have

been less than adequate, since all rehearsals were out of doors and could only take place in the evening.

The MMS, say the lighting designers, was more than able to cope with the inevitable and numerous last minute changes and anyone who saw the performances themselves can only agree that the final result was more than satisfactory. In Vevey they are already making plans for another Fête des Vignerons, which is after all only some 24½ years away.



Hong Kong Arts Centre

MICHAEL OUTHWAITE

In 1969 four men led by Mr. S. F. (Bill) Bailey decided that Hong Kong needed an arts centre. Eight years and £4 million later the Governor, Sir Murray Maclehoese, opened the Hong Kong Arts Centre on 14 October 1977. Not such a remarkable feat, perhaps, until you realise that not one penny was provided by the Government. They did donate the land, itself a valuable asset in an overcrowded area such as Hong Kong. It measured 100 ft. by 100 ft., situated on the waterfront in Wanchai. It competes with attractions such as topless bars and the other delights to be found in the infamous haunts. To date, solo cello recitals have not competed too well.

One of the four men was Tao Ho, an architect. He became *the* architect and was faced with what seemed an impossible brief: there were to be three auditoria; art galleries; space for a wide range of arts from rooms for piano practice to photographic dark rooms; restaurants and, most important, office floors to earn revenue. All of this to be fitted on 10,000 sq. ft.

Hong Kong is highly commercialised. Subsidised arts are very much the exception, so the Arts Centre could not hope for the "grateful" taxpayers to support "artistic" piles of bricks or white silk carpets and the other ills that our UK hot-house, succulent, subsidised fleshpots are heir to. "If it does not pay, then it is no good" is the gospel according to Hong Kong. It is quite

refreshing to work in such an atmosphere, especially after being in the British theatre where nowadays the only supplications are made to town halls, 105 Piccadilly, or Whitehall.

Hong Kong is a country of low taxation and high social awareness. So an appeal to those who "have" for donations to a practical, profitable, social amenity can be smiled upon with favour. In this way some £2 millions have been raised and more is flowing in. Over 6,000 members of the Arts Centre each contribute £12 a year, and corporate members a lot more. Other revenue comes from the restaurants, club bar, the all-important floors of offices, rental of auditoria, and even the box office.

To fit all the facilities in a building on 10,000 sq. ft. would be regarded as impossible almost anywhere else but Hong Kong. All building in Hong Kong goes upwards. So the Arts Centre does not sprawl languidly over the acres. It sticks up like a dark grey growth on the side of Cable and Wireless's New Mercury House, and is probably the only 19-storey Arts Centre in the world.

In those 19 storeys Tao Ho has squeezed in all the facilities required. It is not wholly satisfactory, but where is such a building? Although the view across the harbour is breathtaking, the view of the building from outside is less spectacular. The modular unit (more of that dreaded word anon) of



structure is the triangle and this is used both vertically on the outside surface and horizontally as floor dividers. The triangles are genuinely structural, and visually give the outside waterfront face an interest that normal blocks do not achieve. The raw concrete has been coated with a plasticised treatment by "Bonntile", a Japanese company, and finished externally in a dark metallic grey which is a little heavy on the eye. The same treatment for internal finishes is in very positive colours and is much more agreeable.

In fact, the triangular structure and the colours in the interior design of the public areas are a real work of art, combining function and aesthetics very successfully. The normal method with multi-storey buildings is to have relatively low false ceilings within which all facilities such as electrical, air conditioning, water pipes, sprinklers, etc., are "thrown" across.

Tao Ho decided to have higher ceilings using the triangular modules and expose the air-conditioning ducts which are painted a bright vivid yellow—"Arts Centre" yellow as it has become known. The three auditoria are red, green and brown, the doors are blue for loos, green for fire and russett for services. The foyer carpeting is a remarkable weave of the same 12 colours altering in balance so that from the ground floor to the fourth floor of the central staircase in the Shaw Foyer (after a large donation from Run Run, not G. B.), the colours change from red to green. The whole staircase is dominated, not by a chandelier, but an enormous, phallic, bright yellow air-conditioning duct.



Foyer, Hong Kong Arts Centre.

As is often the case with dreamers there was no box office, no cloakrooms, no directional signs and the triangular motif was even carried into the toilet doors with triangular glass panels. The only problem was that the glass was clear. I had a theory that it was an economy measure. As there were no signs on the doors all the patrons had to do was look through the glass and decide.

The nineteen floors comprise two basement floors having a 203-seat recital hall, a 100-seat maximum studio and a rehearsal room; ground floor to third floor main entrance, Green Room (being added), dressing rooms, dock door and proscenium theatre seating 463, fourth and fifth floors are art galleries; sixth and seventh floors restaurants; eighth to fourteenth floors are offices, photographic studios and practice rooms (the eleventh floor is the Arts Centre's own office); the fifteenth is the members' club; the sixteenth, artist studios and manager's flat.

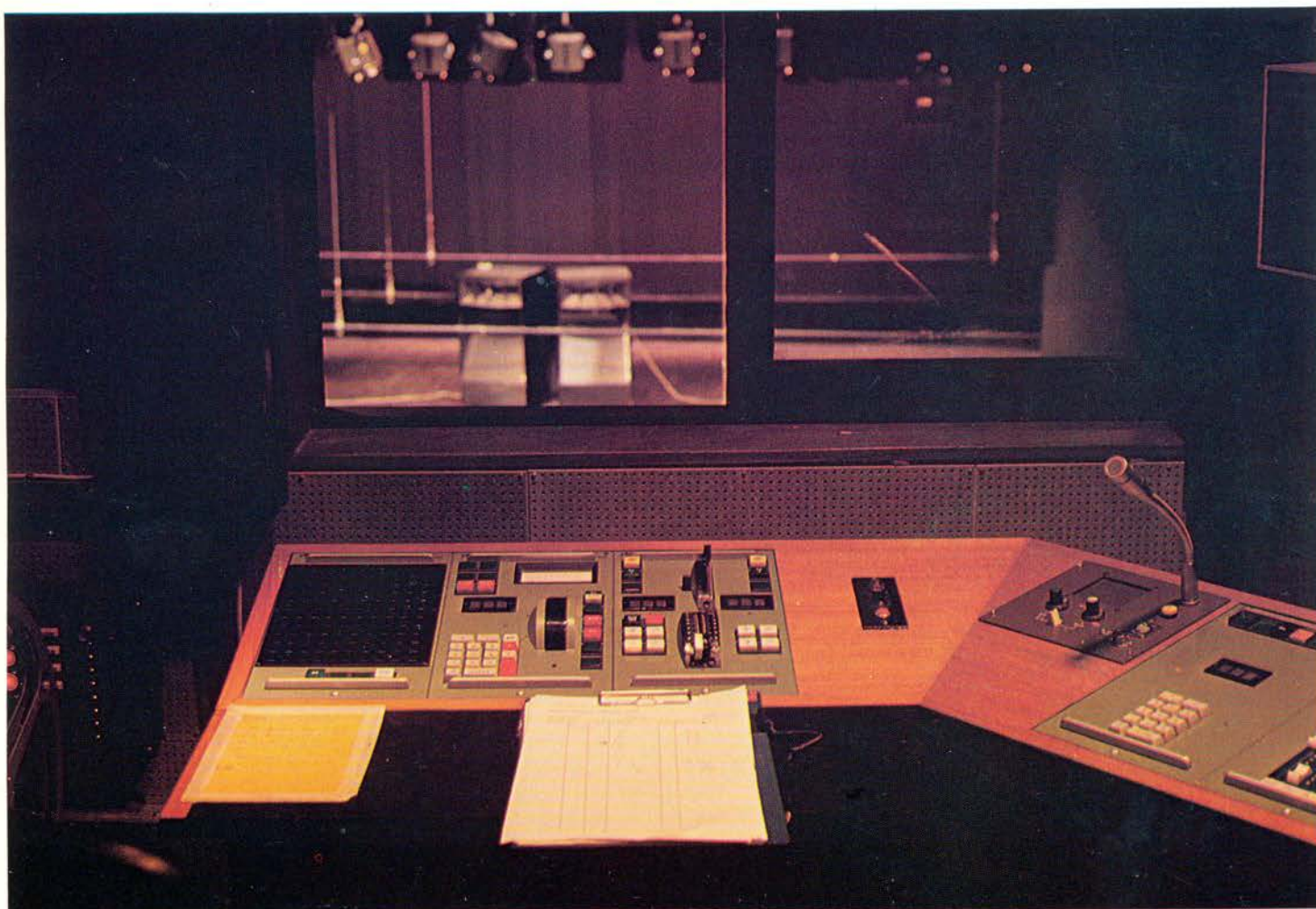
Many readers will be aware of the problem of fire regulations in the building of theatres. In building three theatres, one on top of the other, and 13 more floors above that in a very confined space, it will not be a great surprise that simply to get the plans agreed took a whole year. There are more protected staircases from auditoria, control rooms and separate re-wind rooms than there are dressing rooms.



The lighting control suite in the Shouson Theatre affords an uninterrupted view of the performance from the back of the stalls. A more detailed view of the MMS control is shown below.

I have a marvellous file of letters from fire services with rules allowing the building of a studio theatre in the lower basement but no scenery, seating or dressing rooms. Even now, although they have relented on the scenery and seating, we have an artists' room and no dressing rooms. The other major problem was the rule which did not

allow building over the grid in the main theatre (a normal requirement which has always been quite useful for finding the "theatre" in those enormous new university complexes where every building looks the same except the one with the raw concrete block sitting on the top). But this was solved by incorporating a light well running up



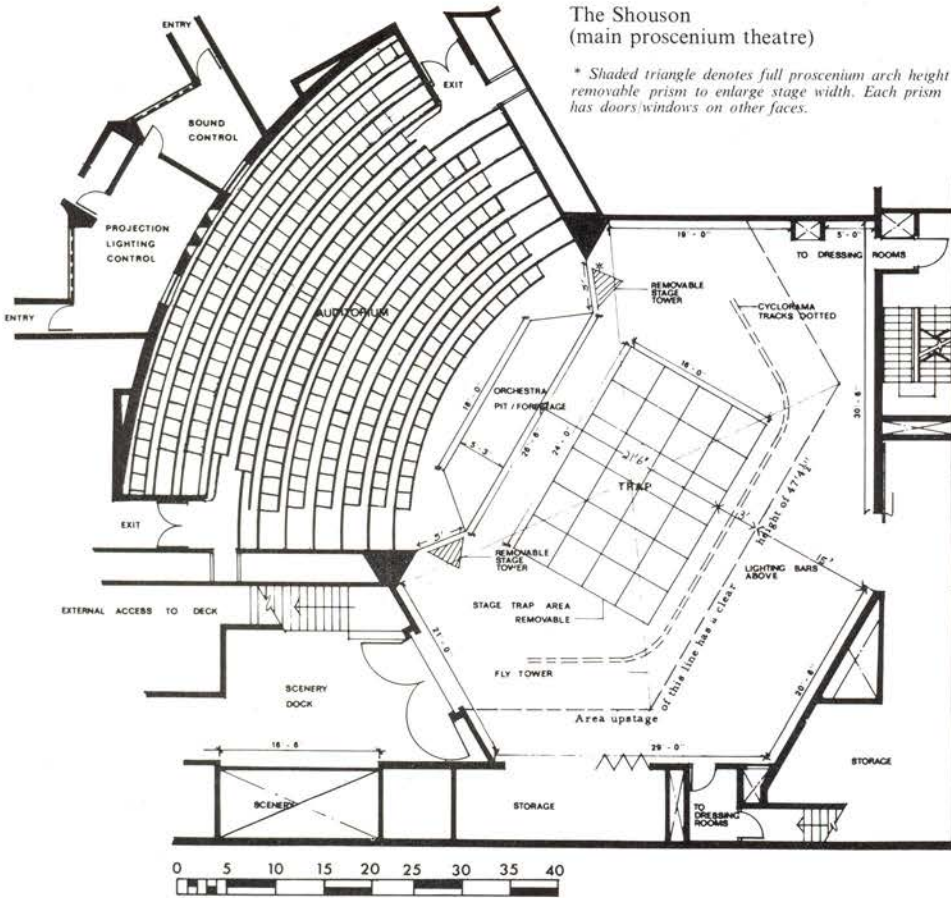
through the building, and the walls facing this on the office floors have glass bricks in them to use what light percolates through.

The Shouson—proscenium theatre

In the auditoria the main proscenium theatre (called the Shouson after a donation

from a highly respected and wealthy Hong Kong family; in Hong Kong the terms are synonymous) seats 463 on two levels with the front row of the stalls removable when the forestage elevator is raised to add a forestage to the cranked front of the stage. The forestage elevator in the original contract was to be provided by Mole

Richardson but this, along with a scenery elevator, were cut out when the money dried up half way through building. Later I was able to get the forestage elevator reinstated and it was finally built by a local firm. It is an hydraulically operated single scissors type with three positions of stage, auditorium, and the lowest which forms an orchestra pit for up to 15 musicians.



The Shouson (main proscenium theatre)

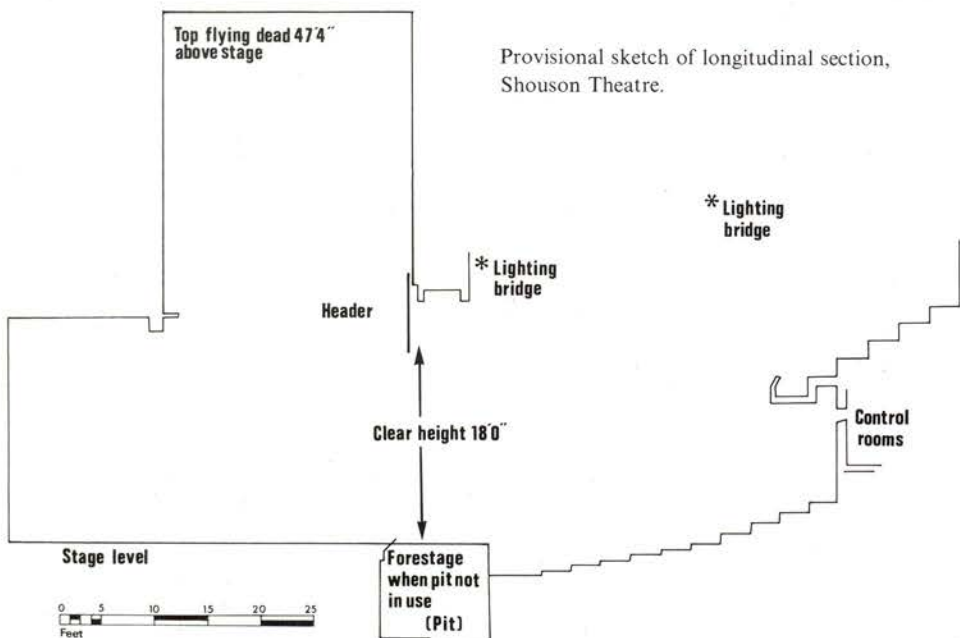
* Shaded triangle denotes full proscenium arch height removable prism to enlarge stage width. Each prism has doors/windows on other faces.

The auditorium is finished in an attractive apple green (the "Bonntile" coating) and has russet brown seating. Sadly, not all the seats have a perfect view. The back row of the stalls is obstructed in part by the balcony and the side "Royal" boxes are somewhat of an intrusion. But no seat is farther than 45 ft. from the stage. It is proving a very pleasant theatre to play in not only for piano recitals but also to local amateur drama and operatic companies, though the latter's production of *My Fair Lady* was somewhat cramped.

The control suite at the back of the stalls houses the ubiquitous MMS-120 channels with 80 2-kW and 20 5-kW dimmers fitted; two 35-mm and one 16-mm projectors and the sound control and communications racks. Front of house lighting is from two very accessible lighting bridges and not so accessible side wall booms and ridiculously inaccessible circle front bars.

The stage itself is 46 ft. deep and 64 ft. wide at its widest. It is a rather eccentric shape (the triangular module again) and there are many obstructions such as concrete beams and air-conditioning ducts. The normal acting area is 26 ft. wide by 20 ft. deep, although with the forestage another 8 ft. of depth is added. The structural proscenium opening is 35 ft. wide by 24 ft. 6 in. high but by using proscenium towers and header this is reduced to 26 ft. by 18 ft.

Twenty-two double purchase and two single purchase (house tabs and cinema screen) are installed together with two counterweighted wrap-around cycs—one black, one white. The stage has a trapped modular floor area 16 ft. by 24 ft. and is on the first floor level so scenery access is via an electric winch from street level through an opening 15 ft. by 7 ft. 6 in. As with most winches, unless it is pianos to be moved, it is quicker to pass the scenery up through the shaft.



Provisional sketch of longitudinal section, Shouson Theatre.

The recital hall

This has 203 seats (12 removable) in a single rake of curved rows and is designed for both chamber music and film performances. It is finished in a vibrant, post-box red with seats to match. The stage area is level with the first row of seats and there is a film screen with automatic masking. Lighting is provided from points in the triangular waffles in the ceiling controlled from the suite at the rear of the auditorium by an SP/20/2 with 10 dimmers fitted.

The studio

This is a curious but interesting shape and, like all studios, essentially a flexible space with, of course, modular seating capable of varying audience/artist permutations with a maximum capacity of 100. I sometimes wonder what we did before the dreaded word "modular" arrived, what with modular memory systems, stages, structure and seating. How the word creeps in nowadays. It is just a vague way of saying that everything is the same. Perhaps *Private Eye* should have an "ongoing, modular situations" column.

The ceiling and a gallery of the studio has bars for suspending lanterns or decor and a total of 80 sockets are routed to an 80 into 40 patch panel in the control room on the gallery level. The control is an SP40/2 with 26 dimmers fitted.

In the lighting equipment common to all three auditoria, we have 80 T64's. But 0 for the lovely soft-edged shutters of the 264.

The rest of the equipment which is also shared between the three auditoria includes:

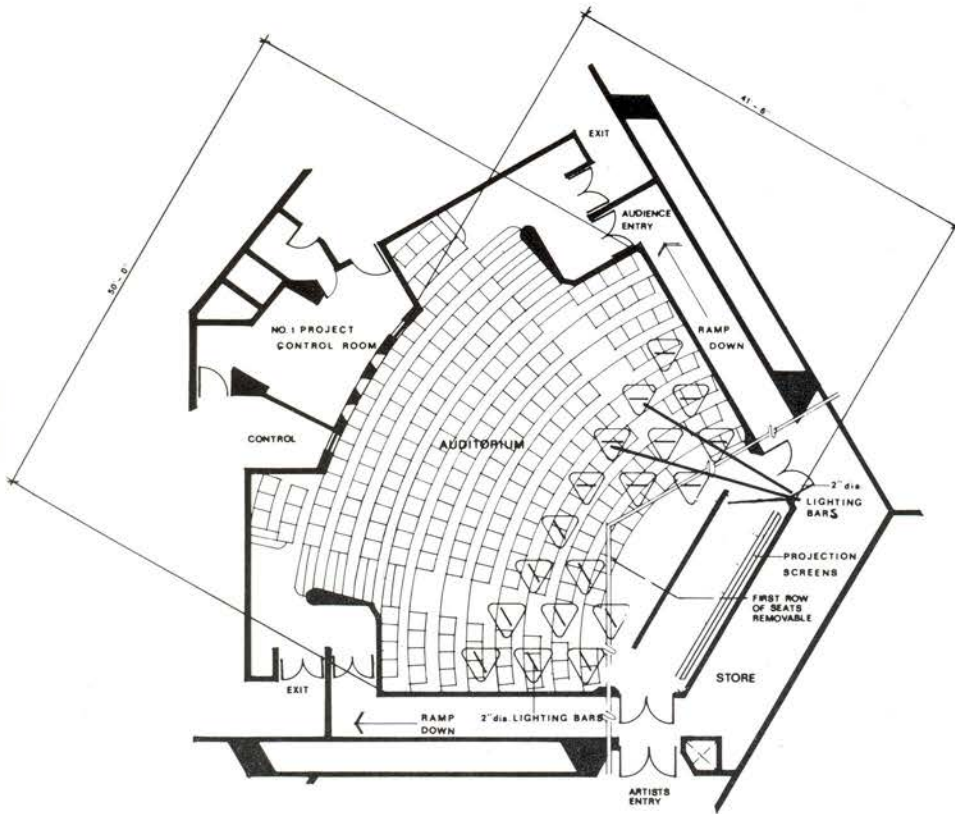
- 60 × Patt. 23 Profile Spots
- 4 × Patt. 23 N Profile Spots
- 25 × Patt. 743 Fresnel Spots
- 4 × Patt. 243 Fresnel Spots
- 8 × Patt. 137 Floodlights
- 2 × Patt. 793 Follow Spots
- 10 × Patt. 750 Beamlights
- 3 × 24V Beamlights
- 12 × Compartment Battens
- 9 × Ianiro 4 and 4/1
- 6 × CCT Silhouettes

Sound and communications are as comprehensive as one would expect from a Theatre Projects consultancy and whilst I applaud most of it I have some reservation about the rather complicated working light states—the NIGHT, DAY and PERFORMANCE set up. I sometimes long for a row of brass switches in the corner saying grid, stage and dock, but perhaps I am too much of a reactionary. The trouble is that the people who made the relays are 5,000 miles away and not noted for their speed in sending replacements.

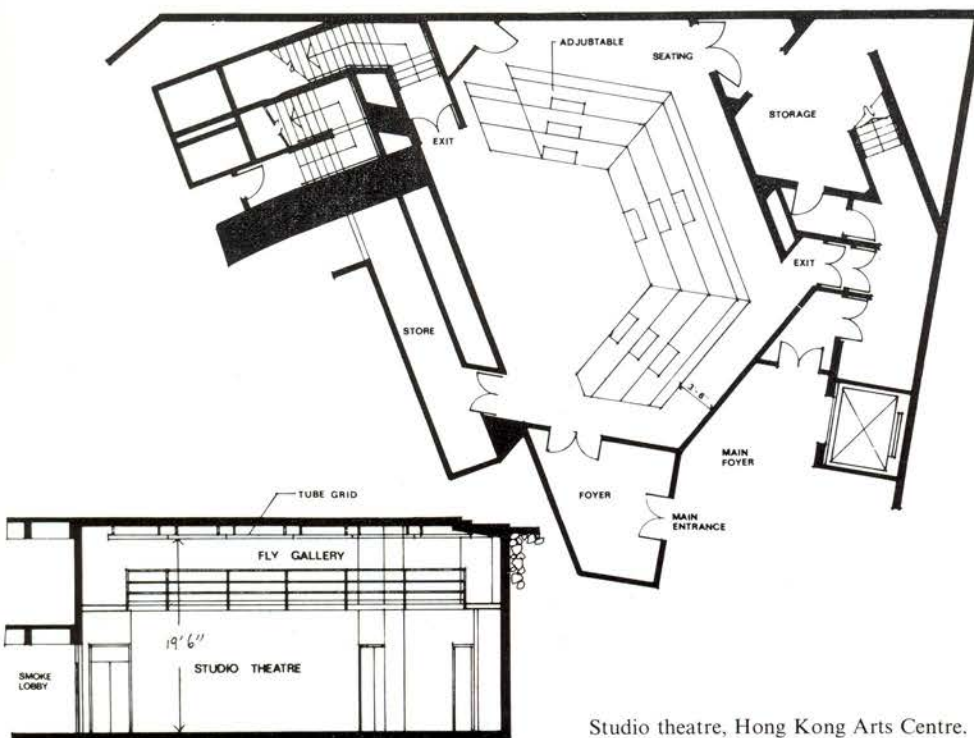
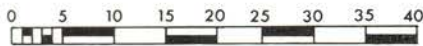
The biggest casualty from putting a quart into a pint pot is the dressing rooms. Originally there were only five, and small at that, to which have been added two and a half more (pinched from rooms labelled janitors). A Green Room is being fitted with mirrors and screens for emergencies.

The Arts Centre is a remarkable and complex building. Perhaps the most remarkable fact is that it is here at all. But it is and it is working and gradually all the original hopes and demands of the building by its progenitors are being realised.

Architect—Tao Ho
Theatre Consultant—Theatre Projects Ltd.
(Alan Russell)



Recital Hall, Hong Kong Arts Centre.



Studio theatre, Hong Kong Arts Centre.

Toujours la MMS

Within the last three years there have been major changes at some of Paris's more famous theatres. Each has been noted for its different speciality, and thus demands. All have now introduced new lighting control systems. Two of the theatres, L'Empire and Le Théâtre du Châtelet, have installed MMS systems supplied through Clémançon, a French connection of Rank Strand.

Just as British music halls either went out of business or adapted to modern needs, so it has been with L'Empire. It now counts its audiences in millions, for it has become the home of Société Française de Production. The major changeover to re-equip for broadcasting and television started in 1975. It has now been completed.

The picture on the upper right shows the MMS lighting control system, which was part of the major re-equipment undertaken by Clemançon. It is situated in a technical box on the first floor of the theatre.

When Le Théâtre du Châtelet closed its doors two years ago for major repairs, there were few Parisians who did not cherish fond memories of its beautifully-staged operatic productions. Indeed, in many ways it has been a constant reminder of the golden age of French light opera. At the end of the First World War it was fitted out with lighting control using rheostats.

Until two years ago it still worked well, but the refurbishment provided the opportunity to install a 240 channel MMS control and here you see Monsieur Jean Claude Birchier at the new console during a lighting rehearsal.



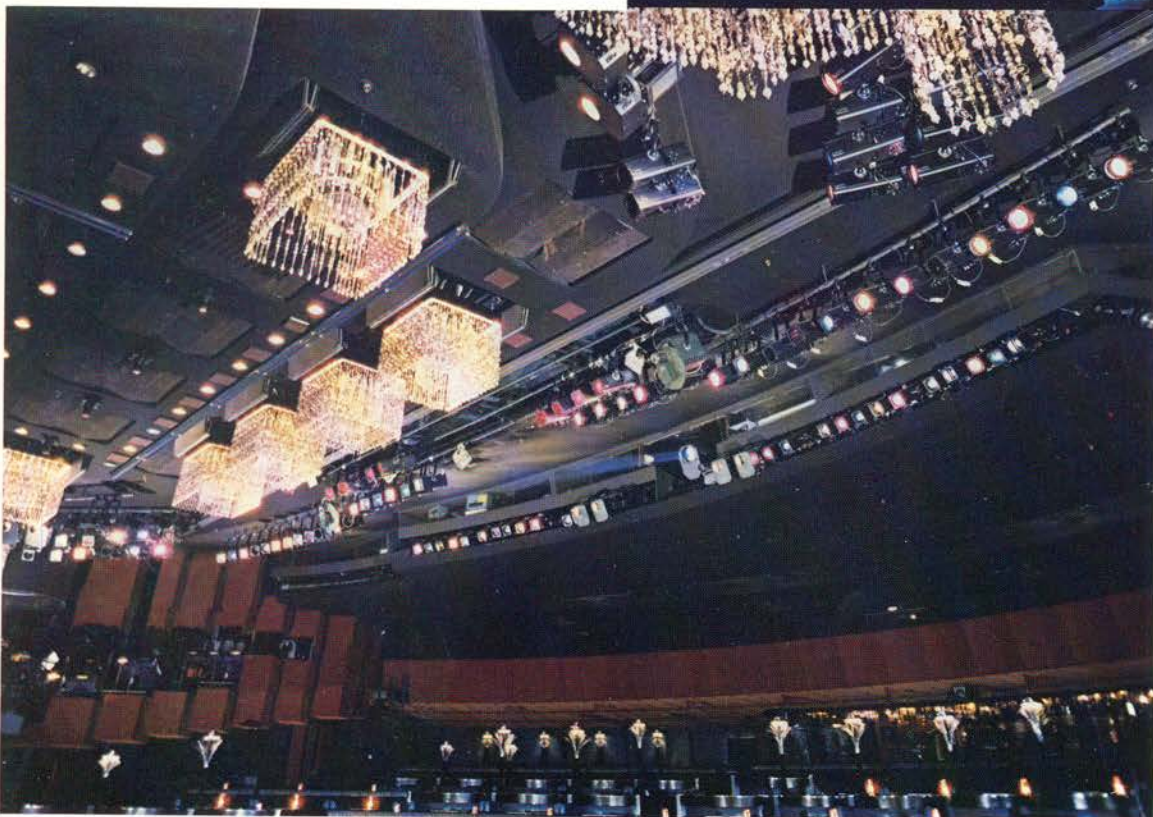
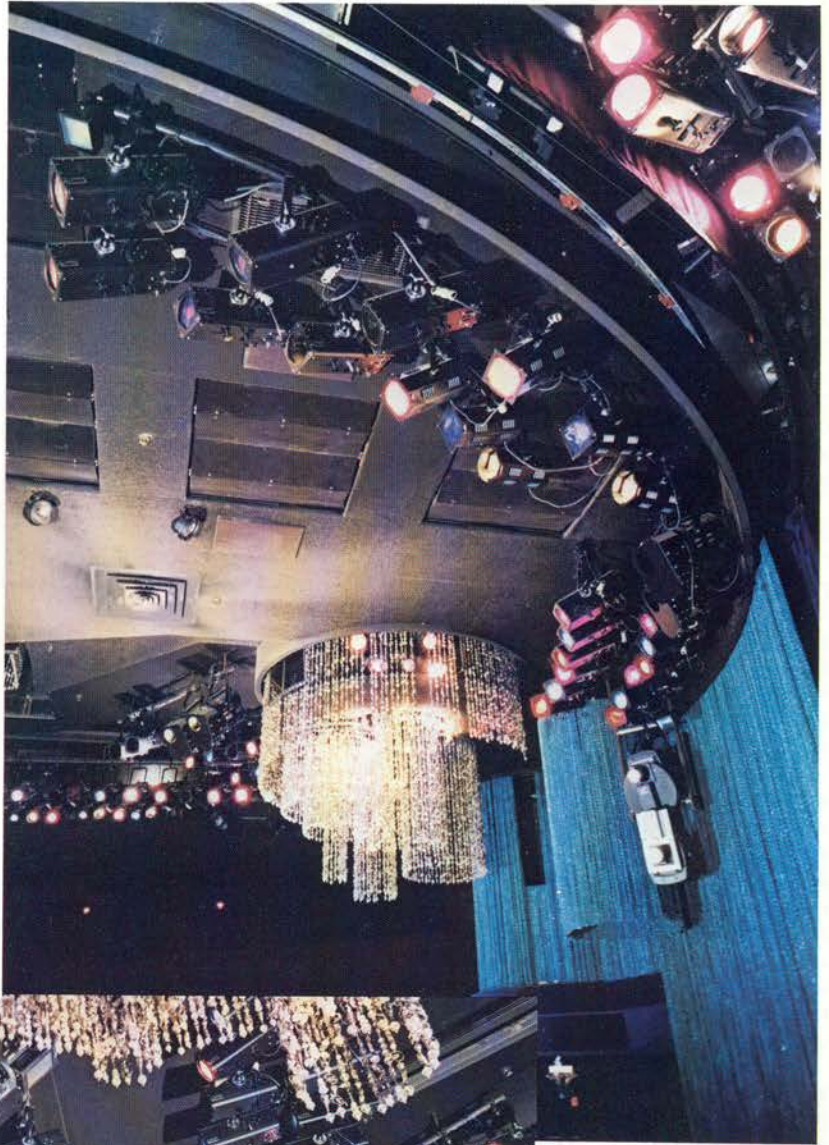
T Spots in the Night Spots

By way of contrast the third theatre to have been supplied by Clémançon is Le Lido, Cabaret Normandie. For many years it enjoyed a world-wide reputation for its spectacular floor shows, and a haunt for many tourists, when it was situated at 78 Avenue des Champs-Élysées in Paris.

It has recently moved to L'Etoile, to new surroundings in the Normandie halls. A completely new lighting system was required by Pierre-Louis Guerin for his major new spectacular entitled *Allez Lido*. The lighting consultant and designer chosen for the project was Charles Bristow.

The lighting design included some 200 T-spots as well as Parblazers, effects projectors and even a LASER. The architects were the Peynet Studio, the scene builders Veccia Bartocchini.

These pictures not only capture some of the spirit and the atmosphere of a production in the Nouveau Lido as well as the flavour of Paris nightlife. They reflect how competitive this type of entertainment has become and give a clear impression of the complex and imaginative lighting design used. Charles Bristow was at the console for the opening performance.



Hillingdon, Reading and Assisted Resonance

HUGH CREIGHTON, MA, RIBA

At first sight one would think it improbable that an architect faced with the design of a multi-purpose civic hall would find much to help him in the Royal Festival Hall. After all, the Royal Festival Hall has 3,000 seats, as compared with the 1,454 at Reading and the 598 at Hillingdon, and it can look down in lofty disdain from its (almost) purely musical eminence on those who may have to try to cater for banquets and boxing as well as for Bach and Beethoven, for Shakespeare as well as for Schubert.

Nevertheless, it is from the Royal Festival Hall that the technique has come which could revolutionise the despised multi-purpose auditorium. Reading and Hillingdon are the first of the new generation, because they are the first to have been deliberately designed for "assisted resonance". I shall try to explain what this is and why it opens up new possibilities for this type of hall.

The "resonance", which is assisted, is the musical way of saying "reverberation", which is the persistence of sound in a room after the source has ceased. In general, music needs a lot of reverberation (for good tone), while speech needs little (for intelligibility) and this is the basic acoustic conflict in multi-purpose halls. Until now it has almost invariably led to compromises resulting in conditions which are equally unsuitable for all purposes.

In its early years the Royal Festival Hall was consistently criticised for being too "dry", that is to say for having too short a reverberation time, especially in the bass. Now it is usually quite easy in principle, though it may well be awkward in practice, to shorten a long reverberation time. But normally the only way of lengthening a short one is simply to increase the volume of the room by a large amount, and that is not often possible. So it proved at the Royal Festival Hall until Peter Parkin of the Building Research Station, who had been involved with the acoustics of the hall from the very beginning, had a quite different idea. He argued that since the short reverberation is due to the sound energy decaying too quickly, it could be corrected if more energy could be added during the decay, and that it ought to be possible to do this by electronic means.

There was nothing new about the idea of artificial reverberation. It had been used for years in broadcasting and recording. The typical method was to use a rather dead studio in conjunction with a very live, empty, reverberant room (nowadays usually replaced by less bulky devices such as reverberation plates). The output from the studio was fed to loudspeakers in the reverberation room and picked up again with, of course, the reverberation added.

The direct signal from the studio and the reverberant signal from the room are re-combined to give whatever effect is wanted.

This all works perfectly satisfactorily when the final outcome is to be a broadcast or recorded signal, but when it is applied to a live performance in an auditorium the situation becomes very different. Microphone and loudspeaker placing bristle with difficulties, but the principal problem is that of getting a useful increase in reverberation without distortion; as in the similar case of speech reinforcement, the distortion is due to feedback between the loudspeakers and microphones.

It was clear that no approach of this kind, which consists of picking up the whole output of the musicians, processing it, and re-injecting it into the auditorium held out any hope of attaining the quality required for the Royal Festival Hall. It was, after all, already a very good concert hall. What was needed was merely to prolong the sound field already present, not to impose upon it the characteristics of some external room or device.

Assisted resonance makes use of the fact that reverberant energy follows certain fixed spatial paths (modes) in a room and that each of these modes corresponds to a definite pitch or frequency. This can readily be experienced by walking around in a room while a pure tone is sounding. The loudness of the note varies dramatically from place to place according to maxima and minima of pressure in the mode which is being excited.

Parkin's suggestion was that, if the loss of energy from these modes could be partially replaced electrically, then the total pattern would not be disturbed but reverberation would be lengthened. This would involve, theoretically, dealing with each mode separately, and there is a very large number of them. But they are more widely spaced (i.e. fewer per octave) at low frequencies than at high ones and it was the low frequency reverberation that most needed to be increased in the Royal Festival Hall, so perhaps the task might be manageable.

So it proved. The system was installed slowly and secretly over a number of years, and gradually the reverberation time went up. No whisper from musicians or critics that something funny or unnatural was happening to the sound in the Festival Hall. On the contrary, appreciative noises became more frequent and artists began to say that they liked the place better than when they had last played there.

This very secretive and cautious approach was adopted because musicians are understandably sensitive to any suggestion that their sound is being artificially tinkered with. It was justified by the absence of any protest when in 1964 Parkin and the GLC

made public the existence of the system and christened it with the studiously non-committal name, "assisted resonance".

A subsequent article in TABS will, I hope, deal more fully and technically with the details of the system, but a brief description is necessary here. As already explained, the energy which increases the reverberation is added to the sound field through individual modes. That is to say that for each mode which is to be reinforced (and I will not deal here with the important question of how many they should be and how they are chosen) there is a microphone, an amplifier, and a loudspeaker.

This combination is called a channel and each channel is tuned to respond only to the frequency of the mode to which it is allocated. When that particular note occurs in the music the channel will sound. At all other times it is silent. The microphone is placed in a position where the sound pressure is at a maximum, preferably distant from the source of sound on the platform. Loudspeakers should be distant from the audience and from their associated microphones. At the Royal Festival Hall all microphones and loudspeakers are concealed above the ceiling.

After the success of the Royal Festival Hall installation a licence to develop the system commercially was given to Acoustical Investigation and Research Organization (AIRO) and a second experimental installation was undertaken jointly by BRS and AIRO in the Central Hall of the University of York. Reading and Hillingdon, both of which opened in 1977, are the next in this country, but in the intervening time there have been two in the USA.

What are the implications of assisted resonance for auditorium design? In an unassisted hall, other things being equal, the reverberation time is proportional to the volume of the hall. Therefore, concert halls, which need long reverberation, must have large volumes. The architectural and acoustics difficulties of providing the large volume are not too severe for halls with a smallish seating capacity, but increase very sharply with the size of the audience. It is commonly said that because of this there is bound to be some sacrifice of musical quality in halls seating much more than 2,000 people. Assisted resonance can certainly help to push this limit up; in smaller halls it is possible that it could offer an economic advantage as compared with the cost of a large volume.

In buildings intended solely for speech (theatres, lecture rooms, etc.), reverberation has to be controlled rather than encouraged, and assisted resonance has no contribution to make. But most auditoriums are not such pure-bred creatures as the Royal Festival Hall or the National Theatre. The great majority has to do duty for all purposes and this is where assisted resonance can come into its own, by sweeping away the need for those compromises which so often resulted in halls which were perhaps reasonably satisfactory for many purposes but not excellent for any.

This was largely the result of the dilemma

over reverberation. Now it is possible to have a short natural reverberation, say 1.0-1.2 sec., and a correspondingly small volume, and then to increase the reverberation at will to something around 2.0 sec. for music by use of the system. This is how it has been used at Reading and Hillingdon, not as in the Royal Festival Hall to overcome defects, but as a deliberate part of the design. It is usually specified that the system should be capable of doubling the natural reverberation time without distortion, but usually two intermediate settings giving smaller increases are provided as well. It is interesting that at York it has been found helpful to use the lowest setting even for speech.

It is too soon to report in detail on the performance of the two new installations. At Reading it is not due to be fully operational until early this year. I have attended a concert there, when it was not in use, and can only say that the lack of reverberation was apparent. The Hillingdon installation has been in use for several months, but I have only been able so far to attend a play, for which it was not, of course, used.

There are similarities in the design of the two buildings which do not obviously arise from the common decision to use assisted resonance. Reading is an avowed hexagon and it may not be very significant that Hillingdon, too, is approximately hexagonal. What is more important is that there is not a trace of a permanent proscenium in either. If there is a traditional pattern of civic hall it is rectangular, with a main floor which cannot be raked because of all the flat floor activities to be accommodated, surrounded on three sides by narrow galleries, rather like a 19th century concert hall; on the fourth side is a proscenium with some sort of stage behind it.

The new Civic Hall at Derby (Casson, Conder & Partners) is clearly derived from this type, though with important modifications, including again the omission of a permanent proscenium. At their worst these halls can be very poor indeed. If designed with care (for example, Frederick Gibberd's halls at St. Albans and Leamington) they function pretty well for a wide variety of purposes, though always the possibilities of what can be done are circumscribed.

In particular the balance seems to be tipped too much towards civic ceremony and away from entertainment. I suspect that a strong argument in favour of a proscenium has been the ability to draw the curtain and shut off all the clutter and untidiness connected with a performance, leaving the hall itself shipshape for the mayor's reception. There is none of this in these two halls.

In both of them the basic form is that of a concert hall. For drama the platform area can be separated from the auditorium by a mobile proscenium and the ceiling can be opened up to reveal a grid, but neither can accommodate flown scenery. Both have apron lifts which can be set at stage level, main floor level, or dropped to form a pit. Here the similarities end. Apart from size (Reading maximum audience 1,454, Hillingdon 598) the chief contrast is in the

radically different approaches to catering for flat-floor activities.

Hillingdon has excluded them from the auditorium altogether. Instead there is foyer space where the carpet can be rolled back to expose a dance floor and where banquets for about 280 can be held. This solution

seems to be thoroughly satisfactory; all the auditorium seating can be raked and the extra space in the foyer is a bonus at all times. It adds much to the attractiveness of the building.

An important requirement at Hillingdon was to accommodate choral concerts and it

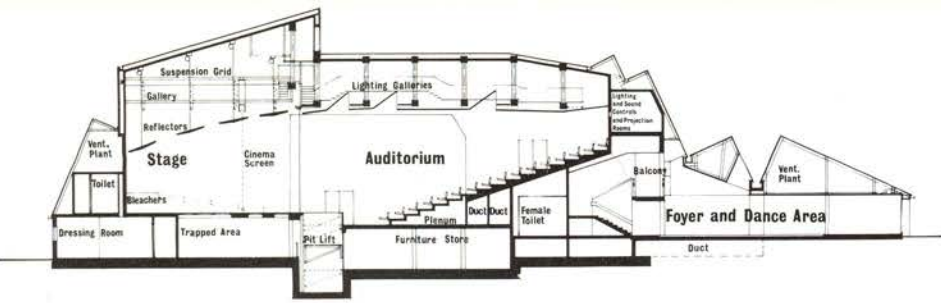


Flat floor activities at Hillingdon are confined to the foyer thus leaving the auditorium and its permanently raked seating always available for drama and concert presentations, an excellent compromise.

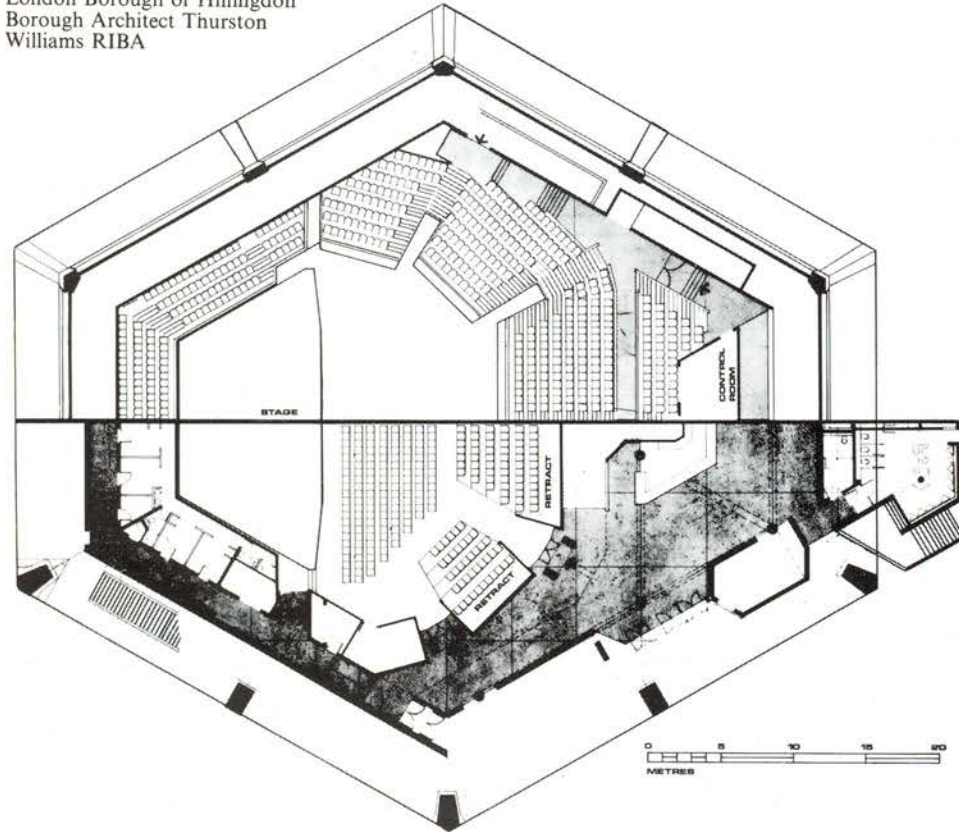
Photo. Architects Journal



The basic form at the Hexagon is that of a concert hall. A mobile proscenium and platform lift allow for theatre and banqueting hall variations. Photo. Colin Brierley

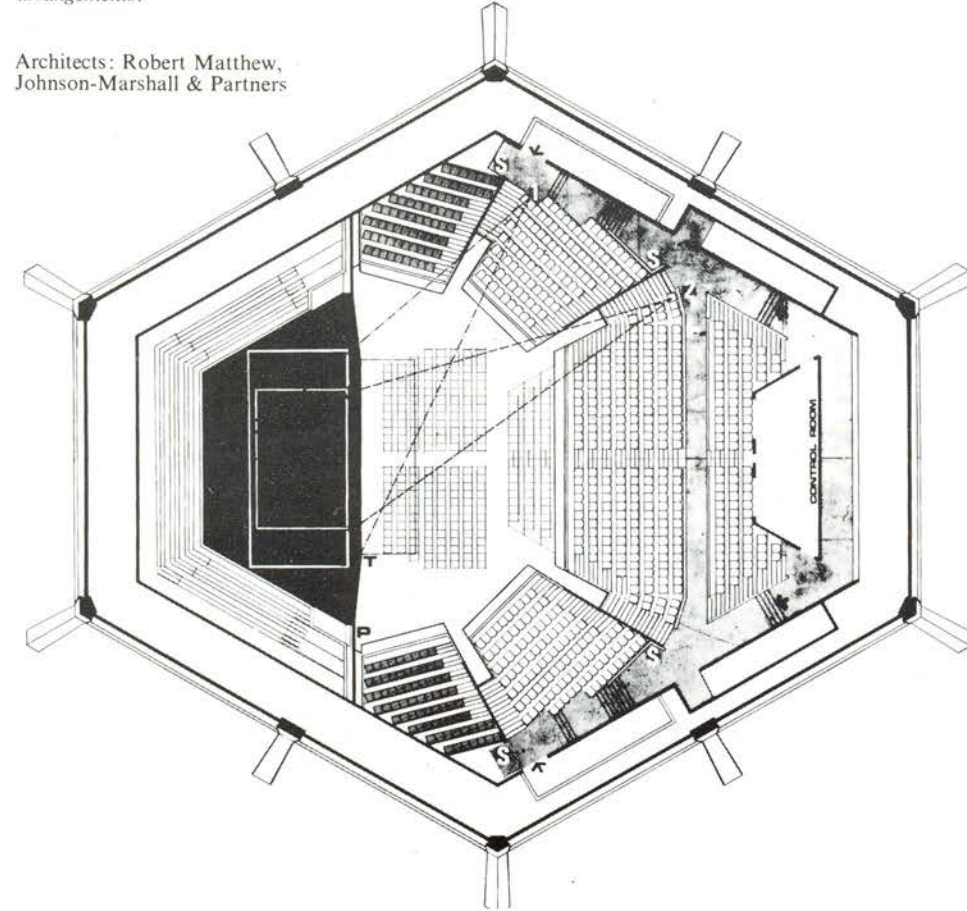


Alfred Beck Centre, Hillingdon.
London Borough of Hillingdon
Borough Architect Thurston
Williams RIBA



Hexagon, Reading. Composite plan, concert hall version showing ground floor and balcony level seating arrangements.

Architects: Robert Matthew,
Johnson-Marshall & Partners



Hexagon plan with mobile proscenium in position. With the smallest opening the two blocks of side seats, shown shaded, are not used.

is claimed that the platform can take up to 300 performers. If so, they will make a lot of noise in a hall seating audiences of only 500 or so, and I guess that the sound will be better when the performers are fewer.

The platform tiers are bleachers and for conversion to a stage they are pushed back, the ceiling reflectors are tipped vertically and flown and the proscenium border comes down. Then, unless a wide unmasked stage is wanted, the hall performs its own special trick—the front side walls of the auditorium move inwards, swallowing up a block of seats on either side (56 in all), creating a proscenium about 13 m wide and wings on the stage about 4 m wide. This was the condition in which I saw the building. It looked and felt like a thoroughly convincing theatre. There is nothing makeshift about it and it would have needed a very sharp eye to detect that it could be transformed into something else. Colours in the auditorium are brownish, yellowish-gold curtain, pine boarded ceiling, brown hessian on the moving walls and timber slats on the rest, seats in fawn tweed. All very decent and unobtrusive, sight and sound excellent.

By contrast it would seem that at Reading flat floor events came high on the list, to the extent of putting the entire platform on a lift so that it can be lowered to the auditorium floor level. This makes space for 1,000 dancers or 500 banqueters, and in addition caters for wrestling and other sporting events. In this condition the auditorium is like a cockpit, surrounded by tiered seating at gallery level all round—four or five rows behind the platform (choir seats) gradually increasing at the sides to 12 or 13 facing the platform.

Dressing rooms are ingeniously fitted under the choir seating and at the upper level, giving access to these seats, there is circulation round the whole building linked to the main foyer, one of the most successful features of the design. The choir seating is, of course, left abandoned when the platform becomes a stage. So also, on account of sight lines, are many seats in the auditorium. Three proscenium widths are available—10.4 m, 14.0 m, 17.75 m, corresponding to seating capacities 778, 888, 922 (the seating for concerts, including 284 in choir seats, is 1,454). I have not seen the hall in this condition, but it hardly seems likely to have a very intimate theatrical atmosphere—a long way from the cosiness of Hillingdon.

On the other hand, because of its size, I should expect Reading to be the better hall for large-scale music. When the assisted resonance is working it should be excellent for choral and orchestral concerts. I found the appearance of the interior unappealing—a harsh and restless arrangement of zig-zags, acute angles, and inclined surfaces, uneasily contrasted with bent tube motifs in various sizes.

In both these theatres, however, the designers seem to have lent a sympathetic and acoustical ear to those multi-purpose objectors who want stage and concert functions treated with equal importance. Assisted resonance could well be the more acceptable compromise we are all looking for.

RANK STRAND SOUND

PHILIP ROSE

Hands up all those who know what a panatrophe is (quick with the Oxford English Dictionary)? Good. Now, those who still believe that "a pan" is all you need for theatre sound — incredible, but your numbers are falling fast.

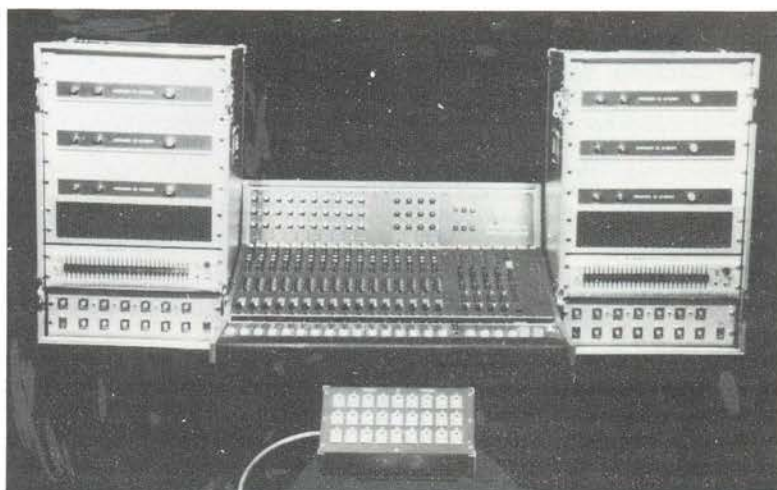
I fear too much of today's theatre sound technology is back there with hand-cranked resistance dimmer boards, some of it even circa water dimmers.

There are, of course, exceptions, and in particular some notable productions and performers rely greatly on superbly matched sound equipment, and, as important, sound operators.

It is strange that while lighting, and in particular lighting control in the theatre, have kept the state of the art current with technology, the average theatre goer has, until lately, probably had better quality audio equipment in the home than anything experienced in the theatre.

Today's audiences do not believe it unusual that they should want to hear when paying for a seat without a deaf aid being necessary. Domestic hi-fi, the quality of today's discs and tapes and the pop music scene have focused attention on how poor in comparison is the quality of sound in many theatres and places of live entertainment.

Amongst those actively reversing this trend in recent years have been Theatre Projects Services. They have designed and engineered the sound for such shows as *Jesus Christ, Superstar, Ipi-Tombi, Side by*



A standard theatre mixing desk with specially designed balancing and amplifier system for La Scala, Barcelona.

side by Sondheim, and permanent systems for Talk of the Town, Victoria and Albert Museum, Teatro Monumental Madrid, Teatro de la Ciudad de Mexico.

This expertise is now being combined with Rank Strand Electric's leadership in control systems technology and world-wide involvement in entertainment engineering to form Rank Strand Sound. In the next few months it will be introducing a range of theatre mixers, speakers and supporting audio products, not only for the professional theatre but for live entertainment of every scope and scale. The common thread will be quality of design and

manufacture. In order to achieve this, advantage will be taken of modularity, ensuring that limited budgets are no constraint.

Martin Moore, Chief Engineer for Rank Strand Electric for the last five years, the period during which the MMS, Compact and Lightboard lighting systems have been introduced, has taken over the management of Rank Strand Sound. He will be ably backed by the team from Theatre Projects Services of David Collison (author of *Stage Sound*), Sam Wise and David Higden.

The author is Director of Marketing for Rank Strand Electric.



A typical small theatre mixing desk having 10 inputs and 2 outputs. Additional controls for eight sub inputs are included.

The Price of Economy

A. K. WHITEHOUSE

The continuing adventures of Fred, who specialises in lighting school plays with nothing. For the previous play, the Authority had installed, as late as possible with no consultation, six 1 kW domestic dimmers to serve what is a fair-sized stage for a school. The scene is set in the school, with the next production a matter of about two to three months away.

Characters

Fred (amateur lighting designer and professional English teacher, member of ABTT)

Henry (fellow English teacher, producer of present play)

Stephen (fifth-year pupil, local drama group lighting designer, member of ABTT)

Mr. R. Tape (personification of Authority and red tape)

Good Spirit

Evil Spirit

Fred, after battling to light the stage for two years (see "The Trials of School Lighting Design"—TABS Autumn 1975), gratefully hands over the design for the forthcoming play to Stephen, intending to come in for occasional consultation.

Stephen asks Henry for hire money.

Henry asks Good Spirit for hire money—and is told that "we won't argue about £50". Stephen is pleased, Fred is amazed.

Stephen draws up a lighting plan and a list of equipment. He refuses to touch R. Tape's botch-up of domestic dimmers, which had proved more inclined to blow up than their fuses, and he includes in the list a 12 way Mini-2.

Stephen works out that it is simple to disconnect the existing stuff and wire in one rack at the main 30 A source, and take the other on an extension to a nearby 15 A source—this rack to be used for the smaller effects, while the first takes the bulk of the lighting.

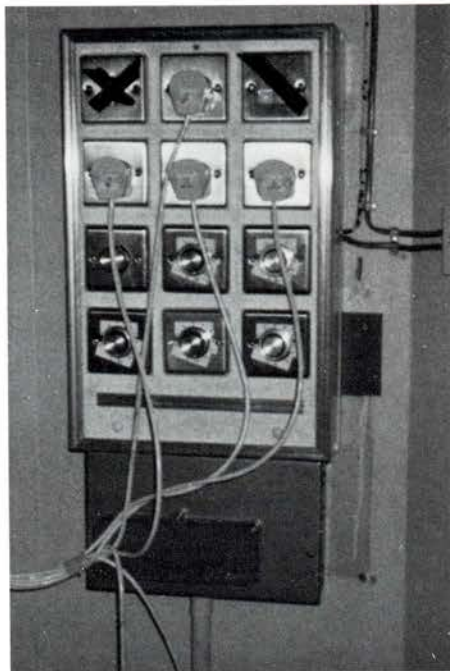
Stephen writes to the local hire company and gets an estimate—exactly £50. Henry and Stephen are pleased. Fred is cautiously sceptical—it is all too good to be true.

Stephen puts in a request for the official connection of the control and this is rejected.

Fred and Stephen examine the control installed by the Authority with R. Tape's approval, and draw up a list of faults:

Items against recommendations

- (1) The use of domestic dimmers for stage lighting is not illegal, but is against recommendations—the wiring ought to be checked.
- (2) The installation of dimmers is apparently on a wooden box—it seems that the earthing must be checked before this is condemned or accepted.



Six-way (1 kW per way) control based on R. Tape's botch-up of domestic dimmers.

Items, illegal, dangerous, or both

- (3) The cable on recently installed fluorescent working lights is rigid twin and earth, attached directly to the wall with no protection.
- (4) The flexible PVC cable laid to FOH is partly protected by the use of some old conduit, but is largely unprotected. It is pointed out that the existing cable must either be protected or replaced by Pyro in items (3) and (4).
- (5) The fusing of the incoming power to the (thyristor) dimmers is in the form of eight wire fuses, 15 A each. They are not in any logical order, and one is unused. These are reported to be both the wrong type and too powerful to provide any protection—proved dramatically and expensively last year when a piece of faulty school cable blew up two dimmers.



A picture which suggests a happier outcome from talks with Mr. R. Tape than either Fred or Stephen experienced. A very desirable Mini-2 installation at the Fairweather Comprehensive School, Cwmbran, Gwent.

- (6) The extension cables are identified as 5 A cable, they terminate at the board in plugs with 10 A fuses—again, hardly adequate protection, especially considering that the main fuses are useless.

(On being confronted with item (3), R. Tape's reply was that the legal installation of this was "too expensive".

All information checked with a phone call to a qualified electrical engineer.)

Henry is given this list and wavers with it, being recommended by the Good Spirit not to show it to the Evil Spirit.

Fred tells Henry that he prepared the list for the Evil Spirit—it goes to the Evil Spirit.

Fred and Stephen decide that, as members of the ABTT, they will not work with that control while the illegalities remain.

After a pause, Henry tells Fred that R. Tape has admitted that the list is correct, and the illegalities will be seen to—but the recommendations will be ignored. The school, inexplicably, will foot the bill for R. Tape's original incompetence.

R. Tape and the Evil Spirit get their own back, however. They ban the use of any control other than their domestic disaster, and therefore limit Fred and Stephen to 6,000 W lighting from a potential 30 A plus 15 A. Also, the £50 hire money is withdrawn, Henry being told that he must borrow.

Henry, Fred and Stephen have a meeting to discuss matters. Fred and Stephen decide they will continue, since things will be legalised, and they tell Henry about the effect of the limitations—there will be no effects, no colour (since filters reduce light), no snap blackouts for scene changes (six dimmers, four hands), and a choice—either not enough front light, or not enough top light. Fred refuses to do any borrowing of lanterns himself, and both Stephen and Fred refuse to bring in any of their own equipment, and then they realise that with only 6,000 W they only need borrow two or four 500 W lanterns anyway (depending on "front or top light" choice). Finally, Fred, very fussy about lighting's programme credits, suggests that he does not want his name in the programme. Stephen, also realising how bad it will be, agrees.

Fred decides to make a disclaimer notice to put above the board—disclaiming all responsibility—and also to wear a black armband, for ... "Stage Lighting is dead—OK?"

Such is the price of economy.

Scientia sine Arte nihil est

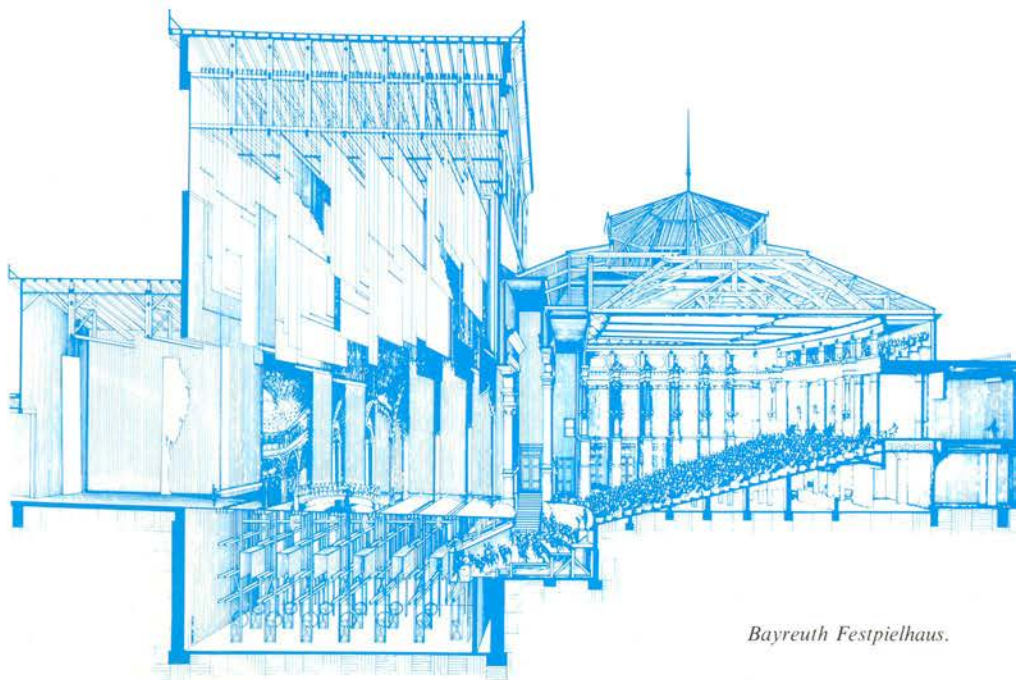
FREDERICK BENTHAM

George Izenour is fond of a Latin quotation and my title is taken from the opening words of his preface. It goes on *Ars sine Scientia nihil est*. The Latin tag that really comes to my mind is *Caveat Emptor*. Not because the book* does not represent good value. It does; it is packed with matter. But because it could lead the unversed astray in building a theatre.

The next line of the preface endorses my warning. "The work that is this book began 10 years ago as a monograph on the design of the multiple-use theater, in which a dozen or so buildings selected from consulting collaborations with colleagues Vern O. Knudsen and Robert B. Newman were to have been dissected, analysed, and compared." One hot afternoon in mid-August in a Roman theater in Caesarea changed all that, or so George goes on to claim, but the more I examine this very large book of 700 pages the more I am convinced that it is still basically the original monograph. Each page and picture is intended to substantiate the claim of an engineering solution to theatre — particularly multiple-use theatre — design.

It is an interesting exercise to pick one theatre as a keynote for the jacket. Which would one choose? Even where, as in this book, there are many fine perspectives inside, only one can go on the jacket if justice is to be done to the detail. Writing off the cuff, I suppose that I would have chosen Drury Lane for the purpose — Theatre Royal Drury Lane no less. The question that then arises is which Drury Lane? There have been several since that site went into use under Royal Charter in 1662.

It so happens that the present theatre with its auditorium as rebuilt in 1921–22 and the foyers, rotunda and main building of 1811 and the stage of 1908 is an excellent example of a large, but not too large, theatre. The proscenium opening is 42 ft. 6 in. and the seating capacity 2,283. Not only are the acoustics and sightlines good for a multi-tier house but the rebuild provided no less than 420 people with unreserved cheap seats at stalls level and long since taken over as such. This, the Pit, was in addition to 435 in the Gallery, now called the Balcony! Drury Lane, with its history and atmosphere, is to many "the theatre".

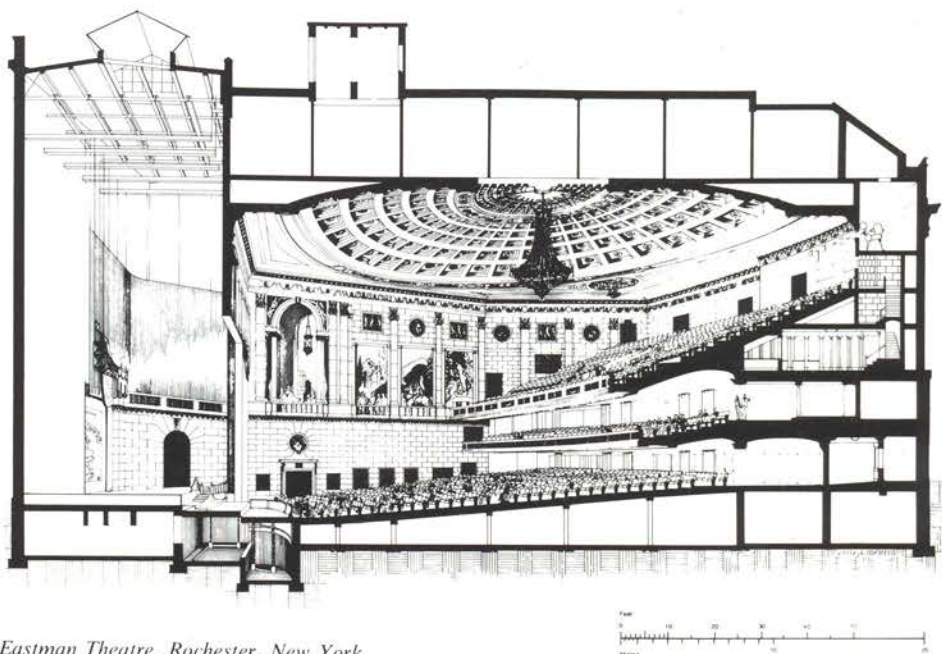


Bayreuth Festspielhaus.

It is not on the cover of Izenour's book *Theater Design* and indeed this particular Drury Lane is not inside either. The one preferred there has the Beazley auditorium of 1822–23 of which Izenour can say: "... the seating system was pushed closer to the stage, causing the balconies to be piled ever higher until the top two are completely beyond reasonable angular eye-point tolerances for good sightlines." One cannot help thinking that "our" Drury Lane did not get its picture in because it would not help his case. He himself writes, "One of the most popular nineteenth-century London theaters, intended primarily for spoken drama, it was complementary to Royal Opera, Covent Garden, and used for everything including opera, ballet, variety entertainment, concerts, and lectures. . . ." He might have added that it did all this without any

multiple use mechanics whatever and until 1958, no mikes either!

It is time we said that the picture that has been selected for the jacket is of Wagner's Festspielhaus of 1876 at Bayreuth — an opera house and one built for a very special purpose only. Yet we find that this house not only forms the cover but is the very core round which the book is built. Why? Let Izenour explain in his own words: "Bayreuth Festspielhaus, in my judgement, marks the beginning of contemporary theater design". He then goes on to praise the basic classical simplicity of this auditorium (architectural detail apart) and the "continental-seated wedge-shaped auditorium geometry of this theater" and enlists Bernard Shaw in *The Perfect Wagnerite* as support for his proposition. Shaw, however, was writing this way back in 1913 as a music



Eastman Theatre, Rochester, New York.

critic. In 1926 Shaw in the *New York Herald Tribune* described future *theatre* in terms of a Shakespearean stage and declared the "Bayreuth theatre would be no use to me for my chronicle play".

Here in England the new Birmingham Rep (1971) shows the drawbacks of 900 seats as a single wedge-shaped tier — unbroken rows confronting an overwide stage. Terraces and a stadium break have turned up as a solution in the case of the Olivier. A theatre which incidentally does not turn up in Izenour's book. Indeed, Britain gets an extremely poor look in. The only place really featured at length is London's Royal Albert Hall. Of our fine collection of Victorian and Edwardian theatres there is not a single example and not one of the moderns either.

Another trouble with a fan or wedge plan for drama is that the bulk of the audience will be in the rows furthest away from the stage. The wider the angle the more this is aggravated and the more of the off stage that is presented to view and to mask. It occurs to me, *en passant*, that contrary to popular belief the only good *side* seats are high close ones, since their occupants' gaze will be directed to the floor and not up at the wing masking. You choose those seats if you want to enjoy the actors rather than the scenery! An even greater problem is what to do with the vast areas of auditorium wall and ceiling the fan form presents. You cannot just paint them black and hope they will vanish.

To claim for Bayreuth at this moment in time that it began "contemporary theater design" is odd to say the least. It certainly may have influenced the design of cinema theatres between the wars, but in Britain we were never very keen on the sort of thing that cinema architects were prone to build when they got a real theatre job to do. The Dominion is one example in London, and I well recollect my remote seat half way up the upper circle for *Follow Thru* in 1929.

The United States still appears to be full of this type and an example in Rochester, New York, is shown in Fig. 2. The large areas to be decorated can be seen, as can the tendency to an overlarge scale of house that the form generates. One goes on adding rows of seats at the back until the requisite capacity is obtained. The university auditorium in Madison, Wisconsin, which I have seen for myself, seats slightly more than the 6,000 of Radio City, New York, which it resembles!

To do them justice many universities with such monster halls have built, or are building, smaller theatres — sometimes, but not always, to a more "dramatic" plan.

This noble work of giving drama a more human scale and a less stereotyped format may be impeded if readers of this book swallow the bait therein. The trap is cunningly set. Everything leads up to Chapter 7, "The Multiple-Use Theater Design Practice of George C. Izenour". It opens: "The 25 multiple-use theaters in this chapter recount an ongoing experience that began in 1955." The chapter on-goes for 137 pages and is followed by one of 35 pages on their "Adjustable Acoustics" and another of 58 on "Theatre Engineering Systems

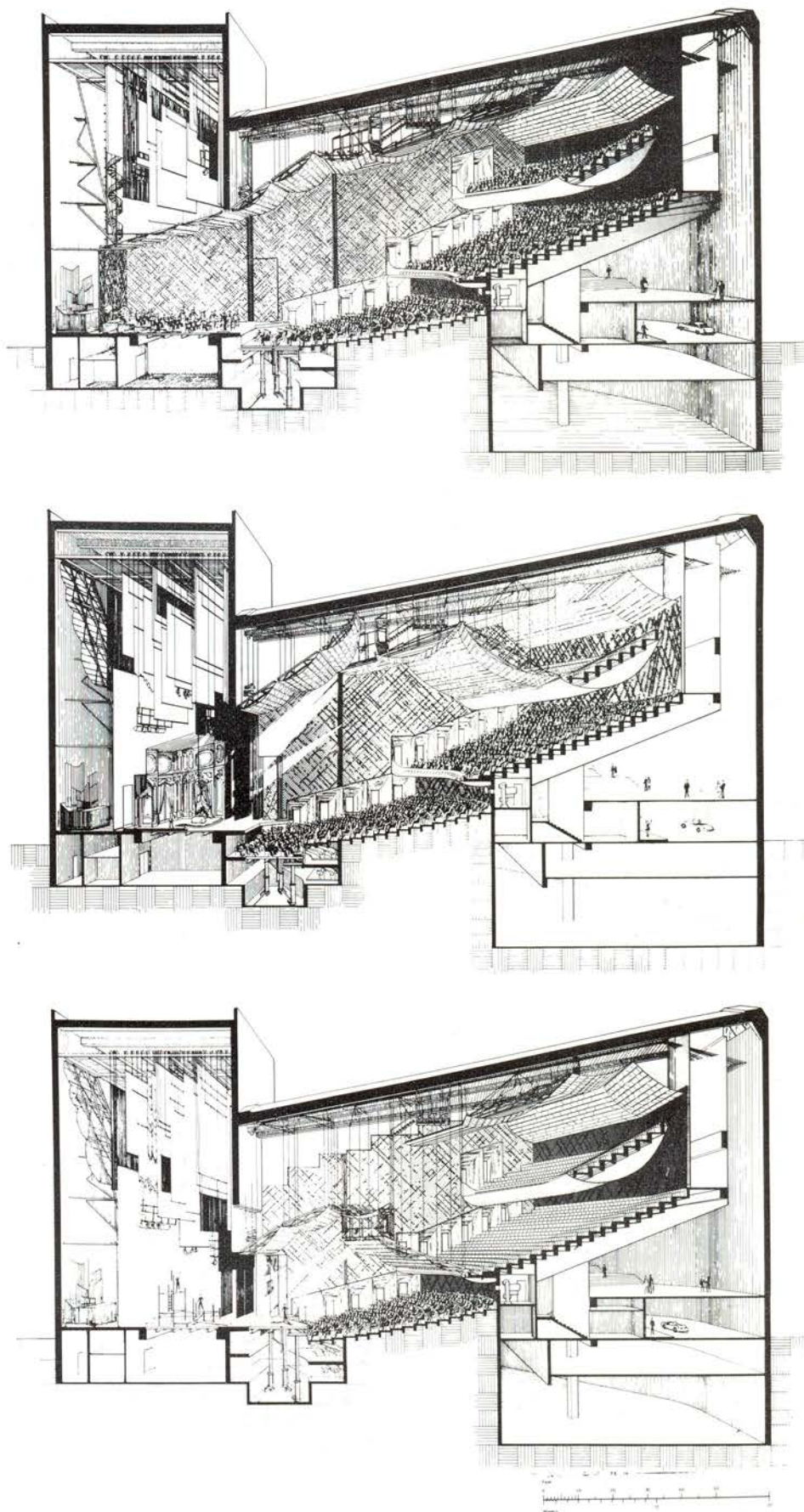


Fig. 3.

Edwin Thomas Performing Arts Hall, University of Akron, Ohio. (top) Concert Hall mode. (centre) Opera House mode. (above) Drama Theatre mode.

Design" for them. The chapter on acoustics makes a nice change because many of the pictures are credited to the "V. O. Knudsen Archive" (the author of that chapter) instead of the eternal repetition of the "G. C. Izenour Archive" which haunts the book from end to end. Surely there could have been a general announcement up front "Unless otherwise stated . . .". Incidentally, all captions everywhere merely identify, they do not describe. One is forced to delve deep in the text for even such basics as the architect's name, let alone seating capacity and the like.

The thought behind the wedge or fan philosophy as applied here seems to be that it does not matter how long the sightline is, so long as it is unobstructed, allows viewing at a comfortable angle and one can hear at the end of it. It is the assumption of a docile audience pre-focused at the stage in this way that permits design of the Multiple-Use Theater. One simply has to cut off chunks at the rear of the auditorium in order to reduce seating capacity and volume. This can be done by moving walls or sections of ceiling or even by changing the contour of the whole ceiling. Or so the theory and the practice goes.

Since TABS has such excellent facilities for reproduction of drawings it seems best to allow one such scheme to show itself off in a series of the fine drawings which are a feature of this book. Opposite (Fig. 3) can be seen the Edwin Thomas Performing Arts Hall, University of Akron, Ohio, performing in its three roles. At the top as a concert hall for 3,008, in the centre as an opera house for 2,321 and at the bottom as a drama theatre of 894 seats. It will be noticed that for all the elaborate mechanics devoted to the ceiling, when it comes to reduction of the 60 ft. proscenium opening it seems to be a matter of shoving on the usual legs or tormentors.

The kind of auditorium architecture displayed in these drawings provokes more than a touch of nausea in me. Yet it must have its advocates or it would not get built and the multi-purpose problem is real enough. How can one hall serve many masters? It may be that the answer is that one or two of the masters have to be given the go-by. I think we have to set some limit to both the number of purposes and in another context for which Izenour is famous, the number of forms — but more of that anon.

The extent to which the Americans allow themselves to be multi-purposed is quite remarkable. One example illustrated in the book is the Assembly Hall of the University of Illinois. Opened in 1963 it seats 16,000 in a completely circular building of over 400 ft. in diameter. For opera or drama a wedge of only 4,200 of these seats is populated and it faces a proscenium and scenery lowered from the eye of the dome. So there they are huddled together like the last survivors of a plague-stricken town, with 11,800 naked seats exposing themselves all round. Not that all is well in the wedge. George Izenour, whose scheme it is not, rates 2,528 (60 per cent) of these 4,200 seats as "unsatisfactory" for opera and 3,300 (90 per cent) for drama. Examining the drawings as repro-

duced I see no reason to disagree with his judgement.

What does make for unease is that although he condemns this enterprise he does not do so emphatically as utter nonsense. Rather he tends to excuse on the grounds that these adaptations of this university arena were late importations. Indeed he concludes his appraisal, "... the means to accomplish this had not been contemplated beforehand by either the architect or the acoustical consultant. Nor had a solution to the dual seating geometry (arena versus quadrant) or the engineering solutions to mechanised conversion (from one configuration to the other) been thought through in advance of construction." He then goes on to refer the reader to the Washington State University and the Oral Roberts University "for two more recent solutions to this problem", i.e. ones where he was consultant.

Let us take a closer look at the first of these two. The total seating of the arena is not stated but it must be enormous because in the small part, we have tinted yellow in the plan (Fig. 4) for separation off as "the concert mode", there are nevertheless 2,670 seats (equivalent to our Royal Festival Hall — also not in this book). In the theatre mode — tinted blue — there are 1,070 seats and all the paraphernalia necessary for its creation is shown in Fig. 5.

It is fortunate that such handy gadgets as "a university-owned portable crane" can be borrowed "for erecting and striking the side wall orchestra shell structures stored prone in cavities fore and aft of the orchestra pit lift and below the playing floor". At least in this scheme there is visual separation, but I do wonder about the amount of further fiddling detail to turn the temporary conversions, even when completed, into practical working theatres. There will be,

Fig. 4.

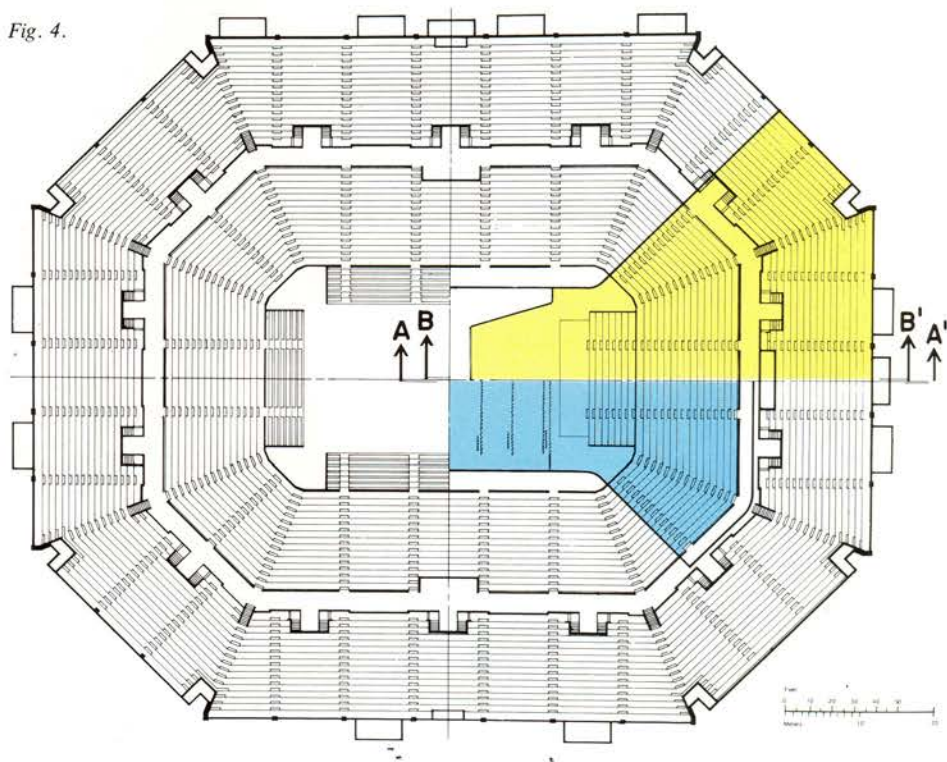
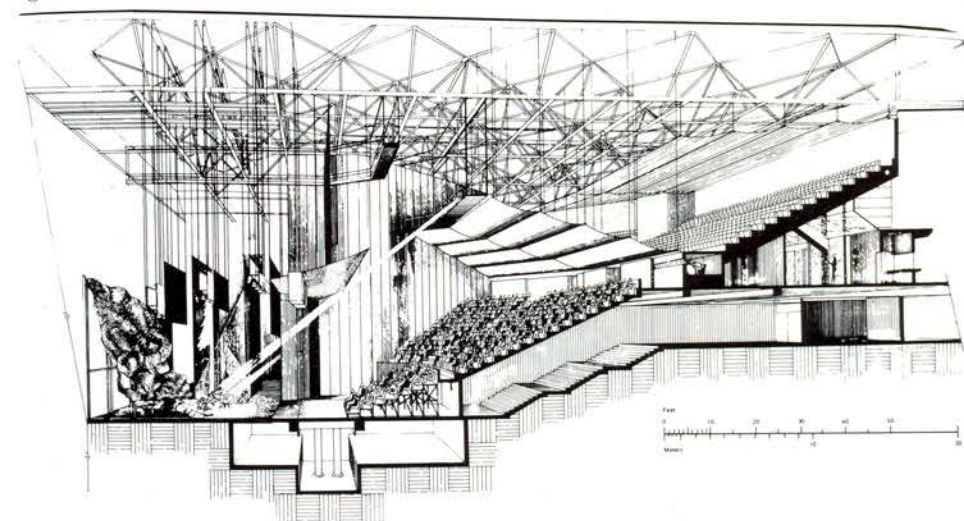


Fig. 5.



Multi-purpose coliseum, Washington State University (Fig. 4). Composite plan showing separation off for concert mode and below theatre draperies erected for theatre mode. Figure 5 shows perspective section of the theatre mode.

for example, the lights not only to get into position to match the conformation of the auditorium but after that to be focused to suit the show. And just setting lights in a normal theatre can take a lot of time and labour. All this for a one-night stand, perhaps.

Similar objections can be laid at the doors of another type of adaptable theatre with which George Izenour has been much associated and which he calls "Convertible Auditorium and Multiform Stage". An early and the best known example is the Loeb Center, Harvard, and this is shown in Chapter 3, "Chronological and Graphical Development of Theatre Design 300B.C. to 1977". Others of his are to be found both in that chapter and in Chapter 2, "Historical Development of Theater Design". In which context I must remark that for an author to devote 51 pages to his own work in a chapter totalling 121 pages which has to deal with 2,400 years of "the art and science of Western theater design" is, to put it mildly, somewhat myopic on his part! It prompts questions as to what this large and expensive volume is like as a book and what authority it carries as an objective survey of theatre design.

As already indicated, Izenour's Preface warns us, intentionally or unintentionally,

that this is a subjective survey directed to an end. This is a pity, for there is a mass of material between the covers and a lot of work has gone into the making of the book. The drawings and diagrams are good and the point-perspectives are quite exceptional. In the book these last are all reproduced to the same scale and a direct comparison one with another is made easy. Because of the page size even a large house like the famous Adler Sullivan Auditorium of 1889 in Chicago with 4,059 seats can be printed some eleven inches wide on a single sheet. Only a few "outsizers" need fold-outs or lose themselves in the gutter of a facing spread. However, because of the nature of the author's design philosophy one finds a high proportion of the perspectives wasted on architecturally barren latter day American auditoria. One longs to see more of the earlier styles. For example, the excitements of the Baroque — dismissed by Izenour as "derived from a misinterpretation of the design intent of the Roman theater".

Then again, Izenour says, "... we are all in Guthrie's debt", but he repays that debt with only 350 words about the drawing of the less inspired theatre named after him in Minneapolis. Surely what we should have been shown was the remarkable Stratford

Ontario Festival Theatre and the Edinburgh Assembly Hall which was the starting point and performance made Guthrie think in terms of a high stage. By no means an obvious choice for any thrust stage.

Having caught one of the perspectives out in the matter of how the show pipes of the organ are planted in our Royal Albert Hall — a large feature of that hall in all conscience — I cannot help wondering at the accuracy of the detailing of other places less familiar to me. Nor are all the diagrams clear in intention, thanks to the sparse captioning. For example, I cannot understand what the shaded squares represent on the three "Efficiency analysis drawings" of seating which form page 27.

We have had the actor-manager's theatre, the director's theatre, the architect's theatre and at the moment the technician or scenographer's theatre, but in this book we have the engineer's — the theatre of parameters, and parameters are not much fun for persons!

**Theater Design, by George C. Izenour. McGraw-Hill, 1977. Price £37.15.*



"Following the Consultants' reports His Highness wishes to implement certain cuts."

BOOKS

The Encyclopedia of Dance and Ballet, edited by Mary Clarke and David Vaughan (Pitman Publishing Ltd., £13.50), is the first major illustrated encyclopaedia to cover the wide field of ballet and contemporary dance. Contributors include writers from Britain, Denmark, France, Sweden, the USA and Russia. Some 350 ballets and modern dance works are included, as well as information on ballet companies and schools, biographical notes on choreographers, dancers, designers and composers, and a glossary of dance terms. Space is given to the upsurge of creativity in the USA, especially in the field of contemporary and avant-garde dance.

The book is beautifully and sumptuously produced with 24 pages in colour and over 200 black and white illustrations, although its usefulness on the lighting side is somewhat limited.

The Illuminating Engineering Society has now published its **Technical Report No. 15: Multiple criterion design: A design method for interior electric lighting installations**. This report is mainly concerned with lighting design in the most general sense, as required for offices and factories. It may, therefore, have only limited interest for the stage lighting designer.

In recent years several people have suggested ways of improving lighting design by taking account of more variables. These have now been synthesised by the IES panel to produce a method which avoids limitations of earlier proposals, a step-by-step procedure which takes account of the relevant criteria and warns of the consequences of decisions.

An introductory section describes the purpose and history of the method and how to make use of the information presented. There are two worked examples with comments. The first follows through the design of a typical office lighting installation. The second, an open plan office, has been taken with parameters chosen to illustrate the difficulties created by room surfaces with reflectances which do not fall within the limits suggested in the IES Code. There is a section explaining the origins of the data. An appendix gives the method of deriving BZ classification from direct ratio when only the latter is supplied.

The heart of the *Report* is the three-page blank worksheet for designing installations using the MCD method (and which may be freely photocopied). Thirty-two pages of charts complement this worksheet and give the data needed when working through the design process. The two pages containing the charts needed for every installation are printed on a fold-out sheet at the end.

Though published as a technical report, this document is intended for the lighting designer and is presented in a form which can be used in day-to-day design work. Copies are available from the IES, price £3.30 (£2.30 to IES and CIBS members) including postage.

Tabman's Diary

Improving Sound

I had originally intended to report the address Professor Peter Parkin gave to the Association of British Theatre Technicians at their October meeting in which he described improvements made to the acoustics at the Royal Festival Hall. It is touched on by Hugh Creighton in his article on Reading and Hillingdon theatres (see page 14). A future article in TABS will describe it in more detail.

In Budapest

The meeting of the International Organisation of Scenographers and Theatre Technicians, which took place at Budapest in Hungary in October, was attended by some 18 delegates from ten countries. The Hungarians were attentive hosts. There was some interesting debate, particularly on the subjects of standardising an international theatre guide, and publication of a polyglot dictionary of technical terms used in the theatre.

There are of course several useful theatre guides, but most tend to cover a certain area and there is no uniformity of the information presented. The Hungarians have introduced a system using technical data sheets, modified from the system suggested by Dr. Ned Bowman in 1969.

The system involves the most important data of a theatre being noted on four pages of A4 size loose-leaf paper. Two pages will be of description, one for diagrams and one for photographs. Although the text is in Hungarian, headings are in five languages. The Commission hopes other National Centres will adopt a similar system.

The dictionary of technical theatre terms, in all the Scandinavian languages, published by Nordiska Teaterunionen in 1975 have all been sold. A second edition covering a total of eight languages, including English, French and German, has also been published.

The OISTT Commission now considers it a waste of effort to proceed with any alternative venture. They are encouraging National Centres whose languages are not included in the second edition to compile lists of terms which could be included in new editions. An approach is being made to Nordiska Teaterunionen to publish future editions.

IB Convention

For the first time the International Broadcasting Convention forsake their traditional venue at the Grosvenor House, London. The seventh Convention, which takes place from 25 to 29 September, will be at the new Wembley Conference Centre.

The move is prompted because the organisers expect an even larger event than 1976, when there were 72 exhibitors, and 2,600 delegates from 51 countries attended.

The call has gone out for papers, and the full programme is expected to be known after mid-March.

IES into CIBS

After 69 years The Illuminating Engineering Society in the UK has been absorbed into the Chartered Institution of Building Services. In its lifetime the old IES became a unique amalgam of the art and the science of lighting. In recent years though the tendency has been for the engineer to overshadow the artist. The hope is that the latter is not now to be completely upstaged. Happily, the North American IES still flourishes and goes from strength to strength.

Lighting Division

A CIBS Lighting Division has been formed which will have as its first chairman Michael Clark a partner of R W Gregory and Partners.

The first National Lighting Conference under the CIBS flag will be held at Churchill College, Cambridge. It is ten years since the Conference was held there.

It takes place from 11 to 13 April. A provisional programme, giving dates, papers, authors and costs has now been published.

Following the procedure of the York Conference two years ago, for which contributions had been invited, it has been decided to give members and others the chance to offer papers. A wide range has been submitted, and some two dozen selected.

The papers selected have been grouped into ten sessions, each with a general theme. They cover lighting and architecture, exterior lighting applications, lighting and its contribution to the environment, lighting and ophthalmics, lighting practice, product quality assurance, lighting education, lighting design technique, interior lighting applications and light sources. Delegates will assemble on the evening of Monday, 10 April. The conference ends at lunchtime on the Thursday.

To CISCO

CISCO, the exhibition of equipment for the film, cinema, theatre, auditorium and multi-purpose hall business which took place in Paris in the autumn, attracted two official parties from Britain. One was the Association of British Theatre Technicians, and the other the Society of Television Lighting Directors.

The theatre, being poor, went by coach and turboprop airplane via Lydd and Beauvais. Television being rich, the STVLD went by jet from Heathrow to Charles de Gaulle. The exhibition itself was judged by many to have been a disappointment. There was little new and so few potential customers that exhibitors seemed to spend their time visiting competitors' stands.

Formally the ABTT visited the Opera and the modern Pompidou Centre for the visual arts and design. Informally they visited the Lido and Le Chatelet to see *Volga*. A fuller report on the new lighting installations at the theatres appears on pages 12 and 13.

The STVLD had a joint meeting with the French Association of Directors of Photography which was addressed by the managing director of SFP and the deputy managing director of the British Broadcasting Corporation. This was followed by a visit to the new television studios at L'Empire (see also page 12) and television centre at Buttes-Chaumont, a party at the British Embassy, and a visit to *LTM*, a French manufacturer of luminaires. They were interspersed with meals and other refreshments generously provided by various manufacturers.

With decanter

The visit to CISCO by the Society of Television Lighting Directors was the last event at which John Treays of the BBC was chairman. A founder-member of the Society, he leaves after three years as its first chairman. He was given an antique whisky decanter at the annual general meeting, which took place at GEC (Osram) at Wembley, in thanks for his work. Bert Wilkins of London Weekend was elected chairman to succeed him.

The fact that the theatre and television were separate at CISCO, and that normally there is so little contact between people in such a similar business, has led Rank Strand to act as a catalyst. A joint meeting between the STVLD and the SBTLD, the theatre lighting designers, is to take place at the National Theatre.

Weighty problem

Deep in the bowels of the North Alberta Jubilee Auditorium, by the University campus at Edmonton in Canada, work is being undertaken to strengthen the stage so that it can resist weights of up to 110 kg being dropped on it. In an age of multi-purpose design it is good to know that a theatre planned nearly a generation ago can be adapted with minimum fuss to the needs of international sport.

The theatre is to be used for the weightlifting classes during the Commonwealth Games next August. On his first inspection of the site Oscar State, general secretary of the International Weightlifting Federation, is reported to have said that the venue was superior to many used for the world championships, and certainly one of the best ever offered for a Commonwealth competition.

The Jubilee Auditorium is a concert hall built in 1956 by the Alberta Government to commemorate its fiftieth anniversary as a province. The fan-shaped building is 50 feet wide at the back of the stage, broadening to 160 feet at the rear of the theatre. The stage measures 60 feet by 120 feet wide. There is comfortable seating for 3,200 people. Ten dressing rooms behind the stage are being made available for competitors and officials. The entire site is next to the Games village.

The use of the Auditorium is a good example of Edmonton's approach to the Games. Canada is still haunted by the excesses of the Montreal Olympics. Estimates of how much that cost vary, although a tag of three-quarters of a billion dollars has been quoted. At any rate it will remain a talking point for years, especially as many of the expensive facilities are not fully used.

Edmonton has learned the lesson. It is determined that it will not be left with a series of white elephants which its 500,000 citizens will never fully utilise. "We designed to budget, not budgeted to design" an official explained. Six years ago, when planning the Games, Edmonton estimated that it would all cost \$40 million. They have managed to keep it down to \$36 million.

That has meant adapting existing facilities, as well as building new ones. By August the city will have a new stadium (which will subsequently be used by the local football team) swimming pool, bowls lawns, velodrome, and claypigeon and rifle range.

Other venues, such as the Jubilee Auditorium, have been adapted. It is not the only indoor venue, or the most impressive. The new Coliseum has been described as one of the most magnificent indoor complexes in North America. It has a variety of uses.

It was opened just over three years ago and cost \$15 million. It is circular, and seats 15,300, in comfort. This can be increased to 17,000 or reduced by 4,000 seats, depending on what is going on. Even with maximum seating it has a floor area of 85 feet by 200 feet.

It is mainly used for sport, entertainment and rallies. For the Commonwealth Games it is the venue for gymnastics. As well as the usual facilities it has a restaurant for 200, bars, and high intensity lighting and a circular platform above the floor to help television coverage.

I Wonder

If some of us wonder why we do it, the following verses which I spotted on a recent visit to the Abbey Theatre, Dublin may offer a clue.

I wonder!

If you were born
In a different time
In a different age
In a different clime;
Would you answer again
The call of the stage
In the whirl of the
Thespian arts engage,
Or set your life
On a different page?
I wonder!

Would you be drawn
As you are today
To the call of the boards
To the need of the play
Rough with the smooth
Thick with the thin
Seldom at home
With kith and kin
Is this the life
You would choose
To be in?
I wonder!

Would all the doubts
You have be stilled
Is the stage the place
You'd be fulfilled
There to receive
Your nightly share
Of the loud applause
Of the limelight's glare
Part of the show
Glad to be there?
I wonder!

Knowing the stage
With its joy and pain
Is this the life
You would choose again
Seldom meeting
Complete accord
Slave to the public
Slave to the word
Often despairing
No time to be bored?
Probably!

It was written by Leslie Scott, a rare combination of engineer and artist. He is chief of engineering and head of lighting design there.

As a schoolboy he was allowed the run of backstage in the old Abbey where his father's small electrical company was the maintenance contractor. Before joining the Abbey Company in 1953 he had a spell with Hilton Edwards at the Gate Theatre. It was a fine prelude to a career which still promises new horizons. His main relaxation is scribbling verse. Those who know him well think that a good book lurks within, biding its time.