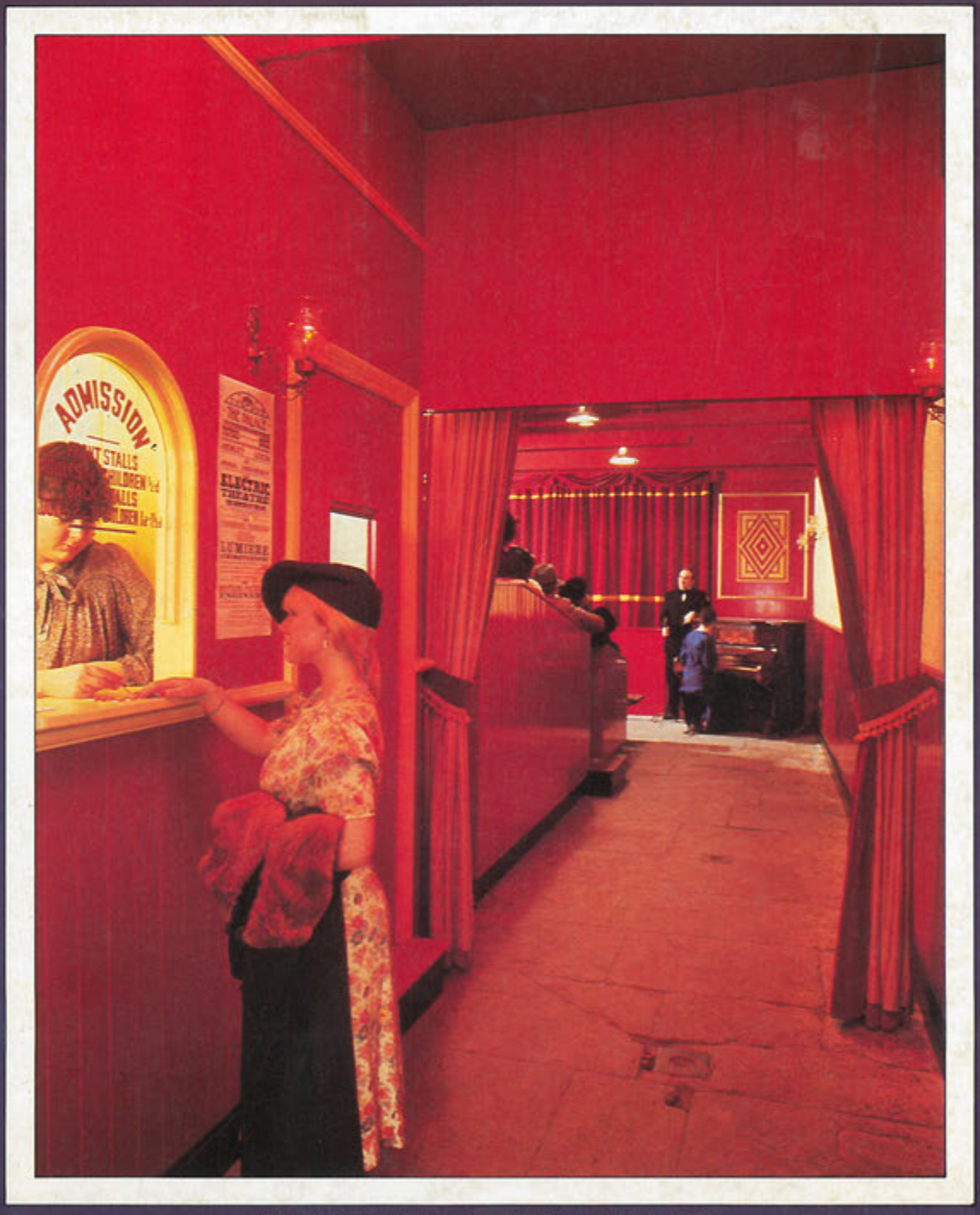
TABS

THE INFORMATIVE JOURNAL OF THE RANK STRAND GROUP



VOLUME 39 NUMBER 2 NOVEMBER 1982

TABS

Editor:
RICHARD HARRIS

13,000 copies of TABS are distributed to readers in theatre and TV technology around the world.

Our cover photo shows the replica 1925 cinema constructed in the Leeds Industrial Museum. See article on page 10.

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NEWS FROM STRAND CENTURY

Our U.S. sister company, Strand Century, report a few news items from Tinsel Town U.S.A. At long last memory systems have begun to storm the walls of Hollywood. CD80, Palette and Mantrix have gradually been winning the film makers over to the virtues of dimming and remote control.

Century now have systems, either installed or ordered, for the Burbank Studios, Universal Studios Amphitheatre, Paramount Studios and Panavision.

TOM SAMUELS WINS "GOOD GUY" AWARD

Tom Samuels, the Manager of Rank Film Equipment, turned up in the Editorial office recently looking remarkably pleased with himself. I knew it couldn't be because Arriflex Cameras had won some new distinction — they are, of course, the world's standard professional 16mm movie camera and already their Munich sideboards groan with such a selection of medals, cups and shields in assorted precious metals that anything further would be too much.

No, it turned out that Tom himself had received an award. At some industry jamboree at one of the more select Harrogate caravancaries he was summoned from his table, all unsuspecting, and was delighted to be told that the Heads of Film of all the U.K. independent television companies had voted their annual "Good Guy" award to him.

The award is given for the best personal contribution made to the industry during the year.

As for the aesthetic virtues of the statuette? White hot pincers will not draw forth the Editorial opinion.

TABS 'Goes to Bed'

Our photo, taken by delayed shutter release on the Editorial Pentax, shows the group who actually put together the articles and pictures for TABS.

Betty Mann, the Editor's Secretary, is next to Barrie West, the designer of our magazine, while Bill Crisp, Strand's Advertising Manager sits on the Editor's right.

(The mirth was occasioned by the Editorial dash back to his chair after starting the shutter release and by everyone's attempt to look serious.)

AN IDEAL SPOTLIGHT

The ideal spotlight would be around 100mm cube, be fitted with a sky hook (with an independent safety bond to a separate cloud to satisfy Authority); and the beam intensity, distribution, edge quality and colour would be infinitely variable but determined, on a latest-takes-precedence basis, by thought transference by the lighting designer. This paragon of virtues would weigh no more than one kilogramme, would need to incorporate refrigeration to have a skin temperature below ambient, be suitable for twice daily transport by shovel, bulldozer or British Rail (whichever is the more onerous) and, of course, must sell for less than the cost of any existing, single purpose luminaire.

Minim, the new compact spotlight, nearly meets the size constraint, and approaches many other of the ideal qualities but in this real world we all live in, many other idealised features have proven technically insuperable or economically insurmountable.

The Editor thanks Brian Legge for this thought.

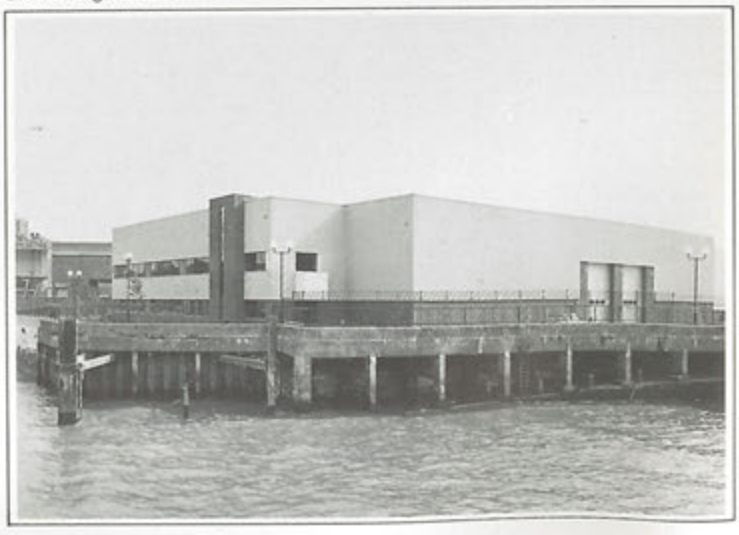
THEATRE PROJECTS SOUTH BANK MOVE

As if Festival Hall and The National aren't enough of a theatrical concentration, Theatre Projects Hire are shortly making a transpontine move across the river to Unit 4, Nine Elms Industrial Estate in Nine Elms Lane. Our photo shows the rather anonymous building that will soon, no doubt, acquire a definite 'T.P.' personality.

It is 18,000 sq. ft. — big enough to pre-rig the largest rock or Product Launch rig. As a contrast to their present West End lair, there will be easy parking. Of course, the West End presence will be retained for lamps and the provision of spares.

Their role as one of our official Strand Service Agents — alongside Donmar and Robert Luff, will continue from their present home.

From early December knowledgeable folk may telephone on 01-622 4272, as well as that familiar number that even your Editor remembers — 01-240 5411.



FROM THE EDITOR

MEONCROSS SCHOOL ARE USING MINIMS

This school which is situated at Stubbington, near Fareham in Hampshire has recently bought three pairs of Minims. After borrowing lights each term for their regular musical and drama productions the Meoncross Association (P.T.A.) provided the cash required for the new lighting. The lights were obtained from the local Rank Strand agents.

Mike Johnson, who is in charge of the lighting has had many years' experience of lighting for plays and musicals. He believes that the Minims are the real answer for the small or medium size stage found in many schools as well as being ideal for 'fill in' lighting on a larger stage.

PHOTOGRAPHS IN THIS ISSUE

The photographs illustrating Joe Thornley's 'Harmony Observed' article as well as the portrait of Francis Reid on the back cover and the portrait of Derrick Ross on Page 12 were by Randall Miles, ARPS, AFIAP, MBKS.

Photographs illustrating Graham Walnes' article 'Going to Church' are by Lyton Black.

The interior shots of the Theatre Royal Plymouth are by Martin Charles, the exterior view is by courtesy of the Costain Group p.l.c. while our cover photo is by courtesy of Leeds Department of Leisure Services. Apart from a few library pictures all the remaining photography sprang from the loins of the Editorial Pentax.

A.B.T.T. TRADE SHOW

For the second time London's Round House was the venue for the A.B.T.T. Trade Show.

A symposium on Energy Conservation in the Theatre was held on one of the days and although your Editor was abroad on that day and couldn't attend, very good reports of this event have filtered back.

To put it fairly directly, a good many visitors need a technical symposium to attend to justify their visit. For overseas visitors the cost of a journey to London is a not inconsiderable sum, and various official committees are more likely to approve the expenditure if a relevant programme of events is offered alongside a trade show.

Have I a criticism of the show?

Only one really. There just weren't enough visitors! On some stands the staff of the companies concerned, most of whom I know by sight, could have overwhelmed visitors by main force because they were at an advantage of about three to one. A quick Editorial canvas taken on a totally non scientific basis revealed a common view among exhibitors, namely that the show should become bi-annual. Maybe it should alternate with Harrogate?

There weren't really enough new products, or enough visitors, to warrant the effort in money and, even more precious, time, that an annual show costs its participants.

So, gentlemen of the relevant committee, can we please enlarge the symposium and conference aspect and have the next event in 1984?

By the way, the Round House would be fine.

VOICES FROM THE PAST

For ten years there was an internal newsletter in Strand called "Playback", which circulated to all Strand staff and to home and overseas agents.

It was often very indiscreet. For example, one competitor, whose lanterns were notorious for their heat level was always known in its pages as "Kentucky Fried Lanterns".

One especially active competitor's memory system salesman was always affectionately described in its annals as "The Black Dog".

Most of the contents were ephemeral in their interest, but now the passing of time is lending a certain nostalgic patina.

Here is an item from the early seventies, which featured Jack Watling, now an Export Area Manager, who was then our Lancashire representative.

Here I must explain a little background. Working Men's Clubs are a great British institution. They vary between a humble wooden hut and a palatial theatre restaurant which may seat two thousand. But they have two things in common.

They all serve beer and they all have some sort of show business equipment, from only two Par Blazers, a platform and a microphone, up to a stage and its lighting often more elaborate than the West End.

Here is part of the conversation, reported in Playback at the time, between a Club Secretary and our Jack.

Club Secretary:
We asked you to call because one of the acts we had here last week was a juggler. He wanted a blue stage and we couldn't give it to him.

Jack
Yes, well colour is a simple thing to produce, but have you considered any of the many other effects available?

Secretary:
We don't want any of those bloody awful flashing lights you know, the main thing we want is colour.

Jack
Well how much did you want to spend?

Secretary:
We are not short of brass you know. See that organ over there, that cost us £4,000 two months ago. Let's say £1,500.

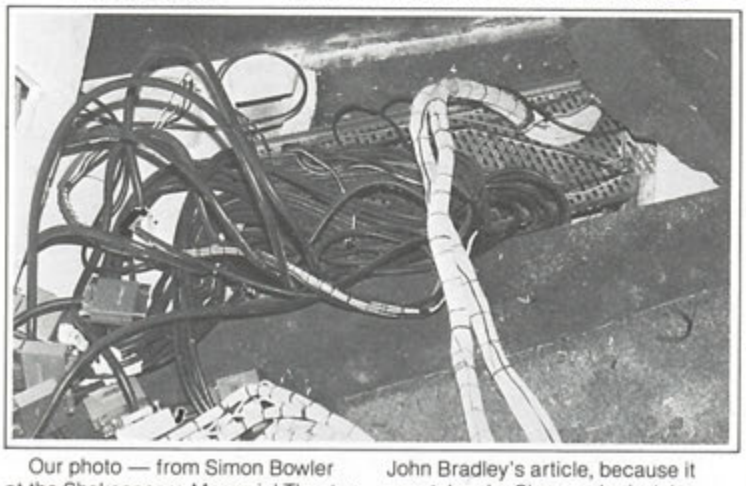
Jack
(thinks) For that money you can have a red, white and blue stage with pink spots and I'll do the juggling. Right I will send you a quotation with my suggestions.

Secretary:
Don't forget we want a blue stage, that bloody juggler might come back.

Jack
(thinks) There's just no answer to that.

Further instalments from old "Playbacks" in future issues.

SNAKEPITS — THE CONTEST CONTINUES



Our photo — from Simon Bowler at the Shakespeare Memorial Theatre at Stratford-upon-Avon — is another entry in our series on really writhing snakepits. This entry ties up with John Bradley's article, because it was taken by Simon, who is John Bradley's No.2, during the changeover from the Royal Shakespeare Theatre's DDM to their new Galaxy.

MIDLANDS READERS PLEASE NOTE

Readers in the Midlands will, from 1st November 1982, be able to buy or hire Strand lighting and sound equipment locally. The company are called Midland Theatre Services Ltd. at Bell View Farm, Horsebrook, Brewood, Staffs. Telephone Peter Coleman on 0902 850688.

FROM VIC GIBBS

An Alitalia flight was high-jacked in Bangkok at the end of June. Part of the cargo was 34 Bambino 5kW Quartzcolor laniro lanterns. Some people will come up with anything to get hold of our lights!!!

OUR BACK COVER

Do you read the back of magazines? I don't always — but if you are at all interested in amateur or school stage lighting, please see the back cover of this issue!

WESTWARD HO!

We look into the unique method of coping with different audience capacities at the new Theatre Royal, Plymouth.

WHAT first comes to mind on hearing the name Plymouth? Drake and his drum? The Hoe? or, perish the thought, could it be the colourless juniper tinged beverage coloquially known as Mothers Ruin?

Well for anyone interested in theatre design and construction, a new meaning to Plymouth must now enter the collective consciousness.

I suppose one of the longest standing problems with any theatre is how to vary its capacity to give an audience that communal charge of electricity that ideally converts a live performance into an experience.

A number of individuals scattered thinly may see what is happening all right, but they will not make up a true audience.

There have been many attempts to vary the capacity of theatres. I suppose one of the earliest was the use of a valarium — a kind of internal tent which could be rigged at either gallery or circle level. I remember, incidentally, when sightseeing in Rome being told that the Coloseum had an enormous canvas shade stretched over its gigantic oval, and that the Roman Navy had the job of putting it up. I imagine returning to the oar must have been a

by The Editor

Some four for five years ago the well-known West End impressario, Mr Ian Albery arranged for our good friends from Bury St Edmunds, Telestage, under the direction of architects, the Peter Moro Partnership, to install a ceiling at his Piccadilly Theatre which could be lowered to gallery railing level to convert the large house into a stalls and circle theatre only. I understand the idea originally arose in 1973 in the early Plymouth scheme. How often the device has actually been used at the Piccadilly I am not too sure as Mr Albery is so inclined to pick winners that I would have thought his investment was somewhat akin to Lester Piggott arranging for riding lessons.

I remember the ceiling descending very impressively towards the assembled members of the A.B.T.T. when they gathered in the theatre three years ago — some members looked a trifle apprehensive, while some others, myself included, slipped discreetly into the bar. Now the idea has been taken further by the same architects, working on this occasion with Martin Carr and Peter Angier, the theatre consultants for Plymouth.

Telestage were once again responsible for the engineering design and installation.

Our photos show (1) the ceiling in its raised position, allowing an audience whose full capacity would be 1296, (2) shows the ceiling lowered so that it cuts off the upper circle visually as though it had never existed, and the new capacity becomes 768.

TABS readers will see that the lighting bridges, ideally positioned, move with the ceiling as one complete construction. Photo 3 shows a view such as will never be seen by the public. The ceiling is seen 'down' but the picture was taken from the upper circle, and shows the construction in some detail.

1 *Ceiling in raised position.*

2 *Ceiling lowered.*

Robin Rae (left) and Barry Mabbut (right) of Telesage Associates who designed and built the moving ceiling.

3 *Behind the ceiling scenes.*

For the Technically Minded

What does the ceiling consist of?

It is a steel framework in three sections making up a 'box' whose floor consists of the visible ceiling cladding material, consisting of panels finely veneered in chestnut, with their auditorium down-lighting as well as the stage lighting bridges, and whose shape echoes the octagon of the auditorium.

How much does it weigh?

Approximately 50 tons.

How far does the ceiling move?

The first section raises or lowers, worked by four 2½-in diameter screw-jacks driven by two 5.5kW motors. There are two guide towers to control the movement, which is a total distance of 2.6 metres. The ceiling takes three minutes to travel the full distance.

The middle section travels the same

comparative rest after such a task. Come to think of it, even the word 'Valarium' has a very Latin ring to it.

Quickly slipping forward to about 1970 I seem to remember that the Mercury Theatre at Colchester was provided with a system of moveable walls that varied the theatre's shape and capacity.

distance, but because of its more complex shape it uses four guide towers.

The third section is of even more complex shape. It is suspended on eight cables, each of which is capable of taking six times its allocated weight. Because this section travels 5.25 metres vertically it is guided by four telescopic guide towers.

How is it moved?

By electricity! In detail, the first two of the three sections, counting from the proscenium are raised and lowered on screw jacks, the third section is on cables.

How is it controlled?

The ceiling will only lower — or raise — when two separate control buttons are pushed. In other words, two people must agree that all is safe before the ceiling units can move. As an extra safety precaution, access to the working area is by electrically interlocked gates, which stop the raising and lowering motors from operating if anyone is within the working area.

What is the effect on the heating and ventilation?

Large flexible pipes carry air to, and from, grilles built into the ceiling units, so full heating and ventilation is maintained in either condition.

Is the system safe?

Yes. The first of the three sections are on screwjacks, which are inherently self sustaining. They actually have to be motor driven 'down' as well as 'up'. Should the motors fail, then the ceiling simply remains at which ever point it has reached.

The third cable suspended section, as well as being designed with a safety factor of six, has the usual cable lift braking system.

Who designed and built the system?

Telestage Associates, under the supervision of the Architects and the Theatre Consultants. Barry Mabbut, under the direction of the late Colin Rae, was mainly responsible.

Did Strand do any other work at the Theatre Royal?

Yes! All the seating, two Galaxy Memory Systems and just a *few* lanterns!

Can the Telestage moveable ceiling be fitted to an existing theatre?

Almost certainly, yes.

Do Telestage work anywhere in the world?

Certainly, yes. ■

LIGHTING WORKSHOP

33-35 FLORAL STREET, COVENT GARDEN

AT 35-36 Floral Street, in the heart of London's fast-changing market place, Lighting Workshop will be a well-placed and an appropriate addition to theatre and design-orientated businesses. Designed by Hop Studios (situated in The Old Hop Exchange on Southwark Street, S.E.1), Lighting Workshop is a completely new concept, combining retailing with a serious design consultancy. The showroom on the ground floor houses a comprehensive range of lighting equipment — lamps, fittings and accessories from all over the world. The design studio is sandwiched between the shop and the exhibition space on the top floor, while in the basement display booths are used to demonstrate effects and the application of particular lamps. For example, there is a section on dimmers for domestic and or commercial use, for use with tungsten and fluorescent lighting. In each case the material illustrates the advantages of a dimmer installation in different situations i.e., offices, shop windows or at home, and on occasion, how one system scores over another. There is also a section concerned with more sophisticated dimming equipment, designed to introduce architects and designers to applications for the sort of equipment, more normally seen in the theatre, for instance. (Strand's ENVIRON range plus a selection of our stage lighting is featured prominently. Ed.)

Colour rendering, track systems, spot lamps, picture and mirror lighting, plus the effects on fabrics — and wood — are covered in much the same way. The Workshop hopes to use the basement to complement the work carried out by the design consultancy in addition to it being a library of information and a lecture theatre. This leaves the exhibition space free to be used by outside exhibitors or by the Workshop if they wish to launch new products and ideas.

Offering such a comprehensive package (all aspects of the Workshop will be backed up by promotional material so that all those involved should get maximum, appropriate exposure) could prove problematic! Fortunately, the two men behind the Lighting Workshop have had equally disparate pasts, though both have been immersed in lighting for more years than they care to recall. The Workshop is a reflection of their experiences: Brian Norris studied chartered surveying for two years but left that in 1970 and then moved rapidly through a number of sales forces, all selling lights, to become National Sales Manager for Rotaflex Home Lighting, in 1978. His association with the Rotaflex Group began six years previous to this, but when it came to launching a brand new range of fittings onto the unsuspecting domestic market Brian was brought in to play the lead. In fact, Lighting Workshop was his brainchild, born out of the experiences gained in trying to establish much needed feedback between manufacturers, designers and the market place.

His partner in this venture is Maurice Brill. Ironically Maurice's interest in lighting grew out of working in amateur dramatics and one of his most notable projects to date (and they form an impressive list) was as associate lighting designer on the public areas at the National Theatre. Other schemes with which he has been involved, include St. Katherine's Dock, London, Ronnie Scott's Club and Dubai's Leisure Centre. He is currently lighting design consultant to Basildon Corporation, working on Europe's biggest building project, the new town centre of Basildon and in a similar capacity, to Ipswich Borough Council on their new leisure complex.

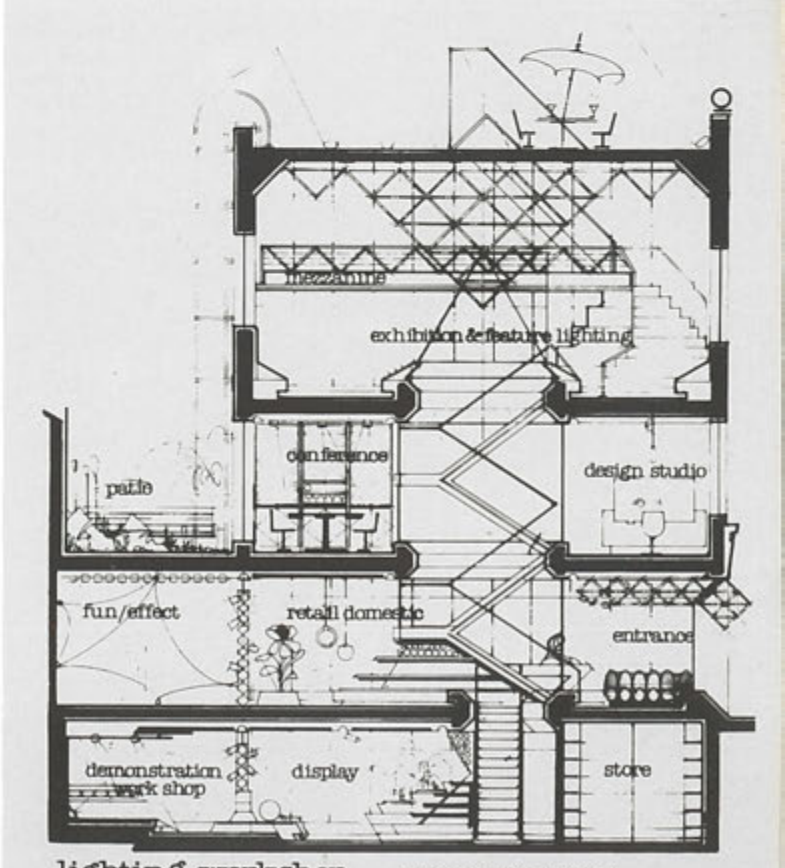
After an engineering apprenticeship, Maurice went straight to the Marlowe Theatre, Canterbury, as chief electrician and lighting designer. From there he joined Ballet Rambert and toured Europe, setting lights in Vienna one night, Berlin the next. The nomadic existence didn't mix well with getting married, so Maurice joined Theatre Projects to help form Light Ltd. the architectural division of the parent company. He, too, then had a spell with Rotaflex Group before setting up his own independent design company, Maurice Brill Design Ltd.

Independence is the key to the success of the Lighting Workshop, for although Maurice will be joined at the drawing board by James Wadsworth who has been with Light Ltd. for the past four years, the other members of the Workshop's team have no formal connections with lighting companies. All simply share an enthusiasm for and belief in the use of lighting as an essential but highly creative element of interior design. ■

by Amanda Harral

Amanda went to Casterton School for Girls in Cumbria where, she proudly tells me, the Bronte sisters were educated. Amanda was at Bristol University from 1976-1979 and entered the world of journalism followed by three months in America on promotion and P.R.

She returned to the U.K. becoming Special Projects Editor on House & Garden magazine and joining the staff of the Lighting Centre a short while ago.



lighting workshop
floral street
covent garden

designed by Hop Studios,
rog' butler & john pepper

THE AUDIO VISUAL SIDE OF STRAND

ONE IN THE EYE IS WORTH TWO IN THE EAR

by Nigel Pounder

THE Editor suggested that TABS readers were quite often involved either in the actual planning, or, at the very least, in offering their advice on audio visual equipment, and how it is used.

As Strand Sound specialises in this area, I decided the man to interview was Owen Clark, their expert in the field who has more than twenty years' experience in setting up training centres and audio visual equipped lecture theatres. When you think of it, neither of them is too far from theatre in its more usual Strand sense.

Obviously, the scope of the projects Owen handles vary enormously. To start at the top, one of the most interesting jobs carried out was the equipping of a demonstration theatre — and theatre it really was — to allow a company in the Midlands who manufacture civil engineering equipment to demonstrate the Diggers, Graders, Trenchers etc. which they make and which can be seen digging, grading and trenching on various construction sites all over the world.

Imagine yourself in the role of a buyer of such heavyweight gear. Perhaps as an Arab sheik, equipping your country for a giant oil funded road building programme.

You and your entourage are ushered into a small auditorium — where you can repose on Strand seats of the most luxurious specification, in which the Ossa of real velour is piled on the Pelion of high density foam.

Once you are suitably settled, your host takes his place at the multi function lectern. As he does so, the Environ 'take control' system lowers the house lights at the touch of the appropriate button on the lectern 'geographically' — in other words the central chandelier's white circuit first, followed by the coving perimeter lighting, then finally the chandeliers' pink circuit. All the while superb quality music gently issues from the Altec speakers. The music fades and now follows a truly staggering audio visual display. Everyone is familiar with the ordinary A.V. multi screen show using 35mm transparencies, all too often amounting to only a triple screen version of holiday snaps.

The system Owen Clark put in for this customer uses very special quality Xenon lamped slide lanterns, able to dissolve, wipe etc, and fitted with real optical quality lenses. I saw this system for the first time when looking at this job, and truly the effect is staggering. As large as life, brilliant focus and sound that easily rattles the aforementioned chandelier.

Depending on the equipment the potential customer is interested in, a slide/sound programme explains the particular product. Suppose an excavator is being discussed, then the appropriate A.V. shows all the finer points in detailed shots. At the end of the presentation the taped sound of the machine's engine increases enormously — and now follows the real punch — as the sound track roars the multi screens are flown, the backing drapes part and as the stage lighting comes up the actual excavator under discussion is driven onto the stage by a white overalled attendant and there it is literally as large as life and just as noisy. The high volume of the audio of course, preserves the surprise provided by the sudden visual!

This job was of course, one of the more elaborate featuring as it does a complete theatre/cinema/A.V. package, including drapes and stage equipment.

Many of the projects Owen designs are more specialised, and many are really quite modest. But because they are specially designed for the individual clients' use, rather than being just a load of gear from Tottenham Court Road, they give the user what he wants tailored to his actual needs.

A good example of a somewhat less ambitious project was one for Shell Expo Ltd. at Lowestoft. This was a multi media lecture room, including a Strand teaching wall — these are specially built units incorporating white writing boards, magnetic boards, tilting screens (where an overhead projector is to be supplied) — with built in speakers, cinema screen etc., and all finished as one purpose built unit completed in a wood veneer laminate. These units, incidentally, are built in a fascinating workshop manned by three highly skilled cabinet maker brothers. The world of silver rimmed spectacles and baize aprons is alive and well, and building a steady stream of Strand "Multi Media Presentation Units". The same workshop produces the special lecterns with their built-in push button controls so that one man, normally the lecturer, can run a whole presentation professionally.

Owen tells me that one of the most satisfying moments of any project is when the client first stands at *his* lectern, pressing buttons and seeing screens tilt, lights going up and down and the motorised window blinds descending and ascending in unison.

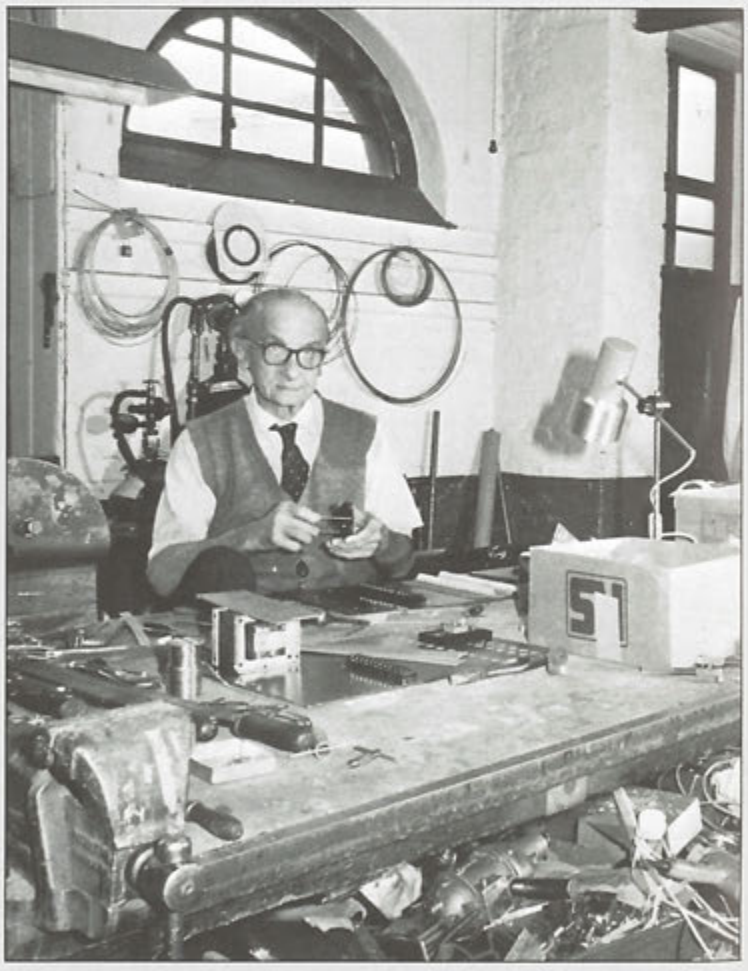
I asked Owen if there was any one constant in his contracts. He pondered for a moment and finally decided that virtually every job used a sound system. These varied from the elaboration of the microphones, tape deck and mixer system installed by him in the Basingstoke Head Office of the AA, to the simple speech reinforcement set-up at the W.H. Smith training centre to the ultimate sophistication of the lecture theatre, magnificently equipped, at the European Weather Centre at Reading.

Incidentally, Owen's definition of a good speech reinforcement system is "one the Audience is completely unaware of — except that they can hear everything that the lecturer says!"

Owen's main recommendations are: use good quality speakers and use plenty of them set in the ceiling, and all controlled in groups so that the final sound can be tuned to the room.

Owen's rule No.2 is again simple and born of experience. "In many projects the user will begin to worry about whether pictures can be projected in the lecture area. Even if there is no easy way to incorporate a conventional projection room, periscopes, prisms, mirrors or back projection can be used to get round almost any site problem. There is always a way to get a picture on a screen."

Owen then came up with a few thoughts on Video — the latest entrant to the lecture and training scene.



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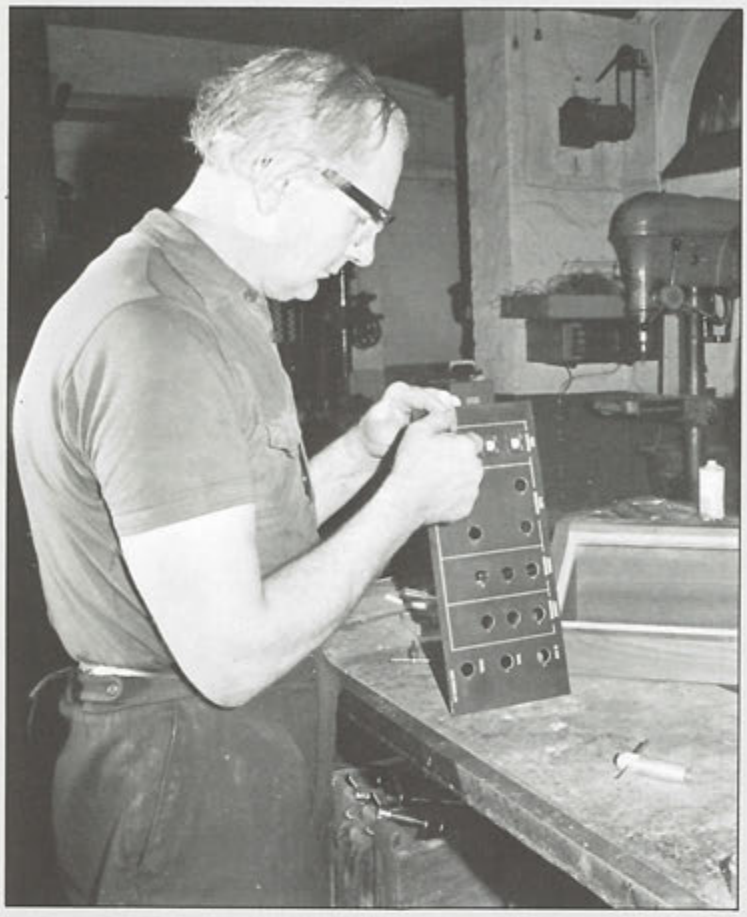
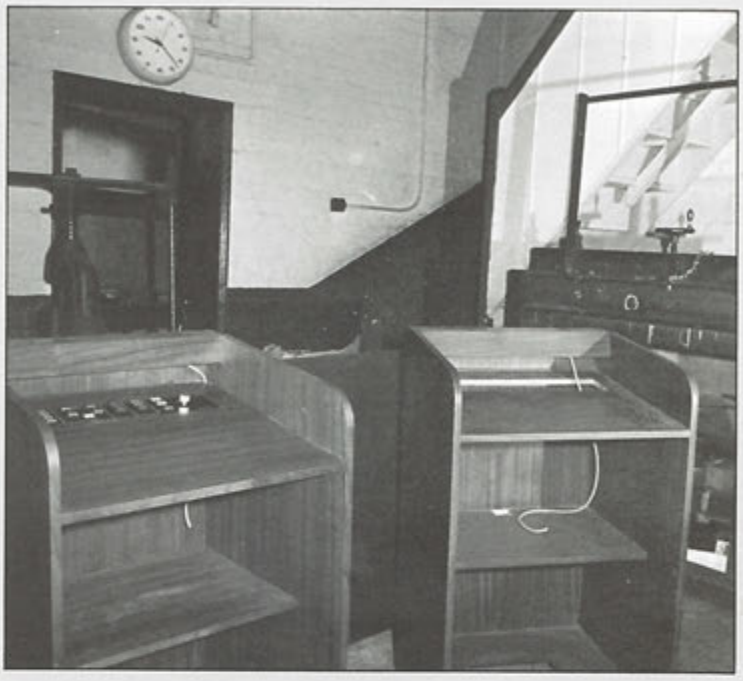
Strand, of course, are the U.K. distributors of a famous large screen projection system, and the results are comparable with 16mm film — provided always that the material the client wants to use is available on video cassette. The future almost certainly lies with large screen video and currently only the comparative dearth of software is holding it back in the training and teaching world.

One last thought from Owen Clark "Our only real task is getting the message across — so one must always remember that if you can't be seen, you probably won't be heard — so however good the sound always *light* the speaker. Two 23's will do."

So here we come full circle — back to one of Strand's original success stories. ■

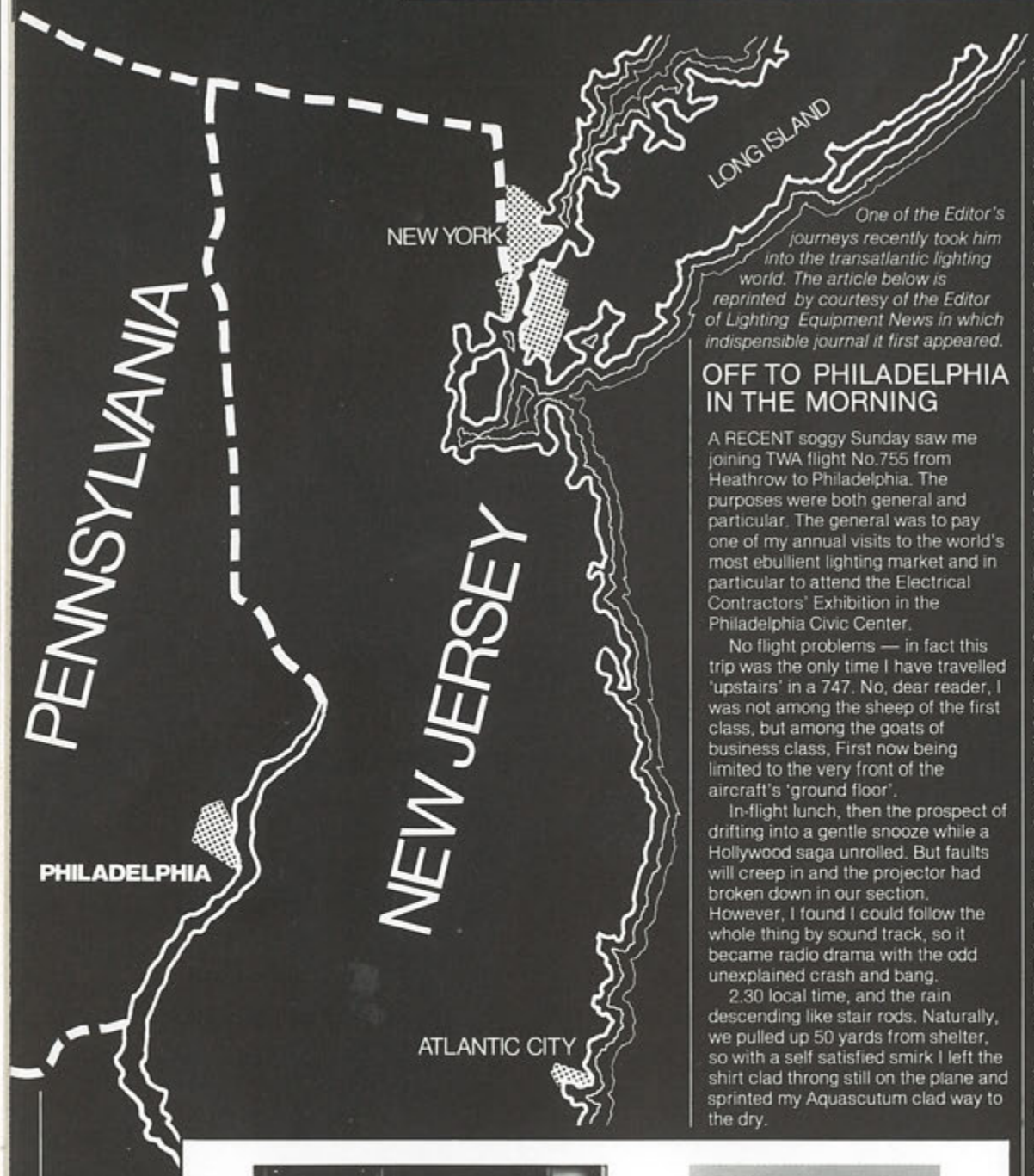




1 *Assembly of lecturn push button.*
2 *Two lecturns ready for test.*
3 *Mr Ribbans at work.*
4 *Craftsmanship alive and well!*
5 *Lecturn final assembly.*
6 *A recent installation.*

UNITED STATES

THE EDITOR'S



One of the Editor's journeys recently took him into the transatlantic lighting world. The article below is reprinted by courtesy of the Editor of Lighting Equipment News in which indispensible journal it first appeared.

OFF TO PHILADELPHIA IN THE MORNING

A RECENT soggy Sunday saw me joining TWA flight No.755 from Heathrow to Philadelphia. The purposes were both general and particular. The general was to pay one of my annual visits to the world's most ebullient lighting market and in particular to attend the Electrical Contractors' Exhibition in the Philadelphia Civic Center.

No flight problems — in fact this trip was the only time I have travelled 'upstairs' in a 747. No, dear reader, I was not among the sheep of the first class, but among the goats of business class, First now being limited to the very front of the aircraft's 'ground floor'.

In-flight lunch, then the prospect of drifting into a gentle snooze while a Hollywood saga unrolled. But faults will creep in and the projector had broken down in our section. However, I found I could follow the whole thing by sound track, so it became radio drama with the odd unexplained crash and bang.

2.30 local time, and the rain descending like stair rods. Naturally, we pulled up 50 yards from shelter, so with a self satisfied smirk I left the shirt clad throng still on the plane and sprinted my Aquascutum clad way to the dry.

My evening walk — a bright pink sunshine now filled the Delaware valley — revealed the usual delightfully casual attitude to wiring of our American cousins. On the intersection of Walnut and 15th Street a set of traffic lights with the underground cable connected to the wiring in the light post itself with thimble twist connectors. They don't seem to suffer from the casual vandalism that would lead to the wiring being kicked apart within ten minutes at home. No one worries about very casually rigged overhead cables to floodlights over parking lots, or wiring to a temporary display being laid across a pavement.

The whole attitude, which I certainly don't criticise, is summed up by an everyday scene in the main shore side highway over in that delightful city of Seattle which I visited a few years ago. Every hour or so along the middle of an eight lane road, in with all the cars, bikes and buses, trundled a quarter mile long freight train hauled by two diesel locos. The locals reckon if you cannot detect the presence of a flashing light adorned object the size of a train then maybe you shouldn't be out and about. And yet if you ask an American smugly about English safety consciousness you quickly find out that they are all appalled at the sight of seventeen year old youths zooming through the London traffic on 125cc motor bikes!

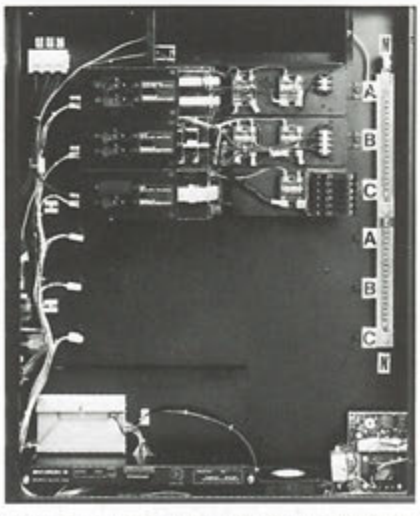
As usual, the European visitor who is involved in any aspect of the lighting industry is struck by the enormous preponderance of tungsten over fluorescent as compared to the home scene. Fluorescent lighting is far more popular — or perhaps more widely used is nearer the mark — over here than in the land of its origin.

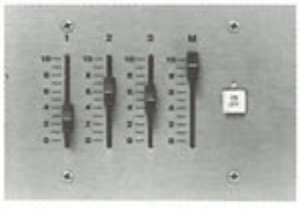
Incidentally, the recent publicity about Churchill's war time underground operations room in London sounds to me very much like the first European use of fluorescent lighting. 1942 was the date — I should be interested to hear from any reader of any authentic earlier use.

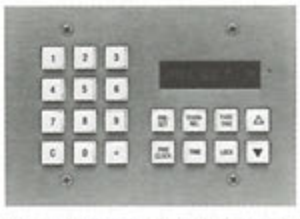
In my hotel all the public areas — even conference suites and foyers — were incandescent lit. Tubes were quite properly limited to the kitchens and dish washing departments.

The recently re-decorated ground floor dining room of the Center City Holiday Inn on whose 24th floor your Editor roosted, was lit entirely by indirect lighting from a coffered ceiling, in about four foot (no metric in the U.S.A.!) squares with rows of S.E.S. opal round lamps of about 25 watts set at 3 inch centres.

Although there is a certain amount of talk in the U.S.A. about energy saving, just enough to make one feel at home, no one actually appears to care sufficiently to take any real steps in the matter. Current costs in Philadelphia are 8c per Kilowatt hour, or say 4p, so are pretty well level with home. Incidentally the world's







New 'Environ' architectural dimmer outstations, the latest in sophisticated control for complex lighting needs. (These units are offered outside the Western hemisphere by Rank Strand Commercial Lighting.)

JOURNEYS

UNITED KINGDOM

greatest light show — mid town Manhattan — where I landed up a few days later, pays 14c, or nearly 7p!, and must be nearly the world's most expensive mainland electrical supply tariff.

In spite of this in the June heat every shop and cafe had its air conditioner giving a temperature of about 65°F against an 87°F ambient. And not only has every car and cab engine to turn its own compressor to achieve the same effect, but even every subway car is similarly air conditioned.

I would estimate, quite soberly, that Manhattan Island alone must have an energy consumption of equivalent to the whole of Yugoslavia.

My purpose in visiting the Electrical Contractors Exhibition was to attend the U.S. launch of Strand's highly successful ENVIRON range of dimmers. As well as our well known U.K. based range, these are also made in California to the local design and marketed by our sister company Strand Century. The main differences? Because of the U.S.A. 110 voltage, all dimmers are virtually double the equivalent U.K. size for the same rating, so cabinets have to be packed far more densely than would be our practise. The result is that fan cooling is virtually standard on their dimmer installations at anything over 2.5kW. There is also a very sophisticated range of control outstations offering elaborate presetting facilities, and in some configurations even a digital clock display!

Because there is far less interest in fluorescent lighting and thus in its dimming, all units shown on the 'booths' by all the dimmer companies represented were incandescent, while at Electrex '82 the U.K. Strand company devoted 75% of its ENVIRON display to fluorescent dimming, and about 90% of our visitors' interest was on the same subject.

The show itself? About half the size of Electrex — the U.S.A. is too big geographically to have a real national electrical show, and about a quarter the number of visitors. The show U.K. readers who are interested in lighting as a general subject should visit is the New York Lighting Show, which, with Hanover, is probably the world's largest lighting market place. The next show, incidentally, is at the New York Hilton 25th-27th April 1983.

There were quite a number of British companies exhibiting at Philadelphia. English Electric had a big booth and Thorn/E.M.I. were very much in evidence with a large floodlighting display. Leaving Strand Century's very impressive ENVIRON display modestly on one side for the moment, the other stars of the show were the mini computer based electrical contracting estimating packages. These are obviously not unknown over here by any means, but in the U.S.A. and Canada every electrical contractor, however small, is into this scene.

For the benefit of the lone electrical contractor in Llandrindod Thanelly who does not know about these machines, here is a very brief outline.

The heart of a system, and about six different ones were on offer at the Electrical Contractors' Exhibition, is an Apple or similar desk top computer. A special memory has programmed into it all the thousands of items and operations that a contractor needs to enable him to cost a job so that he can put in his estimate.

For example, the price for fitting a twin tube 65 watt recessed fitting, or the price per yard for supplying and running three single 1.5mm conductors in conduit. To determine the lengths of runs there is a special 'electronic pencil' that measures the distance round the plans as it is moved. The scale of the drawing is entered into the computer, and bingo — there is the cost of that particular circuit, with all its switches, junctions, etc. There is a printer — either a daisy wheel or pin matrix — and out comes a list of all the costs in a printed schedule. All, of course, goes into a memory, so any part of the programme can be recalled and amended or altered as required. To update prices, the item and its price is simply called up by its code and the new price, or other information typed in. It was a sight to see one particular booth, with six terminals, and at each one was seated your typical American electrician sporting a baseball cap and wearing a belt from which hung a selection of pliers and hammers in special leather pouches plus various other items of ironmongery, all of them happily punching away at the terminals and producing estimates at a fine speed.

These machines can be bought outright, but more typically the whole package is leased for about $350 a month. I predict that U.K. cousins of these machines will be the stars of the 1984 Electrex show.

One of the estimating computer systems encountered by the Editor.

A good exhibition. The U.S.A. is always well worth visiting to see which way things are going in the lighting world. Of course, conditions, regulations and practices are all so different that lessons learned have to be adapted and if used, used cautiously indeed back home.

But worthwhile? "You bet your life, buddy!" ■

LOOKING FOR A BRIDGE

THIS technical phrase from musical composition must have a literary application. In this case I was casting around for a bridge between Philadelphia and Warrington in itself an unlikely conjunction. Warrington is really a Lancashire town which by a particularly stupid piece of local government re-organisation was put into Cheshire, where it sits most unhappily. After all, Lancashire is visually Lowry, while Cheshire is a kind of sub-Constable.

Surprisingly, Warrington which is strictly speaking an Extended Town rather than a New Town, has attracted to its Science Park quite a bevy of advanced technology companies. While the majority are British, quite a few are from the U.S.A., hence, at last, the 'bridge'.

My journey purpose on this occasion was to look at the Padgate Recreation Centre, which is not only close to the Science Park, but is actually built on part of the old Padgate Camp, first point of indoctrination for many a war time RAF recruit. In fact Insall Road, where the Leisure Centre may be found, is named after Squadron Leader Insall, the last C.O. of the Camp.

The centre, which is linked geographically and spiritually to the Library has a drama studio, and drama also overflows a few times a year into the adjoining sports hall. Very wisely, Dennis Stanley, who is one third of the triumphirate who run the centre, and who makes the studio his particular responsibility, arranged to make one set of Strand lighting do the job of two. You will, dear reader, immediately realise at this point that while the TABS Editor must applaud, the Strand man of business must take a more jaundiced view. However, while wearing the TABS hat I can only praise the foresight that arranged for internally wired bars, with plug boxes below to be provided in both locations, so that the Preludes and Harmonys can have two readily available homes and so that the Tempus can literally fugit when necessary.

The Studio, incidentally has a very nice installation of 130 retractable Strand seats, or is it actually 160? Here again Dennis Stanley has been cunning in the use of his resources, aided and abetted by Strand Seating. Because the Studio frequently hosts Padgate's junior citizens, the seating was arranged so that it was flexible in its capacity by building it as a compromise between an upholstered bench, with possibly unhappy memories of theatrical gallery discomfort, and seats whose shaped backs limit all too clearly their capacity. The backs of the Padgate seats have a faint "dished" effect, sufficient to locate an adult, but not sufficient to give a young moppette a split personality.

So here we have two examples of limited resources being well used by good pre-planning. ■

EVER HAD A THRILL IN LEEDS?

by The Editor

WELL, if you are interested in early cinema days, a thrill is certainly to be enjoyed by visiting the Leeds Industrial Museum in the Old Armley Mills. This impressive Victorian structure, once the world's largest woollen mill is now a treasure house of machinery of the heroic age.

For TABS readers the piece de resistance is a complete re-constructed circa 1925 cinema within the Museum. The connection with Leeds of course, is the famous firm of A.E. Kershaw now transmuted into a part of the Industrial Division of The Rank Organisation. In the pre and immediately post war period they were Britain's leading manufacturer of professional cinema projection equipment. Afficionados of this area of magnificently precise engineering will certainly remember and admire the Kalee 8, introduced in 1928, with many examples still going strong and the first truly post war machine, the GK 21 (the company by then being Gaumont Kalee).

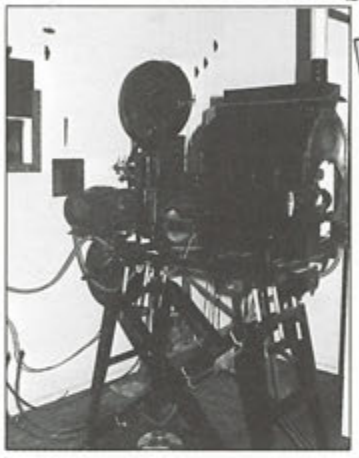
What is to be enjoyed at Leeds? The first great plus is that the cinema is no old fashioned museum of static displays, but a fully working proposition.

I was fortunate enough, on your behalf, to be given a conducted tour by Mr Kelley, the Museum Curator who is himself no mean expert on early film equipment. I knew before my visit roughly what pleasures would be in store, but the reality far surpassed the anticipation.

As we approached the actual cinema I approved of the box office, a small glass window with letter box sized aperture into which 4, 6, or 9 old pence would be thrust, in accordance with the gilt lettered information, a ticket torn from a roll being dispensed in exchange — see our cover photo.

Next comes a plush curtain to be lifted. Gentle reader, imagine if you can the Editorial excitement at this moment. No Pasha returning to his seraglio after two weeks with only camels for company could have been more eager in anticipating the delights to come. The plush curtain parts and then comes a really time warping moment. Gas lights flicker on their brackets — a well used piano stands before the screen curtains, while the seating is contained in a sort of enclosure of waist high match boarding, rather akin to that found in the less trendy type of non-conformist chapel.

I remember only one time-shifting experience so strong. Perhaps not surprisingly for me this was also a cinematic moment, when I, together with kindred Cinema Theatre Association members visited the Luxor Cinema Twickenham. As we entered the full houselighting shone around every Egyptian style cornice and lotus motif column while the strains of the Compton organ played by Miss Ena Baga thundered out. No hi-fi, be it ever so fi, can match the actual air move-

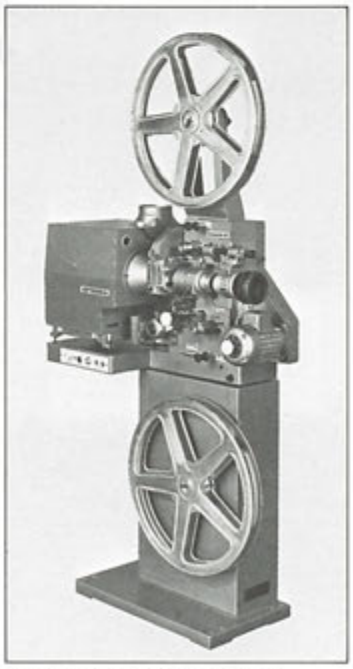


Kalee 7 in the projection room. Vintage 1927 and still going strong.

ment of a real organ and suddenly it was 1935. However, from thirties Twickenham back to twenties Leeds.

My guide left me transfixed with admiration in the auditorium while he went into the box and pushed the 'Tabs open' button — and yes, there was revealed a *real* screen. Academy aspect ratio, rounded corner masking — pleasures to make strong men weep.

The equipment itself is tinged with compromise, but so well is the compromise arranged that it seems churlish to even mention that when

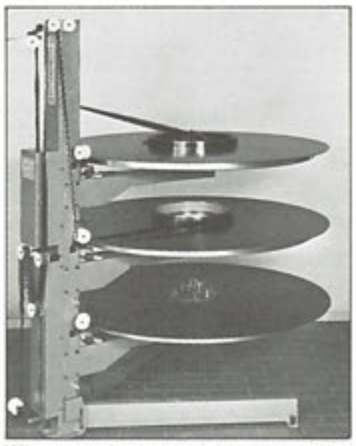


The Cinemeccanica Victoria 5, modern equivalent of the Kalee 7. Less romantically extravagent, but clean, compact and frighteningly efficient.

Close up view of the converted arc lamphouses — all the original mechanism retained.

films are shown — as they are on a regular basis, local historic material, Leeds firms promotional films and from the past as well as more general offerings — modern practicality demands halogen rather than arc lighting. The photo shows how this conversion has been arranged without the arc mechanism being violated.

Here I must explain the tinge of sadness that inevitably arises at this point. A year or two ago I was waiting on the platform at Haworth Station on the Keighly and Worth Valley Railway — a restored steam line operated by amateur enthusiasts. To the gasps of delight of my fellow passengers in steamed "Evening Star", the last locomotive built by British Railways. To see this main line racer, whose natural course was Paddington to South Wales, with Swindon first stop, while she evaporated water by the ton and shot lumps of half burned coal from her chimney reduced to a 20 m.p.h. creep



Why nowadays only one projector is needed. A whole programme can be run from one of these devices, alternatively known as 'Long Playing Towers', 'Platters' or, much more descriptively 'Cakestands'. The Editor always uses the last name.

through the dales has to be rather sad.

To me the great days of cinema involved lamp houses burning 1¼-in diameter positive carbons with cobweb coloured smoke pouring up like a good sized bonfire — but I am carried away — and Xenon and halogen must be allowed their humble if useful role.

The Kalee 7's at Armley are beautifully restored and the whole cinema is definitely worth a visit. ■

A MODERN VIEW

AS a contrast I have asked Barbara George, the Marketing Manager of Rank Strand Cinema, to tell readers something of the modern equivalents of the Armley Picture Palace equipment:—

ALTHOUGH reluctant to break the Editor's nostalgic reverie, it may be of interest to our readers in the theatre world to know something about modern methods of cinema projection, particularly as many theatres have recently equipped themselves with projection facilities. This not only enables them to fill in gaps between bookings thus earning extra revenue but may also in many areas where the local cinemas have closed down, provide a valuable local community service, to the neglected cinema-goers.

A typical modern projection system in this country normally consists of a single 35mm projector, such as the Victoria 5, which is belt driven, simple to maintain, and can be operated by anyone of reasonable intelligence given a little training. It is usually coupled to a long-playing device either of the vertical type (known as a tower) or the horizontal type (known as a platter or cakestand). This enables 2½ hours or more of film to be shown continuously on one projector thus eliminating the need for changing over from one projector to another when the spools ran out as in the old days.

The light source is provided by a xenon lamphouse mounted on the projector, powered by a separate rectifier unit. Lamphouses range in size from 500 watts to 6,000 watts and are determined by the amount of light required to illuminate the screen according to its area. A 500 watt lamphouse will illuminate a 12ft. wide screen and a 6,000 watt lamphouse is sufficient for a screen over 100ft. wide.

Sound systems nowadays are transistorised and are mainly either mono (single track) or, stereo (four track). Since Dolby brought out the stereo optical sound system several years ago, an increasing number of films are now available in this format. The stereo optical system provides 3 tracks of sound (centre, left and right), for the three speakers behind the screen plus an effects channel to feed special effects speakers mounted on the walls or in

the ceiling of the auditorium. The overall effect of stereo optical sound, is to bring a new dimension to film presentation and provide a true entertainment 'experience' which cannot be obtained from a home video. To install stereo optical sound, a special decoder is needed (such as the Rank Strand Stereo Processor) plus additional power amplifiers and speakers. A simple mono system however, requires only a single channel amplifier and one main speaker behind the screen.

It is often practical to automate the entire projection system, particularly in multi-screen complexes in order to economise on labour. One projectionist can run up to 5 sets of equipment or more, from one control point and a variety of systems are available to provide varying degrees of automation. Even in a small single auditorium automation may be worthwhile if, for example the Manager may wish to operate the show from his office or the box office, instead of having a projectionist.

In a theatre, the screen needs special consideration as it cannot be a permanent stage structure. Normally, either a roll-up screen is fitted or it may be possible to use a cyclorama curtain or have a screen which can be 'flown' into the fly-tower. If the stage area permits, a complete screen structure with movable side masking can be mounted on wheels and moved to the rear of the stage when not in use. There are a number of specialist screen companies who can advise and design screens to fit virtually any situation.

Finally, in addition to 35mm equipment, there are of course 70mm systems and 16mm systems. 70mm is making a come-back at the present, due to increased availability of films in this format and although the quality of picture and its size plus the six-track stereo sound do provide the very best in cinema presentation, the cost of this equipment is considerably higher than for 35mm and it is really only fully effective in a large auditorium.

Professional quality 16mm equipment, such as the Fumeo range, does nowadays provide a very acceptable standard of picture and sound for even larger auditoria. The cost is lower than for 35mm equipment and film transportation for 16mm prints is cheaper and easier, particularly for the more remote locations. An added bonus is that the theatre is then equipped for lectures or conference use, as most training and educational films are in this format.

Modern projection equipment is simple, reliable, clean and no longer demands the traditional projection room team of operators ranging from the 'chief' down to the rewind boy, to keep it running smoothly. As an added facility to a theatre, leisure centre or even a sports hall, it can pay for itself in a very short time. Our Editor may scoff at the lack of mystique and mourn the passing of the carbon-arc lamphouse but if improved equipment means that film presentation can be brought to a wider audience, through the theatres, this has to be a worthwhile sacrifice. At least, thanks to the Museum at Armley and others like it around the country, enthusiasts like our editor are still able to indulge their adoration of the engineering masterpieces from the golden age of the cinema ■

THE MILL AT SONNING

by The Editor

A BRIGHT summer morning and a happy journey in prospect — what could be better. Your Editor was not due to arrive at Sonning, his destined point of call, until 10.30 a.m., so the morning egg could have its top sliced off without any undue haste. The wholewheat toast and the Dundee marmalade could in turn receive their Editorial attention then out to the trusty barouche. Yes, a day so pleasant that the small ivory button controlling the electric sun roof could be depressed without any undue fear of head damping. So off through the Surrey and Berkshire lanes to the southern most corner of Oxfordshire in which lies the delightfully named village of Sonning Eye.

My route took me through Slough — remembering the Poet Laureat's verse which begins:

"Come gentle bombs and fall on
Slough,*
It isn't fit for humans now"

and on into warm red brick Sonning.

The Mill, a fine timber clad water mill, contains nowadays an unusually attractive theatrical enterprise which offers the public a complete evening, comprising a play and dinner, and even programme at an all in price. Proceedings begin at 7.30 and the audience move from the auditorium to the dining room at about a quarter to ten. The only extra expense which the evening may incur will be the cost of any spiritous liquors which may be required!

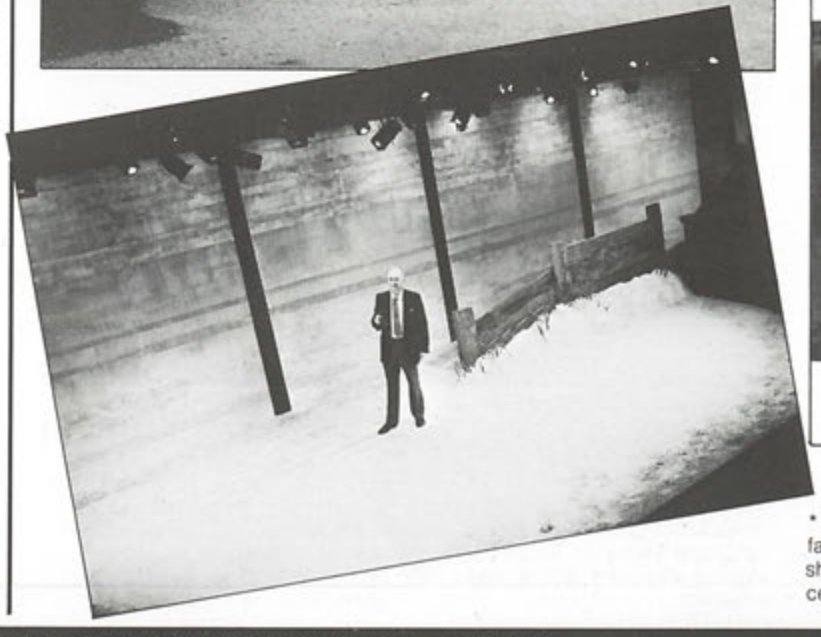
Now to the theatre itself. Seating is for an audience of 197 with a semi circular acting area set against one long side of the building, with well stepped seating curving round in a semi circle to give near perfect sightlines.

Mr R. D. Richards and his brother are the founding proprietors of the whole enterprise and although they were not until The Mill project came up professionally involved in the theatre they have long been great theatre enthusiasts. Now this enthusiasm has been turned into an exciting new venture in a delightful setting.

The production policy is for a new play every month, up to, and including the Christmas season. The Mill will reopen for the 1983 season next March.

If TABS readers are interested in good food and good acting then a trip westward is thoroughly recommended. ■

How many British theatres can justifiably display a notice like this within their grounds?



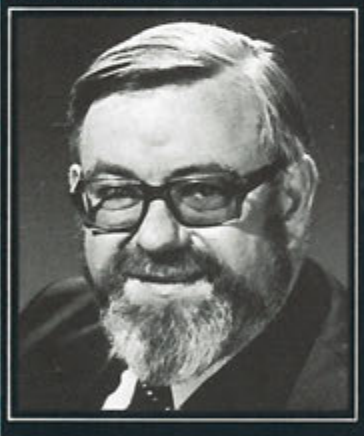
Strand equipment installed at the Mill at Sonning

Control:
60 way AMC with Permus Dimmers.
Lighting Bars.
2 × 5 way 3 channel
6 × 12 way 6 channel
1 × 14 way 7 channel
Luminaires:
16 500 Watt Minims
10 500 Watt Prelude 'F' Fresnels with Barndoors
20 Prelude 16/30 500W Profiles
10 Prelude 40 500W Profiles
5 Prelude PC 500W Spots

* Pronounced to rhyme with 'now'! In fairness the new Fulcrum Theatre now sheds a civilising light on the town centre.

IT ALL BEGAN WITH THE TORCH

by Derrick Ross



IN the last issue of TABS we featured the new Quartzcolor Ianiro factory in Rome. This illustrated clearly that it is now a large industrial enterprise and of course the worldwide acceptance of Quartzcolor products is well known. But what is the real relationship between Strand and Quartzcolor? This is a frequently asked question, to many people including our own staff — the answer and origins are almost lost in history.

I have had the good fortune to be associated with Quartzcolor from the first day of their partnership with Rank and the real story is an interesting one that I feel is worthy of wider knowledge. It certainly changed the character of television lighting as we know it and a number of unique innovations are part of that story.

Long, long ago in Shepherds Bush

This is where it all began, at that time the location of Rank Studio Equipment, descendants of the original G.B. Kalee Studio Division. The year was 1967 and Rank Studio Equipment (RSE) was primarily concerned with selling Westrex Sound equipment and Arriflex motion picture cameras. RSE was trying to convert the film market away from the still prevalent wet cell batteries to the new nickel cadmium variety and had developed a range for Arri cameras that spanned 8 to 24 volt ratings. If we increased this to 30 volt, couldn't we use it for lighting? — of course it could be done, but where would we find a lamphead to go with it?

Two Gentlemen from Rome

A search started and we found in Italy a company that had a reasonable product that might meet our needs. A telex was sent asking for price and delivery on 50 units and we waited for a reaction.

The response was unexpected. After a few weeks had passed our receptionist telephoned to me one day to say that "Two Italian Gentlemen" had arrived and wanted to see me. This was my first meeting with the famous Giovanni Ianiro who with his brother Antonio founded the business, accompanied on this visit by Romano Di Pillo the then administration manager and interpreter. Alas Romano left several years ago but he certainly brought interest to our dealings with his humour and intimate knowledge of colloquial English.

The deal was done, RSE was to sell the Megalux Sungun (known as a 'torch' in Italian) and we had the rights to sell any other products if buyers could be found. We were a little doubtful at first because the market at that time was dominated by Mole Richardson — and any way we were camera people, weren't we, and what did we know about lighting?

No Television Equipment

The range was very limited — no pole operated equipment, no softlights or cyclorama lights. Only traditional film lighting — sky pans, arcs and a range of big Fresnel spots from 500W to 10,000 watts. We soon found out that the Italian Fresnel spots were lighter and more efficient than the units currently available and that the Ianiro products were already known in the market by some U.K. rental companies who had imported them privately. With little to lose, but more to gain than we ever imagined, we put one of each in the showroom and a few more in stock.

The very light weight was a real factor and I still remember my amazement when a certain gentleman from a London rental company walked out of our showroom with a 10kW on each arm muttering something about "they are ****** sight lighter than those ****** Moles"

Pinewood Pioneers

It was in the summer of 1968 that the late Kip Herran showed us a hole in the ground at Pinewood and said "I am going to build two new stages here. Could you provide pole operated lighting?" Well it was a big hole and buildings do take a long time, so of course we could. It was the following spring that the building was completed but what about the lights? Yes, they had been designed, built and were on the back of a very large lorry somewhere in Europe. This was my first experience of the problems of negotiating a shipment to site on time. Kip had committed these stages to "David Copperfield" and there was no way we could be late. We made it, but only with a few days to spare. Pinewood's L. & M. Stages were the first in the world to be equipped with Ianiro Pole Operated Spotlights using the now universally accepted (and much copied) bell housing coupling.

Two for the Space of One

During the same period Southern T.V. asked if we could supply not only Pole Operation but also twin filament spotlights. Of course we could (what were twin filament lamps anyway?). Again development work was completed and when the new Southampton Studios opened they had the first Pollux twin filament spotlights ever built and the new owners T.V.S. are still using them. (The cycle is complete because we are equipping the new Maidstone Studio for T.V.S. with the latest models.)

The Author with Giovanni Ianiro at the time of Rank agreement.

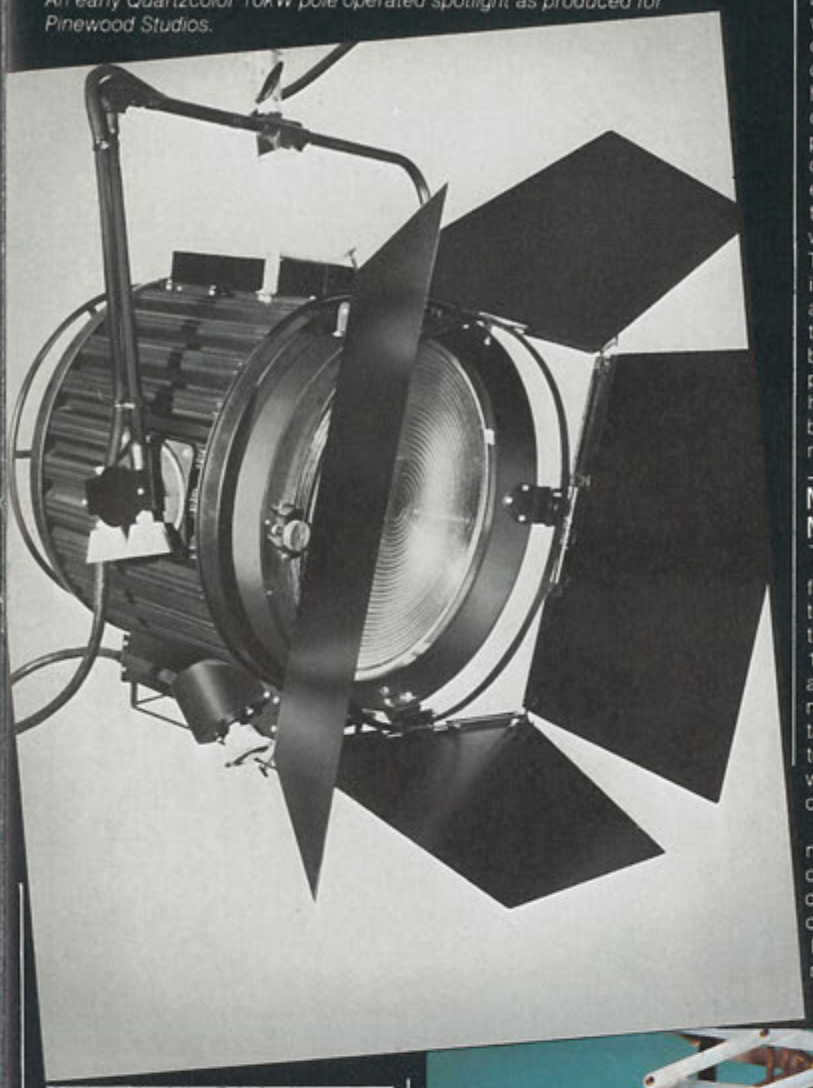
Thames Euston Studios followed in 1970. Later in the same year the new compact Pollux 5kW Spotlights were shown at the Photokina Exhibition in Cologne. These units were designed for use with tungsten halogen lamps only and were much, much smaller than any others available at that time. Mario Di Sisti's careful attention to the optical design gave these units unequalled performance for Studio application.

These units were in fact the first model of the current pole operated fresnels but even these have been made to look large by the recent introduction of the Bambino range of location equipment. Slowly the reputation spread and the spotlight range was installed in many other studios.

Left to right: Romano di Pillo, Giovanni Ianiro, Mario Di Sisti affectionately known as the Mafia.

Lurking in the depths of darkest Southampton was a Mr Headley Versey who wanted to light a cyclorama perfectly evenly, but from the top only. He found a kindred spirit in John Fyffe at LWT and under the patient, but exacting, coaxing of these two gentlemen the Iris Cyclight, now a worldwide industry standard, was born. Strangely the first Iris units were installed in YTV Leeds for Bob Gray, Yorkshire TV's Head of Lighting, and these are the only ones Ianiro ever produced that deliberately did not give uniform top to bottom coverage. The L.W.T. Southbank Studios were totally equipped as an Ianiro installation in 1971.

An early Quartzcolor 10kW pole operated spotlight as produced for Pinewood Studios.



Birth of a Redhead

At the other end of the scale something had to be done to fill the gap in location lighting where generally only the traditional multibeams were used. Ianiro did not then have a similar unit, but at the Film '69 Exhibition we showed the Ianebeam 1000 units with a metal housing. This was soon changed to the current 800W made from glass reinforced plastic. Initially it was difficult to sell. After all, who wanted a plastic lamphead and who could bring himself to pronounce "Ianebeam 800"! Apart from these small difficulties it was also too expensive.

Careful analysis of our competitors'

The first Ianiro twin filament pole operated spotlights were installed at Southern in 1969.

products showed that very high prices were charged for the lamp supplied. We responded by including a lamp in the price and guess what, by the time you had bought your first replacement lamp we were cheaper! The name problem was solved by our customers who not wishing to look silly when ordering asked for the red one, and christened it the Redhead. The name has been used ever since, although it is called Mandarin and L'Orange in other parts of the world. A special promotion called "Aladin, or new lamps for old", ensured a significant market penetration and the advantages of the new unit were soon appreciated by the users. Today copies of the Redhead are made in Greece, Italy, U.K. and Germany, and no doubt Taiwan. Some even have the Quartzcolor mould marks on them, but none can match the charisma and performance of the original. We even had a competitor who made it from black plastic but "Blackheads" were not popular!

More and More and Yet More!

Antonio Ianiro, who has the Rome factory under his particular wing, once told me that he was looking forward to the day when I would ask him to make 1000 units in one production. Now they are in continuous production, selling many thousands every year. Incidentally, I believe this was the first product totally designed by Mario De Sisti, who was responsible for most of the current designs.

In order to meet the growing demand for dual purpose luminaires, coupled with an ambition to break down the last hurdle of equipping a complete studio for the BBC, the Kahoutek was born. You may have noticed that all Quartzcolor products

Iris 4 cyclorama top light.

are named after parts of the constellation. Well, during our development discussions with the BBC they christened this one themselves, naming it after a comet that never arrived!

They weren't quite right, the first installation went to ABC in Australia in 1977 but BBC Cardiff and TC2 eventually followed.

This particular story finds a sequel in 1982 with the installation of the ZDF Studios at Mainz of totally automated Kahouteks with no less than eight motors per lantern.

Kahoutek.

Later Developments and Today's Strand

The relationship between Ianiro and Rank Studio Equipment was getting stronger despite the fact that in 1969 Strand Electric, who had in the early days themselves produced a range of TV lighting, became part of the Rank Organisation. On moving from Shepherds Bush to Brentford, Rank Studio Equipment was transformed into Rank Film Equipment and operated totally independently from the new Rank Strand. In 1972 London and Rome agreed that all overseas sales should be part of the trading relationship and our export activity started. Agents were established throughout the world with Rank Strand companies in Asia, Australia, U.S.A. and Canada beginning to distribute the product alongside their theatre lighting. Rank Strand GmbH took over responsibility for the German market in 1978.

In the U.K. Rank Film Equipment merged with Rank Strand in 1980 bringing our story up to date.

The product range is now complete and the reputation of Quartzcolor product known from Jersey to Japan and from New York to New Zealand. The story of our exploits in the export market would take too long for me to tell in this issue, but will someday be told if our Editor can spare the space.

Today Quartzcolor Ianiro S.p.A. is in the capable hands of Antonio Ianiro, whilst our original contact, Giovanni Ianiro, looks after Quartzcolor Trading, the Strand distributor for Italy. Two Galaxy Memory Systems have recently been installed in RAI Studios the Italian national television service, an illustration of how the relationship really does work both ways.

During the time that has been covered, there have been changes in lighting fashions, products and even some people. Our companies have both grown and in many ways the contact is rather more formal. But Quartzcolor and Rank Strand are now the world leaders in Television and Film lighting mainly because of the loyalty and friendship of the TV and Film Lighting people around the world who have helped us and used our products. Now, fifteen years on, we all look forward with excitement to the next generation of Quartzcolor lighting. ■

Following is an article written by the Chief Electrician and Lighting Designer, Hanns Joachim Haas, on the new control systems for Grosses and Kleines Haus of the Wurttembergische Staatstheater Stuttgart.

Herr Haas served his apprenticeship at Staatstheater am Gartnerplatz — THE musical theatre of Munich. He was then assistant at Cologne Opera to Kurt Winter who is probably better known as Lighting Designer at Bayreuth, and took over the position of Chief Electrician and Lighting Designer of Cologne Schauspielhaus in 1973.

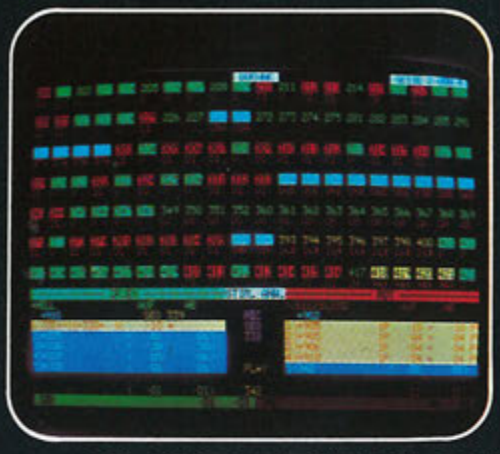
Having been used to another company's control systems with magnetic amplifiers and servo mechanical faders in the theatres he served previously, it needed some convincing by us to assure him of the advantage of our DDM system which had just been introduced when he had to decide on a new control system in 1974.

Herr Haas moved on in 1978 to the Schauspielhaus Hamburg as Head of the Lighting Department. There the old punch-card lighting control, not by Strand, had to be replaced and we thought ourselves in a good position to sell another DDM system based on his good experience at Cologne.

However, a local competitor had just introduced a new control system and we had installed the first Lightboards at the National and Covent Garden, so it turned out to be hard competition again to obtain the order.

Had our friend Haas been satisfied with the Lightboard as designed, things would not have looked too bad, but he demanded colour monitors with it, so Lightboard Mk II was designed incorporating a number of special features as a result of the discussions with him.

In 1980 Herr Haas took over as Head of the Lighting Department for the three theatres under the roof of Wurttembergische Staatstheater Stuttgart. This time he had to decide on two new control systems for the Grosses and the Kleines



NEW CONTROL WURTTEMBURGER

by Hanns Joachim Haas

THE controls used since 1964 with motor-driven servo-mechanical faders, punch-card memory and magnetic amplifiers, could no longer meet the demands of today's lighting design. Equally, the number of existing channels — 240, as well as the wear and tear on gears, made it necessary to install new lighting control systems.

Based on my experience with various types of computer-controlled memory systems, I wanted all the known facilities with some additional requirements necessary to ease the day-to-day operation which were not included in any of the systems on offer.

The risk of losing a performance through complete failure of the electronics demanded higher operational assurance. Traditional back-up systems offered to overcome this problem use pin- patches, but these were felt to be unacceptable because of the tedious demand of re-programming with little diode pins, especially in the repertoire environment where this has to happen daily. The electronic back-up system I was thinking of should really not restrict the quality of the performance nor involve extra work for the already strained board operators.

Having specified the requirements, I evaluated the systems in the field and new designs in progress, and discussed possibilities with several manufacturers. Having successfully operated with Lightboard at Hamburg, my basic requirements were met by this system — especially the requirements for immediate access to all processes and the ergonomic arrangement of the controls. Strand, with their expertise, had built a lighting control system supported by a computer, rather than taking a computer system and converting it to a lighting control. Also I found the cooperation I was looking for with the Strand engineers who showed an inventive approach.

Fortunately, the City of Stuttgart and the theatre management supported my specification and Strand was finally awarded the order for two control systems:

a 600 channel system for Grosses Haus, and
a 500 channel system for Kleines Haus.

The two systems differ basically only in some accessories which I shall explain later.

LANTERNS TO LUXOR

themselves being left to the supplier.

As each lighting vehicle had to combine storage and a reasonable control area. Each truck was divided into two main compartments. The front, air-conditioned area would house the operator, a monitor and the dimmers, all requiring a temperature that will be comfortable even if not quite "ice cold in Alex". All the other items, luminaires, lamps, stands and cable, which would be off-loaded on each trip were not accorded such comfort.

The chassis selected were the well established, economical if not especially glamorous Bedford TK range. Bedford have accredited dealers in Egypt. Each truck had an 8 litre GM diesel with a 5 speed box and power steering. Having moved them about during testing, I can warmly endorse the latter feature.

The coachwork for all the trucks by Smiths of Great Bentley, was of aluminium throughout, and included hydraulic jacks at each corner to stabilise the body, particularly as the fold-down roof handrails enclosed a camera platform which could also take suspended luminaires. Folding access steps to the control area and a heavy-duty tailboard with an access ladder were provided. The operational exterior lockers were fitted with 12-volt lights on timers and both interior compartments had emergency fluorescent lighting. A combined driving/emergency battery was stored on a slide-out tray and a mains-operated charger in the same compartment was provided to take over the engine alternator duties when stationery.

The principal function of the lighting vehicles was to store the equipment needed on an outside broadcast rig, and they were designed to reduce the sheer hard work that is entailed in loading and unloading. This will be achieved by having all compartments, inside and out, at a working level without the use of steps. Two rows of lockers were fitted outside. The upper row for the larger luminaires and the input and output connections and the lower for heavy items such as the HMI ballasts. Inside, the lower rows were designed for the remaining luminaires, with heavier cables just above, whilst lamps, accessories and the lighter cable drums were just above eye level.

In order to achieve this distribution the removable floor to the rear compartments was built up. This also provided a long space for items such as lighting bars, accessed also by the folding steps at the rear next to the large cable drum. Every compartment was lined with a hard wearing rubber flooring, felt carpet sides (hard wearing, yet not liable to scratch luminaire casings) and a tough sponge rubber back to cushion each item. Tough rubber straps were fitted to restrain every item in its compartment. All other surfaces were in aluminium sheeting or decking.

The extension cables totalling just 2Km, were fitted to Keith Monks CD cable drums, specially modified to take CEE.17 connectors. The large mains cable (4-core 95mm²) is stored on a manually wound fabricated drum. It can supply 200A, 3-phase through Marechal connectors. All the cables are Harmonized EPR/CSP and specially designed for trailing use.

The control area was designed to be comfortable, but practical. The walls are carpet lined, the floor is thermoplastic tile for easy sweeping out of the sands of the desert. An 18,000 BThU air conditioning unit, mounted in the van body above the cab should be adequate to keep both dimmers and occupants happy. Ample cupboard space for spares and personal items completed the area, and the mains vehicle services (powered from the distribution unit, or via a separate 63A feed) comprising Battery charger, 4-mains sockets, mains lighting, extract fans to the rear storage and air conditioning are all controlled within the area. The clock is battery quartz.

The specification called for an inbuilt system of power distribution but at our suggestion this was made removable. In order to reduce the number of interconnections resulting from an inbuilt vehicle power distribution, we decided to combine the dimmer outputs on the back of the Strand MCM dimmer rack itself, which is not envisaged as being demountable. The main power distribution unit, made by Tripower, lends itself to use on or off the vehicle (shown in the illustration below), and provides 125A 3-phase output to dimmers (in-built as supplied or an external rack), or 3 — 63A 3-phase metered outputs, for use via 3 portable distribution units supplied with each vehicle, plus with either output, 4 'daylight' undimmed outputs for HMI luminaires.

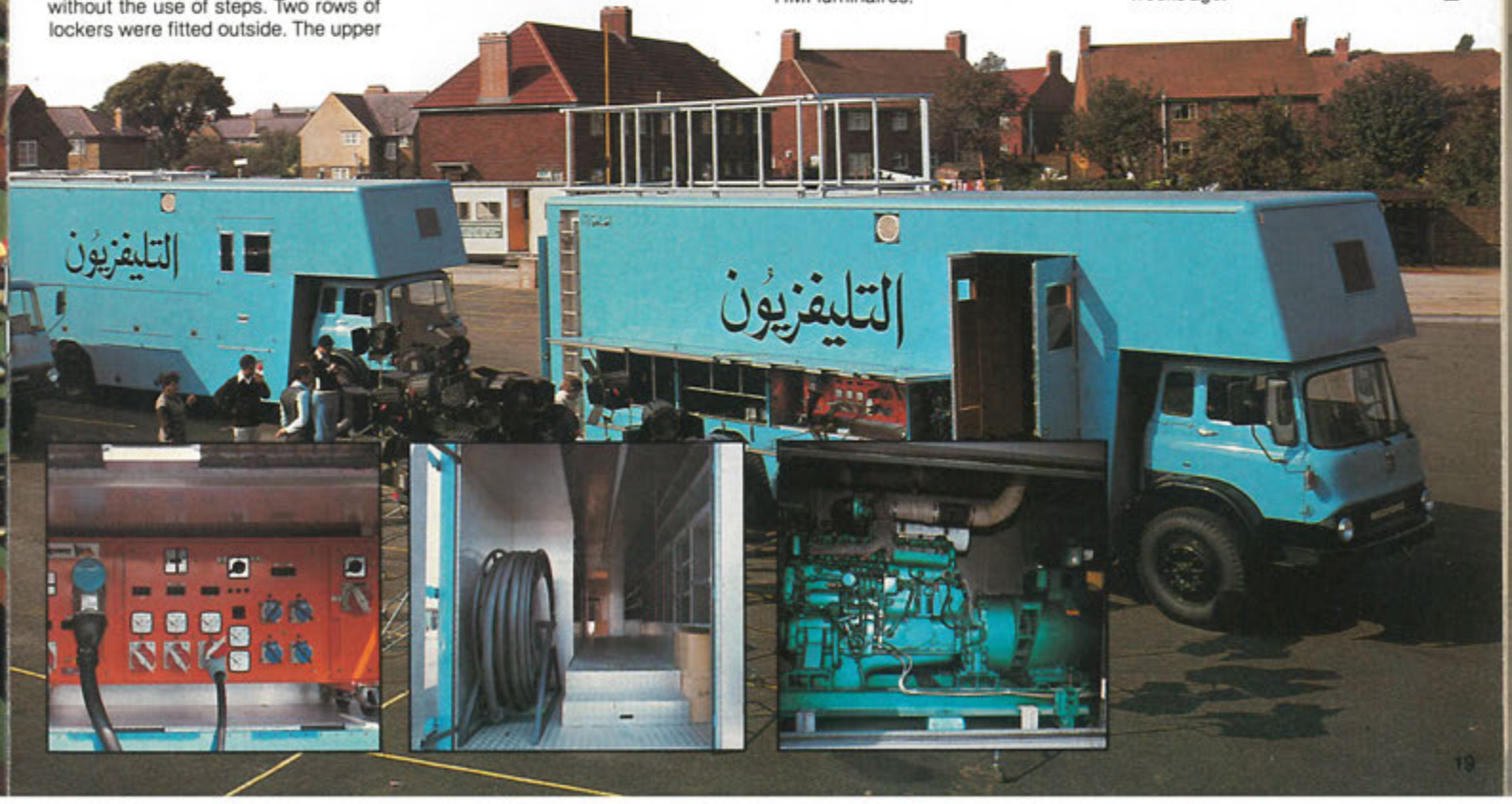
The dimmers are mounted in a 3-crate rack, fitted with MCM dimmer modules. A Tempus power supply, and CEE.17 16 and 32A output connectors are fitted. Two control input positions were supplied, one next to the output connectors, for using the portable 24-way Tempus desk outside the vehicle, and one inbuilt socket panel at the operator's position. The rear of the dimmer rack can just be seen next to the power distribution unit in the larger illustration.

List of equipment (for each of 2 vehicles):

- 10 50CS and 10 25CS MCM modules
- 10 2kW Castor, 8 5kW Pollux manually operated luminaires
- 2 4kW and 2 1.2kW HMI luminaires and ballasts
- 22 type 785 stands
- 1 Main power distribution unit and 3 portable units
- 50 Power extension cables, plus video and control extensions
- 1 Barco CVTM 3/51 monitor
- 1 Avo 8, Avo clamp meter
- Light and colour temperature meters
- Spare lamps, flags, Chromoid, plugs, sockets, luminaires spares etc.
- Complete workshop tool kit for all the vehicles, plus a few years' worth of vehicle spares

The Generator vehicle, with a slightly shorter wheelbase, consisted of a Volvo TD100AG turbo-charged engine, coupled to an ECC Alternator. Derated to 100kW in mid-eastern sun, on test the unit happily produced 150kW without smoke or fuss, for as long as the fuel lasted. The well silenced enclosure reduced the noise to a muted 60dB(A) at 3 metres. The control unit incorporates an automatic mains changeover unit which attains full output within 4 seconds, and all the usual cutouts for high temperature, low oil pressure, etc. The truck also had a useful storage compartment and a walk-on roof.

The trucks were completed in six months from delivery of the chassis. They were accepted by O.B.T.F. a few weeks ago. ■



Holiday Inn GLASGOW

by Mike Smyth

Mike Smyth, Sales Manager of Northern Light, one of Strand's Main Dealers, handling Theatre Lighting, Strand Sound and Environ dimmers, recently carried out an interesting contract using our equipment in an hotel. We asked him to give TABS the inside story.

ON April 20th 1982 H.R.H. Princess Margaret opened Glasgow's "Holiday Inn". This is the 1751st Holiday Inn and is operated by Commonwealth Holiday Inns of Canada Ltd. The hotel is located in the city centre, close to the inner ring road and in addition to the features one normally associates with a Holiday Inn — large car park, swimming pool, generous sized bedrooms — also boasts the Britannia Suite designed for banquets, conferences, exhibitions etc.

The Britannia Suite has an area of 30 metres × 19 metres with a ceiling height of 4.8 metres, with a small stage at one end. A large roller shutter door beside the stage gives access from a service road for exhibitions etc. The suite can be divided by soundproof doors to give two rooms each 19 × 14.5 metres, the Queen Mary and Queen Elizabeth; the latter can be divided to give the QEI and QEII Suites.

The Holiday Inn's Property & Services Manager gave us a brief for the lighting and sound equipment which said:

Firstly the equipment must be of high quality.

Secondly the design was to allow for maximum flexibility and rigging time must be an absolute minimum.

And finally the controls must be simple to operate so that the hotel did not have to rely on a highly trained technician

By this time the Holiday Inn design team had prepared a ceiling plan which divided the ceiling into 32 bays with a 300mm gap between them.

Lighting tracks were to be fitted in these gaps, suspended from cable trays above.

Each bay was to have a set of uplights, downlights and fluorescent lighting, push button controlled but the 50 track lighting circuits would be linear fader controlled.

The main control position was to be in the projection room with a duplicate panel in the Queen Mary Suite, with a panel in the QEI which takes control of the QEI lighting when the room is divided and another panel in the QEII which is activated when the Queen Elizabeth suite is divided.

Since most hotel staff are not trained to think in terms of circuit numbers we decided to make the panels a geographic layout. Each panel has the outline of the room and the track positions engraved with the fader levers mounted beside the tracks. Two masters are fitted, one controlling the tracks parallel to the stage and the other those at right angles.

In addition to the track lighting and decorative lighting, there is a 24 way stage lighting installation controlled by a Tempus 24 desk and a small disco lighting installation. The disco lighting consists of three circuits of Northern Light pinspots with coloured lamps fitted above the Formalux ceiling over the dance floor and a three circuit "curtain of light" round the edge of the floor. A Discoplus desk is used for control.

The fluorescent lighting is controlled by eight Environ fluorescent dimmers, each handling 16 × 6ft tubes.

We decided to use Environ tungsten rack mounted dimmers for the rest of the installation, 18 × 5kW, 84 × 2.5kW; this was not only the most economic both in cost and physical size but does give the hotel the advantage that in the unlikely event of a dimmer breaking down it can be changed without having to isolate the rack.

The lighting equipment supplied includes 60 track mounted pinspots for table lighting, 50 Minims track mounted for display lighting etc., 1 Prelude 16/30, 10 Prelude F and 6 Patt 60 for stage lighting.

For any of you who may be thinking of bringing your conference/exhibition to Glasgow and are worried about the power you'll need — don't worry — that has been thought of as well; fifty-four 30 amp T.P.N. supplies are provided in addition to numerous 13 amp sockets. Telephone lines, TV outlets, water are all there. And yes — we didn't forget — there is a Strand Sound ring intercom system installed in case you need it. ■

GOING TO CHURCH

by Graham Walne

"NATIONAL THEATRE here, Mr Bill Bundy calling." Now it's not every day that I receive a telephone call like that! "Look I'm lighting an opera in a church in Spitalfields and thought it might make an article for TABS, are you interested?"

"Yes." Since I broke my back teeth (and much else besides) lighting at St. John's in Smith Square I accepted with alacrity — the proximity of an old church and one of opera's most experienced lighting designers promised an interesting few days. And there were other impressive ingredients.

Bill Bundy's career is a history of valuable contributions to some of our more major institutions, H.M. Tennent (from 1942), Strand Electric (from 1950) and more recently Theatre Projects and the National Theatre although he is chiefly known for his work (since 1951) at the Royal Opera House for which he received the OBE in 1970.

Christ Church Spitalfields has an equally interesting history. It is one of the six churches built in the eighteenth century by Nicholas Hawksmoor and effectively the only one left in a state capable of restoration to the original design. Much work has already been done and the annual music festival (now six years old) maintains interest and support. The opera was a part of this festival alongside other attractions like Marti Caine, and although the first to be staged in the church, opera will now form part of the programme every second year. However much has yet to be done especially if activities like the music festival are to survive. Theatrical presentations in ad-hoc surroundings can be either expensive or else reliant upon the goodwill of those taking part, and this production was no exception in the latter respect; production, management teams and Musical Director all donating their services.

Completing the recipe were the opera and its director. The piece to be performed was 'Armide', relatively unknown in England yet containing 'some of the most sublime music' according to Hector Berlioz and composed by Gluck — often credited with restoring a balance to an art form hitherto tilted too much towards either drama or music. Its director, making his London début, was Herr Wolf Siegfried Wagner, son of the famous Bayreuth director and great grandson of both Richard Wagner and Franz Lizst. What credentials!

Since the church is widely recognised as the finest Baroque church in England, the design of the set was more than usually important and here Dacre Punt did not disappoint as they say. He provided a U-shaped platform encompassing the orchestra and backed by a rear stage which was accessible via a white wall perforated with a variety of doors. The set linked all the pillars in the audience's view, hence they became part of the scenery rather than of the church and Bill Bundy cooperated by dressing them warmly to bring out the richness of the stone, a nice contrast to the cool colour of the set itself. White side masking is not exactly The Lighting Designer's Friend but it says a lot for the team spirit on this show that Mr Bundy was able to position much of it himself. All those reading this article with experience of church lighting will know that the Great Decision is to black out or not to black out. At Spitalfields the windows behind the set, the main East windows, were not blacked out but they did echo the three central doors on the set, hence they were not as obtrusive as they otherwise might have been, and oh those lighting changes through the stained glass as the sun went down! Other windows were not blacked out with the consequent problems for designer and crew.

Mr Bundy's approach to the lighting of this production was somewhat corralled by having to rely on a massive donation of equipment but he was indeed grateful for the great assistance from several large theatres.

The rig was impressive. Control came from a Duet, 96 way complete with floppy disc, VDU and pin patch positioned centre stalls for the lighting then moved into a rear gallery for the shows. Ah these small switchboards! This controlled 122 luminaires ranging from elderly 223's to new Ianiro floods. Pride of place was given to the church's own new backlight bar of 12 Patt 828 2000 Watt fresnels.

Churches are not designed with stage lighting in mind, for all their theatricality, and it is pot luck whether positions are ideal or hopeless. Christ Church tended towards the latter although Mr Bundy's imperturbable façade gave nothing away as he gently plotted the cues. The current positions are very much dictated by the architecture and there are plans for more helpful (and less time consuming) alternatives and Mr Bundy's eye gleams as he hopes.

I arrived in time for the second evening of plotting and found much to impress. There was a board operator who had never seen a Duet until 6 pm that evening and a lighting designer who inspired calm, despite the apparent chaos (although daylight broadens the eye's horizon and inspires distraction). Like all professionals Mr Bundy quietly achieved the majority of his aims whilst happily jettisonning mistakes and coping with new inspirations in the person of Herr Wagner at his elbow. The Duet was invaluable and the phrase of the night was 'whilst we're waiting, we'll just tidy up cue number ....'. Who says memory boards don't pay?

Much of the set was white so our lighting designer sensibly crosslit creating a multitude of living friezes clear of the bounce from behind. The whiteness also became a canvas for mixing colour, an old trick but still a good one, and stunning blue ice tableaux dissolved through many subtle shades into a sea of billowing red silks, aided by electric fans from behind. Simply but magically effective.

If this article appears to be a 'Fave Rave' as they used to say, then justifiably so. In a sad part of London's East End I spent a few days with a group of professionals, all giving their time, to help rebuild a once majestic church and give it some life. I also saw lighting that had risen above the physical limitations of its environment. That's what it's all about. ■

"THE GONG MAN IS 12'9" TALL!"

STRAND CENTURY IN PERSPECTIVE

THE year is circa 1930. The United States is in the midst of a great depression as Ed Kook and Joseph Levy huddle around an arcane apparatus in the rather meager West 52nd Street New York office of their newly formed Century Lighting Equipment Company. They are carefully studying an idea that would become a major breakthrough in theatrical lighting. It is a luminaire consisting of a concentrated high-powered light source, an ellipsoidal reflector and a variable focal length lens system. The phone rings. Ed Kook picks up the receiver and it's a Broadway Designer wanting a special effect for his new show. Mr Kook quickly jots down the requirements and informs him that he just happens to have a new design that will do the job — and he'll have the equipment over there in time for the first electric call. After hanging up, Kook hurriedly tells Levy that they need to get this apparatus into production and to make sure the shop does it right. The Designer is well known, he rents a lot of Century equipment and this order could mean a lot of future business. Kook and Levy then resume studying the new "Leko" (LEvy/KOok) soon to be used on every stage on Broadway. Emerging from these rather humble beginnings, 50 plus years ago, Strand Century will become the leading U.S. manufacturer of theatre, television, and motion picture dimming and lighting equipment.

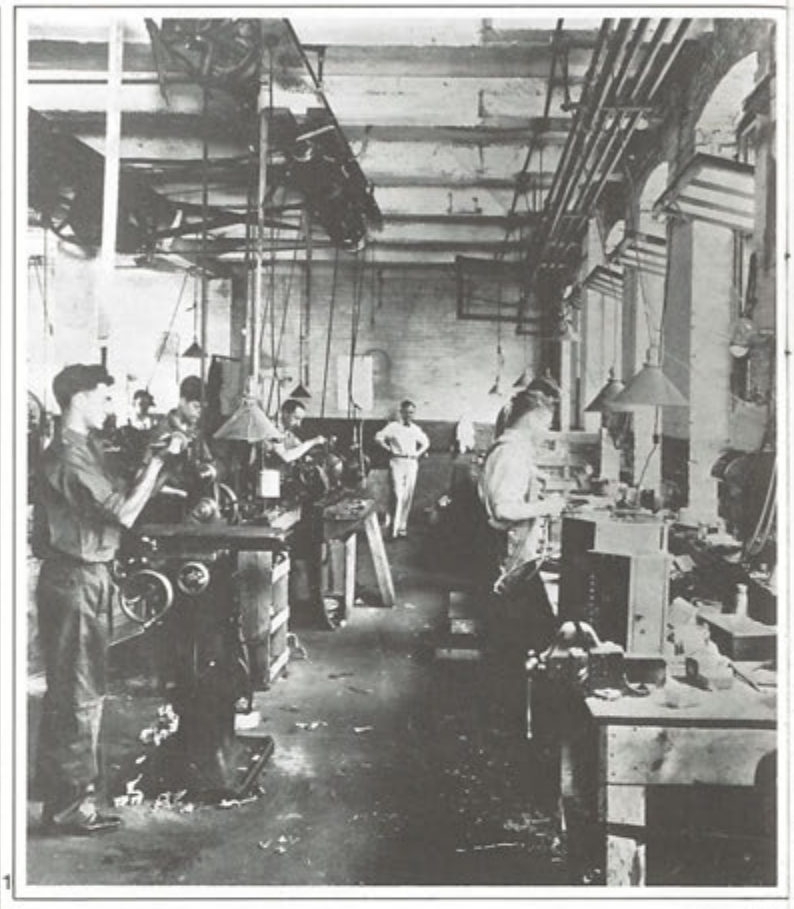
The picture you see in the 80s is a little different. While no longer a Broadway rental firm, we can promptly respond to a Designer's requests and suggestions with our large R&D Department. Also, from a rental house beginning, we now manufacture 20 million dollars worth of business to rental houses, distributors, contractors, high schools, and motion picture studios per year. Nowadays, the Vice President of Sales would call the Vice President of Operations to discuss the implications of a $300,000 plus order on the quotations, engineering, planning, manufacturing, and field service schedules. It would be thoroughly investigated at a time and sequence schedule produced to assure ultimate customer satisfaction. New product development for a specific customer may enter this cycle, but more often is R&D originated. The order entry/customer service department would be busily accepting everyday orders in the $25,000 to $75,000 range. While this activity is happening, the President would be carefully reviewing the R&D Project Status Report with the Vice President of R&D to verify that the twelve current projects are on time and in agreement with the published specifications. The Vice President of Finance would be issuing the financials with the budgeted profit that Strand Century has grown accustomed to producing in the past year.

The year is 1982. What is Strand Century doing to maintain its leadership and continue its growth during the current "depression"?

On April 29, 1982, Strand Century moved from their 60,000 square foot building near Los Angeles International Airport to a new, 115,000 square foot building in Rancho Dominguez, California. Simultaneously, Strand Century consolidated the Engineering, Customer Service, Project Management, and Quotations Departments from Elmwood Park, New Jersey and the Research and Development Department from Culver City, California, into the new building. This was done to streamline costs and to more effectively serve customer requirements.

Now let's briefly track an order through the Operations Department.

After Strand Century is awarded a job, based on quoted terms and conditions for the job, the Project Management Department swings into action. PMD begins communications with the Customer and Sales Representative. Coordinating all data, they forward it to our in-house Application Engineers, order entry personnel, and Manufacturing Departments. When sufficient data has been received, the order is duly entered into the computer and becomes an order in the backlog. Application Engineering designs and drafts the job submittal drawings which are sent to the customer for approval. The customer returns the approvals with any notes he feels necessary and Engineering incor-



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by John Pavacik and Holly Sherman

John Pavacik is currently Vice President of Manufacturing/ Operations at Strand Century in Los Angeles. He joined Strand in August 1979 from GTE where he was the Western Divisional Switchgear Operations Manager. He has a Bachelor of Science Degree in Business Administration from the University of Southern California (USC) with an Accounting major and Marketing minor.

Holly Sherman is currently Master Scheduler of Material Control at Strand Century in Los Angeles. Joining Strand in 1977, she left a successful career as a Designer and performer in the professional theatre. She has a Masters of Arts Degree in Theatre from California State University, Northridge.

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porates them on the drawings and gives the package back to Project Management. PMD then officially releases the job to manufacturing and requests an actual ship date.

The Master Scheduler (in the Materials Department) then meets the Plant Manager, Purchasing Agent, and Production Planner (the Purchasing Agent and Production Planner are used as needed) and sets a customer ship date. A weekly production meeting is held to review all open order requirements and the Master Schedule is adjusted accordingly. The order is then planned, kitted in the warehouse, issued to production, assembled, tested, packed and shipped.

This all sounds pretty simple you say. Not so. In the Kook and Levy days, orders were filled by material moving in and out of rental and new equipment would take six to eight weeks maximum to produce. Then came theatre consultants with electrical engineering degrees, U.L. regulations, individual city engineering standards and the order "life" grew towards 9 to 12 months. Even today, companies still maintain the year life cycle on an order. Not Strand Century. We returned to our roots. With the exception of master planned new construction projects which have inherent delays that are passed on to all equipment manufacturers, Strand Century pushes a typical standard order through in 30 days. This expeditious manufacturing cycle has led several customers to not include a "ship to" address on their orders to prevent equipment from showing up too soon. Who would ever believe "too soon"?!?

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30 days? Feeling skeptical? You may be saying "he didn't tell me anything about the automatic punching equipment, board stuffing equipment, and electronic warehousing system."

9

Very well, I'll tell you about them. There aren't any. With the exception of a new shear (the old one just plain wore out), no major equipment has been purchased. Sheet metal work is done on 40 year old punch presses and brake machines. Painting uses a 50 year old system. Printer circuit board stuffing is done by hand. General assembly has the use of rolling belt conveyors, screwdrivers, and air hammers. If you think we must employ hundreds of direct labour to accomplish our goals, look again — there are only 60 people.

Obviously, as Strand Century continues to grow, the advancements of technology become justified and must be implemented. But one thing is for sure, change for the sake of change does not happen at Strand Century.

Strand Century, Inc. is a wholly owned subsidiary of Rank Industries America, Inc. RIA is owned by The Rank Organisation.

I wonder if Messrs Kook and Levy ever thought their development would one day be part of a multi-billion dollar organisation... (they probably did). ■

1 *Century lighting in the late 1930s.*

2 *A partial view of Strand Century's spanking new 115,000 square foot complex in Rancho Dominguez, California. The Rank Gong-man is 12ft 9in tall.*

3 *In the foreground: Line Assemblers making lens tubes for Lekos. Assembly work is done at each work station and the conveyor is used to transport the product to each station. There are nine other such assembly lines.*
In the background: The foam-in-place packaging system is seen.

4 *The connector strip assembly bench*

5 *The Quality Inspection area for computer related products and the new CD80 Dimmer. 90% of all test equipment was made in-house from actual SCI products.*

6 *A view of the Printed Circuit Board Assembly demonstrating hand stuffing that still occurs.*
The picture is taken from the other side of the Quality Control department.

7 *The Custom Dimmerboard area at Rancho Dominguez.*

8 *The "aisle" that divides General Assembly and Custom Dimmerboard.*

9 *Sheet Metal Department with borderlights/battens in the foreground.*

No more "That Q jumped a bit". Write your own profile. Could be different for each show.

Extensive use was made of the Group Masters. Did I hear someone say "lighting by numbers"? A useful addition to the information given by the VDU's would be the particular Group Memory Number. When more than six groups are in constant use it is difficult to remember which group is on which playback fader at any given time. An individual read out can be obtained for each fader but this shows the circuits only and not the Group Number. *(The Editor notes your comment!)*

The second show was MUCH ADO. 102 Q's but only 56% of memory. Far fewer messages left for each other on the VDU's. Must be changing back to BBC2.

I anticipate the Winter Season will bring into full use the Preset Masters and Effects Panel. The Galaxy usually runs in Auto Dump mode and two Disc copies are taken at the end of each Lighting session. I would strongly recommend the purchase of a Printer. You sleep easier with a paper copy. I don't think that I will *ever* trust those floppy bits of plastic. ■

CODA

by Fred Bentham

MUSICALLY a Coda is "A passage added to a piece to make a good ending" and with transposition this is the role played by the System DDM control whose ten year run at Stratford-upon-Avon has just ended. The Royal Shakespeare Company recently made the sensible decision to have an identical control — the Galaxy — in their two big houses, the new Barbican theatre and the 'old' Stratford one. It is a sensational feature of modern technology that such complete up-dating can be done so easily without disturbing in any way the realy pricey part of an existing installation — the current carrying dimmers and wiring. It was not always thus, far from it.

Over several decades there have been at the top end of the Strand range a number of lighting controls of such idiosyncratic ergonomic design as to automatically identify them with my **playful** approach to lighting. Except for the first, the Light Console, all have born strangely unrelated initials — CD, C, C/AE, WHZ and last of all DDM. And the whole lot carried the back-handed compliment that no other firm in the whole wide world ever showed any signs of wanting to copy them! The very last Bentham to be made and set to work was that board of Avon.

That Stratford DDM was quite as special and as exciting as that very first Light Console of forty years earlier. It was the first theatre control to be completely computer based. Thanks to the Tabs Archive* it is possible to print what I thought at the time and not what I think I thought!

"Do I understand it? The answer is emphatically No! but it can be made to understand me and my control needs. This is where the latest technical jargon, the word 'software', enters the theatre. This really is a new concept in lighting control, not merely a new expression. Using a computer in this way one can write a brief, a specification or rather a program for the way the lighting control is to carry out its varying instructions. An initiate known as the 'programmer' takes these words and turns them into a kind of pidgin English the computer understands — a nightmare telegraphese. For the first time the lighting control inventor is free. No longer does the nature of the circuitry make suggestions or impose restraints."

The exact form that original DDM took can be seen in the photograph (above). The most obvious dissimilarity between it and today's dimmer memory systems is the panel to my left. Every one of the 240 channels had a centre-stable rocker to mimic what was on or preset and to provide instant access to raise or lower any channels. The layout of the rockers correspond to the basic lighting layout† and thus action and appraisal by pattern was to some extent possible. It is a system decidedly at variance with today's well established numeric channel call-up and VDU display principles. Lighting designers have for a long time preferred working to numbers but I have never had a feeling for any numbers game. Thus it was that fifty years ago I turned to the organ console and not to the automatic telephone dial for remote control inspiration. If I had, I wonder what that switchboard and its progeny would have looked like! ■

Footnotes:

* TABS Vol.29 No.2 June 1971 pp.52 & 53.

† TABS Vol.30 No.1 March 1972 pp.28 & 29 Stratford DDM layout.

Fred Bentham pictured here with his last great switchboard. A suitable finale to a career that really did change stage lighting. It was Fred who finally got board operators who were controlling the lighting in a position in theatres where they could see what they were doing. If any one person put the operator front of house it was our author.

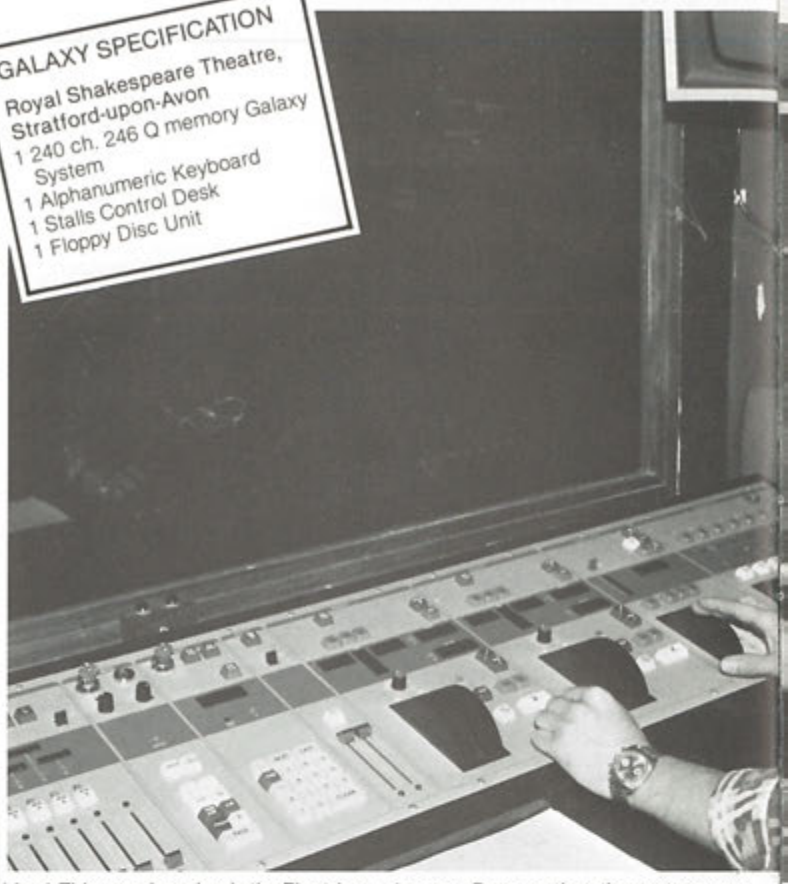
The board concerned is, of course, the DDM. The photograph was taken some time in 1971 at the old Strand Demonstration Theatre in King Street prior to the system being installed at Stratford-upon-Avon.

A SEASON WITH A NEW GALAXY

by John Bradley, Technical Administrator, Royal Shakespeare Company

GALAXY SPECIFICATION

Royal Shakespeare Theatre, Stratford-upon-Avon
1 240 ch. 246 Q memory Galaxy System
1 Alphanumeric Keyboard
1 Stalls Control Desk
1 Floppy Disc Unit



I OPENED the letter from the Editor inviting me to write this article on Palm Sunday. I should have known better and gone to church. Readers may feel the same. The offer was to write the article or submit myself to an interview by our Editor and indulge lunch at the same time. I decided to take up both options, having hastily paid up all outstanding bills to Rank. I thought this way there will be no confusion over who pays for the lunch. You see I remember his selling days, before being "raised to the ermine". He has ways of making you buy. Which brings me back to Galaxy. The Board has a way of selling itself! We didn't need much persuading; just a broken arm.

The heading is "A Season with the new Galaxy" but Stratford has two seasons. The Shakespeare and a Winter Season. Galaxy with all the options available make it possible to achieve a switchboard that will cope with both variety and the more traditional lighting of Shakespeare.

Having decided on 1 channel control, 2 playbacks, 1 group master, 1 preset master, 1 effects panel and 1 stalls control plus 2 VDU's to be mounted on Pivotelli Brackets, we proceeded as most new couples do with the furniture. Cut out all the panels to scale and played with them like a jigsaw to achieve the best layout. Stratford has seven electricians. Result: seven different layouts. I tried returning the layout to my favourite choice each evening but no one took the hint. Eventually I gave up until someone suggested the layout I originally started with. At that point all discussion closed. The order was placed with indecent haste (we expect everything yesterday) and Eric Baker of Strand was persuaded, against his better judgement, I'm sure, to allow us the use of a demonstration model in Stratford. This was rigged up in the Electrics workshop in mimic form only, for the purpose of staff training. Incidentally the next Rank Training Course was not available until after we had opened the Shakespeare Season. (I should mention at this point that I can't help feeling that training should be an integral part of a contract to purchase.) Eventually we did manage to get three of the staff to Brentford for training on the Alpha Keyboard.

The time allowed for the changeover was seven days. The switchboard was installed in the Dress Circle in place of the DDM with outlets for the remote control in Row K Stalls and Front side Stage. The Desk and Furniture was made to measure by our Props staff in Peruvian walnut, no less. Wiring was installed by the local staff, leaving the Rank Engineer to play with his coloured ends, and very dexterous he was. Bang on time the system was working.

The first show through the Pod and Crate (sounds like a pub) was MACBETH. As unlucky a show as you can get but modern technology take no note of mere superstition. Perfect! Well, almost.

It was during the lighting sessions that I became aware of a pitfall with the VDU's. People tend to drift off in a myopic gaze. Mind you, it keeps them quiet. They end up not quite sure whether it's MACBETH or BBC2 they are watching. There is the danger of treating it like television and forgetting they control it and not Rank Outside Broadcasts. How did it go? Very well indeed. MACBETH has 77 cues and used 62% of the memory. No need to tell the Lighting Designer — he could read it for himself. No delays in plotting. Ultra fast. Everything is much quicker these days from Rank. Even the bill arrived before all the goods were delivered!

by Bob Anderson

Bob Anderson is the Senior Electrical Engineer with Theatre Projects Consultants. As with so many theatre technicians, addiction started at school and continued through University where it nearly cost him his degree.

Bob then joined the BBC and, after a few years as maintenance engineer in the TV studios, moved to the Studio Planning and Installation Department where, he claims, he specified and purchased all the dimmers, control systems and luminaires used in BBC Television for nearly twenty years. Theatre work was not ignored however for Bob joined The Questors, the leading London amateur theatre, and lit at least two shows each year. To many people's surprise, Bob joined TPC in 1977 and now finds himself much too busy advising clients worldwide about lighting and electrical problems to have time to participate in theatre. He is however, active in the ABTT and has been a member of the Safety Committee.

His reason for writing this article, he says, is because he is fascinated how the theatre industry seems to be able to maintain an excellent safety record while taking outrageous liberties with materials and design techniques that would require computer analysis to be accepted elsewhere. He hopes theatre technicians are not totally unaware of their responsibilities but also, that they continue to get away with it.

GUILTY?

WE WILL LET YOU KNOW

The Law Courts in the Strand, London.

SEBASTIAN FELL* is the Technical Director at a major provincial theatre. He was well educated in the arts and classics tradition and would, no doubt, have got a good degree if his commitment to the college dramatic society had left enough time. But Sebastian was captured in his first term by the problems and pleasures of staging a play and thereafter took every opportunity to work in student shows in all capacities. Then, as confidence grew, he also found time to lend a hand at the Rep. These contacts led to the offer of a job on a summer tour ending at the Edinburgh Festival and, naturally, when his Professors found it impossible to ignore his choice of priorities and issued an ultimatum, he contrived to obtain a permanent job at the Rep assisting with the switchboard, the sound system and, whenever possible, designing lighting sound and any technical device required by the scenic department. For a man who had had little formal technical education he found that common sense and regular study of the popular technical magazines were quite sufficient for his purpose. Personality and unlimited enthusiasm did the rest.

After several years Sebastian made well judged moves to a more distinguished rep. theatre in a larger industrial city, and then to a Civic Theatre. The latest move to Technical Director with a nationally famous company in an attractive provincial city was no surprise to anybody other than those who expected an even bigger move to one of the big four in London. Sebastian has little difficulty with his job and runs a willing, competent and well organised crew. It is therefore surprising that Sebastian is secretly a very worried man and more surprising that the cause of his worries seems to be nightmares!

The nightmares started in a small way when Sebastian was chief electrician at the Civic Theatre. In those days the evil dreams were easily forgotten but, looking back, Sebastian remembers very clearly the general pattern of their content.

Scene: A Coroner's Court

A pop musician has died at the Civic Theatre in mid performance. The newspapers were, naturally, quite con-

*This is a pseudonym for a fictitious character. If there is a Sebastian Fell working in the theatre anywhere in the world we hope he will accept our apology for the use of his name.

cerned. Witnesses have already been heard to testify that the probable cause of death was electrocution and that there were faults on the musician's own equipment that could easily account for the presence of the fatal voltage. Sebastian is now to give testimony.

Coroner: "You are Sebastian Fell and are employed by the City Council as Chief Electrician at the Civic Theatre?"

Sebastian: "Yes."

Coroner: "You were, then, the council's representative at the theatre at the time of the fatality responsible for electrical safety?"

Sebastian: "Yes Madam."

(The Coroner is a lady, a Doctor of Medicine and, perhaps uniquely, also the holder of a B.Sc. in Physics.)

Coroner: "Will you please tell the court what steps you took on the night in question to ensure that the electrical equipment used by the musicians was safe."

Sebastian: "Yes Madam. The routine is that my assistant meets the group, checks the types of plugs used and the state of the wiring and then provides portable socket outlet boxes to fit. If he is not satisfied with the wiring he reports to me and we decide what to do. In this case he decided that the wiring was in good condition and connected up the supply. The council have fitted special earth detector devices to sockets for the pop groups and these have to be used wherever possible. My assistant used these sockets and tested that they were working correctly. This routine has been approved by the Council's Engineering Department."

Coroner: "Are these 'earth detector devices' you mention called Residual Current Circuit Breakers by the professional engineers, and more commonly known as Earth Leakage Circuit Breakers?"

Sebastian: "They are labelled — Earth Leakage Circuit Breaker — 30 milliamp Madam."

Coroner: "What was the test that you instructed your assistant to carry out?"

Sebastian: "To press the test button on the case of each unit and to check that it turned off automatically."

Coroner: "What instructions did you give concerning the inspection of the visitor's electrical equipment?"

Sebastian: "We always inspect each mains plug and wiring that is to be connected to the theatre sockets and we also use a special test meter to check earth continuity and polarity where this is possible without opening the case of the visitor's equipment. This was done and all confirmed to be in good order."

Coroner: Thank you. It does therefore seem that you have taken reasonable care and that there should have been no possibility of lethal electric shock. However, the sad fatality has occurred and you are probably aware of the reason. I must therefore now ask you whether there was any other electrical equipment used by the act?"

Sebastian: "There was a small lighting rig. It only needed a 13 amp plug and because it had dimmers it could not be connected to the same mains as the sound equipment. I therefore supplied an adaptor and connected it to a stage independent circuit."

Coroner: "You will have been told, Mr Fell, that expert witnesses have stated that this lighting equipment was faulty and in all probability the cause of death. Did you or your assistant test this wiring?"

Sebastian: "We had decided, and the Council's engineers had drawn special attention to this, that pop sound equipment is the real risk and, since we only had limited time, we only inspected the sound equipment thoroughly."

Coroner: "Was no attention given to the lighting?"

Sebastian: "I did try it on an Earth Leakage Circuit Breaker socket but the sound buzzed and after a minute or so the circuit breaker tripped. This showed that there was a proper earth so I replugged the lighting to the independent."

Coroner: "You had no doubts that this was a proper course of action Mr Fell?"

Sebastian: "None."

Coroner: "I understand that you have no technical qualifications Mr Fell. I mean academic rather than practical."

Sebastian: "Only 'O Level' in maths and chemistry Madam."

Coroner: "The expert witnesses have told the court that the fault on the lighting that is the probable cause of death was also the reason why the sound buzzed and the residual current circuit breaker tripped. Had your education been more appropriate for your duties you would, no doubt, have realised this and the unfortunate victim would not then have suffered electrocution. However, I must also take full account of the failings and responsibilities of the Pop group management and technicians and will, in your case, confine myself to issuing a warning to your employers to remind them that they have a duty under Health and Safety legislation to ensure that the experts they employ are, in fact, properly competent in the duties they profess to understand.

Thank you Mr Fell. That is all.

In the way that dreams and nightmares have, the full explanation of the Coroner's statements are still not quite clear to Sebastian.

After having the same dream three times in a row, Sebastian applied for and obtained his present job as Technical Director. Needless to say, at interviews for electrical staff he always includes searching questions on electrical safety and the Residual Current Earth Leakage Circuit Breaker.

Our Hero's current nightmare is quite different.

The Court is now the Old Bailey, or perhaps a good theatrical equivalent, and the charge in Regina versus Fell is manslaughter. But, so far, the dream gets no further than the first interview in the solicitor's office.

Solicitor: "You realise, Mr Fell, we are going to need the best Counsel we can get if you are not going to go down for a long stretch."

(Naturally, the court procedure and language used in Sebastian's dreams owe everything to theatrical scripts and are not always quite appropriate to the main situation.)

Sebastian: But surely, all I — er, we — have to do is to establish what occurred was an accident."

Solicitor: "Unfortunately, Mr Fell, you are employed as Technical Director to ensure that forseeable accidents do not occur. You are accused of negligence, criminal negligence, in the execution of your duties. The Crown will attempt to show that everything that happened should have been expected and that you should have instituted procedures to prevent them. You must also expect the victim's next of kin to bring civil charges and to seek substantial financial compensation. Which brings me back to the wherewithall. Do you have a private fortune Mr Fell or perhaps insurance or a Union to pay your costs?"

Sebastian: "I was hoping to be awarded costs. But, no; I have no money; not unless I sell my house."

Solicitor: "Perhaps that will have to do."

Sebastian: "Should we get back to the facts?"

Solicitor: "We had better. We must, I suppose, admit that the scenic device in question was manufactured to your design and to your instruction?"

Sebastian: "The set designer did the drawings. I only showed him how it could be made to work."

Solicitor: "You did, however, choose and specify the sizes of the materials, the number and size of the screws, the location of the welds and the location of the lifting ropes."

Sebastian: "I suggested sizes but I thought that the workshop would cross-check."

Solicitor: "Did you issue instructions that this must be done?"

Sebastian: "It is understood. At least; nothing has ever failed before."

Solicitor: "Your own instructions were however, remarkably detailed."

Sebastian: "I did a lot of calculations to get the sizes right. If the steel had been any heavier we could not have lifted it by hand. I had no doubt that the framework was strong enough."

Solicitor: "You can claim to be properly competent in these matters?"

Sebastian: I have designed scenery like this for over three years without anything breaking before."

Solicitor: "Do you use British Standard Codes of Practice? No? Then do you have copies of your calculations that can be checked by supporting witnesses?"

Sebastian: "I have my notes, though they are a little sketchy. I will let you have them immediately."

Solicitor: "Thank you. It would not be proper for me to even suggest that in some circumstances such notes could be disaster for our case. We must recognise, Mr Fell, that a structure built to your detailed instructions and used under your direction did, in fact, collapse and was the prime cause of this disaster. Tell me, Mr Fell, why did your scenery fail?"

Sebastian: "It is quite clear that Albert, the flyman, released the mid span rope by mistake. The whole weight was left suspended on the ends and the main girder broke its back."

Solicitor: "Well, this will have to be drawn out in detail for the jury. Photographs and a model will be needed. I suppose the reason why the flyman, Albert, released the rope will not be relevant?"

Sebastian: "Unfortunately, I told him to do so. It was necessary to get the centre down to the top of the flats; the standing scenery you understand. These were a little too small. These flats then took the weight of the centre until they were struck at the end of the scene. The rope should have been retied but I was doing something else and Albert thought I wanted the rope loose."

Solicitor: "The critical point will be whether you envisaged, and whether you should have envisaged, the possibility of this error and planned your safety procedures accordingly."

Sebastian: "As a matter of fact it did occur to me during rigging when I saw how much the thing bent but I decided that if the truss did break there could not be any risk because the stage would be clear. I gave the Stage Manager specific instructions and it was sheer bad luck that Annie was killed."

Solicitor: "The victim was struck by a falling spotlight, I believe. Was this attached to your scenery?'

Sebastian: "No. It was clamped to the spot bar at the front of the stage. It fell because the front of the broken scenery swung upwards and forwards when the back collapsed and the hanging hook was forced off the bar. Even then it did not fall but hung onto the edge of the scenery. Its safety chain was fastened so we sent Annie up the ladder to re-hang it. But it fell when she touched it. The chain should have held, that is what it is for. If it had held we would not have this awful mess."

Solicitor: "Then we must show that the safety chain was badly designed or of defective manufacture. It was, I hope the correct size for the lantern?"

Sebastian: "Unfortunately not. It was a 5kW lamp and very heavy. The manufacturer says that their standard chain was quite inadequate for this lantern. They even have a warning in their catalogue. I should have known. It is obvious now. I remember saying at the time that it would have to do. I should have known better!"

Solicitor: "Thank you Mr Fell. This will be a difficult case. Your position requires you to ensure that a safe method of work is devised and operated. You have told me that you have had every encouragement from your management to study the new legislation and to employ expert advice whenever necessary. It seems that you may not have fully understood everything you did and although many people are in this position every day most get away with it. Unfortunately you have had the ill luck to demonstrate in tragic circumstances that you are not able to do everything that you profess to be able to do and therefore my profession will have to take what action is open to us to help you. I can promise very little. We must start by obtaining the services of a really competent Counsel. I will advise you when a further meeting is required. We will let you know."

The nightmare has, so far, always ended here. The familiar phrase — "We will let you know" — being somehow much more worrying than a firm Guilty or Not Guilty verdict.

Sebastian Fell is, luckily, a realist. His job is interesting and challenging. He would not readily change. He has therefore made careful arrangements about insurance and automatically consults specialists for every detail of the design of any risky bit of flying or electrical work.

The current play at his theatre is about homicide by poisoning. He has already had the kitchen equipment thoroughly checked by the appropriate experts and intends to steer a very careful course when handing round drinks in the bar. If this degree of attention to safety does not result in a peaceful night's sleep, then he has decided to cut his losses and study law. ■

trol channels using the two command keyboards on the console. A video display shows the assembled patching pattern. This control channel assignment is memorised, held and may be modified whenever necessary.

After the formation of channels, the set lighting is organised into cues which are in turn assigned levels and sequences. These functions are performed on the command keyboards and a level wheel. This information is memorised and displayed on the appropriate video screen.

Going from cue to cue can be achieved by cutting, fading, or by timed sequence. Also, cues may be extended to manual sub-masters for proportionate fading, and there are up to six master faders for manual or automatically timed fade sequences.

Additional features are a display keyboard to bring any recorded information to the screen, a floppy disc to record the lighting program, a special effects section to create a world of disco effects, a backup system and finally a diagnostic program for evaluation of the system performance.

Designers Remote Control

Studio 51 is equipped with an auxiliary console called a "Designers Remote Console" which is located on the studio floor. This remote unit enables the lighting director to perform all of the fundamental lighting operations from the studio floor.

This console is particularly useful when the lighting director is setting up lighting sequences during the program rehearsals.

The console can be moved around the studio as desired, and connects into one of two receptacles mounted on each side of the studio.

New Houselights

The new houselights installed in Studio 51 are a group of 14 luminaires located at the high grid level, using 400 watt metal halide lamps. These HID (High Intensity Discharge) light sources have luminous efficiency of 90 lumens per watt and a very long life.

Lighting produced by the luminaires is of even distribution, has an intensity of 100F/C and a spectrum complementary to colour television.

Conclusion

All of the work was completed by September 15, 1980, which is exactly 12 months after the supplier was given the authorisation to proceed with fabrication of the equipment. Studio downtime for the electrical work was six months. The fact that there were no problems recorded during the performance of this work is a credit to those involved.

Dimmer racks and dimmers were engineered and manufactured by Strand Century Toronto, the Light Palette by Strand Century in Los Angeles, and Strand Century Toronto were responsible for assembling and testing the complete installation.

The end result of this work is an electrical update of Radio Canada Studio 51 to provide adequate and comprehensive equipment for the Lighting Director to achieve an excellent level of artistic merit and technical excellence with a minimum of effort.

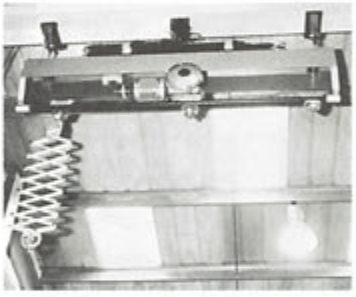
The entire project was engineered and supervised by the Electrical Engineering Department of CBC Engineering Headquarters. Design engineer is Mr Henri-Paul Filion, assisted by Mr Joseph Senoner and Mr John Szewczuk. ■

SUSPENSE STORY

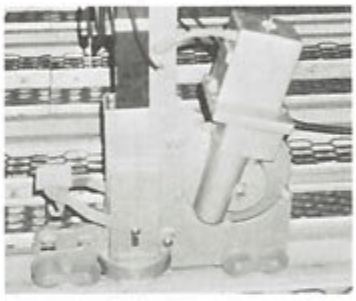
by Steve Futers of Telestage Associates

THE heavy demands put on studio production facilities due to ever increasing costs, higher quality production and their increased work loads can only be met by shorter turn-round times between productions. Recent developments in lighting and scenery rigging for T.V. Studios have, therefore, concentrated on improving the mobility and flexibility of this equipment so that less time will be spent rigging, setting-up and de-rigging lamps. The observations and illustrations in this article relate to European practice but similar schemes are being used in many parts of all the other continents.

In Europe, however, there are two schools of thought on rigging which can be described as "multipoint saturated rig suspension" and "single point suspension". This latter because of its mobility, avoids the necessity to saturate the grid with luminaires. In spite of these two separate approaches, the nature of the T.V. industry is such that there exist studios with saturated single point suspension in one instance and traversing non-saturated multipoint systems in another!



A self climbing hoist — a view from below showing a hoist fixed to a steel beam for factory tests.



A motorised telescope photographed on the slotted grid of a modern TV studio.

A self climbing hoist fixed to a beam, which can pivot and traverse, undergoing factory tests.

Single Point Systems

For many years some studios, both film and T.V., have been using an overhead slotted grid through which telescopic lighting suspensions are dropped for raising and lowering luminaires. Lateral and transverse movement across the studio is possible by fitting a trolley to the telescope and moving it along the slots. The main purpose of such a system is to allow set designers the maximum freedom in the use of the Studio and the lighting director to have an adequate number of points from which to hang his luminaires.

The slotted grid system is a development from a system of tracks fitted in the roof from which drop-arms or winch driven telescopes are raised or lowered on a wire rope to give vertical position to the luminaires after the horizontal position in the track had been fixed. These telescopes were either hexagonal, round or square in cross section. The shape of the section is important to the stability of the telescope in a suspended position so that the beam of the luminaire may not drift due to twisting or swinging. The grid below the tracks was introduced to permit operators to reach the tracks and move the trolleys by hand as this proved difficult at floor level. Where ceiling heights were low and inhibited grid installation, motorisation of the trolley was introduced either with a hauling motor or axle drive. These motors were always operated from grid level — never remotely.

The modern telescope is designed to use grid slots as its track and has an eight wheel trolley with nylon wheels running on ball bearings to reduce noise and friction. The pile-on winch drum with its self sustaining gear and drive unit are mounted on the framework of the trolley. Twin cables are used for safety and are taken over a hinged and counter-sprung diverter pulley which can be fitted with overload and slackwire protection. The seven section tube assembly is square with a high stability factor and a maximum extension of 12 metres. Ball bearings are used between the sections to eliminate sticking between the tubes should the suspended load become unbalanced. Maximum lifting capacity is 90 kg but lower ratings and extension limits are available using smaller and lighter components.

The latest development in grids to be used with this telescope is known as the "parking" grid. This grid has short slots at right angles at metre intervals along the length of each lateral slot. This gives a much greater flexibility in the horizontal positioning of telescopes than was possible with earlier designs. As a by-product this grid lends itself to modular construction of great simplicity and makes installation and final levelling a much easier process than before. The illustrations show a typical grid of this design. The wide unobstructed access between the hangers is much appreciated by the operators. The availability of electrical services is another notable feature of this design, the cabling is supported on trunking fixed between the hangers on which are located the outlet sockets and supply points for the telescopes and scenery winches.

Multipoint Systems

Multipoint suspension systems have always been with us, the big "pipes" or "barrels", in U.K. parlance, having been adopted from theatrical practice, along with their counterweight systems. Since then they have been shortened and motorised and put on tracks and even pivoted on turntables. But a typical T.V. motorised barrel hoist today looks something like the one illustrated.

This we call the "self-climber" mainly because the winch, gears and motor are mounted on a frame attached to the barrel and are designed to "climb" up their own suspension ropes. A single motor drives a self sustaining winch with twin output shafts to which are fitted two twin groove pile-on winch drums. Hence the unit is suspended on two pairs of cables for extra safety. As the gears are self sustaining, no brake system is necessary. An auxiliary drive-down motor and gear can be provided to lower the barrel if the supply to the main motor is lost at high level. Upper and lower limits are gear driven off the main shaft and provide very accurate positioning. A second, lever limit is also available if the first is overriden.

For maximum effect barrel hoists of this type, which are normally 2.5 to 3.5 metres long (8 ft. 2 ins. — 11 ft. 5 ins.), should be used in a 'saturated' lighting system. The space between rows should be in the order of 1.5 metres (4 ft. 10 ins.). The distance between barrels should be 0.5 metres (1 ft. 8 ins.). Short drop pantographs permit the luminaires to be suspended at different heights off the same barrel.

The advantages of this system are the economies made initially in designing the Studio, no reinforcement needed in the roof structure to support a grid, the saving in height of the Studio without a grid and the simplification of the air conditioning installation. The installation time of the self climbing hoist system is very much less and consequently cheaper than a grid system. Maintenance can all be done in safety and in comfort at floor level. The removal of a faulty hoist is quick and simple so that valuable production time is not lost.

Possible Future Development

Our illustration shows the very latest version of a self climbing hoist currently on trial in a U.K. Studio. In addition to the functions already described, this hoist will track down the studio and pivot at the centre, either to light a cyclorama corner or an angled flat or just to drop a luminaire into some inaccessible part of a set. It takes the art as far as it can go, giving the near ultimate in flexibility and speed of lantern setting.

Such elaborate suspensions may not be universally affordable — the best is never cheap but the challenges facing the lighting director in his expression of an art form very often becomes a mechanical problem on the actual studio floor. Now a significant part of this problem looks as though it has been solved! ■

MONTREAL STUDIO 51

A NEW LIGHTING INSTALLATION

by H. P. Filion and T. C. Nutt Building Design & Construction, Engineering Headquarters, Canadian Broadcasting Corporation

OVER the past two years, Radio Canada Studio 51 has been totally renovated electrically and now has one of the most modern television lighting installations in North America.

The studio was designed and built as part of the International Broadcasting Centre for Expo '67. This Centre featured a tour gallery routed through the building to enable visitors to see and experience the art of Broadcasting. The tour gallery passed through the centre of studio 51 at a height of about 16 feet from the studio floor, dividing the studio into two distinct and equal areas.

The studio is 100 ft. long by 70 ft. wide (7,000 sq. ft). One half of the studio has a grid floor 45 feet high from which are suspended battens for lighting and scenery, the other was originally equipped with a walkway grid 15 feet high.

Immediately after Expo '67, this studio became a production unit of Radio Canada and a continuing series of major T.V. productions originated from this location. As production progressed inherent problems of the studio became apparent. They were:

1) The tour gallery and walkway grid restricted camera shooting. Specifically, whenever the camera pulled back for a long shot of the cyclorama, the picture included luminaires and a portion of the grid.
2) There were not enough lighting outlets for three colour cyclorama lighting.
3) The lighting outlets were connected to dimmers by two separate power programming panels, one located at the high grid level of the studio, and one at the low grid level. Setting up lighting on these two panels was operationally difficult.
4) The power programming system generated indirect and airborne noise which affected audio pick-up in various parts of the studio.
5) The house lighting in the fly area of the studio was of too low a level and luminaires were difficult to maintain.

The production staff worked around these problems from 1976 until 1979 when work was started on the renovation of the Studio. Renovations were planned to take place over a 2-year period with working being performed during the summers of 1979 and 1980.

The Rising Walkway Grid

Architectural renovations were performed first. A major portion of this work was to remove the tour gallery and reconstruct a new lighting grid.

This new grid starts at a height of 16 feet at one end of the studio and continues in a gentle slope to a height of about 22 feet at the point where the grid and fly areas meet. The new grid is of typical walk-on construction and is complete with safety nets, handrails and access ladders. This lighting grid is 56 ft. long by 64 ft wide (3,584 sq. ft.).

Installation and adjustment of luminaires and their accessories attached to this grid is facilitated by the use of a specially designed forklift truck. This truck is equipped with a custom built platform to accommodate a technician and the lighting equipment being installed. Maximum working height of the raised platform is 21 ft.

Lighting Outlet Distribution

Studio 51 has 512 lighting outlets distributed throughout the walkway grid, lighting battens, and wall receptacle boxes. This distribution of one outlet per 14 sq. ft. allows luminaires to be installed and connected to power with minimum use of extension cables.

Engineering studies indicated that it was not operationally desirable to connect these outlets to large wattage dimmers via a power programming panel. Instead each outlet was wired to an individual dimmer located in the central dimmer room. There are 512 dimmers, of which 341 are 5kW and 171 are 2kW.

Connection of luminaires is by established operational practice whereby a 5kW luminaire connects only to a 5kW outlet, and a 2kW luminaire connects to either a 2kW outlet or 5kW outlet. 5kW outlets are coloured orange, and 2kW outlets are coloured black.

Strand Light Palette Memory System, with French language on the V.D.U's.

Dimmer Racks and Dimmers

The dimmer room is well located in approximately the centre of the Studio and forms in part the upper wall between the high and low parts of the studio. The room also contains the power switchgear and the dimmer bank for the second studio. (This second studio was not updated at this time.)

The amount of available space in the dimmer room was limited, and it was necessary to align the dimmer racks against two walls facing each other.

This meant that the dimmer racks had to be fabricated to provide for total front access to all components and wiring.

To achieve this, the dimmers are mounted in "files" which are assembled together and supported on sliders which permit the assembly to move in and out of a dimmer framework.

Cooled air is brought into the top of the racks, flows through the components conditioning them, and exhausts through the front grilles.

The dimmer racks are assembled into 3 sections, each wired to a 1000A 3 phase circuit breaker. Power is fed to the dimmer bank at 133 volts. This higher voltage compensates for voltage losses through the dimmer itself and subsequent branch wiring. Output voltage of the dimmers is 117v measured with a nominal load at the studio pigtail.

Each dimmer is a plug-in modular unit, with a control circuit designed to CBC specifications. In this dimmer design the toroidal choke is installed externally to the module and is part of the dimmer file. This reduces the overall weight of the module and permits an improved and more compact mechanical assembly.

The dimmers are mounted in special "files" which slide out to allow access.

There are also 10 5kW non-dim modules which can be plugged into any 5kW dimmer pocket. Each module contains a mercury contactor and a control circuit which allows it to be switched on from the console circuits. Non-dim modules provide AC power to circuits which are "switched only" such as motors, audio amplifiers, etc.

The Lighting Battens

Each cross studio lighting batten is approximately 5 ft. long and contains three 5kW outlets. These battens are fed by a single coiled cable, of five conductor no.6 wire (3 phase wires, 1 neutral and 1 ground). The cyclorama battens are 10 ft. long, are equipped with four 5kW outlets, and are fed with two coiled cables.

All of the battens are raised and lowered by individual single speed motors controlled by a central console located at the studio floor level. Speed of battens is approximately 40-50 feet per minute, dependent on the loading of the batten.

Battens are raised and lowered frequently and the coiled cables are subject to considerable movement and internal stresses which eventually causes them to become defective. That is, after a nominal 10 years of operation, individual conductors may break or short circuit.

During recent years, the cable manufacturers have re-oriented their efforts and these coiled cables are no longer available for replacement. To counter this continuing problem, the Electrical Engineering Department has developed a new cable collector pantograph. This device allows the batten to be fed with regular multiconductor cable, which is attached to the struts of the pantograph and travels with the batten.

Another interesting innovation is a new batten designation plate. It has been traditionally difficult to read the numbers of the lighting outlets on battens in their raised position. This operation is made more difficult because the technician is generally looking into lights. The problem has been resolved by installing a well-designed designation strip with characters large enough to be read from the floor with the batten in the raised position.

The Lighting Control System

The lighting control system in Studio 51 is a Strand Century Light Palette located in the lighting control room, and a designer's remote console located on the studio floor. This equipment is designed to program 512 dimmers into 200 channels, which may be further assembled into 200 cues. (These numbers are proportionate to assignment.) A special French language program was created for this Light Pallette.

Luminaires necessary to achieve the lighting are selected and located and focused. They are connected to individual dimmers which are combined into programmed groups called con-

BOOKSHELF

"STAGE LIGHTING HANDBOOK"
Second Edition by Francis Reid
Published by Adam & Charles Black, 35 Bedford Row, London WC1R 4JH at £5.95

FRANCIS REID is obviously almost as well known to TABS readers as to the wide world of theatre technicians. He has practised his craft very successfully both in what Pinero described as "our little parish of St. James's" and in the wider world of the provinces. He has also carried the torch of stage lighting to Canada, Australia and similarly far flung places as an immensely entertaining and authoratitive lecturer on the subject.

It is unfair for a reviewer to pick plums out of a book but I cannot resist one or two that give something of our author's philosophy and perhaps also a taste of the flavour of what I will call the comment side of the book.

First, "To twist an old phrase, every theatre person must be a jack of all trades and a master of one". This is exactly what the lighting man should be. No theatre lighting man worthy of the name should be a man who only knows about volts and amps — this is to be a mere physicist or electronics person. Everyone who has anything to do with theatre should at least aspire to being a contributor to the artistic whole.

The second gem to strike the Editorial eye summed up a particular hobby horse which I have trotted round the lecture circuit of Britain this many a year and oft. Please, dear reader, note and absorb this gem. "Stage lighting is not static".

One of the examples I constantly call on was the lighting done by another of our TABS authors, the elegant Richard Pilbrow for a production in the West End a few years back of "A Streetcar Named Desire" where the constantly shifting emphasis of the lighting subtly shifted the audience's attention as the drama unfurled.

'Subtly' is the operative word. Good stage lighting is like good background music. It must contribute but should never be noticed *as itself* — such lighting, or such music, is simply flash.

Mr Reid has provided the beginner who is hoping to become a full professional, as well as the amateur who seeks to become advanced in the craft, with an extremely useful textbook, although there's no great difference between this edition and its predecessor.

My few criticisms really attach more to the physical appearance of the book rather than to its content. The form of reproduction used is not invariably flattering to the photographs reproduced — those of equipment are good but those showing the effects of lighting could perhaps be more sharply defined. Similarly I feel it is a pity that the section dealing with colour does so without the use of colour plates.

This is like describing Beethoven in words when, as we all know the gramophone, or in this case, the colour press, is available.

I feel here we are seeing perhaps a case of a volume that should really have cost twelve guineas being offered at its very affordable listed price. The lack of colour printing was perhaps the sacrifice that made it all possible. But not wishing to end on even a slightly sour note — anything that Francis Reid writes is always worth reading and this offering is well worth a place on any lighting enthusiast's permanent bookshelf. ■

The Editor

TO SEE OR NOT TO SEE, THAT EXHIBITION

Fred Bentham visits the Curtains!!! Exhibition on behalf of TABS, tells our readers what they should note, and discusses the book of the same name.

by Frederick Bentham

THERE are too many theatres of which it can be said: it was a far, far better thing that they did, than they ever do. These are the places where, if care is not taken, their eventual history ends sans light whence it is but a step to 'Curtains' and sans everything. The theatres we are talking about bear names like Theatre Royal, His or Her Majesty's (according to time and taste) and the Hippodrome. They were, except very obviously in Plymouth, built before the First World War; or, like the Drury Lane 1922 auditorium, would have been built before it if it had come later! These buildings are still, I imagine, what comes to mind at the word 'theatre'; even to the many who have never been inside one. For example, one such is to be seen on television in the frequent visits to the Leeds Palace of Varieties; or two such in the, almost equally frequent, revivals of Hitchcock's 1935 version of *The 39 Steps*. There are a number of shots at the end of the Hitchcock of the London Palladium but which theatre is it at the start?

All have been collected together in the book published earlier this year by John Offord under the title *Curtains!!!*. It covers in some detail, often with some kind of photograph, the ones for which it has not been and it is unlikely to be 'Curtains'; the ones only just there or not all there (if you know what I don't mean!); and those which survive by playing some other role like a Bingo Casino or, as in the case of the Lyceum, a Mecca ballroom. At least these last are still connected with entertainment and their continued use has kept the rain and vandals out. Given employment, old theatres can be tough as the lovely Georgian theatre at Bury St. Edmunds has proved: having survived many indulgent beery years as an annexe to the Greene King brewery across the road.

The Lyceum is one of the theatres whose large photograph, as it was, can be seen in the *Curtains!!!* exhibition which is, very properly, on tour. It is a fine example of a building for which 'curtains' should be out of the question. It has not been mucked about much and could become a theatre again relatively easily. Personally, it is associated with boyhood visits to the pantomime and their real transformation scenes. The Lyceum's picture confirmed a lingering memory of what I can only call an unusually large and frank tympanum: though I have to add that it is neither triangular nor sits *within* the arch. To find out what I am gibbering-on about, the reader will have to go to the exhibition for that photo is not in the book.

I would have preferred less presentation decor and the money spent on more blow-up pictures of theatres — it is the content that counts. I cannot declare therefore that the *Curtains!!!* exhibition rates a protracted pilgrimage but a modest journey will not prove unrewarding. On the other hand, the vast content crammed in the book makes it a must! ■

Curtains Itinerary

Grand Theatre, Leeds
17th November 1982 — 8th Jan 1983
Dorman Museum Middlesborough
14th January — 12th March
Leicester Polytechnic
18th April — 30th April
Royal Exchange Manchester & Buxton Festival
In early summer 1983 at dates yet to be finalised.

At Leicester a seminar will be held 14th — 16th April on the subject of theatre restoration with special reference to the role of the craftsman, both in the building of the theatre and the subsequent restoration. Further details from Colin Jones, Leicester Polytechnic, P.O. Box 143, Leicester LE1 9BH.

A UNIQUE TABS FEATURE

In the next two issues of TABS we will be including an eight page special illustrated "How to do It" section on Stage Lighting for the school and amateur theatre lighting enthusiast.

The special feature of advice, ideas, recommendations — and even warnings — needed a special author, so we turned to Francis Reid, sometime editor of this journal.

LIGHTING THE AMATEUR STAGE

THE enthusiastic director has wonderful imaginative ideas involving thirty dramatic shafts of light in the opening three minutes of the show. But the enthusiastic eager-to-oblige lighting team consider themselves lucky to have not much more than a dozen spotlights. And their stage, like many school stages, is wider than Drury Lane. It is obviously time for decisions.

A sympathetic lighting designer never says an outright no, but leads his enthusiastic, if over optimistic, director gently down the path of compromise.

But what are the options? Where do we start? How do we plan to ensure that we are squeezing the best results from each and every one of our lights?

TABS will try to point the way in a two part 1983 centrefold on lighting plays and musicals on the amateur stage with limited time and equipment. This illustrated feature will be written by that familiar Tabman Francis Reid whose lighting design work has taken him to many of the world's largest theatres although he claims to have achieved some of his best results by hanging a battered pair of Pattern 23's on the antlers of the stuffed stags on the walls of a church hall in Tobermory. This was during a 1950s tour of the Arts Council's "Opera for All" when his work with four spots and two floods led to his appointment as Lighting Designer for Glyndebourne Opera. He has since been responsible for lighting some thirty West End shows from 'Sleuth' to 'Bubbling Brown Sugar' and has recently been appointed head of the Theatre Design Department in a (he claims *the*) leading London Art School. ■

The Editor

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