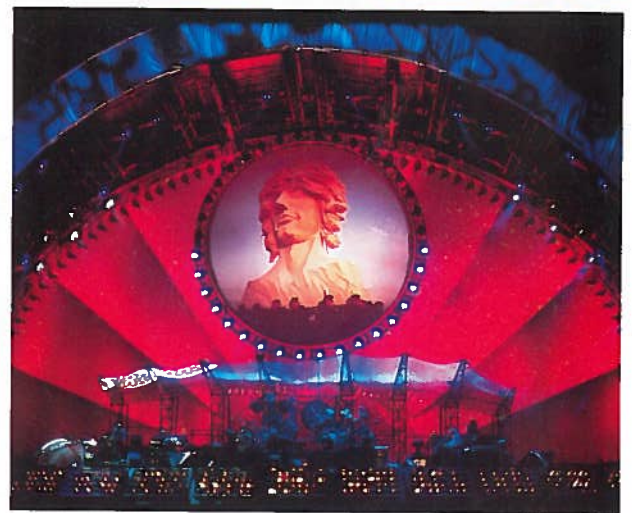


LIGHTING+*SOUND* International



GLYNDEBOURNE OPERA HOUSE

PHOTO: RICHARD DAVIES



PINK FLOYD

PHOTO: MARK FISHER

- John Offord features the new Glyndebourne Opera House
- Tony Gottelier gets close-up on Pink Floyd at Dallas
- Edinburgh gets its Festival Theatre
- Basingstoke opens its new Anvil Concert Hall
- Diamonds and Sapphires: an up-date on Avolites
- Martin launch Wavefront Series

JUNE 1994

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LIGHTING+ SOUND *International*

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Assistant Editor: Ruth Rossington
Associate Editor: Tony Gottelier
Advertisement Manager: Barry Howse
Production: Sheila Bartholomew
Advertising assistant: Jane Cockburn

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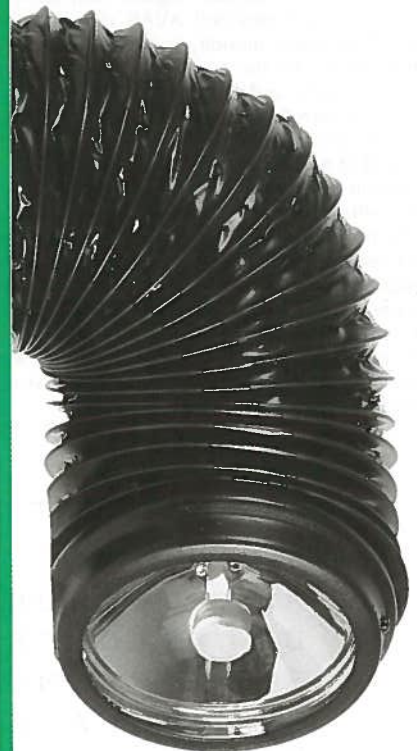
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AVAB Claw Way Back after Niethammer Demise

Following the bankruptcy last month of Emil Niethammer GmbH, AVAB was also forced into the same situation, but the positive news is that the company is already up and running again as AVAB Niethammer AB and "as a stronger company than ever" according to managing director Kent Flood.

Ralph Dahlberg, marketing manager, provided L+S with the background to the complicated sequence of events. "Niethammer had a difficult year in 1993 and made a small loss, but this year everything began to turn around and the order book was the biggest for two years. Additional short term credit had been agreed with the five banks involved provided AVAB placed DEM 200,000 as added liquidity to Niethammer. The administration for the pool of banks fell on the Deutsche Bank, and the day after this decision AVAB transferred the required sum, at the same time asking some of our biggest dealers for quick payment of outstanding amounts.

"Within a few days over DEM 500,000 came into Niethammer's account in the Deutsche Bank, following which they decided to hold the money and close the account. This was a clear breach of the agreement with the other banks, who had then to close their accounts, and with Niethammer. The four other banks tried to get the Deutsche Bank to reverse its decision, but they decided not to open the account again, resulting in us having to file for the bankruptcy of Niethammer.

"Unfortunately Niethammer owed AVAB a lot

of money, and the bankruptcy of the company created a big hole in the AVAB balance sheet. There were discussions with our banks to try and reach a settlement whereby we could continue, but whilst one was in favour, the other said 'no'. The end result was that AVAB also had to file for bankruptcy."

With an administrator in place running the company, discussions continued regarding a financial reconstruction of AVAB, and this has now been successfully finalised. "The reconstruction has included a substantial increase in our equity which will secure a continued emphasis on the development of our state-of-the-art lighting control systems and automated luminaires for theatre and television, and to the service of customers world-wide," said Kent Flood. "We are now operating under the name AVAB Niethammer AB, and there are no changes in management, address, telephone and fax numbers."

Back to Niethammer and its lighting products, Kent Flood informed L+S that every effort was being made to bring the operation back within the AVAB fold and meetings were currently in progress on this subject. He stated that he was expecting a positive outcome to the talks with plans for the continued operation of Niethammer completed by

August. Niethammer are continuing to trade and fulfil orders in the interim.

Meanwhile, quickly back on track with their publicity machine, AVAB have announced growing sales for their award-winning Super Viking control system. Installations already include a string of prestige venues such as the Gothenburg Opera, Kirov Ballet at the Marinsky Theatre in St. Petersburg, the new Music Hall Theatre in Stuttgart (being built for the German production of Miss Saigon), Theatre Chatelet in Paris and Det Kongelige Theatre in Copenhagen. "A large number of other projects are being negotiated at the moment," said Ralph Dahlberg.



Ralph Dahlberg shows Super Viking in Paris at SIEL 93.

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Soundcraft and Polka Theatre

Soundcraft is sponsoring Wimbledon's Polka Theatre for children by supplying a 24-channel Delta SR console to upgrade the theatre's sound system. Polka, a registered charity, is the only theatre building in the country which is run exclusively for children, attracting an annual audience of 100,000.

The first production on which the new desk was used was 'The Magic Paintbrush', an adaptation of an ancient Chinese folk tale featuring a combination of traditional performance styles with music and dance. "The sound has improved by leaps and bounds," stage manager Andrew Wiltshire told L+SI. "We needed more channels, but the improvement in sound quality, plus the availability of stereo channels, has definitely widened our horizons in terms of sound design. We also benefit from much better foldback for the performers."



Candy Davies (left) of Soundcraft and Judy Vereker of Polka pictured in the theatre's auditorium, now equipped with a Delta SR desk.

David Martin Verdict

As we went to press, L+SI received the following statement from David Bissett-Powell, managing director of Martin Audio.

"The trial of Colin James for the murder of David Martin has taken place over the last five weeks at Reading Crown Court. On Monday, 23rd May at 10 o'clock the judge made the closing statements in his summing up and sent the jury out to reach a verdict. He stated that he would not accept a majority verdict and wanted a unanimous decision from the jury. The jury returned with a unanimous 'guilty' verdict and the judge sentenced Colin James to life imprisonment.

"I believe I'm right in saying that under the British legal system no parole can be granted unless the guilty party shows remorse for the offence," continued Bissett-Powell. In order to show remorse, we would expect to gain some details of what happened to David's body. However, it still may take some time for Colin James to voice this information as there is the possibility of him appealing the sentence.

"We believe that the legal system has promoted justice in this difficult case and there are very few incidents of successful murder convictions where no body has been found. We believe the strength of forensic evidence and Colin James' own contradictory statements, was sufficient for the jury to see enough truth as to his guilt and find accordingly. We are pleased that this major hurdle has now been overcome."

Wholehog Exclusive

Following the tremendous success of the Wholehog lighting control systems in the rest of the world, Flying Pig Systems have appointed AC Lighting Inc the exclusive distributor of the console in the United States, effectively making AC Lighting exclusive world-wide distributor for its range of lighting control products. Nils Thorjussen, who formerly distributed the products directly for Flying Pig Systems in America, told L+SI that when Flying Pig Systems decided to work through a distributor in America AC were the obvious choice.

Since its formation in July '93 AC Lighting Inc. have established a thriving lighting wholesale business based in Los Angeles, modelled on their successful European operation. Bob Gordon, AC Inc.'s vice president, is reported to be delighted with Flying Pig's decision with Hogs confirmed on tour with Phil Collins, Pink Floyd, Rolling Stones, Price, Travis Tritt, Eagles, Peter Gabriel, The Orb and Torvill & Dean.

Caterpillar now available

The 'Caterpillar' is now in full production and will be available from the end of May. Lighting Technology Group have appointed Coetech and Learnington Sight & Sound as the English distributors for the product and they are still seeking distribution in Scotland and Northern Ireland. Interested companies should contact Richard Maunder on 0703-636326. Two new members of the 'Caterpillar' family will be announced soon and will be shown for the first time at PLASA '94.

Shuttlesound Split with Behringer

Shuttlesound have announced that they will no longer be responsible for the UK marketing, distribution and after-sales service of the Behringer line. Since Shuttlesound took on the line in February 1992, they say they have done much to raise its profile in the signal processing market.

Shuttlesound's success with the product has not gone unnoticed in Germany, fuelling the decision to run the UK operation themselves. To implement this strategy, rather than set up a full service distribution operation to replace Shuttlesound, Behringer have opted for a small sales office with third party support. Graham Allen, the brand's production manager at Shuttlesound, has been appointed to man the office. The UK is not the only territory in which such moves are afoot. A spokesman from Behringer has revealed that undertaking their own distribution is a process the company wishes to implement on a world-wide basis. Measures to this effect are already underway in France.

Commenting on the decision, Shuttlesound director Tony Oates told L+SI: "Although the decision came as something of a surprise, it is not difficult to see the attraction of the company doing their own distribution. From our point of view, the move provides us with an opportunity to concentrate our resources on existing brands."

Northern Light theatre install in Bogota

The Colegio Anglo-Colombiano - situated in the northern suburbs of Bogota - is run very much on the lines of a British public school. The William Shakespeare Cultural Centre is a brand new theatre being constructed for the school (theatre consultant John Wyckham), and Northern Light is playing a very large part in equipping it. In addition to supplying stage lighting, a communications system and seating for the project, Northern Light has also provided curtain material, stage ironmongery and other accessories to local contractors.

Due to open this month, the theatre has been designed to be totally flexible. The proscenium can be adjusted from 10 metres to 15 metres and the orchestra pit can be raised level with the stage floor and stalls seating retracted to give a large flat area which can be used for exhibitions.

The grid is 15 metres above the stage and a full counterweight wall frame is installed, although only a limited number of counterweights sets have been fitted initially. The production lighting has 120 channels of stand LD90 dimmers, controlled from a GSX with Genius software, and Northern Light has installed its own stage manager's desk with full paging facilities, twin ring intercom and cue light system. The sound boxes, production lighting boxes and lighting bars are being manufactured locally using components provided by Northern Light from the UK.

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Laser Creations International Ltd (LCI) has already turned 'Tomorrow's World' into 'Today's World'. Tomorrow's World viewers were recently shown a 'new' laser television projection system from Moscow. LCI however, have not only developed, but have mastered the technology of Laser Video Projection and their projector has emerged after years of development and investment. Aimed at the large-scale display markets, the Laser Video Projector (LVP) can project pictures which are larger, sharper and brighter than previously possible with existing CRT and LCD-based video systems. The projections can be made from any source and the unit can project onto screens of over 100 metres in width, dependent on ambient lighting and, of course, a venue of suitable size. Its infinite focus quality which directs parallel laser beams at the screen without loss of focus or resolution allows projection onto almost any surface.

It also gives rise to a number of special effect possibilities. Sharp images can be projected onto curved surfaces, panoramic and uneven shaped screens, and can also project onto moving screens. Full 360 degree surround effects can be provided by projecting onto the inside of circular domes. The display quality possible in terms of resolution and size makes the projector a rival to 16mm and 35mm film projection for large presentations. Also in line with the presenter's needs are new developments for the projector enabling the movement of the image around 360 degrees horizontally and 180 degrees vertically. Additionally, a moving mirror system allows the splitting of the screen and the projection of selected parts of the image onto alternative screens.

The capability of the LVP was shown at a recent demonstration in a London Docklands' warehouse, pictured above. The immense screen of moving water, capable of reaching heights of over 16 metres in seconds, was brought to life by LCI's LVP, powered by two 30 watt I-400 Argon lasers. Also on display were Monumental slide projections and displays from a I-400 10 watt Purelight, all shown projecting on the water screen.

Gone Fishing

Light & Sound Design of Birmingham have announced that former sales director Simon Austin resigned from his post on 17th May in order to pursue other interests. The release states that all his colleagues at LSD wish him good luck in his future ventures.

A none-too-detailed enquiry 'behind the scenes' reveals that Simon is planning to dig a big hole and create a leisure fishing complex, and turn a long-standing hobby into a business. Further enquiries (frighteningly) established that he has already purchased the excavator and is currently searching out the right piece of land. Back at LSD, the necessary re-juggling of responsibilities has seen Chris Cronin hook the post of director of sales. Chris informed L+SI that he was currently engaged in re-focusing the sales effort of the company, with efficiencies to be gained from some integration across the present four sales areas.

London Office Stop Press: LSD's Chris Cronin reported that the company will be opening a London office in July.

Sound Scrum Down



Honkers and horns were not the only sounds being skillfully handled during the recent Rugby Silk Cut Challenge at Wembley. Whilst Leeds and Wigan battled it out on the pitch, Worcester-based RMPA were busy on their Soundtracs SPA sound reinforcement console, patching and routing all the sounds from the stadium including pre-match and half-time performances.

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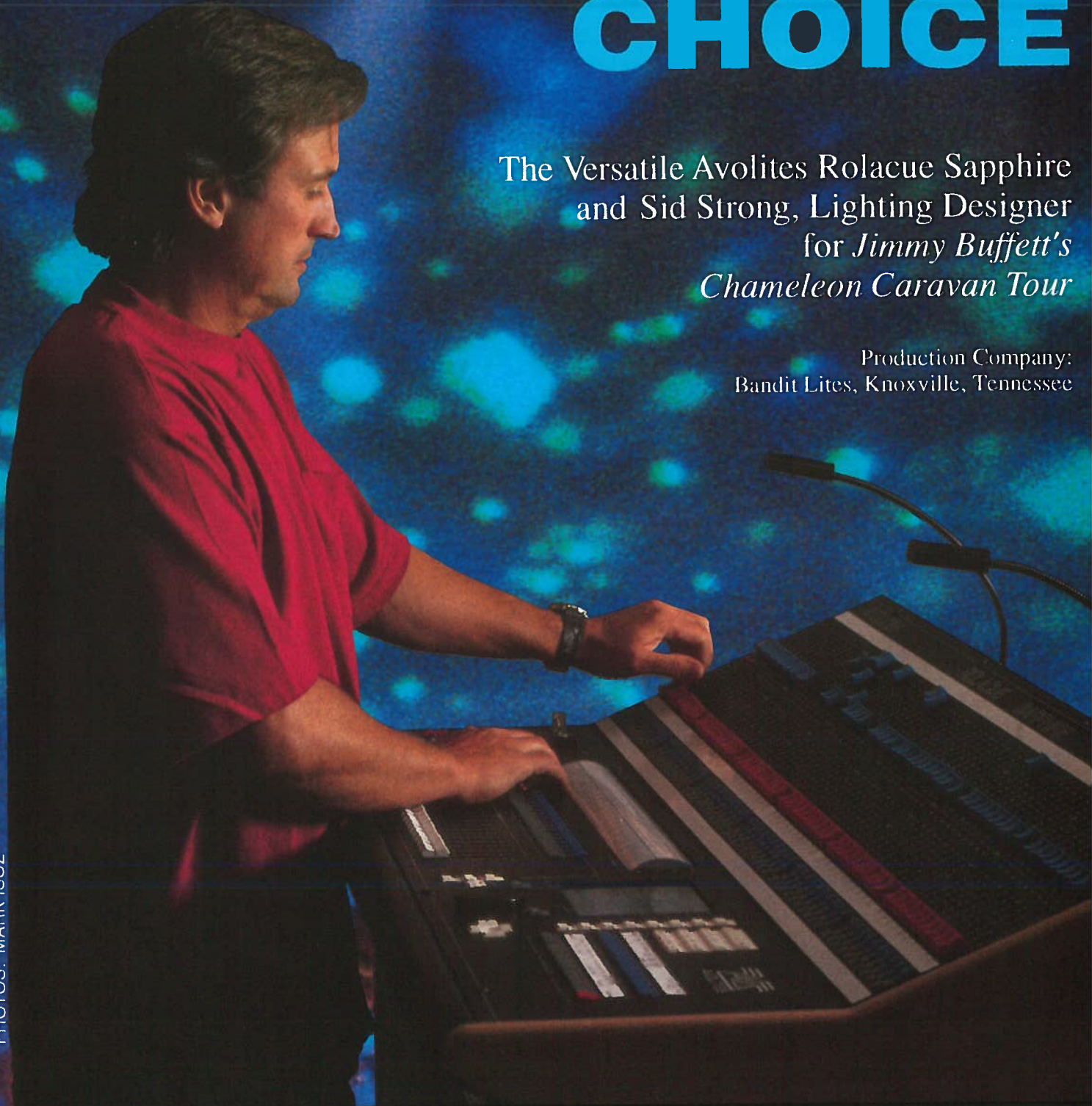
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Bell Lighting goes Nationwide

Arri's rental subsidiary Bell Lighting has just announced the acquisition of two companies: Cinequip Lighting Limited and GBS Film Lighting Limited. Both long-established companies were owned jointly by Charles Giblett and Derek Boulter, who have now retired. Cinequip and GBS have stated that they will continue to trade under their own names for the foreseeable future, but will be under the management of Tommy Moran, managing director of Bell Lighting.

The take-over means that, in addition to their base in West London, Bell Lighting acquires branches in Manchester, Cardiff and Birmingham. Through the acquisitions, Bell now has a force of more than 30 generators ensuring a range of productions can be easily accommodated. The changes will give Bell an excellent opportunity to expand into previously under-represented areas and give clients access to their extensive range of Arri products. The changes also mean that Bell Lighting becomes one of the largest rental companies in the UK.

Video in the Garden



London video services company Creative Technology installed and crewed a 56-cube videowall (5m x 6m) in Covent Garden's Piazza in May for an 'al fresco' display of live video relayed from inside the Opera House. A large audience enjoyed two productions on successive evenings: 'Fidora' featuring Jose Carreras and 'Carmen' with Placido Domingo.

The videowall (Sony RVP400QM projector cubes) was driven by an Electrosonic Pic 3 controller, processing two video feeds - one for live pictures, and an Aston feed for the 'sur-titles' displayed at the top of the wall.

Arup join Teams for Design Competition

Following their acoustic success at Glyndebourne (see feature this issue), Arup Acoustics have been appointed to the design teams of three of the finalists in the architectural competition for the Cardiff Bay Opera House. Each of the teams is led by an internationally-renowned architect: Sir Norman Foster & Partners, Zaha Hadid, and Hsuko Hasegawa.

The successful marriage of vocal clarity and orchestral warmth, apparent on the opening night of 'The Marriage of Figaro' at Glyndebourne, will be even more of a challenge to achieve at Cardiff, which is to have 1,750 seats against Glyndebourne's 1,250. Furthermore, whilst Glyndebourne is exclusively for opera, at Cardiff the acoustics must not only be excellent for performances by the Welsh National Opera and international touring opera companies, but must also provide good acoustics for major dance, musical and music theatre productions.

Luton Closure

It has been announced that long-standing company Luton Sound & Lighting have ceased trading after 18 years.

Out Board with Midas on Phil Collins

Theatre and live sound automation specialists Out Board Electronics has supplied a 40 Moving Fader automation system fitted to a Midas XL348 console for the current Phil Collins' 'Both Sides of the World' tour which will visit 128 cities in five continents, ending in Australia in April 1995 (see feature in L+SI's April 1994 issue).

This is the second system Out Board has supplied for a major 'rock and roll' touring show and follows on from a similar one which proved itself on the recent Rod Stewart 'Unplugged' North American and European tour.

Engineer Robert 'Cubby' Colby is using the system with Out Board's latest version of proShow for MAC show control software, which provides screen-based random access to stored fader levels and MIDI event settings controlling special effects and other devices. Without automation, the workload in manually resetting the console and FX between songs would have been a daunting task.



Sound control set-up for Phil Collins.

Edison Lighting buys Lumo from LSD

The Edison Lighting Group has acquired the Lumo Lighting range of film, TV and theatre products from Light & Sound Design Ltd in Birmingham. The manufacture of this range will continue in Milton Keynes under the name Lumo Lighting. Both companies will continue to work together to market the products on a world-wide basis.

Copenhagen 96

Paul Tonder, sales director of Danish PLASA members Gøgler Lys A/S of Aarhus, has announced that they have been chosen as official service partner for 'Copenhagen 96' - the cultural capital of Europe. Gøgler supplies lighting equipment and is the Danish representative for a number of companies including Zero 88 Lighting, CCT Lighting, Robert Juliat, MA Lighting, Slick Systems, Oscar and Smoke Factory.

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Obie's Xe-Scan



The Obie Xe-Scan recently made its debut on Pink Floyd's world tour. The unit is a compact 2K xenon with a 24-colour scroller and a Telescan automated head. (See major feature on Pink Floyd's 'Division Bell' tour, pages 51-57.)

Modelbox Go Renderfarming

White Light Group company Modelbox has joined forces with Sony and Autodesk to launch a major new renderfarm facility. The London-based operation is dedicated to rendering broadcast quality output from 3D Studio files and transferring them to full motion video.

Based on Autodesk's widely used 3D Studio, Modelbox believe few users take the programme through to its full capacity to create high quality animation, largely due to the relatively expensive dedicated graphic cards and video equipment that are required. In addition, the rendering time and storage space needed for even simple animations can cause unacceptable strain on company computer systems.

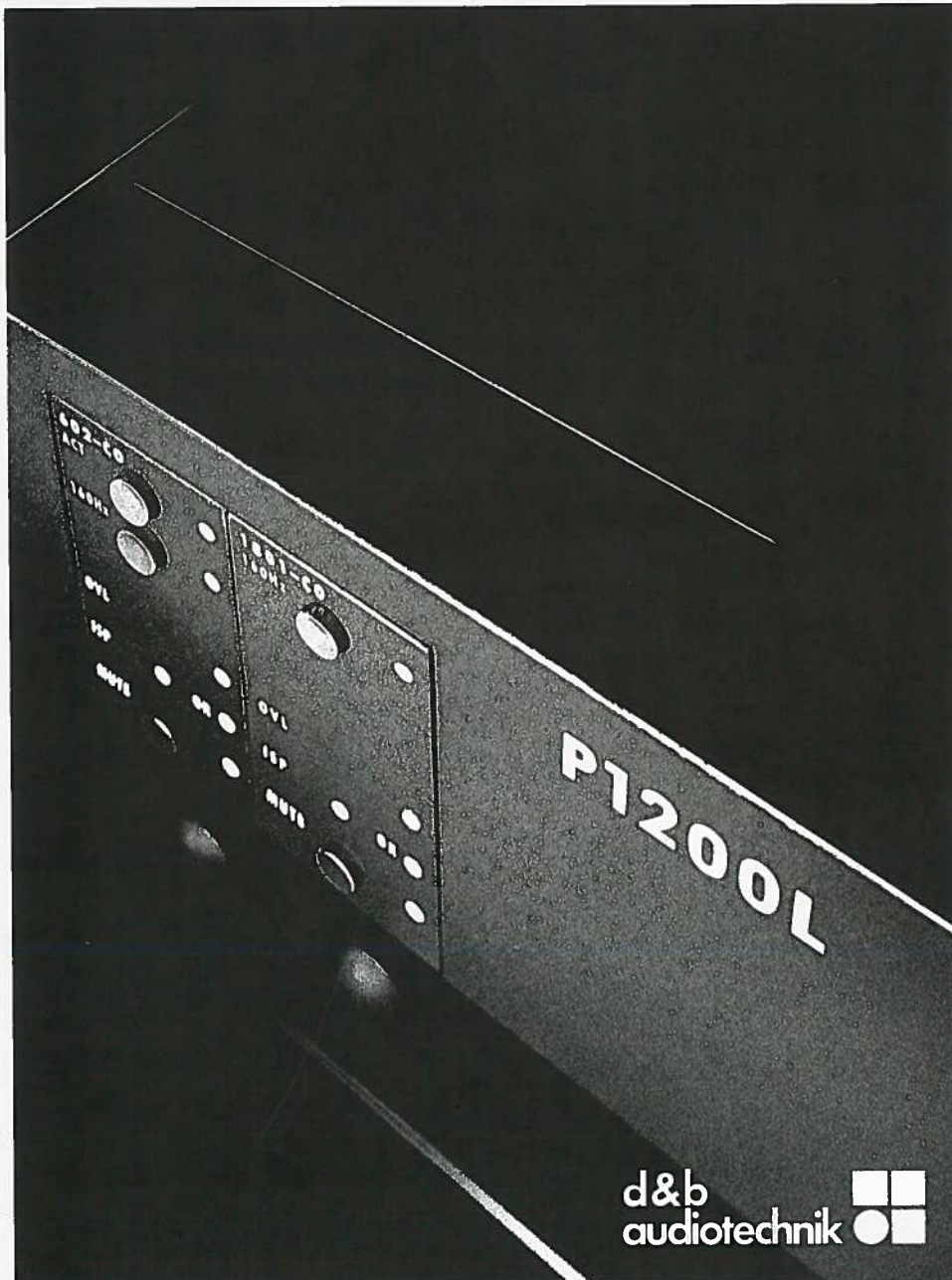
Modelbox's Renderfarm resolves these difficulties by offering multiple dedicated rendering computers which can generate image files for each animation frame, starting from simple .3DS or .PRJ file. The resulting frames are then sequentially transferred to the new Sony CRV Laserdisc, and the raw footage can then be edited, dubbed with sound and transferred to any video format from VHS to D1.

Peter Byard of Modelbox told L+SI: "This service will dramatically improve the speed and quality and reduce the costs of rendering and animation using the 3D Studio programme, and it has already attracted considerable interest from the industry. I can see applications for the high quality animations and renderings in a variety of industries including broadcasting, advertising, audio visual and pop promos."



Modelbox launch Renderfarm: (l-r) Peter Byard (Modelbox), Nick Manning (Autodesk), Chris Toulmin (Modelbox), John Simpson (MD of White Light Group), Steven Jones (Sony) and Mark Brandstatter (Metrologie).

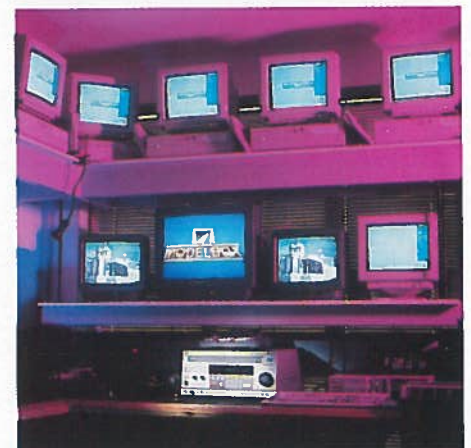
With the performance industry-based White Light Group moving swiftly into many high technology areas, even into animation, L+SI asks whether the company's computers are setting out to take over the entertainment business (including the actors). And although Group boss John Simpson invited the press on this occasion, he even thinks magazines will disappear in the near future. What price another press launch (sorry, I mean lunch) at White Light? I think we should be told! JO



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Technical Training

The British Council is to run a five day seminar programme (October 20-25, London) aimed at technical directors and theatre administrators. 'Technical Training for the Theatre Professional' will be directed by Tony Bond and will explore the concept of training for professional technical staff in the theatre. The main themes will include the development of training schemes, training needs analysis, developing courses, budgets and costs for training, organising training in large organisations, communication systems, NVQC qualifications and visits to the RST at Stratford-upon-Avon and the RNT in London.

For further details contact The British Council in London, telephone 071-389 4264.

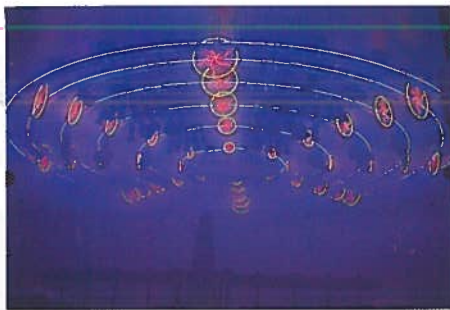
Strand at Lightfair



Pictured at Lightfair are Peter Rogers, Steve Norman and David Brooks. The unusual stand design is a life-size version of the 'Building Block' logo featured on Strand's architectural literature.

Strand Lighting exhibited their ranges of control and dimming products for architectural applications at the recent Lightfair exhibition in the United States.

These included Microcontrol, a range of slider stations offering manual control of lighting levels. Outlook, a new range of stations, enables manual slider settings to be recorded allowing preset scenes to be recalled at the touch of a button. Leading the range is the three times award-winner Premiere which has over 30 different control stations to choose from, each being configured using a PC-based software programme to meet the requirements of an installation. North American dimmers on show included System 6, Digital Environ, based on the Environ 2 range which now offers the programmable features of the European LD90 dimming system.



The Dome Revisited

'In Xanadu did Kubla Kahn a pleasure dome erect'. The pleasure dome erected by First Leisure in the Fair City of Birmingham has taken on a considerable new look recently and been regenerated as Dome II, with suitable post imperial Roman graphics and numerals.

Indeed, the new look and layout of the club, reminiscent in many ways of the Group's premier London site, was in fact achieved by Group Northern who were not the architects at Equinox. Symbolic of the decadence and Imperial might of ancient Rome, are the huge muscular statues seemingly holding up lighting operator Richard Gibbon's console at one end of the dance floor, the giant wall masks and the open assembly of triumph arches and statuary throughout.

Gone is any formal reference to a dome, originally created by a geodesic canopy over the dance floor, now replaced by a lighting rig consisting of a series of large concentric rings which can be driven up and down independently, in one configuration forming the shape of a perfect concave dome. This was a First Leisure concept imagined by Richard Gibbons, fully supported by technical director Shaun Doyle, supervised by Andy Pound and implemented by lighting designers Design Intervention. DI are the successors to the suppliers of the Equinox rig who are lamentably no longer of this world.

The experience on the dance floor under this great rig has not, however, got much to do with ancient history, apart from the many re-cycled fittings, but everything to do with a thoroughly modern experience. The close encounter of man with technology, the thrill of things falling out of the sky over your head, the posturing on a vast open stage. Gibbons and Design Intervention seem to have got it about right, especially in terms of timing and traction.



The robotic light sources, all intelligently placed well away from the dance floor to maximise their beam movements in the air, are all Martin Professional Roboscan 1220s, which Doyle believes are currently the best structured of the articulate fittings. He particularly praises the concept of modularity which he believes will ensure easy maintenance and continuous regeneration with new effects.

The most exciting feature of the show is a large white ball which descends from the centre of the rig which, coated with a high transmission 3Ms finish as used on Motorways signs, forms the perfect projection screen for the 24 Roboscans. So effective is this that a casual observer could be fooled into believing that the light is actually emanating from within the sphere. It does, in fact, also generate its own light from three of the seven Martin Centrepieces used in the total scheme. There is also a lot of very fancy neon designed by Intervention and made by Expo.

Doyle has been able to give vent to some of his own creativity in the use of his own invention, constructed under Pound's trained eye, of an integrated light and smoke generator. This consists of a Parcan at one end of a long tube, looking for all the world like a Bose 'bass cannon', into which smoke is piped from a discrete smoke machine and propelled by a fan. It is an idea with great potential given a bit more engineering attention.

Laser Grafix twin laser installation remains, but with a less than adequate sharks tooth gauze screen added and this was a bit of a disappointment, but the only one in an otherwise highly stimulating new show.

The sound system was provided by The Music Company and is almost entirely made up of components from Martin Audio who are, of course, totally unrelated to the aforementioned Martin Professional.

Tony Gottelier



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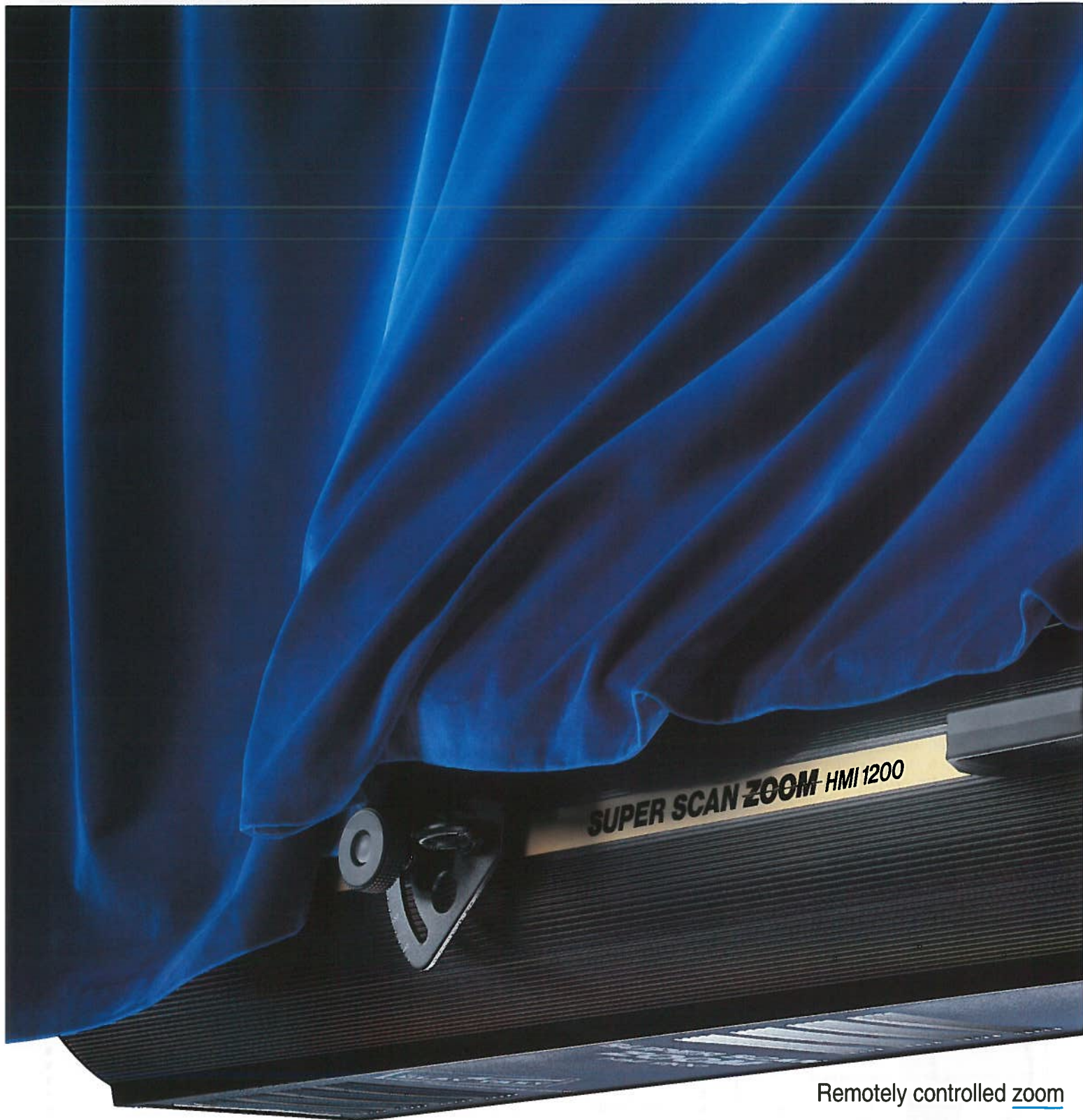
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Forging a Link to Basingstoke's Anvil

We liked this picture of the main auditorium of The Anvil so much that we decided it deserved to go into a colour section, in addition to its appearance as part of the feature on the hall which had to be moved to a mono section at the last minute. For the full story see pages 70 and 71.

GAE on road with HW



HW International recently launched a mobile roadshow which offers on-site demonstrations from three of their top pro-sound range: GAE speakers, QSC amplifiers and Shure audio products. The mobile unit includes GAE monitors, mid/high cabinets and sub bass cabinets, and is designed for multi-applications such as small venues, theatres, theme parks and rock 'n' roll using the Arena Array. Appointments can be arranged by contacting HW's Peter Barnard (pictured above with the GAE mobile unit).

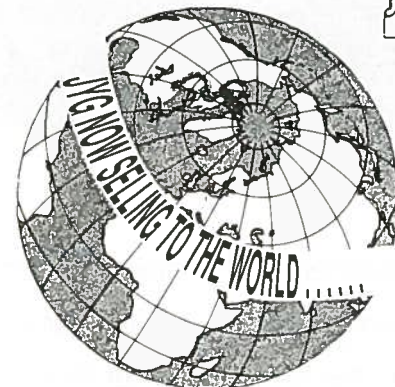
Terminal Lighting

Anyone who has passed through Pier 4A, Terminal One at Heathrow Airport - the area for arrivals and departures for Northern Ireland and the Republic of Ireland - will have seen the artwork projects which stretch the whole length of the walkways. One of the projects has been lit for the Public Art Development Trust by M&M using Selecon luminaires with break-up discs to transform static photographs into a moving underwater scene.

Louise Walsh's images of shoals of exotic fish have been blown up into 6ft wide by 10ft high transparencies which are installed in four glass panels down the centre of the walkway. Four Selecon HTI 150 Arc Streams not only light up the central panels, but the images are also projected onto one side wall and reflected off the other. The shoals of fish have been given movement by using DHA break-up discs, creating for passengers the sensation of walking through the underwater scene. The installation is one of a series which will appear at the airport in the coming months.

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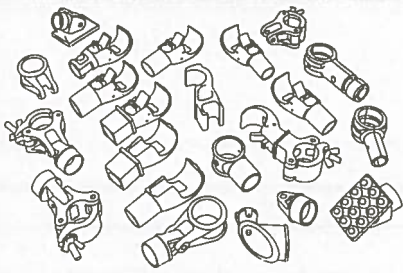
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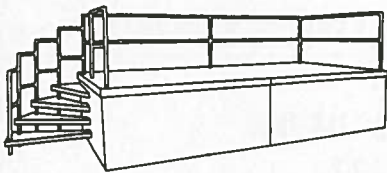
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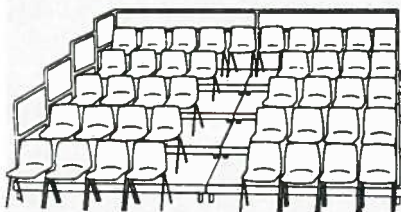
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Formula Sound Tours Europe



Benny Brown, one of Europe's top disc jockey/entertainers, has chosen the award-winning Formula Sound Systems 2000 and PM90 mixers to equip his custom-built Mercedes 814 travelling roadshow for the 1994 season. Benny is taking his show 'Playboy Girls of Rock and Roll', around NATO Clubs in Germany, Switzerland and Italy. Later in the year he will tour British bases in Germany. Benny organises and comperes the show from his truck which has a stage, sound system and theatrical lighting.

Industry Links

Harkness Screens & Hall Stage Limited and R & G Group (Theatre Services) have announced a collaboration. This brings the well-known expertise of both companies together enabling them to offer a full mechanical and electrical design, supply, installation and maintenance service to their customers. A joint London showroom will be opening at the end of June, and L+SI will bring you further news later.

Project Design

Vincent Rice Design have been awarded the contract for the design and installation of a major discotheque in Jounieh, a resort in the northern suburbs of Beirut, Lebanon. The venue forms part of the new Century Park Hotel development in the town. The venue plans to open in August and the main contractors are The Definitive Laser Company of Dubai. Other projects in the design stage in the Middle East for VRD include three further discotheques, a major show theatre and a live music venue. Closer to home, ongoing projects include a large entertainment complex in the UK and a discotheque in the Republic of Ireland. VRD have also just completed their first installation as the main lighting and sound contractor in the refurbished nightclub at the Kilhays Court Hotel in Wigan.

Strong Europe

Following many years of successful business together, Strong International of Omaha, USA (see feature L+SI April '94) have decided to formalise their relationship with AC Lighting and appoint them as sole European distributor for their range of high performance followspots. The appointment marks Strong's increasing commitment to service and AC would welcome discussions on European dealer and territorial opportunities. Full technical details are now available from Glyn O'Donoghue at AC Lighting.

BGr+A NYC Office

BGr+A, the newly formed rep agency headed by ex-Strand man Bill Groener, has established an office in New York, close to the heart of Broadway. The company are the exclusive representatives of Strand Lighting. Marshall Spiller, formerly product manager for Colortran, has joined the BGr+A team as office administrator and will manage the internal operation of the agency.

Can you Help?

We have received a request for help from Howard Jamieson, co-ordinator for the Jermyn Street Theatre, a charity project. The theatre, which is due to open in mid-July, is now nearing completion, but there is one area in which they are still seeking assistance. The theatre would be pleased to hear from any company willing to either loan or donate any of the following:

- 1 x 12-way lighting rack system (with dimmers)
- 500W Profiles
- 1 x 2 x 250W amplifier
- 2 x 250W full range passive speakers
- Flying system
- 4 x mics/stands/cables
- 1 x 8-way stage box - 20 metres of multicore
- 30 metres of speaker cable.

As resources are limited there is little the theatre can offer in return but they promise to print a credit in their programme, and your good deeds might well find their way into the pages of L+SI. You can reach Howard Jamieson on 071-287 2875.

Trantec Expand

The BBM Electronics Group Ltd, manufacturers of Trantec Systems, has extended its South-London premises in response to steadily increasing business. The additional space includes showroom and demonstration facilities, a second office area and a new R&D room. The new address is: BBM Electronics Group Ltd 28-30 Wates Way, Willow Lane Industrial Estate, Mitcham, Surrey CR4 4HR, telephone 081-640 1225.

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Make Your own Work

In response to the poor outlook for touring work, many companies are addressing the shortage head on by creating work for themselves. SpotCo's Peter Miles has taken on the management of 'Beautiful People', who, as he says, "aren't going to go anywhere else for their lights, are they?" The band are currently in the US promoting their album 'If 60's were 90's' in essence a tribute to the influence and music of Jimi Hendrix performing sampling of original recordings with the band's own brand of embellishment mixed in. SpotCo, ever mindful of maintaining their established markets, have also taken on the services of Mick 'Jaggy' Scullion. With the position he has carved out for himself in the London club scene over the past few years he should consolidate and hold SpotCo's established reputation in this area.

Avolites, as well as devoting a great deal of extra curricular time and effort to the new Diamond II, are also developing a new angle on console training. With many established lighting designers finding it difficult to make time to keep up with advancing technology, Avolites are producing a video for a DIY approach to familiarisation and programming of their new consoles (see feature this month). Steve Warren sees the video as a stepping stone: "With the full range of desk functions explained on the tape, designers can watch at their leisure, formulate ideas and questions and then come in and see us. The advantage for the designer is they come in with a purpose and have already taken on board the basic operation procedures."

Neg Earth Lights don't foresee any change to their strategy at the moment; the fact that their warehouse was completely empty bar a bit of truss might go some way to explaining this attitude. The floor had been swept clean so many times it made my shoes look dirty - they must be doing something right but owner Dave Ridgeway was not prepared to say what.

SM

Far East News from Wembley

Wembley has just confirmed that Vestax are now the official Japanese distributor for all their loudspeaker products. Indeed, Wembley's compact speaker system, the distinctive 2-way trapezoidal Spyder cabinets along with the 2820 bass enclosures, are already featured in the latest Vestax product catalogue as they await shipment of the first 100 units. The latest version of the Maxi Cube is also an extremely popular choice for the Eastern karaoke market, and Vestax have indicated that they expect to do plenty of business with this particular speaker as a result. Wembley have already sampled the fruits of success on the karaoke stage with a recent order for 200 units coming from their Chinese distributor, Trinity Engineering, based in Hong Kong. The entire shipment is destined for sale to affluent Chinese businessmen for use in their private karaoke rooms! In fact, the units are proving so popular that an order for a further 30 MC 2 Maxi Cubes was confirmed last week with promises of further substantial orders throughout the coming year.

Clearly delighted with the upturn in business for Wembley in the Far East, the good news does not stop there. Director Paul MacCallum also reports further developments with Inova, their established distributor in Singapore. Inova have been so successful with the Wembley product range that they are now making units under licence at the Inova operation in Korea, including the 2820 subs, the ubiquitous Spyder Compact system, and the full range Deuce cabinets.

Wembley have also announced that they have been officially appointed European spares distributor and repairs workshop for American company, Acoustic Research, better known as AR, whose enquiries had been handled previously in the UK by AKG. However, since the recent take-over of AKG by Harman, AKG have been unable to continue to look after AR's interests as before, and so Wembley Loudspeaker has been appointed to service the European spares market as well as offering a full repair service.

Look North

The Northern Screen Commission, working in partnership with the British Film Commission, is creating a computer-controlled database of all media facilities, skilled technicians and relevant services in the North of England. The service is free to those putting a production together.

Its hard copy counterpart, 'Production Guide North', has now been launched. The guide contains more than 500 entries: everything from production services to creative talent and local resources to catering. It is intended as a tool for producers and gives a useful indication of the expertise available in the area. For details contact NSC in Gateshead, telephone 091-469 1000.

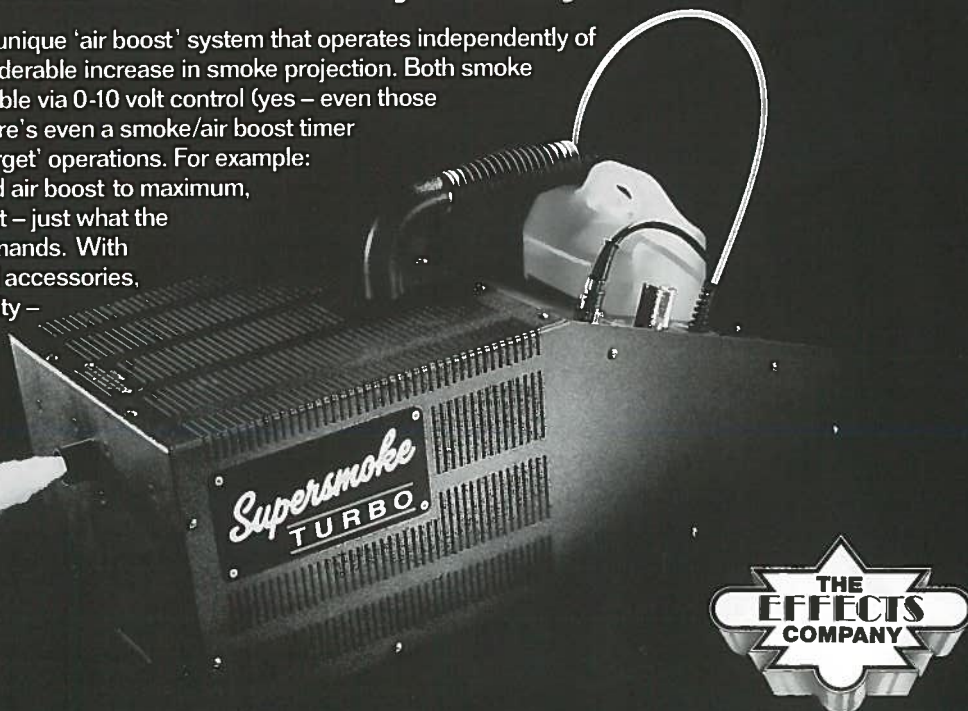
NB: PLASA, publishes an Industry Yearbook listing the services and products offered by its 240+ Members which is now available from the PLASA office on (0323) 410335.



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The band in action with EAW speakers on demo.



The LTP and EAW line-up (left to right): Julian Young, Ken Priddy, Andy Stone, Hans Freytag, Frank Loyko, Paul de Ville and Richard Maunder.

Mini PLASA at Lighting Technology Open Day

Lighting Technology Projects' (LTP) open day to launch their new premises on May 27 had to be held in a nearby warehouse, luckily vacant, and of appropriate size. Two problems had combined to force the move: LTP's own place was already

full up, and there was a huge demand for space from potential exhibitors. All the best laid plans were therefore changed, and 35 companies fitted themselves on a first-come, first-served basis into a premises that just the night before had seen the

LTP team pulling away security coverings from its windows. The main announcement and event for the company was their appointment as sole UK distributor for EAW loudspeakers, and Frank Loyko from the USA was shaking the building with a live band demonstration of what his speakers

continued on page 24



Inside the dedicated Compulite room with Ovation, Animator Compact and Applause Compact desks.



Colin Whittaker of Celco goes for green on Navigator. Aviator and Pathfinder were there too.



Zero 88's David Caterall with Judy Jones of Proper Lighting & Sound and Nick Mobsby of Lighting Systems International.

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Dee Couchman of Audio Projects with a Crest Century console.



Nigel Curtis and the Doughty range.



John Jones of Pfaff Silverblue with CM's Lodestar motors.



Glyn O'Donoghue of AC Lighting with the Whole Hog from Flying Pig Systems and Jands' Stage 24 and Event consoles.

continued from page 22

could do - with assistance from Audio Projects, Concert Sound, Delta Sound, Lightfactor, Playlight, Richard Martin Lighting, Theatre Projects and Vari-Lite.

The day was considered to be a "roaring success" by Andy Stone of LTP, but whether he has the energy and inclination to put his name on the line for organising the next one is currently open

to debate! Our pictures show some of the wide range of companies and products on show for the day. Organisations that I noted who are not represented in our photographic coverage included: Allen & Heath (GL2 and GL3 mixing desks), Arri GB (the Obsession and Finesse consoles), ARX (sound processing equipment), CCT Lighting (selected range of luminaires), LSI (ADB's Vision console), Metro Audio, Audioscene

(with Alan Kilford - sole distributors of Chevin amplifiers), Howard Eaton Lighting (with Sue Collier showing Softcue), The Moving Light Company (Pan Command Pro Spot and MP1000 controller), and last, but not least, Zero 88 (ID portable dimmers and Lightmaster XLS).



Coral Cooper showed the MA Lighting Light and Scan Commanders for M&M.



Clem Rawling of MAC Sound (left) with Dennis Harburn of HW International.



Graham Norman of Light Processor had the 'Q' lighting control range on view, Ian Hill of Illusion showed mics, stands and HMI sources from Russia and the Ukraine and John Adeleke of Network had Lab Gruppen and Klark Teknik sound processing.

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Rodney Miles, *The Times*

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ISCE Conference

The Institute of Sound and Communication Engineers Week-End Conference in Leicester (12-15 May), organised by SCIF (Sound & Communications Industries Federation) and Brenda White in particular, contained an array of papers that did great credit to the organisers and speakers concerned. For a first event it set a very high standard, and although attendance was reasonable, like many good events it was a great pity at least double or even treble the numbers didn't turn up. It would have been to theirs' and the event's benefit as the three PLASA representatives who attended, and who between them sat-in on all the seminars, will certainly testify.

The programme had been devised deliberately to attract a wide audience, and although papers such as 'Voice Alarm System Surveillance' may not appear attractive to our more performance-related readers, 'Concepts and Solutions for Control Systems, Integrating Sound, Lighting, Video and Effects' most certainly was, as indeed were many others too. In my view there wasn't a weak link in the speaker chain and I happily scooped

up a couple of them to develop similar themes at L+S's own seminar programme at the PLASA Lighting & Sound Show in September.

A diverse range of sound-related subjects were covered, including Performance Acoustics, Loop Systems, an explanation of dBs, 100 Volt Line Transformers, Loudspeaker Listening Tests, Speech Intelligibility on the London Underground, EMC, Loudspeaker Directivity, Mineral Insulated Cables, Radio Licensing, The Effects of Announcers, Audience and Spectators on Sound System Performance, Measuring the Sound Level of Speech Signals and The Effects of Amplifier Overdrive on Intelligibility, and the Common Intelligibility Standard.

Speakers at the event included Michael Holden, Leon Pieters, Terry Billau, Peter Mapp, Peter Barnett, Carl Heinlein, Phillip Pratt, Vic Dobbs, Rob Shuard, Allen Mornington-West, John Woodgate, Richard Knight, Paul Brown and Brian Copsey.

The organisers of the conference even had the common sense to include the FA Cup Final as an accredited part of the programme! Nice touch.

John Offord



SCIF's Michael Leaver (left) and chairman Peter Barnett (right) with PLASA chairman Tony Kingsley.



Speakers Allen Mornington-West and John Woodgate.

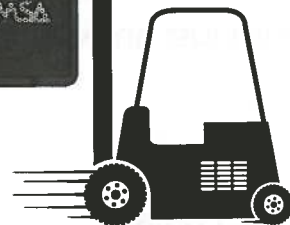


Joan Goddard of the Association of British Audio Consultants with SCIF chief executive Ken Walker.



Reception group: Peter Barnett, Ken Walker, Terry Billau, David Hopkins and Leon Pieters.

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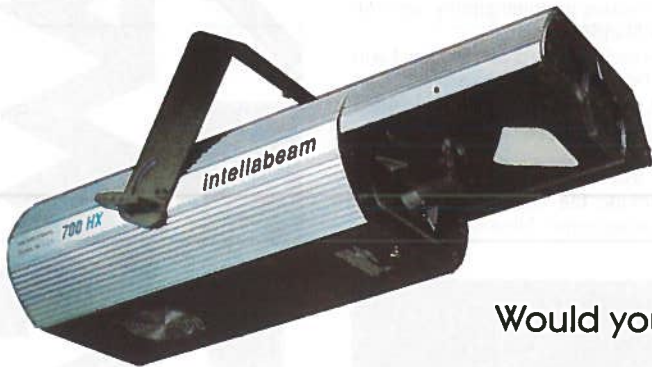
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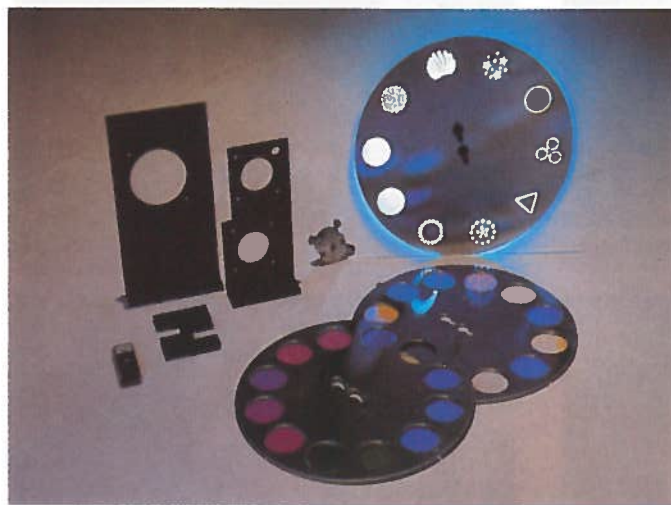
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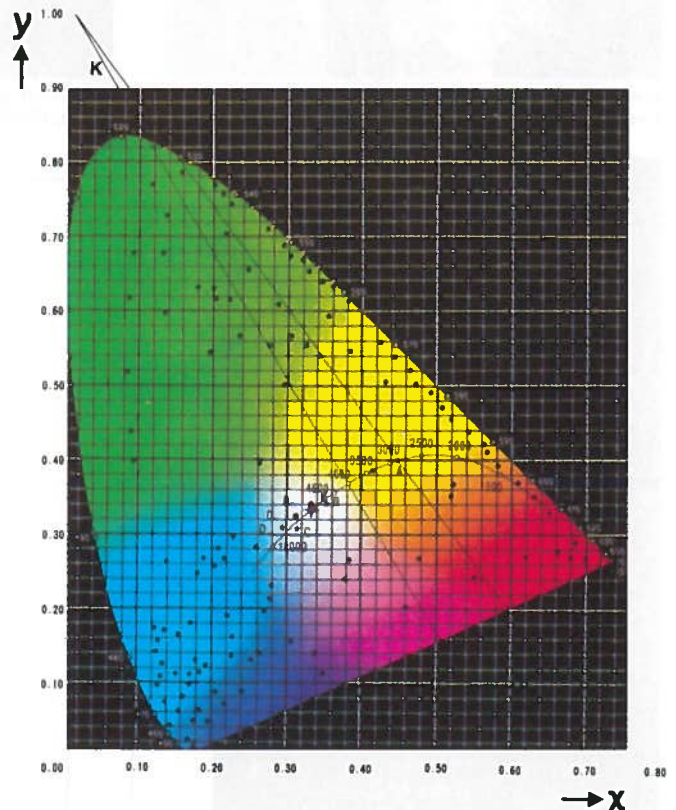
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Maltese Song Festival



The recent Maltese Song Festival involved a very elaborate production assisted with heavy investment from the country's Government, in an attempt to generate enough enthusiasm amongst the contestants to produce a Eurovision winning entry.

After a long period of abstention Malta rejoined the ranks of countries contesting the Eurovision Song Contest in 1991 and this year the Maltese festival was approached with the same degree of showmanship that is associated with Eurovision, with the Government investing a great deal of money to make this a memorable performance. They succeeded. The organisers worked in conjunction with stage designers and lighting directors to achieve the best possible 'look' for the festival. The majority of the design and production was handled by local craftsmen and technicians, and the stage set was very impressive with 35 metres of neon outlining the pyramid shaped artistes' entrance.

The lighting rig comprised both generic and moving lights and produced a very well balanced ambient light level for the camera as well as some very effective special effects from Roboscans and Microscans. This was enhanced by the use of a Martin Magnum 1600 and TAS smoke machines, and a Jem 1200 Aqua Hazer water cracker. The supply and installation of the entire system was handled by ITC of Malta under the supervision of Mario Camilleri and lighting designer Martijn Dekkers and ITC launched both the Arri Imagine 3 - 1200 and the Martin 1220 Roboscan during the festival. The television lighting was created by using a combination of Par 64s with wide flood bulbs and Arri 2.5kW softlights. The dimming was all in-house Arri 600 series dimmers, 250 channels of 1.5kW and 25 channels of 5kW.

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ABTT/AETI Conference Report

The Conference, 'Which Way do you push the Joystick - is it safe?', was held in tandem with the annual ABTT Trade Show, fulfilling an idea which was first discussed by the ABTT about 15 years ago. It was attended by delegates from Norway, Sweden, Holland, Germany, France, Italy and the USA, as well as the home-grown variety. The foreign contingent made up 40% of the total; this had the effect of both broadening the debate and pleasing the Trade Show exhibitors at the same time.

The purpose of the Conference was to explore roads to be followed in the direction of harmonising the control functions of a wide variety of stage and entertainment equipment. Interwoven with this was the need to agree on common codes with regard to other matters, such as suspension systems and safe working loads etc. The timetable devoted the middle part of the day to open discussion in seminar form, the intention being to get as many views and experiences as possible before trying to draw the threads together at the end of the afternoon. Graham Walne opened the proceedings with a welcome to the delegates and noted that it would be hard to remember when such a range of skills were last assembled under one roof. He urged safety training and put the case for commonality in labelling. This was earnestly taken up in the open discussions.

Before the commencement of the seminars, the Conference was addressed by four speakers: Bill Graham, Chris Lievaart, Olle Soderberg and myself. The importance of what we were doing was eloquently put by Chris Lievaart, general secretary of OISTAT, who spoke of the spread of the European railway system in the last century, where different gauges and traffic codes grew independently. The problems arose when they met. The cost of non-co-operation on technical matters is still being borne 100 years on. The

message is clear enough - get our act together now or suffer hassle in perpetuity.

Bill Graham of the ICC, referred to a general agreement that, whilst the theatre was an 'inherently hazardous environment', there was at the same time no need for blinkered standardisation. Different standards already exist not only between nations, but also in single countries like the UK itself. The message was that it is only through international communication that we are going to get real progress in the areas concerned. Olle Soderberg (Nobel Elektronik) emphasized the ergonomic needs of controllers being able to see everything being controlled, whilst hearing and touch also play their parts. He referred to 'feel' for the operation, i.e. the heavier the machinery, the heavier the control resistance should be. He also referred to the problems of conflicting regulations and limits on revolve speeds on the continent, negating their intended purpose.

I complained of poor inspection standards here and the need to harmonise views on outcomes, for example the fact that a show is only on for one night should not mean it is any less safe than the long run. I ended by noting the existence of double standards, certainly in the UK, which helped nobody.

The net message from the speakers was that in today's world, we can ill afford to be xenophobic and that only long-term cost and aggravation will ensue if different standards are set and applied in different countries, thereby slowing or inhibiting the free movement of equipment and personnel. Once the meeting broke into seminars, other needs started to emerge. It became clear that further and more rigorous study will be required for personnel engaged in acquiring equipment to ensure that what they get is positive interface and compliance with relevant standards or codes.

Considerable debate took place with regard to

the quality of emergency stop situations for example, instant or soft. This was done in the light of the timetable for harmonisation in Europe. After 1996 European standards will apply unless product-specific standards exist in individual countries. Delegates from the British Standards Sub-Committee, Developing standards for lifting equipment for stage and studio, were present and it was strongly suggested that liaison take place between English, German, French and Swedish colleagues, all of whom had an interest in flown systems and the further idea that they be then able to contact Brussels in a unified manner with regard to the needs of our industry.

The EC Machinery Directive was referred to on a number of occasions. Further information has been obtained since the Conference and it appears that it only applies to new installations, according to the Department of Trade and Industry.

In answer to some expressed misgivings about the application of new standards, it was pointed out that Local Authorities could choose to apply a standard, or not as they thought fit. However, one of the earlier speakers had already pointed out that the Local Authorities in the UK do not all demonstrate the same reasoned ability with regard to Entertainments Licensing, so the point was reinforced. During these conversations, much interesting detail emerged and there was certainly no lack of input from the floor.

After the seminars concluded, the seminar chairmen, Vic Dobbs and David Edelstein, conferred with John Faulkner, the ABTT chairman, to produce a conclusion. Whilst they were doing this, Diang Siang Lie (Holland) gave a brief presentation on a research programme being undertaken by the Aetti on the development of in-house training for entertainment personnel in their place of work. The results so far from theatres in the UK, Holland and France were not quite as expected. What was being identified was a need for inter-personal and management skills amongst technical staff as a means of improving their

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performance.

The conclusions were presented by John Faulkner. Unless this happens, larger Authorities can pick off individual nations one by one. Further networking internally needs to go on, as well as more dissemination about ongoing deliberations. The conclusions were formally put to the conference in the following way:

1. Each country should identify its own national body best fitted to argue the theatre's case with (a) its national standards organisation, and (b) its legislative body and make the voice of theatre heard. Nominate somebody to fight the corner with OISTAT in Brussels/EU, find out the source of regulations and get the theatre case heard at source. This is known to be difficult, but must be tried.
2. By January 1995 (because in 1996 we have new mechanical rules) we need: (a) a thorough check on what international symbols exist. (b) a hero to draft six symbols for theatre, to be submitted to international forum convened by OISTAT. (Since we started this here, let's try to find a British researcher and a designer.)
3. Because motion control mechanism is not 'production made' we need an international agreement on specific training in theatre for operators.
4. In particular, must seek international protocol on types and functions of emergency stops, including a review of current regulations in different countries.

The Conference delegates expressed great interest during the day and there was some extremely lively conversation and the expression that a further conference next year would be highly desirable. There was a general consensus that this Conference should not be seen as an isolated event, but the beginning of a chain of co-operation between different countries and organisations which can only benefit the industry at large.

Joe Aveline

ColorExpress Service Celebration

The rapid gelstring manufacturing business of Wybron Ltd, known as ColorExpress, celebrates its first birthday this month. The method by which these gelstrings are produced - using a sophisticated back-lit, vacuum cutting machine from the USA - has transformed this previously slow, tedious and painstaking job into a fast, efficient process guaranteed by Wybron.

Headed by Adrian Offord, its first year of operation has been tremendously successful. ColorExpress has provided custom gelstrings for West End shows such as Sunset Boulevard and Joseph, and for tours including Prince, Phil Collins, Take That and Gary Glitter, amongst others. Its credits extend to TV production - The Eurovision Song Contest for example, and other events like the Edinburgh festival and various product launches. Customers have been impressed with the quality and speed of service offered by Offord! So much so, in fact, that a substantial percentage of the business has come from mainland Europe, with regular customers in Holland, France, Germany, Denmark and Portugal using the service.

Adrian Offord told L+S: "What some people don't realise is that we manufacture gelstrings for every make of colour changer, not just Wybron. Another important bonus as far as our customers are concerned is that we can supply whatever brand of filter they specify as we keep large stocks of Lee, Rosco and GAM products in our warehouse. This is crucial as it enables us to back-up our promise of next day delivery for orders received before midday."

Marquee take on Turbosound

Marquee Audio has been appointed UK dealer for Turbosound. Spencer Brooks, Marquee Audio MD, told L+S: "Turbosound brings an exciting new dimension to our product line. We'll be directing our main focus on the Floodlight series in particular. They have excellent dispersion control and offer an extremely flexible variety of housings and flying configurations suitable for a broad range of venues. Floodlight gives our engineering team enormous latitude for designing custom systems for our corporate, theatre and concert sound reinforcement."

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Andy Trevett (Doughty), David Manners (CCT), Thomas Stanger (MA), Ralph Jörg Wezorke (Lightpower), Michael Hall (Rosco), Mervyn Lister (Doughty) and Adrian Hicks (M&M Camelont).



Ken Sewell (Pulsar), Jürgen Proppe (Lightpower), Pio Nahum (Clay Paky), Pasquale Quadri (Clay Paky), Ralph Jörg Wezorke (Lightpower).

Lightpower/CP&P Open Days - Paderborn

The two companies Lightpower Showtechnik and CP&P took further steps recently to enhance their customer-oriented sales structure by presenting a series of Open Days at their Paderborn headquarters. The event, planned across three days at the end of May, brought together over 340 invited people from across the industry for an informal get-together, which would also provide a practical base for technical seminars and product demonstrations.

Attended by representatives of Lightpower, Clay Paky and Pulsar, the Open Days were meticulously planned with a full programme for each starting at 9.30 in the morning and running through to midnight and beyond. The faint-hearted were offered a get-out clause at 10.00pm when the first of the courtesy buses arrived to return people to their hotels. Though the days were long, they were not uneventful and a full seminar programme provided a useful technical backdrop to the proceedings. Gunter Schaidt of Safex talked about the technical and legal developments for special effects with regards to security; Hermann-Dieter Reinhold of Phillips covered modern lamp technology; lighting designer Gunter Jackle demonstrated creative techniques for tour and concert design; Michel Hall of Rosco led an illuminating discourse on the creative use of colours; and no seminar programme would be complete without the obligatory transmission standards debate; in this case, it was down to Ken Sewell of Pulsar to compare the PMX, MSC and DMX network techniques.

In addition to the seminars, a number of companies, for whom Lightpower acts as distributor, had small stands on which to



The first MA LC 12/2 lighting desk sold to Lightpower Design in Moscow. From left to right, Gunter Olbricht (Lightpower), Thomas Stanger (MA), with Andreij Lukianow and Nick Mordassow (Lightpower Design).

display their latest product ranges and CCT Lighting, M&M Camelont, Rosco, Philips, Safex, MA, Eurotruss, Major, Artlight and Doughty, were all quick to take advantage of the unique opportunity made available to them.

Running in the main studio were a variety of shows and workshops offering hands-on demonstrations, whilst the Clay Paky Super Scan Zoom presentation, which first saw the light of day at the SIB Rimini trade show in April, got its second airing.

The focal point of the event was a huge marquee tacked onto the side of Lightpower's premises which offered non-stop food and drink all day and rapidly became the meeting point for whatever the nature of the business. It was also here that the 340+ sat down to enjoy some traditional Westphalian tucker, and in some quantity. Whilst not wishing to speculate too much on the costs of an event of this kind, the catering alone must have taken a huge bite out of the budget. A sizeable proportion of the visitors were gleaned from the touring side of the industry and so it was appropriate that the closing event of each day should be a performance by the Joanna Connor band who rocked until the visitors dropped.

Quite apart from the revelry, the event also offered the opportunity to see the combined company's recently completed two-storey extension which has given them additional warehouse, display and office space.

Talking to Lightpower's Ralph Jörg Wezorke on the last day it was clear that he was very pleased with the way things had gone, and he promised that there would be further Open Days to follow.

Ruth Rossington



Meeting Point: the marquee.



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One of the many seminars in progress.



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On the sound front, Cerwin Vega's new Prostax loudspeaker cabinets are reported by Avitec to be making 'quite a noise' in the first few months following their launch, and most of the range is on demonstration in their Hitchin showroom. The three full range or mid/high cabinets are available in portable or fixed installation versions and comprise the compact PS-10, a two-way 200W cabinet and the PS-12 and PS-15, three-way 350W and 450W cabinets respectively. For more details on the above products contact Avitec, telephone (0462) 458961.

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The appointments are one of the first actions of Professional Products sales executive Alan Lochhead who recently joined Tannoy to increase its development in the pro audio market.

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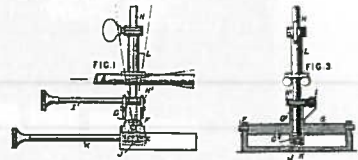
Intro to Patent Abridgement 12572 of 1894 (H.C. Newton)

Operating a lime-light was, to put it mildly, a matter of using a sort of oxy-hydrogen blow-torch to bring a highly caustic cylinder of quick-lime to incandescence. To do this it was necessary to adjust the pressure of the two gases so that they gave an optimum mixture, i.e. the one which burned at the highest temperature. At the same time you had to slowly rotate the lime as it was eroded, to keep a fresh surface presented to the flame. And all this within the confines of a small lamp-housing. It was also necessary to adjust the jet to the optical axis of the lens, i.e. to centre it.

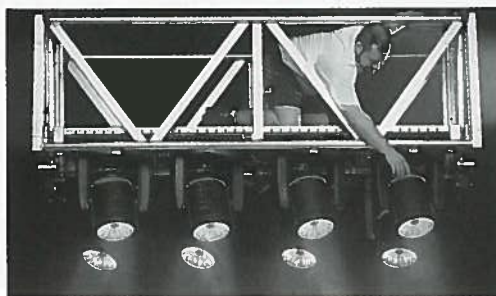
In the course of its history, the lime-light must have seen hosts of modifications, all devised by their operators, but which were never described by them and whose secrets went with them to the grave. Our friend Charlie Newton here takes us into his confidence. Thanks Charlie.

12,572. Newton, H. C. June 28.

Oxyhydrogen lamps.—Relates to means for centering the jet in optical lanterns. The jet is carried by the sleeve L, which can move on the vertical axis H, lateral adjustment of the jet being effected by the rotation of the worm J, which gears with the wheel K. The piece G, which works on pivots F, has a boss G' on its upper surface and a forked piece G' on its lower, which is slightly hollowed to receive an internally-threaded ball J, which practically forms a universal joint. Rotation of the rod K, which gears with the ball J, thus produces a rotation about the axes F and gives a vertical adjustment of the jet, shown by the broken lines.



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Count the Clones: Pro Audio Light & Music, China

With a quarter of the world's population and one of the largest global economies, China offers the greatest single opportunity for new business in the world today. The relatively recent liberalisation of the economy, combined with rapid growth - 13% last year - has resulted in an emerging consumer market.

During the opening banquet an official from the Chinese Government extolled the virtues of the show, proudly stating that there were 200 manufacturers exhibiting. It was then that a bright spark in our group added: "And only 10 of them are original!"

There were copies of every scanner you can imagine, with the possible exception of Coemar's NAT... but we may only have to wait until next year! There were even copies of copies with several people claiming to have the 'original' copy. Now I understand what Rolex go through. Although I didn't see it for myself, I am reliably informed that there was even a copy of the Martin 'Roboscan' with every detail down to the Patent Number!!

OK, so how was the show? Loud and hot and two days too long is the quick answer, with some people packing up before lunch on the last day; but not the Brits, I hasten to add. The organisers estimate that 10,000 visitors attended.



The 'wedding cake' exhibition hall.

The show was held in Beijing, in the same Russian-built 'wedding cake' styled halls as last year, only this time under the auspices of B&I, the organisers of the well known and highly respected Singapore exhibition. This meant that although not perfect, it was still a great deal better than the previous one. And it can only improve as the locals become more co-operative, and realise on which side their bread is buttered.

A straw poll of the UK exhibitors had mixed results, with some being delighted at the potential return - including one who had sold his entire stand - "Well it's easier than packing it!" - and others who were not quite so happy with things, such as literature being stuck in customs until far too late for it to have any use.

There's no doubt about it, China offers the greatest single opportunity for new business in the world today and one of the economic indicators quoted from the Economist (Jan 1994) puts it in third place behind America and Japan.

From the lighting and sound industry's point of view, the market is still in its infancy and is totally enamoured with flashing lights: "Surely all you need is a switch on the wall?" But then an awful lot of us were much the same 20 years ago.

Freddy Lloyd

PLASA Members in Beijing



Paul Dodd, lighting designer for the FAL exhibit.



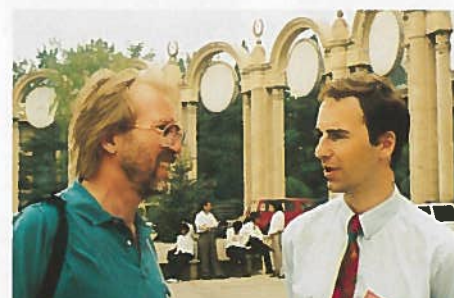
Garry Nellson of Lighting Technology.



Nick Shapley (left) of Arri Lighting (UK).



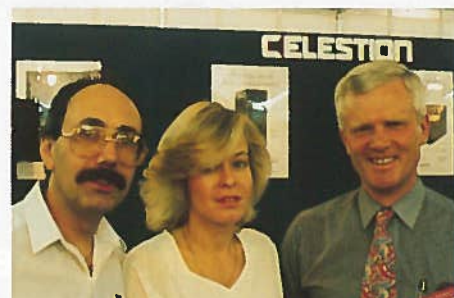
Exhibition organiser Alan Suen and chairman Henry Tang of B&I, with Zhang Yong Jia and Yang Fu Bin of the China Theatrical Association.



Left, Uli Petzold (LMP, Germany) with Nic Tolkein (A C Lighting UK).



Freddy Lloyd (Zero 88), Mike Gerrish (Citronic), Lawrence Chan (Laser Theatre Lighting) and Mike Wood (JEM).



Kevin and Heather Hopcroft (NJD Electronics) with Clive Bradbury (Celestion).

THE NEW GLYNDEBOURNE

A special L+SI feature, compiled, edited
and with interviews by John Offord

The peculiar English institution of Glyndebourne, located in the folds of the Sussex Downs near Lewes, 60 miles or so south of London, conjures up in most minds an image of formal dress (and your fellow Glyndebourners), champagne, opera, picnic hampers - and maybe the weather - in no particular order. Any one element revolves around the others, so to speak, with the Opera House and the garden providing the necessary backdrops.

The key to carrying on smoothly with the remarkable 60-year-long success story of Glyndebourne was to ensure all these factors remained in place against a change-over from the old 'village hall' as it was affectionately known, to the new £33m complex. Just a few days into its first season, I can report happily that it is a success story on all fronts.

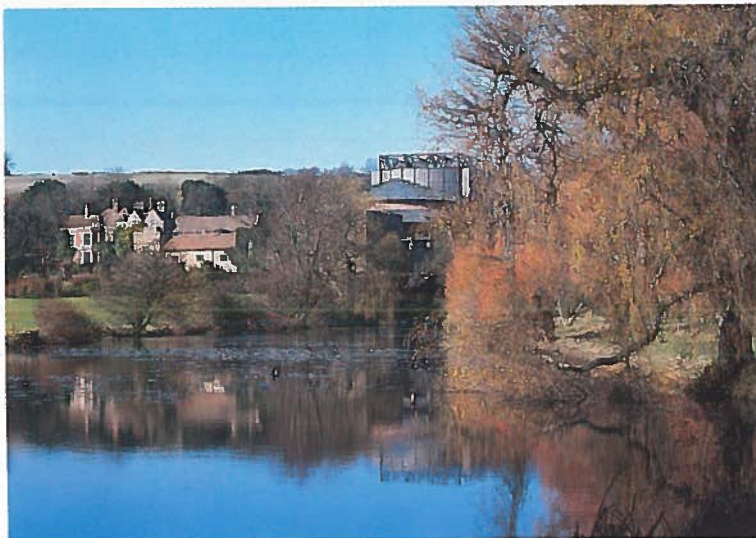
The new Opera House, which staged its first production on May 28th, is built on the footprint of the old one within the familiar group of the house, the old dressing-room block and other outbuildings, which all help to mediate between the new large volumes and the surrounding countryside. However, the new building is turned through 180 degrees so that the foyer is to the south, bringing the audience naturally to the garden side.

This area is therefore a summer place: a sort of conservatory, and a continuation of the garden, linking through to the terrace in front of the Organ Room and taking its inside/outside idea from the old covered way. It re-uses the york stone paving and has a translucent membrane roof. Leading off the foyer are the bar, box office and shop, and entrances to the ambulatories, serving all levels of the auditorium.

The impressive new auditorium is planned in a compact horseshoe shape to retain a feeling of intimacy, while providing 1200 seats. 42 standing places and 12 wheelchair positions are also provided. The ambulatories wrap around the auditorium at all levels, which features natural brick walls and is entered through various lobbies. Balcony fronts and wall panels are made from reclaimed pitch pine, much of it over 100 years old, and the ceilings are finely finished pre-cast concrete. The seats are comfortably upholstered as you would expect, with timber frames and arms. Attention to detail is uppermost, and perhaps what you might not have thought about, is the fact that cool air is fed from underfloor air plenums, and through the seat support pedestals to provide 'a comfortable environment' (the official description, not mine!).

The acoustics in the new auditorium provide for good clarity to support the singers, and the volume and choice of building materials have combined to produce a good reverberation and a warm bass sound. The new building is approximately 50% greater in volume per person over the old and has a reverberation time of 1.4 seconds. (The old house had a reverberation time of 0.8 seconds, hence its dryness.)

The orchestra pit is larger than its



Glyndebourne Opera House seen from the end of the lake, November 1993.
photo: Richard Davies

predecessor, with a movable floor, relating in dimensions to the open part of the pit which allows a variety of orchestral arrangements. It can accommodate up to 80 players. The design of the stage, backstage and rehearsal stage areas allows for the complex interchange of sets on a daily basis during the season, from storage to rehearsal and through to performance. The stage is 18.5m x 22.0m wide, with a proscenium opening of approximately 10m x 7m high, and the flytower incorporates double purchase flying, allowing for two sizeable side stages. Immediately behind the stage there is a large clear working storage space for up to four productions (650m² with a clear working height of 9.52m). The stage is separated from the backstage spaces by large acoustic/fire doors. Leading off the storage area is a full size rehearsal stage which is 19.5m x 17.0m x 9.25m high with separate access and directors' area. This rehearsal stage is acoustically

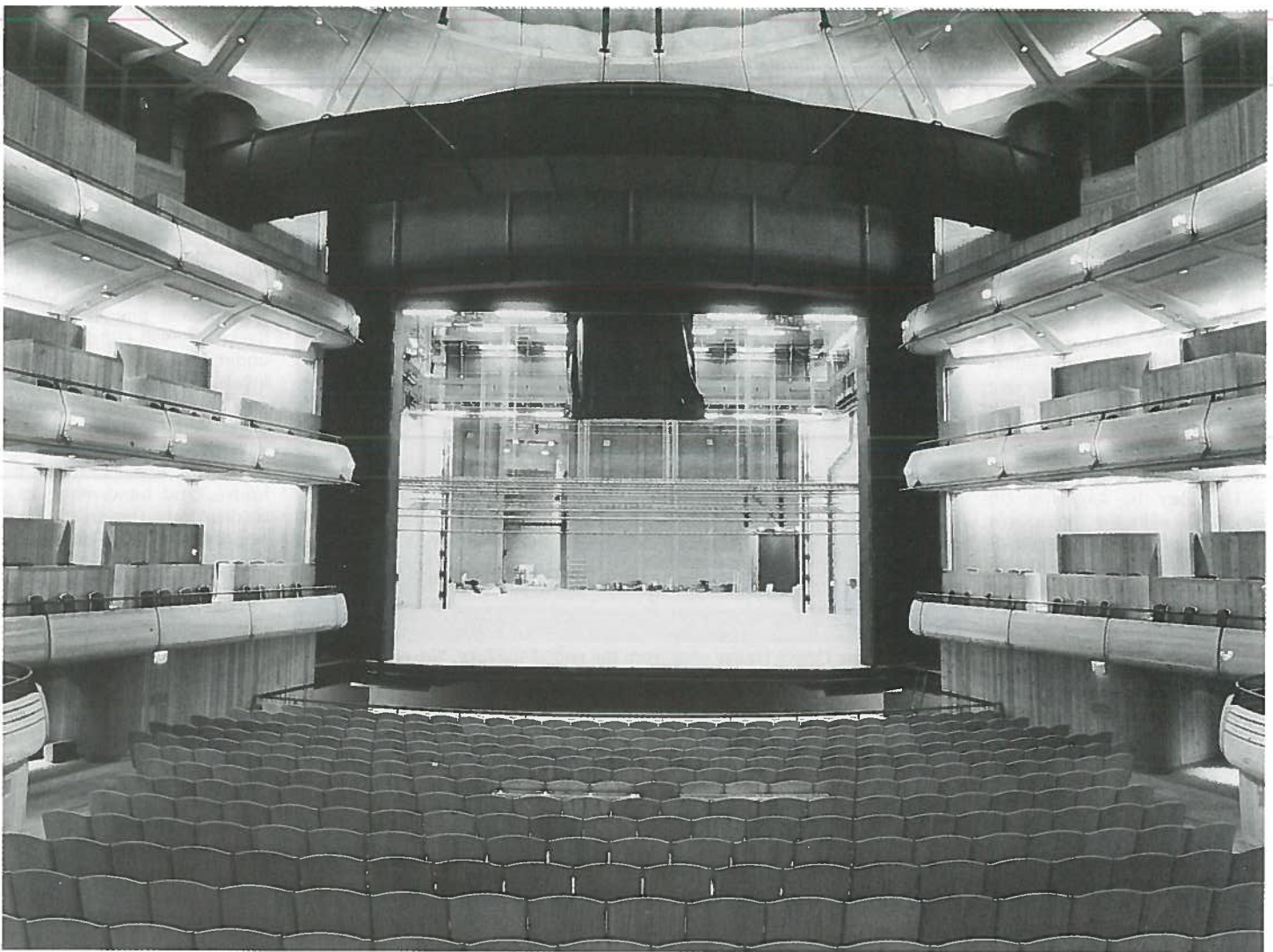
insulated from backstage by large hinged full height acoustic doors, and the space is naturally ventilated by glass rooflights which can be opened. The loading bay with vehicle lift gives access directly onto the backstage, with a lift down to the understage storage and plant levels. All external walls are solid loadbearing brickwork, using traditional lime mortar, with no expansion joints. The brick was chosen to match the house, and hand-made to a traditional imperial size. Approximately 1.4 million of these were laid in English Bond in walls of up to 15 metres high. To hold it all together, something in the region of 79 tonnes of lime putty mortar was used.

The flytower is a steel framed structure infilled with a cavity construction of pre-cast concrete panels on the inside and lead panels on the outside, to achieve good acoustic performance.

To those viewing the Glyndebourne set-up from the standpoint of cash-starved subsidised theatre, the idea of a privately funded and seemingly money-no-object opera house must be something of an anathema. However, there are factors we often tend to forget. Having the availability of sufficient funding doesn't necessarily mean the stuff flows at the turn of a tap, and it certainly doesn't mean that you aren't looking for your full money's worth in terms of facilities. More often than not, those who hold the purse strings are a very particular bunch, and in my view the Glyndebourne project team have got the balance exactly right. They knew what they wanted to ensure a successful future and single mindedly set out to get it. The whole project is a tribute to both artistic and business professionalism.



A newly mounted production of Mozart's 'The Marriage of Figaro' opened the programme at the new Glyndebourne, exactly 60 years to the day after a performance of the same opera opened the original venue.



Auditorium and stage of the new Glyndebourne Opera House.

photo: Guy Gravett

Technical Development

Technical director Tom Redman began his career at Glyndebourne over 25 years ago when he joined the newly formed touring company as an ASM. It took him away from the house itself, but he was soon asked to stay on for the next Festival. He's been closely involved with the company ever since, and was a member of the steering committee that saw the new building through to reality. I asked him to describe the changing scene.

"Across the past 20 years or so things have evolved and changed enormously: the style of production, lighting, the demands of directors, and so on. In particular, the arrival of Peter Hall and his first production here in 1970 with John Bury, was in my view a landmark of change that then continued forward. In addition, Glyndebourne was continuously increasing its number of productions and performances.

"Many ingredients led us gradually into and through the eighties to a situation where the theatre was just too small to cope any more. It was a combination of many factors, but largely to do with the style and changing methods of scenic production. Sets have become far more architectural, and with the facilities we had here it was becoming ever more difficult to maintain the high standards we always set ourselves."

The theatre had evolved, and although bits and pieces had been added on to the building wherever possible, working at Glyndebourne was becoming a nightmare. Under the stage things were absolutely chock-a-block and having no stage space at all on the prompt side

was a huge restriction. It meant sets had to built in a certain way, it restricted the lighting, and so on.

"Scene changes, and with the long interval at Glyndebourne we often have huge ones - it was a facility many designers quite understandably delighted in - were often a very major effort," continued Tom Redman. "It was very clearly time, from a production and technical point of view, to 'start again'."

These factors, coupled with the desire to accommodate a larger audience, and to provide better facilities for the artistes, patrons and staff, brought about the decision to build a completely new theatre.

With Glyndebourne's unique set-up and Sir George Christie's ability to raise the money and almost a 'private client', he was able to govern the fact that certain key staff were able to have input. "Of course, we didn't design the building, but we had a say, which can be unusual in such circumstances where buildings often get designed and built by people who are not going to be involved directly in working in them, and there are then the problems of trying to get things right afterwards. We've only had a few teething troubles to get over and we are tremendously lucky in this respect.

"It probably goes without saying that it was tremendously exciting as well. It was of concern to us that with such an ambitious construction time-scale we might miss something important on the way. The building began to materialise very rapidly and it meant we had to be ever watchful. Things were literally happening overnight and it was difficult keeping your finger on the pulse.

"The advantages provided by the new stage,

with equal side stages, the backstage area and rehearsal stage, have also posed us with the challenge of managing the space effectively. This is obviously going to be an ongoing process for some time, and it is stimulating for all of us who are working here now. In the old building we could only go one route with the scenery; now we've got marvellous flexibility.

"However, it's not a high-tech building, and deliberately so. If we had decided on huge palette stages, for instance, the whole character of the place would have changed completely and that was never the object, and therefore not part of the brief. The intention was to create a better working space in a traditional way, whilst providing things that are fundamental to



Tom Redman.

making the place work well such as lighting and sound equipment of the highest quality."

Had any of Glyndebourne's regular directors and designers been involved during the planning stages?

"We obviously couldn't involve all the designers as they'd probably all have completely different views about what the new Glyndebourne should be! However, John Bury was on the steering committee and he was the conceptual designer of the theatre itself, as opposed to the building. He worked on the original layout as part of the basic design brief for the architects, and he has been the person who has provided a great deal of the artistic input. Being both a set and lighting designer and a consultant on many buildings, he obviously had a very important part to play in the whole project. He'd designed a great many productions in the old house and he knew Glyndebourne and its people; he was able therefore to incorporate that very important viewpoint into the design."

Early in 1993 the designers for the opening productions in the new opera house were given copies of the architects' drawings of the stage and various models were made. Visits were made to the emerging theatre so that they could begin to familiarise themselves with the venue.

"I think the productions this year will prove that they've all tried to take full advantage of the new space."

A major factor that has to be borne in mind is that the sightlines are now completely different to the old theatre where they were very much 'straight on'. 'The new horseshoe shape and different levels means the lines vary enormously from one part of the auditorium to another, and this is something we have to be very much more aware of now.'

First lighting designer in the new house was Pat Collins, and she had enthused to me about the building in an earlier interview (qv). "Her reaction to the place was absolutely astonishing," said Redman. 'Her positive attitude at a time when we had the usual teething troubles with staff getting used to a new situation, and so on rubbed off and I think we were very lucky to have her here to begin the whole process.'

"She started it off from scratch as one of us. Pat is always well prepared, she knows what she's going for, she's decisive and she uses time very well. Her efficiency and enthusiasm was a very important element in getting the work done, and it was inspirational to us, to say the least."



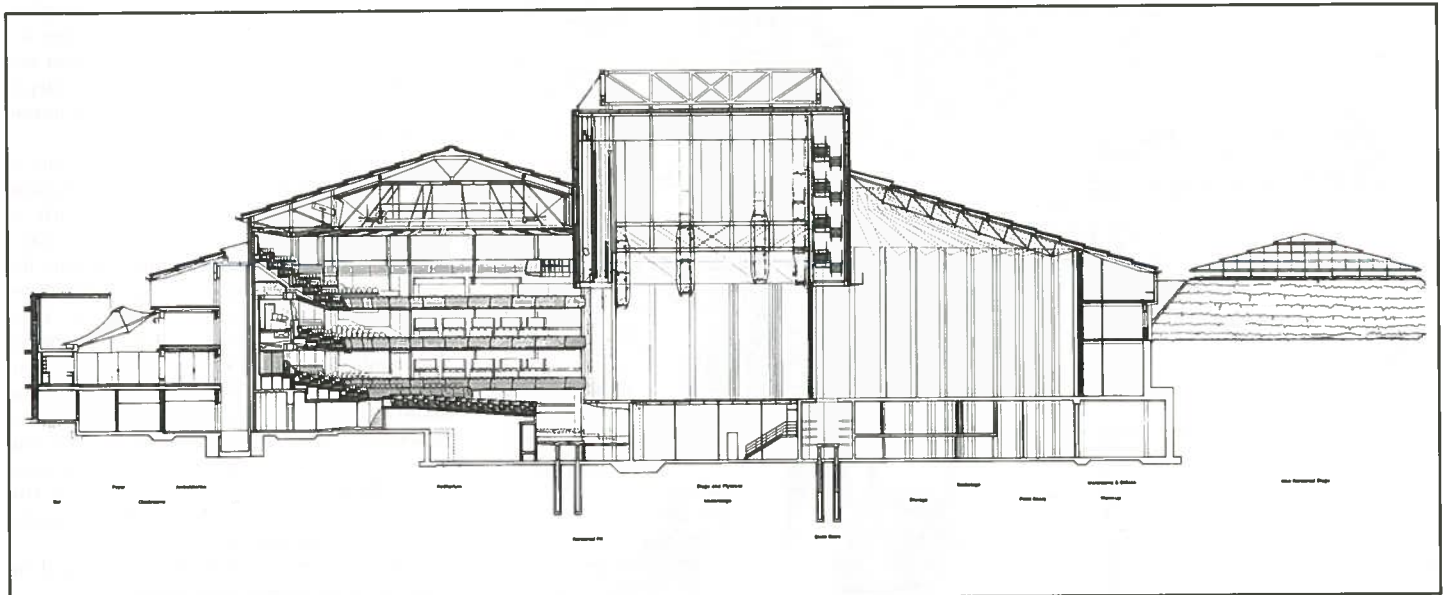
December 1991: Planning the new Glyndebourne (left to right) are architect Michael Hopkins, John Bury, and Sir George Christie.



Looking from the stage to the grid, showing two of the three lighting bridges and back lighting gantry.



The below stage cloth storage bin racks.



A Long section across the new Glyndebourne Opera House.

When John Christie first built a miniature opera house adjoining his own home at Glyndebourne in 1934, it housed 300 people and was the spirited realisation of a romantic man's vision. As more and more people were captivated by the romance of the Glyndebourne Opera House, the house itself underwent six separate stretchings until it could house 880 people. But it was a building which had extended to fill its ground space to full capacity - there was literally nowhere else for the house to extend to.

Efficient opera houses around Europe which had been built since Glyndebourne's inception had also made for different audience expectations and quirky eccentricities were no longer acceptable to a high-paying audience - many of whom at least took their opera seriously. The time had come to start again with Glyndebourne and the diamond jubilee of the house in 1994 created the perfect backdrop for the opening of a brand new opera house.

So, in 1992 the old Glyndebourne was reduced to rubble and a new Glyndebourne was to be put in its place. But the drawing sheet was not blank - there were many many stipulations, not least of which was that the new house needed to have an additional 300 seats to help finance the new theatre. Theatre Projects Consultants' experience has proven that good acoustics in an opera house require at least $7m^3$ per member of the audience and that no shaping, however well considered, can compensate for insufficient volume. $7m^3$ for 1180 people means a volume twice as large as that of the old theatre, and our first task was to work with architects Michael Hopkins and Partners to make $8000m^3$ feel as intimate as $4000m^3$. The total capacity has now turned out to be 1280, 400 more than the old theatre as



The new Opera House seen from the front entrance drive, June 1994.

there are now more staff seats; the problem of resolving space versus acoustics has remained with the design team.

A large rectangular hall was out of the question unless accompanied by a much wider proscenium with all that implies in bigger scenery and larger choruses. The fan shape which is so right for Wagner and Bayreuth is too severe and cinema-like for the Glyndebourne repertoire. The final solution lay in a development of the horseshoe shape. The single tier fan of the strictly traditional horseshoe shaped auditorium is often thought 'democratic', especially by critics sitting near the front. But those who are more equal than others at the rear know it to be an opportunity for the price divisions to move gradually back, pulling all up close to the top price!

The multi-horseshoe shape of Glyndebourne

has the reverse effect. It gives lots of front rows - eight at Glyndebourne including the boxes at the rear of the circle. Obviously extreme side seats have less than acceptable sight lines but at Glyndebourne these seats are either very cheap indeed or occupied by staff - understudies, workers, managers. The price differential is naturally about 8 to 1 - as it was in London's theatres throughout the eighteenth and nineteenth centuries.

With a price structure that extends from £10 to £100 the management can welcome both 'carriage trade' with the younger enthusiasts as well as corporate buyers.

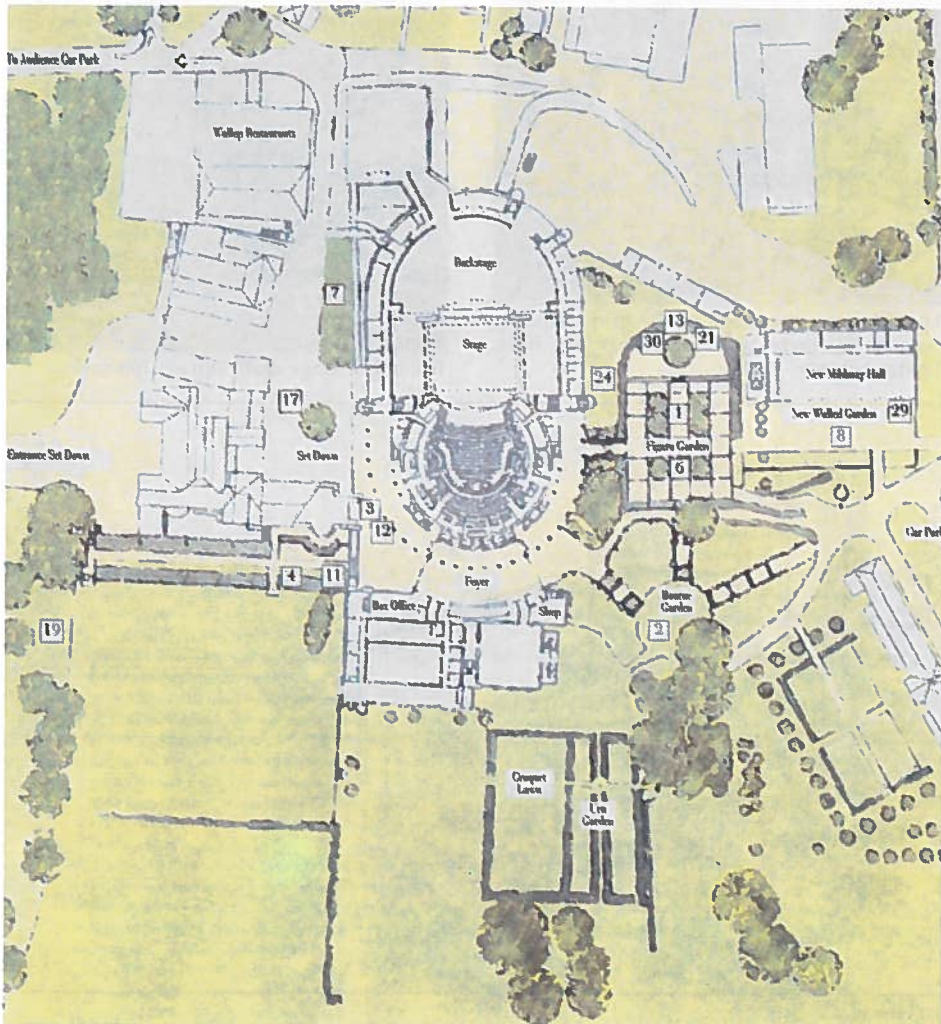
Sir George Christie inherited much of his father's romance which was allied with a sound knowledge of opera house design and financial strategy. His input into the design development of the new Glyndebourne has been instrumental in making it the jewel that has now been revealed to an expectant audience.

The implementation of the technical specification by Theatre Projects Consultants has contributed to Glyndebourne retaining its position as one of the premier opera houses of the world. The range of our role on the Glyndebourne project has been comprehensive, and to be called on to bring so many of our skills to one such prestigious project has been very rewarding. We have worked with an existing rig and slotted it into the new fly tower, working closely with the M&E consultants to ensure adequate and carefully planned provision for lighting for virtually all sorts of programmes in the future. My colleague Anne Minors has created a seating plan which gives the majority of the members of the audience a feeling of spacious comfort in a light and airy auditorium which is given life and depth through the extensive use of reclaimed timber on walls, floor and acoustic panels.

But above all has been our intense desire to see that the design solution for the auditorium adheres to our philosophy on all sorts of different type of performing arts venue - that it achieves intimacy and liveliness within the context of a financially successful structure. The curtain has gone up on the new Glyndebourne's first season and it will be for the members of the audience to decide whether we have succeeded. The question should be asked not only of those sitting in the most expensive, most elegantly situated seats, but also of those who are sitting in the 'cheap seats' who should still feel the spirit of the performance and be touched by the particular magic of Glyndebourne.

I have a suspicion that the answer will be pleasing to the entire design team.

Alan Russell, Theatre Projects Consultants



Glyndebourne Lighting in the Sixties

While building the original Glyndebourne Opera House in 1933, John Christie was able to boast in the 'Monthly Musical Record' The lighting is the most modern in the world. It is the only instance of its kind in England. Last year there were only two in Europe . . . one in Vienna and one in Danzig. This was no idle boast: load independence, level presetting and a front-of-house control room were well ahead of standard British practice in 1934 and for a considerable time thereafter. Every channel of the Siemens Bordonni could handle from 5 watts to 5 kilowatts with the same dimmer curve. Its auto transformer sliders were operated by tracker wires from a Micklewright manual 'board' which used similar techniques to the grandmasters of the time, except that each channel scale had 40 numbered notches to accept up and down stops, which limited travel on the next move to a preset level. The large lighting rig was also advanced for the early 1930s in that it was based upon spotting rather than flooding.

With the addition of some pattern 23s, this was basically the installation that I inherited in 1959, although massive transformers on the bridges and a heap of 30 volt 900 watt lamps in the basement provided evidence of some pre-war low voltage experiments. The old Bordonni lasted until Glyndebourne became, in 1964, the first European theatre to install thyristor dimmers. Glyndebourne had sent me on a three week study tour of European theatres and manufacturers, among whom I found only two people willing to respond constructively to what I described in the 1964 Glyndebourne Programme Book as, for the first time, it has become possible to envisage a control designed in terms of the artistically desirable rather than the technically possible. These two people were Fred Bentham of Strand and Andre Stuyckens of ADB.

Strand got the contract because they were in front with dimmer development. The desk was a one-off special, known to Strand as System CRD/FR but christened *Machina Fantastica* by the Italian director and set designer of its inaugural production. It has four presets and was unique in that control of the 120 dimmer channels and 15 masters could be transferred to the production desk position in the stalls - before diodes this involved a lot of relays and, before multiplexing, a lot of multicore!

The sixties were heady days for the development of stage lighting. 1962 saw 16 Reiche & Vogel beamlights installed for side foh and on the downstage booms, extensive use of a newly discovered device which was not yet called a gobo, and the first female to join the LX crew. By 1963 I was using an early radio microphone for focusing. Although it is only in the last few years that low voltage beamlights have become fashionable follow spots for west end musicals, Glyndebourne used them for *Jephtha* in 1965.

But theatre is a people industry and when I look back on my Glyndebourne decade, my fond lighting memories focus on people rather than on technology. No lighting designer ever had a finer crew. Let one take the bow for all: Jack, who tended Glyndebourne's garden by day and its lighting bridge by night, was the most sensitive focuser I have ever met.

Francis Reid
resident lighting designer
1959 - 1968



Looking up to the 'doughnut' and advance lighting bridge.



Final performance in the old theatre: Gala Concert, 24 July 1992.

photo: Augustus Christie

The Auditorium Acoustic

The responsibility for achieving an excellent acoustic for opera was given to the Arup Acoustics team, lead by Derek Sugden, with support from Rob Harris, Helen Thornton and Raf Orłowski. The challenge was taken up with enthusiasm since it is rare, in these days of multi-form and multi-function, for an acoustician to be able to design specifically for excellence for one performance type.

Whilst the use of sound systems in opera is sophisticated, this is purely for 'effects' applications (including off-stage performers) and foldback. Hence, unlike a conference or entertainment centre, where the acoustician merely produces a neutral acoustic for the sound designer to play tunes on, in an opera house the design of the auditorium itself determines the sound.

Derek Sugden worked closely with the architect Michael Hopkins and Iain Mackintosh of Theatre Projects in determining the overall form of the auditorium. For acoustic and theatrical reasons Derek and Iain were keen to bring the singers out from the proscenium zone into the volume of the auditorium. This resulted in an orchestra pit semi-covered by the forestage.

Glyndebourne's brief for 'resonance with clarity' was addressed by providing a volume of $6.3\text{m}^3/\text{seat}$ to ensure sufficient reverberation, coupled with an auditorium form which ensured a high density of the early reflections necessary for clarity and a spacious orchestral sound.

Arup Acoustics constructed a 1:50 scale acoustic model of the auditorium. This was used to investigate the effect upon the acoustic of different geometries, in particular alternative ceiling forms, and to determine the optimum arrangement of sound reflecting and diffusing surfaces. A great success of the project has been the way that the architect has been able to incorporate the diverse requirements of the acoustics team into the auditorium architecture. Acoustic elements including acoustically-transparent and sound diffusing balustrades, reflecting planes and limited absorptive panelling have been incorporated in a natural way, with no indication of the 'stick-on' acoustics found elsewhere.

A series of acoustic tests have been carried out over the last few months, culminating in a test rehearsal with the London Philharmonic Orchestra and an invited audience filling the house. All the results indicate that a first class acoustic has been achieved. Subjectively, there is an unusually good pit sound, matched by high vocal clarity - the brief requirements have been realised. The mid-frequency reverberation time is around 1.25s (the RT in the old house was 0.8s - good for a cinema, but the alleged reason for the comment by a well-known conductor: "Acoustic? What acoustic?").

At low frequencies the RT lengthens, in the controlled manner intended, to around 1.65s @125Hz. This provides the warmth to the orchestral sound which is appreciated by both audience and musicians, but missing from the acoustic of many opera houses. Broadcast and recording engineers should appreciate the smooth response with frequency. The measured values for clarity and loudness better the design criteria, without marked variation from seat to seat.

Arup Acoustics worked closely with Theatre Projects on the effective integration of the acoustic and sound system designs. As an example, loudspeaker positions are concealed around the proscenium behind acoustically-



Derek Sugden of Arup Acoustics fires a starting pistol to test the acoustics of the new auditorium, December 1993. photo: Richard Davies

transparent grilles (a technique first used by Derek and Rob in the design of the Britten Opera Theatre at the Royal College of Music). The enclosures formed are constructed and sealed to avoid short-circuit of the sound insulation provided by the safety curtain (desirable during heavy scene changes). The control rooms have openable windows which provide good sound insulation when sealed closed and which are angled to reflect sound onto listeners in the rear seats in front.

Particular attention has been given to sound-insulating the projection box, which unavoidably sits between the sound and lighting control rooms and will often house noisy xenon scenic projectors.

There is a trend for auditorium lighting designers to use stage lighting luminaires - primarily variants of Par lamps - for house lighting, and Arup Acoustics has experienced this technique at Glyndebourne, The Anvil, Basingstoke and Manchester Concert Hall, each of which has an overall noise limit (for all building services, including lighting) of Perceived Noise Criteria (PNC) 15, which equates practically to inaudibility. Extensive acoustic testing has revealed which dimmer/lantern combinations can meet the stringent noise limits. Low voltage lamps are generally problematic, because of the filament noise caused by the high current. Long rise time chokes and well-constructed 240V lanterns are successful combinations. Incidentally, the use of forced ventilation to cool compact digital dimmers has increased dimmer room acoustic noise levels in some cases - can manufacturers please fit quiet (aerodynamic, low speed) fans?

The stage engineering package included massive vertical and horizontal sound/fire doors separating the stage and backstage areas. These doors, with an average sound level difference performance of 45dB (after a period of adjustment, Telestage successfully achieved the sound isolation criteria) permit noisy activity backstage during rehearsals.

Of particular interest is the rehearsal stage door. For planning reasons this is a side-hinged scene door, with an integral fire escape personnel door. Again, Telestage met the design criteria for what, in Arup Acoustics' experience, is the highest side-hinged theatre acoustic door ever constructed. A noise limit - 40dB(A) at the front stalls - was set on all theatre equipment intended to move during performance, including the side lighting ladders.

Credit for the acoustic at Glyndebourne must go not only to the acoustic designers but to an

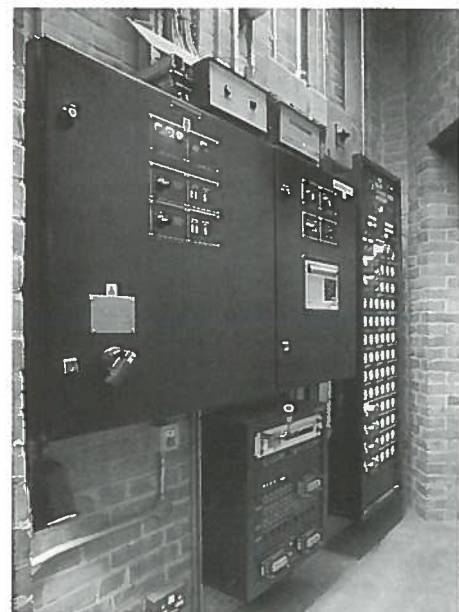
enlightened and knowledgeable client, the architectural team, the building engineers (Ove Arup & Partners) and the craftsmen who turned the designers' concepts into physical reality.

Rob Harris, Arup Acoustics

Sound and Communications

The main auditorium sound system at Glyndebourne comprises eight, two-way active loudspeakers (EV 1120's) with three each side of the proscenium arch and two as a motorised central cluster. The sound control room comprises an assortment of source equipment and effects units and via the patchbay provides the necessary patching to enable the operators to access the individual components of this system and drive them individually. Additionally there are two, two way active, effects loudspeakers located either side of the proscenium arch on circle - 2 level, and these two units are accessible via the patchbay. The processing and amplification equipment is located in the main rack room in the sub-basement under the stage.

The auditorium surround system comprises four levels of eight compact loudspeaker units located in a circular array on each level. The processing driving this system is located in the small format equipment rack positioned under the desk in the



The control position downstage left, featuring sound and communications, stage dips and back-up lighting control.

sound control room. Each loudspeaker is individually accessible via the main patchbay located in the sound control room and these lines in turn feed the required amplification located in the sub-basement rack room.

The stage surrounding areas are equipped with numerous foldback loudspeaker positions some of which are fitted with permanently installed compact loudspeaker units.

Video and Television

The video system comprises numerous source cameras, a logo generator and a Teletext generator which are all fed into an eight input, switchable matrix device. The outputs all appear on soundboxes located around the building as do the matrix switch connectors. The system also comprises conductor foldback and a run-of-show camera solely for stage management use. There are two permanently installed ROS monitors located on the front of the show bar. On stage there are two ROS monitors and four conductor relay monitors installed. There is a television antennae located on the roof of the shop bar and the four off air channels are combined with Nicam stereo show relay and show relay picture, and these signals are then relayed to numerous CATV points located around the building.

Paging

The entire building is fitted with high quality 100v line paging and show relay reproduction devices, serving four areas: foyer, administration, dressing rooms and stage. These individual areas are addressable via paging units located around the building. All offices and dressing rooms are fitted with door mounted volume controls which control the level within that room, and the units are designed in such a way as to make it possible to re-assign the purpose for which the room is intended and likewise to assign the relevant paging signal to that room.

Hearing Assistance

The auditorium is fitted with eight high powered infra red transmitters which relay the processed show relay signal to the auditorium. The box office hold ten receivers for distribution to patrons requiring this service.

Talkback System

Located at various positions around the immediate stage area are several talkback units designed for use by technical personnel during rehearsal and set-up times.

Cue Light System

The stage manager's desk houses the controls for the cue light system. There are 20 permanently wired locations and the remaining ten circuits appear on a patchbay located in the main rack room. These ten circuits can be patched to any of the remaining 34 locations. Permanently wired locations contain built-in panel mount outstations as well as containing a connector to allow a portable unit to be plugged in.

Technical Intercom System

Located at sound boxes around the building are technical intercom connection points. Each connector contains a common channel with the other channel on each connector being an independent ring. The system therefore comprises four independent two way talkback channels.

Jon Stevens - sound engineer

Having spent some time at Opera North in Leeds, Jon Stevens had visited the 'old' Glyndebourne on tour and kept 'in touch'. He joined the electrics team for Glyndebourne Productions' own 1993 touring season, and then found himself happily cornered into taking care of sound as and when necessary following the departure of another member of the team. He was invited back for the opening of the new opera house and is still essentially the sound man within the lighting team, ending up with the title sound engineer.

"There is no necessity for a full time 'sound' post here, and there is no significant use of sound this season," he explained. "However, there are rumours around that the Birtwhistle production



The sound control room featuring a Soundcraft Venue console.

planned for touring may well provide me with something interesting!"

Jon joined Glyndebourne again in January to take over responsibility for the systems and equipment installed by Shuttlesound. He had the usual problems with the odd stolen piece of cable and the like, almost inevitable in the run-up to any venue opening. However, the far more important factor is that Jon, and come to that everyone else I spoke to, made comment that the broad sweep of the new Glyndebourne complex is absolutely right, and sufficient space is available to expand facilities across many, many years ahead.

"George Christie's view was that the new Glyndebourne was not to be a space age place, but a venue that was as adaptable as possible. It is a huge building, it was put up very fast, and to all intents and purposes it works. The potential is here for it to be whatever it wants to be."

And Jon highlighted a very significant point, against the background that the whole project is privately funded. "One of the joys of working here is to have the ability to go to technical director Tom Redman and ask for additional equipment, whereas before I've worked for companies where there is no money. At least Glyndebourne has the potential to carry on putting money into the building to make it work. And there is nothing in the basic structure of the building that will prevent them from doing it."

Sound Equipment

Sound Control Room

Soundcraft Venue mixer 18:8:2 with 8x8 matrix
Tannoy System 8 NFM II monitor speakers
with Amcron D75 amp
1 x Sony PCM 7050 DAT recorder
2 x Sony PCM 7030 DAT recorder
Sony RMD 7300 digital editor
Sony CDP 2700 CD player
Tascam 122 MkII cassette deck
Sony APR 5000 1/4" reel to reel recorder
Technics SL1210 MkII turntable
Akai S1100 sampler
2 x Sony MU-E041 parametric equalisers
BSS DPR 504 4-channel noise gate



The side stage sound outlet box.

Sony DPS-R7 digital reverb unit
Ambisonic system controller and processors

Amplifier rack room

16 x Amcron Geodyne I amplifiers
12 x Amcron Macrotech amplifiers
9 x Sony MU E041 parametric equalisers
Sony DPS-D7 digital delay for PA system
Soundcraft Delta 8:4:2 mixer for foldback system
2 x Amcron Macrotech and 3 x Amcron Geodyne II amps for foldback system
8 x Altec Lansing 9442 70v line amplifiers for show relay/paging system
Rane FFM 4/2 minimixer + BSS DPR 402 compressor/limiter + 2 Sony MU E041 parametric equalisers for show relay system
2 x EMO remote switcher systems
Video control system comprising:
40-way Probel video matrix switcher system and distribution amps
Drake Electronics paging and talkback system
Sennheiser SI 1013 infra-red hard-of-hearing system
RTS technical intercom system PSUs for 4-channel cans system
Cuelight patchbay
Distribution amplifiers for in-house TV system

Installed equipment in auditorium

8 x EV Deltamax 1122 PA speakers
6 x JBL Control 1 speakers
24 x JBL Control 5 + 8 JBL Control 1 speakers
1 x Calrec Soundfield Mk IV microphone

Installed equipment in stage area

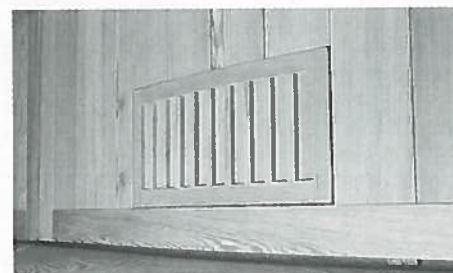
6 x JBL Control 5 speakers
2 x Tannoy CPA-12 speakers
2 x Calrec Soundfield microphones

Installed equipment in other areas

Profusion of OWI 70v line speakers
Various Quad amplifiers and Sendor speakers

Other equipment

10 x AKG 451 microphones
2 x Sony ECM-55 stereo microphones
4 x Sony C-38B microphones
4 x Crown PZM microphones
2 x Tannoy CPA-12 speakers
Various Sennheiser hard-of-hearing loop receivers



Part of the hidden Ambisonic sound system, built into the auditorium panelling.

Lighting Management

Keith Benson, Glyndebourne's amiable lighting manager is, to many people in our industry, the 'face' of the organisation - the man who's trudged the trade shows assessing the latest equipment. I asked him to describe the development of lighting provision across the major change in scale from the 'old' Glyndebourne to the new.

"In the old building, productions were getting ever bigger and we literally just outgrew the space; changeovers were taking longer and everything was becoming really hard work. The other major disadvantage with the old building was that it was very one-sided. There was no area stage left and obviously, with all the available space stage right, every single production had to be keyed from that position as it was the only space in which to install the lighting equipment. Inevitably, on any production, the sun always came from the right and so did the moon!

"With the new venue, that problem no longer exists and wing space is similar on both sides. However, we weren't put off by those early restrictions. When I first came to Glyndebourne Robert Bryan was the lighting manager (he followed on from Francis Reid) and we developed a very versatile permanent rig which carried in the region of 200 lanterns. With it we could offer total focus of any light in any colour, or whatever was required. The entire rig was available, so a designer could come in and use whatever he wanted. We also pioneered, with Theatre Projects at the Old Vic and Bob Bryan, the tape focus whereby we could focus the entire rig to a grid on a bare stage. That practice, established way back in the early seventies, has carried through to the present day and we've even transferred the system to the new building. However, instead of rolling the tapes out on the stage, we've actually painted the grid on the new stage as a time saver.

"The huge increase in stage space doesn't bring with it any more hours in the day, and time is still very important. Running a repertoire system as we do at Glyndebourne, we have a major opera rehearsing from 10.30am through to 1.30pm and unlike a West End show where performances start at around 7.30pm, the programme here starts just after five in the afternoon, so we've got a massive changeover to get through within just a few hours.

"As a result we needed the rig to be flexible. Last year I sat down with Mark Jonathan, who has since left to become head of lighting at the National Theatre, and we decided to retain the old rig as the theatre has probably 25 shows in its repertoire that will return, and we felt we had to retain some form of continuity. However, we also had to address the needs of the new production that would come to Glyndebourne



Lighting manager Keith Benson in the lighting control room, and below, one of the entrance walkways to the 'doughnut'.



and we couldn't do that with a tiny rig. So, holding to the same principle, we decided to go for a permanent focus. The approach was totally new for us because, whereas previously we had to focus 200 lights, what we had to do now with nearly 500 lights was have just under 100 with a permanent focus, and then have the others available for the designers' specials!

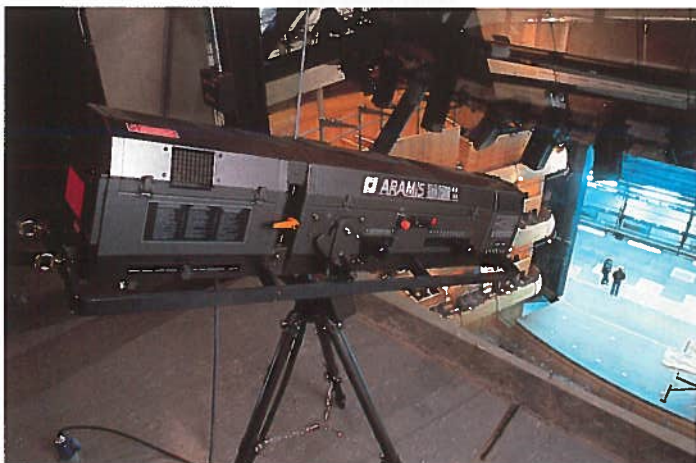
"The idea for a basic focus came from experiments at the National involving myself, Mark Jonathan and Brian Ridley. We went through the focus in a similar way to the Lyttelton auditorium at the National and sectioned off the stage, hitting each area from various angles with back light, side light, front light, etc. This meant that rather than a designer coming in and spending a lot of time getting the basics together, they were already in place, and whilst they could alter the odd shutter here and there, we didn't physically have to move the lamps around.

"On the front I have gone for Strand's 16-colour Colour Call scrollers. I realised that

if I asked every lighting designer for their preferences I would almost certainly get 16 different answers, so I looked through a number of productions and made my decision based on the requirements of those. In the centre of the stream the scroller is open white which is where the lighting designer can add in whatever specialised colour he may need.

"As a result, the transition from old to new has been relatively smooth, and though I had to buy a huge amount of new equipment, I had to do so with an eye on existing equipment and what would work in the new situation. When it came to purchasing the new equipment I decided to put various manufacturers' products to the test, including equipment from Robert Juliat, CCT, Strand and ADB. I installed them on the circular bridge position, now called the 'doughnut', because that was the new main lighting position front of house, and involved a completely different lighting angle to the one we'd had before. We had a range of 2kW profiles rigged and whilst trying them out, most of the manufacturers visited Glyndebourne and played with each others' pieces of kit. It was quite enlightening for some of them!

"Having studied them at the PLASA Show, I've always admired the ADB 2kW condensor optic profile. The only problem was finance because condensor optics are more costly. Russell Dunsire of Lighting Systems International made me an offer I couldn't refuse and I was able to purchase what I consider to be the Rolls Royce of spotlights with five-lens condensor optics at a price that competed very well with more conventional reflector optic



Robert Juliat 2.5K HMI followspot with DMX fade facility.



Keith Benson with ADB luminaires on the 'doughnut' walkway, high above the auditorium.

units. At the end of the day I simply got more light for my money!

"Having made my decision, a new doubt nagged me and I had a few sleepless nights worrying about the noise created by fans in the base of the condenser units, in addition to that generated by the 40 FOH scrollers. With opera you have to be able to hear a pin drop so I was worried that, having spent all this money, I may have created a new problem. However, the units arrived and were subsequently installed. At the end of March we put them through their paces during a series of acoustic tests with the London Philharmonic Orchestra, a chorus of singers with a set on stage, and a full audience. Fortunately, nobody squealed about the fan noise, but I did have cold feet about the high side position which is very close to the standing area. There were already scrollers on those lanterns, which are only about 1.5 metres from the audience's heads, so I opted for the 2.5kW Alto in these positions, and they have worked extremely well.

"The rest of the lanterns front of house are an amalgam of Strand Cantatas and Optiques, and for basic coverage I've gone through with condensor optics on all the front lights. For the side lights there are Cantata 8 17s with scrollers on again, and finally, with the back lights, I think I may be one of the first people to put Colour Call units on the front of the compact Bambino 2kW fresnel.

"We're using Strand control and have opted for MRL protocol which is running well with the Galaxy Nova which offers some great facilities for control of colour changing.

"To date, there have been few problems. My main worry was that I had committed a lot of money to an awful lot of new equipment, with the full support of Tom Redman, our technical manager and Anthony Whitworth-Jones, Glyndebourne's general director, but it still had to come together and work. It's only in the last week that this has really happened and lighting designer Pat Collins has been the first to come and see the new set-up. She was really excited about the permanent focus because as a lighting designer she usually has to spend so much time just focusing the basics. She designed the lighting for two productions in the old building, and with the old rig she had to use so much of it to just get her basics.

"The new stage also necessitated a dry run of each production and we had to construct the set for every single opera so that we could

check the masking, and so on, as many of the sets have had to be widened and heightened. From mid-February onwards we spent a week on each and we invited each lighting designer along to have a look as well. All the advance work has been done and the problems sorted.

"Pat Collins was the first in; we placed the plan in front of her and, as I've said, she thought it was great because she'd got this wonderful basic focus. She was followed by designers like Jean Kalman who wanted to do more with the rig, which is really from the old school of lighting, providing left, centre and right coverage. When Kalman designed his last production here he said to me 'I love your rig, but it would be better if it were on the floor'. As he's lighting the new production of Don Giovanni he's been in to see the new venue, but again he didn't look up very much, he just looked around and down! He looked at our circle positions, of which we have a bar on circle 2 and circle 1 and commented that it would be really useful to have a bar on the foyer circle, about a metre above stage height which is, of course, at a very low level.

"So we decided that rather than broach this later in the year it would make sense to deal with the matter immediately and get it right. We went back to Bovis and, as a result, we've now got what we call the 'Jean Kalman memorial lighting position' which I hope he is going to use! He came in and had a look and was very pleased with the result. I realise that some of the newer lighting designers are going for a lot of HMI single sources, and as a result my basic rig is not ideal for them because they want lights where I haven't put them. Often it's a no-win situation. At least with the basics of top, side and back light there is something there to get them started."

Footnote: Keith Benson joined Glyndebourne in 1973 and was finally, this year, put on a permanent contract. "I'm now full time," he told me. It must be one of the longest probationary periods ever known!"

Strand and Glyndebourne

Glyndebourne has a long established history with Strand Lighting with the first ever Thyristor Dimming installation in Europe in 1964 (beating Covent Garden Opera by 3 weeks). The control system installed to complement the

dimmers was a four preset manual system and specified by lighting designer Francis Reid. This system was subsequently replaced by the 200th MMS (Modular Memory System) and STM dimmers in 1977; this time specified by lighting designer Robert Bryan and Glyndebourne's chief technician Jim Thomas. This MMS had the novel features of having a colour VDU - a Barco, frequently 'stolen' by the television companies for a "shot" monitor when recording in the Opera House.

Galaxy was first used at Glyndebourne in the 1987 season when a Galaxy 3 system was installed. This system, together with touring Act 6 dimmers from Howard Eaton Lighting provides the core of Glyndebourne's current touring system, regularly seen in many major UK theatres.

It was no surprise that Strand Lighting was chosen for the supply of the stage lighting control, house lighting and work lighting controls, production lighting and house lighting dimming systems and luminaires. The two-year design, manufacture and supply project was won by project sales manager Alan Luxford. It was planned and managed at Strand by Bill Richards, whose tasks included liaison with consultants Alan Russell and Chris Watts of Theatre Projects and Glyndebourne's lighting manager Keith Benson, alongside management of the standard and specially designed elements of the contract. The contract was awarded to Strand as production lighting contractors via Bovis Construction, with Matthew Hall Ltd responsible for, amongst other things, the production lighting wiring - this aspect being sub-contracted to one of Strand's main distributors, Stage Electrics, and managed by Jonathan Porter-Goff.

The original Galaxy lighting desk was removed the day after the last performance in the old Opera House, and returned to Strand's Isleworth HQ for conversion to the latest version, the Galaxy Nova, with an additional set of electronics increasing the size to 768 channels. This not only added the new features of the top of the range console, but also included the interfaces for dimmer status reporting and sophisticated colour scroller control.

616 dimmers are housed in eleven large EC90 racks, located at different levels behind the cyclorama wall in four dimmer rooms. Modular design of the EC90 meant that the rack carcasses could be positioned in the dimmer



In one of the four EC90 dimmer rooms.



The lighting control room with a Strand Galaxy Nova.

rooms during the construction phase, with the modules (housing the digital dimmers, which included a selection of 3.5kW, 7kW and 10kW modules), constantly monitor their own performance, and report back to the Galaxy Nova, where information can be selected, and warning messages displayed on the screen, should a lamp fail or a circuit breaker trip.

A piece of equipment specially developed for Glyndebourne was a 96-way contactor rack that uses the 'brains' of four LD90 digital processor units with custom software, to switch contactors on and off under the control of the Galaxy Nova DMX dimmer signals.

The house lighting system has low voltage down lighters, wall washers and coffer lighting, linked to EC90 dimmers, within the main complement of production dimmers. These dimmers are also controlled from the Galaxy Nova, with an independent 'warning' level system ensuring a base minimum lighting level. A novel feature is that the house lights can be temporarily reduced to 'blackout' to support an important stage blackout by moving a sprung-loaded grand master fader. When pressure is released, the house lights automatically return to their previous base level.

The house lighting system may also be controlled locally without the Galaxy Nova, through internal EC90 preset memories that may be selected by push button outstations. Working lights are controlled by an additional Strand special contactor rack, and eight 'states' (which include day, night, show, rehearsal and interval states) are programmed into a PLC (programmable logic controller).

A second contract, this time directly with Glyndebourne Productions, included 85 Strand Colour Call CC1 16 frame scrollers. These multi-protocol colour changers are controlled from Galaxy Nova's integrated colour system using MRL protocol (developed for PALS automated lighting) in preference to DMX, as it provides smoother control of colour. The Galaxy Nova colour change feature allows scrollers to be controlled using the same channel number as the host luminaire, with frames being selected directly from the keyboard. Additionally scrollers are controlled in isolation from dimmer levels, to avoid unintended resetting during a fade to blackout.

Further lanterns were added to Glyndebourne's already existing stock of Strand luminaires, with additional Cantata and Cantata Optique 1200W zoom profile spotlights, some with special yokes, Alto 8/16 long-throw 2.5kW profiles, and Castor Bambino 2kW fresnels.

Andy Collier, Strand Lighting

The 1994 Festival Lighting Designers



Pat Collins, who lights not only 'Le nozze di Figaro', but also Benjamin Britten's 'Peter Grimes'.



Robert Bryan whose first Glyndebourne season was in 1972 is lighting 'The Rake's Progress'.



Jean Kalman is lighting Mozart's 'Don Giovanni'.



Lighting the new staging of Tchaikovsky's 'Yevgeny Onyegin', is LD Thomas Webster.

Lighting the Opening Production

an interview with

Pat Collins, lighting designer

I snatched a short interview with Pat Collins, lighting designer for 'Le nozze di Figaro', first production in the new Glyndebourne Opera House, during a lunch break just two days prior to the opening production on May 28.

"It's certainly one of the most flexible set-ups I've seen in any opera house - and that includes the Met in New York, some of the German houses and certainly the Italian ones. The front of house positions are now the best I've encountered in opera anywhere. As far as I am concerned, it stands right up there in terms of flexibility, and Keith (Benson) has very successfully and nicely provided for us the pick and shovel work.

"He has provided the basic coverage we require as designers, and at the same time avoided wasting crew time and energy - and God knows that they don't have enough time or energy to spread around in a repertory season like this. Any bugs we found were entirely a matter of 'a first season', and although the crew found some things difficult technically, such as access to the bridge positions I'm sure the people who work in the house will solve these problems as they go along.

"There's no house in the world, when you first move into it, that doesn't have that kind of technical confrontation, between the idea and the reality. But this has certainly been the smoothest, from a designer's point of view, that I've ever experienced. In fact it's outrageously good, considering the fact they've all just moved in! Keith has provided for designers the way to get past those things that one has to have, but doesn't want to spend a lot of time achieving."

What were your feelings, what were you expecting, when you first entered the new house?

"I was expecting what I saw, I really was. The old house was intimate, but the idea scale of production was the same - there was the same intensity focused on the productions. What has happened is that the scale has been blown up, and with huge improvements, but to the same high calibre.

"I would have expected nothing less from Keith. He delivered exactly what the expectation was. He might be embarrassed to hear me say it, but one shouldn't take it all for granted, as it has been a very smooth operation. Throughout, the whole crew have maintained a wonderful sense of humour."

Have you any particular comments on the productions you are lighting this season?

"I have always found it difficult to talk about the work, because work is what you do, and not what you tend to talk about! I could speak to you endlessly about things that have no meaning. Glyndebourne is a house for traditional opera, although it is pushed in some ways by all the designers who have contemporary ideas, so that a kind of pressure is there. You end up being 'pushed' because the designers of our time tend to be there on that 'edge' and want to keep pressure on the way that the entire design world is moving. It shows its face here, of course, because this certainly isn't a backward-looking organisation. They have young, bright directors who have very contemporary ideas about how one looks at opera these days, and there is an interesting balance between tradition, which is very, very strong and the pressure of new talent."

And your reaction to being the first lighting designer to work in the new Glyndebourne?

"I feel like everyone: it's just great to be here! It's a total delight to me that the theatre is so beautiful and comfortable. It's as if they've transferred all the feeling of the old house to here - totally. I feel strongly that the old house has transferred its spirit to this new building, and that the fact that it's blown up in size hasn't really changed things at all."

Glyndebourne Festival Opera

Founded in 1934 by Audrey and John Christie

General director: Anthony Whitworth-Jones

Music director: Andrew Davis, CBE

Director of productions: Graham Vick

Selected senior production/technical personnel:

Technical director: Tom Redman

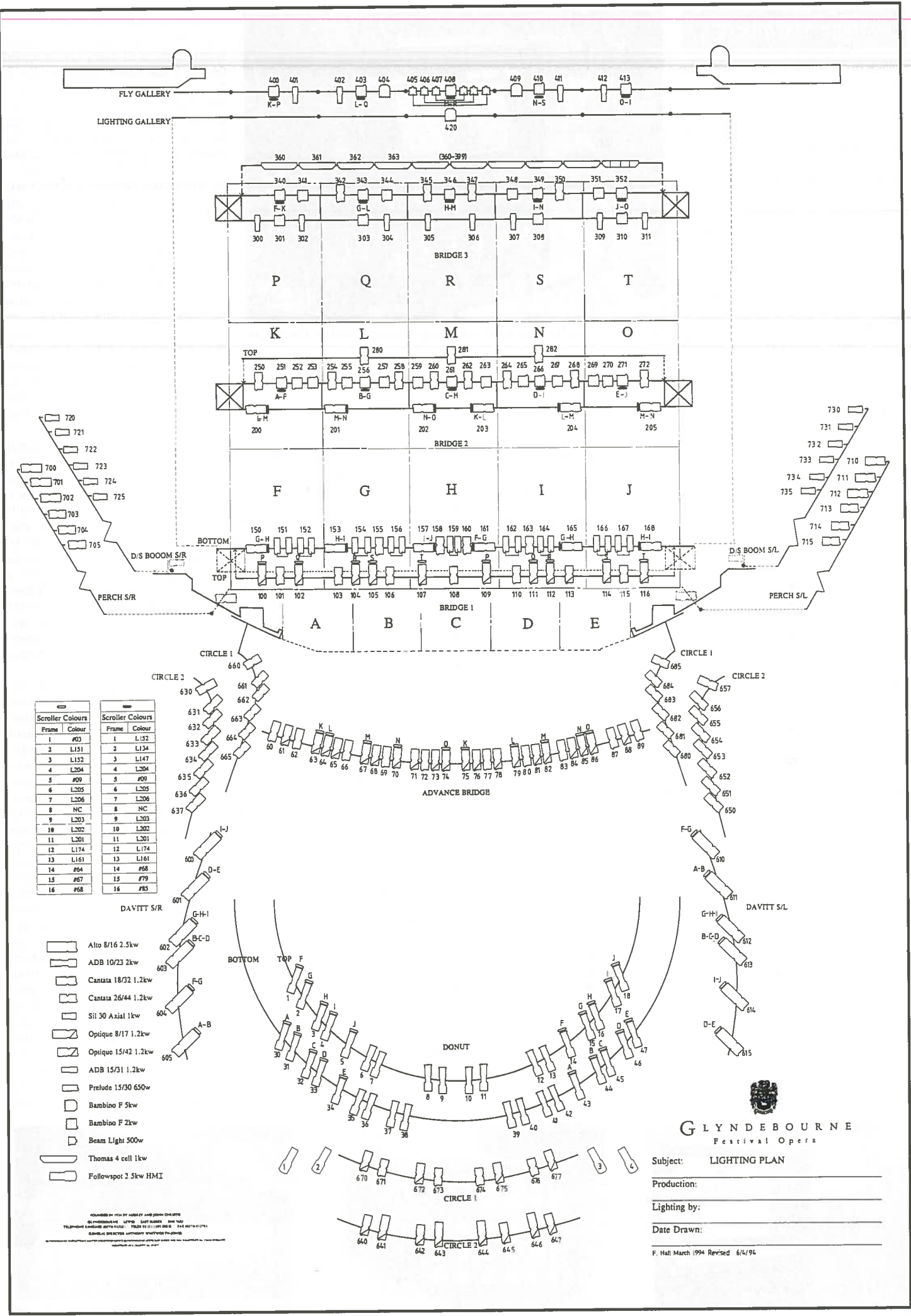
Production manager: Dave Locker

Senior stage manager: Jonathan Stott

Lighting manager: Keith Benson

Deputy lighting manager: Fraser Hall

Sound engineer: Jon Stevens



Scroller Colours		Scroller Colours	
Frame	Colour	Frame	Colour
1	#03	1	L152
2	L151	2	L134
3	L152	3	L147
4	L204	4	L204
5	#09	5	#09
6	L205	6	L205
7	L206	7	L206
8	NC	8	NC
9	L203	9	L203
10	L202	10	L202
11	L201	11	L201
12	L174	12	L174
13	L161	13	L161
14	#54	14	#58
15	#57	15	#79
16	#58	16	#85

- Alto 8/16 2.5kw
- ADB 10/23 2kw
- Cantata 18/32 1.2kw
- Cantata 26/44 1.2kw
- Sii 30 Axial 1kw
- Optique 8/17 1.2kw
- Optique 15/42 1.2kw
- ADB 15/31 1.2kw
- Prelude 15/30 650w
- Bambino F 5kw
- Bambino F 2kw
- Beam Light 500w
- Thomas 4 cell 1kw
- Followspot 2.5kw HMI


GLYNDEBOURNE
 Festival Opera

Subject: **LIGHTING PLAN**
 Production: _____
 Lighting by: _____
 Date Drawn: _____
 F. Hall March 1994 Revised 6/4/94

Stage Machinery

Tele-Stage Associates are probably the foremost designer, manufacturer and installer of stage machinery in the UK and have been involved with theatre machinery for more than 25 years on projects both in the UK and world-wide and have been responsible for the implementation of many new developments incorporating modern technology into the industry.

The new Glyndebourne Opera House has utilised Tele-Stage's extensive archive of previous installations together with new designs and in particular an electronic control system not previously used in a theatre.

Tele-Stage's three packages consist of the following: cloth store and orchestra elevators, three special acoustic doors and a general stage machinery package.

The elevator package consists of two large, electrically driven screw jack platform elevators. The cloth store elevator is used in conjunction with a below stage racking system and 18 metre long cloth boxes which are used to store backcloths and other scenery cloths. This is the first time that this system of cloth storage has been used in the UK. The positioning and repeatability of the elevator levels is critical to ensure that the boxes can be rolled on and off the elevator and onto the racks or stage. An accuracy of plus or minus 2mm has been achieved by using an absolute encoder in a closed loop system with a P.L.C. motor controller. Apart from the accuracy this has a major advantage over the more conventional limit switch control in that the necessity for maintenance and adjustment of a large number of electro-mechanical devices is avoided. Every limit switch has the potential to be knocked, to breakdown or to require adjustment.

The orchestra elevator provides for a variable depth orchestra pit with access from below the stage or for a thrust stage. In conventional theatre this also allows for the auditorium to be extended to the front of the stage when no orchestra pit is required, however this would appear to be an unlikely option for an opera house. The size of the elevator has caused one problem that has been the subject of discussion right from design through to installation and that was the requirement for access during rehearsals, from the stage direct to the auditorium. The method chosen was to have a sliding stage at either side which can be pulled out to provide a walkway. One side is supported on a track on the wall, however the opposite side is cantilevered to its fully out position when it is supported by the orchestra rail. The design of this item caused considerable consternation in Tele-Stage's in-house design team but was eventually successfully executed after several



Telestage's Touchscreen computer flying control panel on the flyrail.

brain-storming sessions.

The special acoustic door package combined with the rear door and safety curtain from the general package represented a challenge which has been relatively rare in UK theatre engineering. All of the doors are large and have two hour fire rating requirements along with stringent sound reduction qualities. The safety curtain travels horizontally and provides a fire and acoustic barrier between the stage and auditorium. The rear door is similar to the safety curtain and combines with two 10m high sliding doors to close off the rear stage area. Finally there is a 10m high by 4m wide hinged door between the rear stage and the rehearsal room. We believe this door to be one of the largest of its type ever installed in the UK.

The design of these doors was heavily influenced by similar doors provided by Tele-Stage several years ago for the Olivier Theatre at London's National Theatre complex and also for the Macedonian National Theatre in the former Yugoslavia. The doors themselves are relatively straight forward to design and manufacture to the required specification, however they have to have a system of seals to meet the requirements and mechanical latching systems to compress the seals. Each was subjected to rigorous acoustic testing, including tests carried out after a normal sequence of operation, to prove the efficiency of the sealing system. The total installed weight of the five door leaves was in excess of 30 tonnes, which excludes approximately 26 tonnes of counterweights.

Apart from the two doors above, the stage machinery package consisted of the following:

- 75 double purchase counterweight sets
- 3 large flown lighting bridges
- 4 lighting hoists complete with 12 ladders
- loudspeaker hoist and related acoustic flap
- house curtain track with vertical and horizontal electrically driven travel
- rear stage suspensions including a curved barrier rail to protect the cloth store pit
- various sundry items of equipment

The counterweight rigging is a relatively conventional rear guided system typical of many UK designed theatre installations, however due to the size and type of installation Tele-Stage had to provide some 55 tonnes of cast iron counterweights, each approx 10 kg in weight. The system also included a rail mounted capstan winch to be used to assist in the installation of large scenery flats.

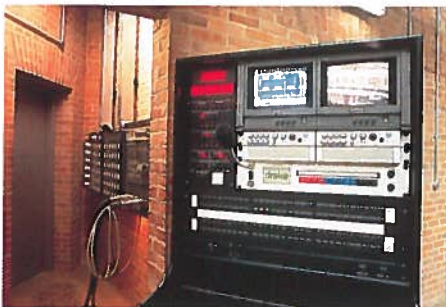
The three lighting bridges provide walkways at two levels and a wide variety of lighting positions. Two can be accessed by drawbridges mounted on the surround gallery and the third directly from the front of the gallery. The static and dynamic design load of the units is eight tonnes and they are moved by direct lift using winches mounted in the centre of the grid.

These units each weighed around five tonnes and are some of the biggest units built by Tele-Stage in recent years. The reaction of the various consultants when the units were first seen was well worth watching!

The lighting ladders provide additional adjustable lighting positions at the side of the stage. In groups of three they can be flown to any level between stage and grid and to any position up or down-stage. The winch controlling each group is mounted on the grid above the ladders. The main features of these winches is their high speed (ladder speeds up to 1.2m per sec) and the necessity to have a compensating table to ensure that all six ropes on the long single grooved drum run on and off evenly. The winches are controlled by a high speed positioning module and vector speed controller giving accuracy of plus or minus 2mm with a load mass of up to 1400kg.

The most interesting feature of all the electrically operated winches is their combined control system using a Tele-Stage developed computer control system called Command Performance System. This system is modular and incorporates speed and positional control with a memory system which allows accurate repetition of scenery moves. For Glyndebourne the system is configured to control 32 hoists of either fixed or variable speed. The main control is via a touch screen mounted on the gallery, however, alternative control points are provided via sockets and mobile controllers which access the main computer control system. Control of moves can be achieved either manually via a joy stick or via the computer. Via the computer moves can be either called directly in either speed or position mode or from memory. Also individual hoists or groups of hoists can be moved at any one time. The system is capable of handling additional hoists and Tele-Stage has already incorporated additional winches into the system for the Opera House specifically for their Don Giovanni production.

The System is also capable of future expansion beyond the initial 32 hoists by the



The stage manager's desk.



Side stage dip box.



The grid with lighting bridge motors in background.

provision of additional modules. One particular point of interest is the ability of the system to imitate the action of an experienced flyman operating the main house curtain. A flyman operating a manual counterweight set with house curtain will fly the curtain down until it rests on the stage and then lift the curtain until it is just clear of the stage. This 'dipping' of the curtain can be accurately carried out to suit the flyman's eye and then repeated constantly under computer control.

One aspect of theatre engineering gives great satisfaction and that is the requirement to train the venue's operating staff in the use of the equipment. This element of most contracts plus the need to carry out some snagging after handover means that a rapport has been established between Tele-Stage staff and the Opera House staff and valuable feedback regarding design and installation is obtained. This is often further extended by the venue placing orders for additional work and maintenance contracts with the company.

No comment about Glyndebourne can be complete without a reference to the degree of co-ordination required between the designers, management contractors and other specialist contractors. Glyndebourne was fairly rare in that the stage machinery packages were placed early in the programme and Tele-Stage became involved in the design co-ordination at a point where their input could be very valuable in relation to construction and services in the stage area. Happily, this co-ordination continued throughout the design and construction phases and played its part in ensuring the success of the project.

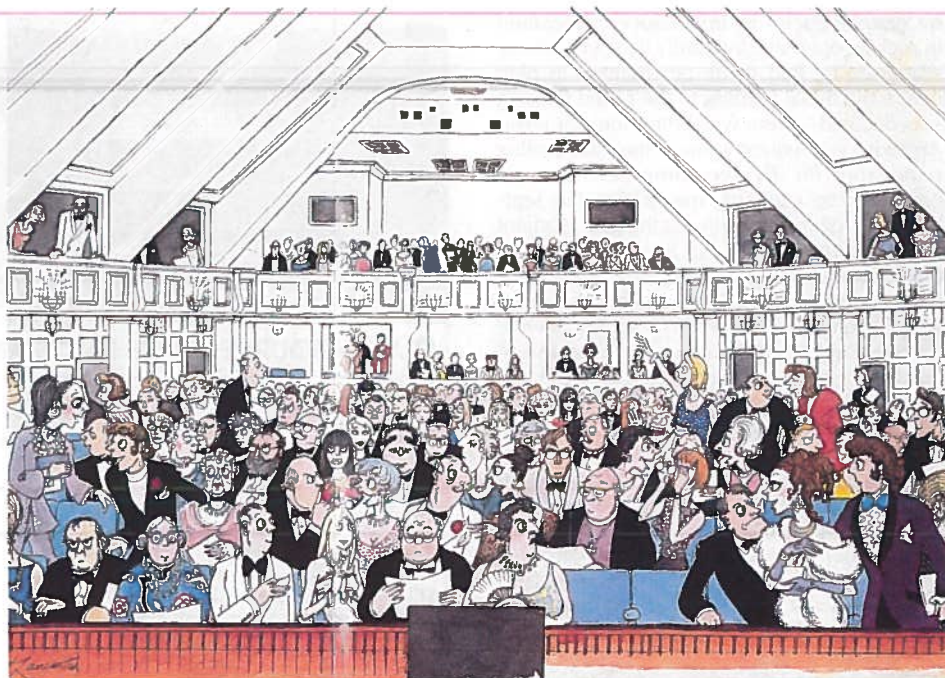
Mike Bacon, Telestage Associates

An Audience View of the Stage

Following the appointment of Michael and Patty Hopkins as the architects for Glyndebourne, further discussions between Theatre Projects and Arup Acoustics led to the transformation of the auditorium from a fan shaped room used as the footprint for the completion to a horseshoe-shaped auditorium based on circular geometry.

This form created a challenge to achieve the 1150 'good' seats requested by the client, whilst keeping the room as intimate and as social in atmosphere as the old house.

Audience expectations are high nowadays, and one of the pleasures of attending the



The audience in 1969. Osbert Lancaster's cover illustration for the Glyndebourne programme book.
Reprinted by kind permission of Glyndebourne Opera

original Glyndebourne has been the unique proximity of the audience to the stage and the level of involvement with the imaginative productions staged there. Our objective at Theatre Projects was to create the same degree of contact between the performers and audience by stacking the audience in tiers creating eight front rows and keeping the new room depth within the original overall dimensions. The old house had a very 'front on' view of the stage with the guest boxes at the sides. In defining a good seat for the new house we set ourselves the task of giving 1150 seats as extensive a view of the stage, forestage and backcloth as possible, maintaining the 'front on' feel of the old house by providing sufficient audience in the staff boxes (q.v.) at the sides to create the all important human link with the stage performers.

Much of the stage edge, the head of the proscenium arch, the back cloth, the forestage and the sides of the proscenium viewable from each seat fed back into the evolution of the room in setting out the shallowness of the stalls seating, the riser heights to the circles and the elevation of the balcony fronts. The room

underwent several alterations, one circle level was taken out and more rows were introduced at the top tier, the side boxes changed in number, shape and form many times; the balcony fronts were shaped to suit the often conflicting requirements of sightlines and acoustic reflections.

Once the space had evolved to contain 1150 good seats in plan, the individual requirements of different parts of the house were considered. In studying sightlines the eye is assumed to be in a certain location for each seat, and we had to ensure that the architecture and seat design allowed this to be achieved. In all there were 11 seat types with varying parameters of back angles and heights, seat pan heights and depths, seat widths, loose seating, removable seating, seating with or without air in the pedestal, angled seating, seating with or without arms. Local problems such as hand rails on balcony fronts were minimised by carefully locating the aisles.

The early strategic decision to provide air in through the pedestals of the seat had a number of consequences. Architecturally it meant that the ceiling and roof line were unencumbered



Stall seating, with pedestal air supply!



No less than 11 seat types were used.

by large air ducts - an important consideration in such an open site. Internally it meant that any seat pedestal had to be pin pointed in plan before the metal framing to the raised flooring was detailed - there was little room for error. An additional request to make the stalls seating removable for TV recording sessions and possible 'rug concerts' meant that the seats there had to be removable. As the floor gradient changes three times in this area, the design of the flange and fixing details to suit was quite a feat. There are circular cover plates to fill in the holes when the seats are removed. Meanwhile the mechanical engineer was having to ensure that the air plenums were sealed to avoid any hissing air and that the air flow was even throughout the hall and met the acoustical requirements.

Lengthy discussions were held with the architects to establish the physical dimensions of the seats to ensure comfort and comply with exiting requirements. The custom designed seat was scrutinised in every aspect, its height, its envelope width, the height of the arms, the fabric and adjustments negotiated with the manufacturer.

After one year of working on the project we produced a detailed seating and sightline study which quantified each seat and its view of the stage. It has been gratifying to discover that the box office staff reached the same independent conclusions of the quality of each seat when preparing their pricing structure!

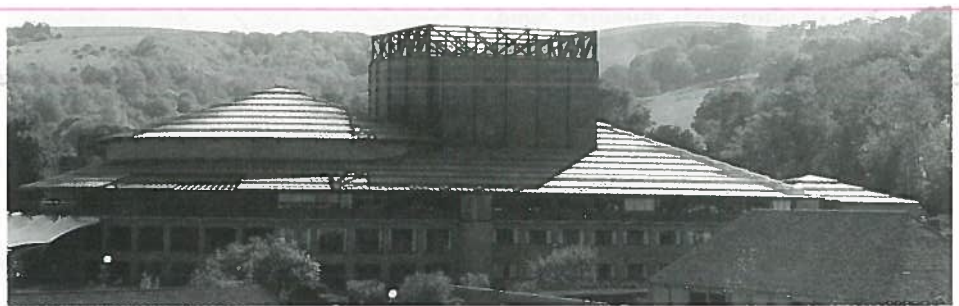
There have been some additions to the 1150 'good' seats. There are staff seats near to the stage on the side and standing places at the sides of the top tier, and wheelchair positions in the parterre and first circle boxes have been inspected and passed by members of Glyndebourne. Each wheelchair place has its own double doored entrance to a box and an excellent view of the stage.

The location of production lighting in relation to sightlines from seats to the stage also had to be considered. The size of fittings and their angle to the stage at each level of balcony front was drawn to ensure the upward sightlines to the surtitle screen was not unduly blocked. (Surtitles screens are a modern day necessity in the popular appeal of opera which theatre designers in the previous century did not need to worry about!) The high side davit lighting positions sit out over the standing audience at the top of the house. Lighting and set designers for future productions at Glyndebourne should be confident that their design, including effects at downstage side and upstage centre, will be seen in full by all members of the audience.

Much of the fine tuning of the design was only possible through the enthusiasm of the architects for detail, the wizardry of Ove Arup and Partners in designing a thin and elegant structure and silent air conditioning system; a close collaboration with Arup Acoustics on the shaping of the room and equal attention to detail by all the contractors. Above all Sir George and Lady Christie took lively interest and concern for every aspect of the design and execution of their opera house. Within Theatre Projects the auditorium team consisted of Iain Mackintosh, Anne Minors, Jenny Scobie and Gary Overton. Technical installation was designed by Alan Russell, George Ellerington and Len Greenwood.

Anne Minors, TPC

John Offord thanks Glyndebourne's lighting manager Keith Benson for his assistance with the preparation of this feature, a great deal of which took place during the immediate and very busy run-up to the opening of the new Opera House.



GLYNDEBOURNE: SOME FACTS AND FIGURES

GLYNDEBOURNE: SOME FACTS AND FIGURES					
Proscenium		New	Old	Difference	
Structural	Height	9.25m	6.2m	+ 3m	
	Width	11.6m	8.8m	+ 3m	
Opening	Height	7.0m	6.0m	+ 1m	
Auditorium		New	Old	Difference	
Stage edge to front of balcony		19.0m	18.0m	+ 1m	
Stage edge to back of auditorium		26.0m	29.0m	- 3m	
Stalls to underside of roof		18.0m	9.0m	+ 9m	
Acoustics		New	Old	Difference	
Reverberation time		1.4	0.8	+ 0.6	
Background noise level (PNC)		15	n/a		
Pit		New	Old	Difference	
Open	Depth	3.9m	2.4m	+ 1.5m	
	Area	50.0sq.m	25.0sq.m	+ 25.0sq.m	
Total Area		112.0sq.m	98.0sq.m	+ 14.0sq.m	
		Height	5.0m	2.2m	+ 2.8m
Flytower					
Plan size (external)	Depth	16.8m	12.4m	+ 4.4m	
	Width	22.95m	15.8m	+ 7.15m	
Height from stage to top of flytower		27.2m	20.5m	+ 6.7m	
Seats		New	Old	Difference	
Total seats		1200	830	+ 370	
Standing		42	none	+ 42	
Distribution of seats		Number of seats			
Stalls		328			
Foyer circle		346			
Circle		238			
Upper Circle		288			
Total		1200		+ 42 standing	

Project team (selected)

Client project manager
Eric Gabriel

Architect
Michael Hopkins & Partners
Michael Hopkins
Patty Hopkins
Robin Snell (project architect)

Structure & services engineers
Ove Arup & Partners

Construction management
Bovis Construction Limited

Acoustic consultants

Arup Acoustics
Derek Sugden
Rob Harris
Raf Orlowski
Helen Thornton

Theatre consultant
Theatre Project Consultants

Iain Mackintosh
Alan Russell
Anne Minors
Theatre advisor
John Bury

Trade Contractors (selected)

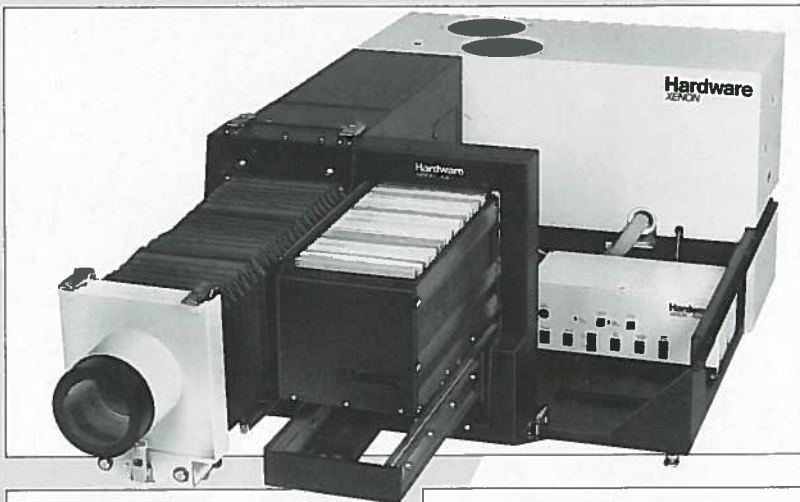
Auditorium seating
Audience Systems
Mechanical/electrical/plumbing services
Matthew Hall Limited
Stage equipment
Tele-Stage Associates (UK) Ltd
Vehicle lift
Glantre Engineering Limited
Sound & communications
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Stage lighting
Strand Lighting
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TALES FROM THE PINK FLOYD LOCKER ROOM

Tony Gottelier talks to the triumvirate of Brickman, Fisher and Williams, and charts the triumph of Pink Floyd's 'Division Bell' tour

It may not be appreciated in Europe, but in the USA the status of a football locker room is second only in sanctity to the Oval Office. And the Dallas Cowboy's locker room at Texas Stadium (I always thought it was called the Cow Palace, but perhaps that's somewhere else), is possibly one of the most revered. For me Texan stadiums conjure up images of rodeos, clouds of swirling dust, and petrified, lassoed steers being wrestled to the ground by sliding leather-clad and leather-faced machos for whom three Weetabix is a mid-meal snack and quiche something to be fed to the crows. Of course, the football team is inhabited by these same guy's bigger brothers, 8'3" in their stockinged feet, and twice the size in their battle dress. Instead of steers they wrestle with the giants on the opposite side of the field. At Texas Stadium, you can pay for a tour, the culmination of which is a visit to the Cowboy's sanctum, the locker room.

So there I was, Dallas in May and nothing could be further from that stereotype. Spring flowers and Texas Blue Bonnets in the verges of the Express Way, grey drizzle, torrential rain, more grey drizzle (it could be Manchester in March), tornado warnings on the TV, high winds, turbulence, airports closed. And for me the additional obstacle of a tempestuous PR person whose sole aim seems to be to stop me seeing the show. God and the PR person in tandem seem a formidable obstacle. (The stage has been designed, uniquely, to be waterproof and non-slip, so it can't be rained off can it? Can it?)

In the locker room at the Stadium, and not a cowboy in sight in any of the meanings of the word. Indeed the reverse: for this is the temporary production office of Pink Floyd super-coach Robbie Williams and his team. Certainly the tallest man there both physically and in concert industry stature, though even he cannot hold a candle to most of the team whose green room he occupies. Nevertheless, he is quite high enough off the deck to command respect from those he handles so efficiently - he has that air of certainty and the deep drawl to go with it. Williams is the Colonel of logistics, the master of organisation for a tour the scale of which beggars the imagination.

Three massive stage sets, the biggest ever, 60m wide by 22m deep by 23.5m high, containing 70 tons of steel, leapfrog across the continent in 33 trucks. It takes eight tour buses, a further 18 production, power and catering trucks and a crew of 161, requiring a pre-spend



An effect rarely seen since the sixties, a live liquid light show - but now on a 6K HMI Telejector.

of \$4 million and running costs of \$25 million. 60 performances in 40 stadiums in the United States in 13 weeks, to say nothing of Europe to follow and a potential audience of 5m in over 100 performances culminating at Earls Court in October. The main arched staging system takes two to three days for each of the three rigging crews to set up, and the production team overlap only 24 hours before a show and rig the equipment: in fact, Williams says that this can be done in a total of only three and a half days. It takes one day to dismantle and pack back into the same 11 trucks to be shipped off to the next gig but two.

All of this under the control of boss Williams, who came into the business, as everybody seems to, by complete accident. He once worked for the seminal Krishna Lights, as several others, now at the top of our industry, had done back in the sixties. He then headed off to the relatively saner atmosphere of a PA company and, being in the right place at the right time, he was there when the band needed a PA roady. "I did that for a while and when the band founded Brit Row, I went there to help set it up and ended up running it for 10 or 12

years," Williams wearily told me just before the night's performance. He went on the road with the Floyd in '87 and when he came back after two and a half years, Britannia Row seemed to be able to survive without him, so Williams became a freelance production manager. Aside from Pink Floyd he also handles The Cure, Pet Shop Boys and plenty of special events.

When I remarked, pointing out the self-evident, that it was a mammoth feat of organisation, Robbie, a man of few but carefully measured words, responded with: "From my point of view, the hardest part was putting it together at the beginning and getting it through rehearsals to the stage where it could, in fact, be toured."

So let's rewind to the beginning to see how that was achieved.

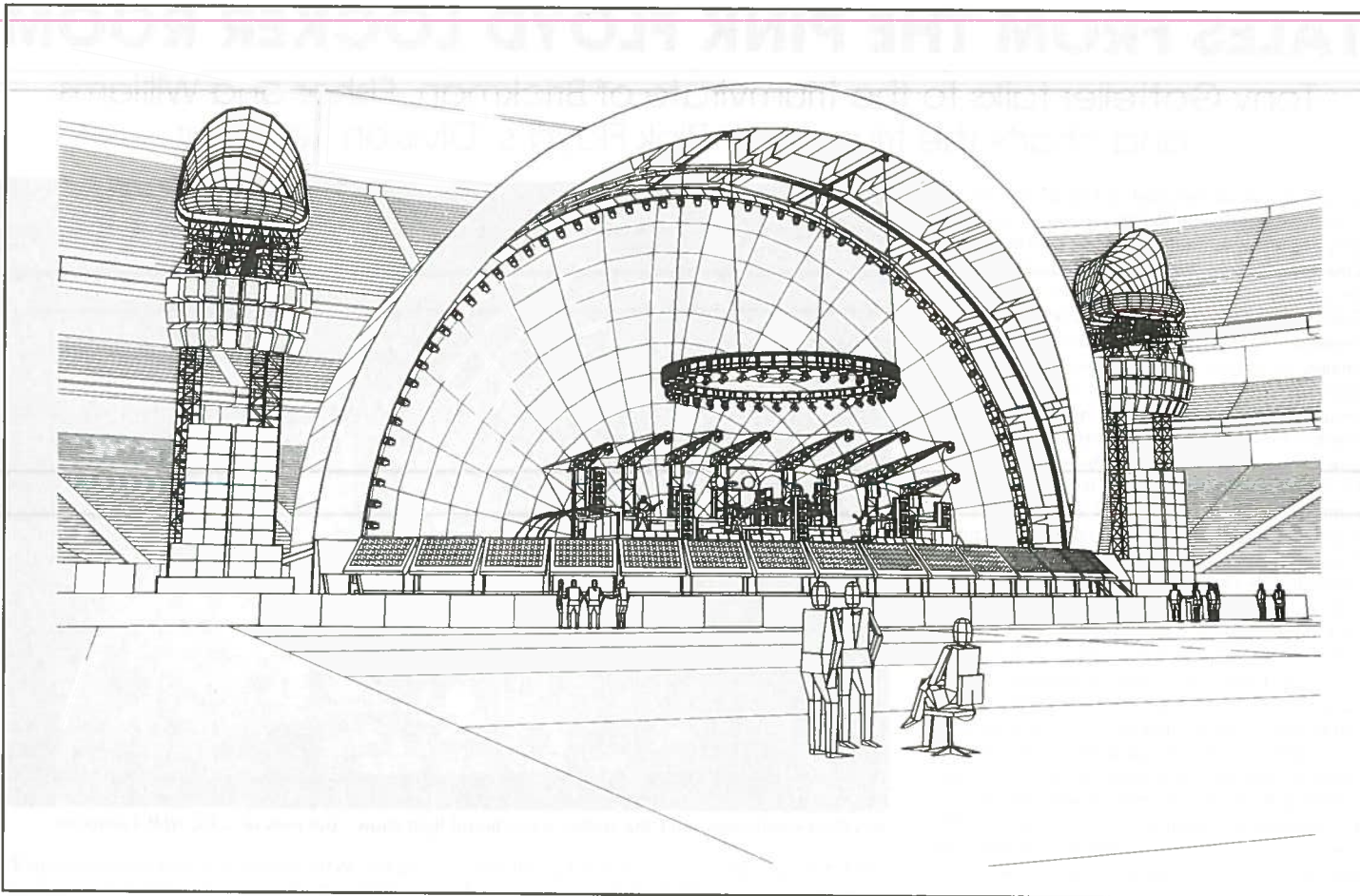
For me, it had all started at LDI 93 in Orlando when all the key players in the technological development of the latest Floyd phenomenon turned up to finalise plans and to make the last decisions about equipment for the tour. As I mentioned in L+SI at the time, set designer Mark Fisher was spotted atop the Tomcat stand holding planning meetings with Williams,



Computer modelling allowed the entire stage to be previewed in 3D.



The Telejector's deliver a Four I's image to the stage.



Face on CAD view of the stage showing the circular screen in mid-position and the Periaktoi.

Richard Hartman, the production team's Mr Fixit and a Tomcat affiliate, Tomcat's Mitch Clark, StageCo's Hedwig de Meyer and others.

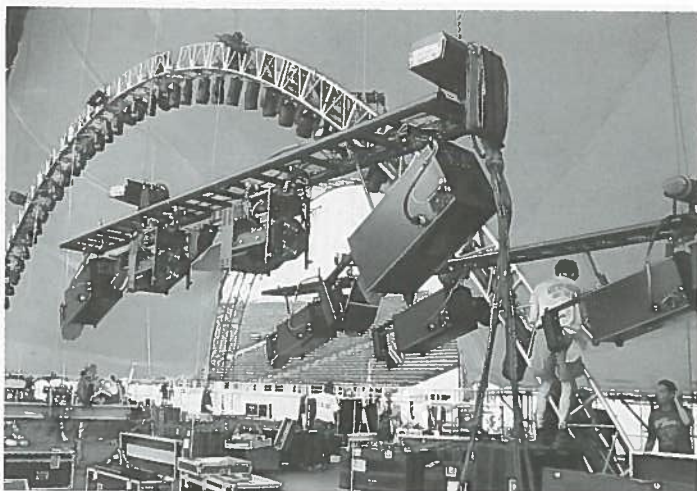
Meanwhile, the creative genius that is Marc Brickman was convincing himself that the Wholehog was actually the dog's testes in another part of the hall and networking with Brian Croft, Alan Thomson of Concert Productions and the Vari-Lite crew over his demanding requirements for their brand of magic lantern. (Who says trade shows are a waste of time!). There then followed a chance meeting with Brian Croft after dinner at the Peabody, and within days, my own partner Peter Wynne-Willson was also up to his armpits, at Brickman's request, in specials for the tour. The Floyd's original lighting designer of the sixties had finally returned to his alma mater, and joined the new creator for the nineties. Indeed, it now occurs to me that Peter would have been leaving the Floyd, just as Robbie Williams started as a PA roady. So you could say that this is the inside story.

Of course, for Mark Fisher, flying solo for the first time in years, it started a great deal earlier. He and Marc Brickman had set out 'to redefine the stadium experience', as the tour has been headlined, back in the summer of '93 in fact. "The band delegated a great deal to Marc Brickman who became the show director, rather than just the lighting designer, so he was the one who came up with all the wacky ideas, and it was my job to make them work and deliver them into practicality. Therefore, Robbie Williams and I were often the realizers of Brickman's sometimes rather weird ideas," explained Fisher.

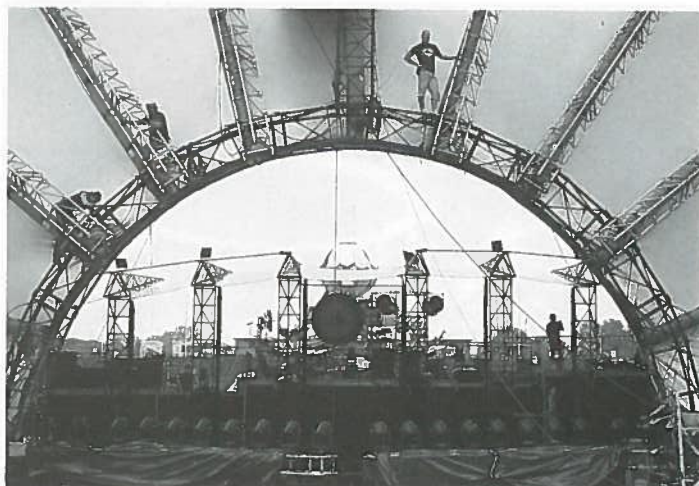
The process was generally one of Brickman trying to vocalise what he saw in his imagination, and Fisher going off to produce sketches and drawings and returning later to ask if, and sometimes to insinuate that, what had been depicted was actually what had been envisaged in that fertile brain. As Brickman was, in all humility, to tell me: "I am very lucky that people put up with me just being a catalyst.

I can't draw, I am famous for napkins. Ultimately there are drawings somewhere but they are not from me, I never draw the props. It's all wrong really, I take all the credit and I am deeply grateful to them all for being so tolerant." In parallel, Robbie Williams and Fisher would be talking about how they would achieve, once Marc Brickman had said yes, what it was that he had in mind, and Fisher would produce drawings to show the band for their approval once it had been deemed feasible by Williams.

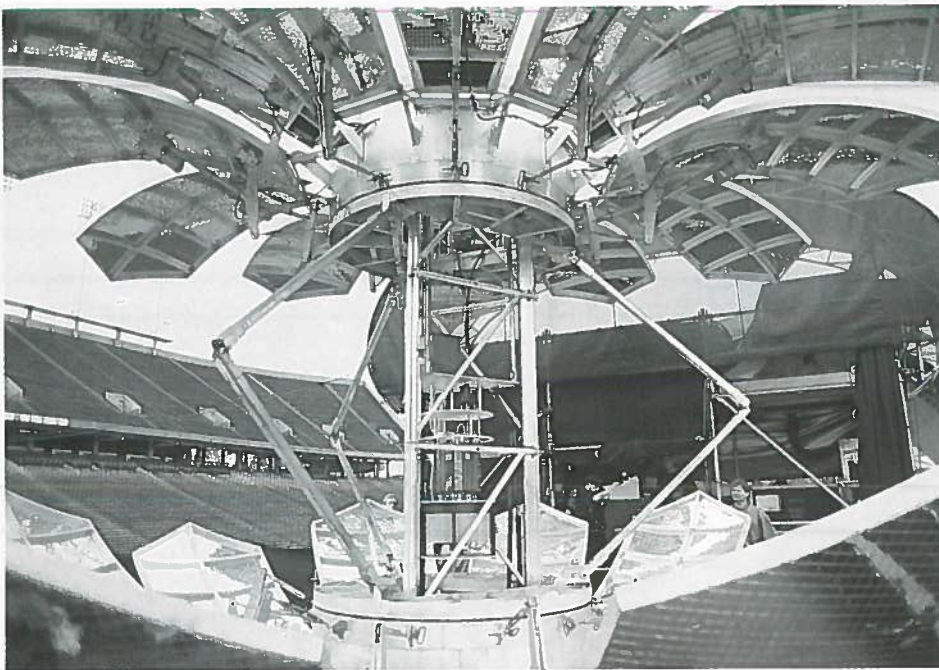
"It was a very free and profitable loop that produced these ideas. It worked very creatively because I find Brickman a very inspiring guy to work with. He is very volatile and provocative, but actually I get on well with people like that because they have a temperament which is in many ways the opposite to mine. Such individuals force you to do things you wouldn't necessarily do yourself in the usual way, and they make you think about things in ways you wouldn't normally, which is good. It means



The Telescans in mid flight to the truss.



Backstage during build-up.



The mirror ball in store like a vast silver spider all squashed flat.

keeping an open mind and never saying something can't be done." Though he is quick to heap deserving praise on the progenitor, by this stage there was clearly a lot of Fisher's renowned ingenuity in these designs.

"You should never say 'no' to someone like Brickman, because it's incredibly destructive to the relationship. If something is impossible, you find a way to do it that isn't and persuade him that this was what he had in mind in the first place." The true arch that would span the front of the stage like a great unsupported bridge of a proscenium is cited as an example of an impossible realization by Fisher. The original idea was conspicuously impossible to do, indeed crazy, but through a process of proposal and counter-proposal, what resulted finally was something which entirely convinced Brickman that it fulfilled his dream.

Fisher worked closely with Neil Thomas of engineers Atelier One, in the design of the stage structure, to find a solution to this problem. In the end it was typically the practical constraint of what was available in rental components from a supplier, in an erectable and demountable form, which won the day. Bearing in mind that everything would have to be made in triplicate, in order to deal with the geographical logistics, practicality was clearly essential. "StageCo came to us fairly early on with a proposal as to how to use their components to create the arch, and after looking at it we went with that," explained Fisher. Thenceforth, he simply kept a watching brief over the interaction between Atelier One and the Belgian StageCo's De Meyer. "Breaking the log jams when they occurred," is Fisher's delicate way of putting it.

In fact, the designer seems to have rediscovered himself in a new light in the process of working in direct interaction with fabricators and consultants, rather than carrying out all the design in-house as had been the case for ten years previously. Given half a chance he will wax at length about the wonders of the modern technology which enabled him to communicate with like minds across the globe to implement even the most complex design. As an example he cites computer modelling which enabled everyone to see the entire stage in three-dimensions on the screen of a 55MHz 486, something which would have required a substantial mainframe and unaffordable software just a few years ago. "I no longer see a ponderous in-house design

team as either necessary or desirable," the erudite architect told me. Indeed, he has thoroughly enjoyed the relationships he developed with kindred industry spirits, such as De Meyer, Charlie Kail and Mitch Clark, for all of whom he has the highest regard.

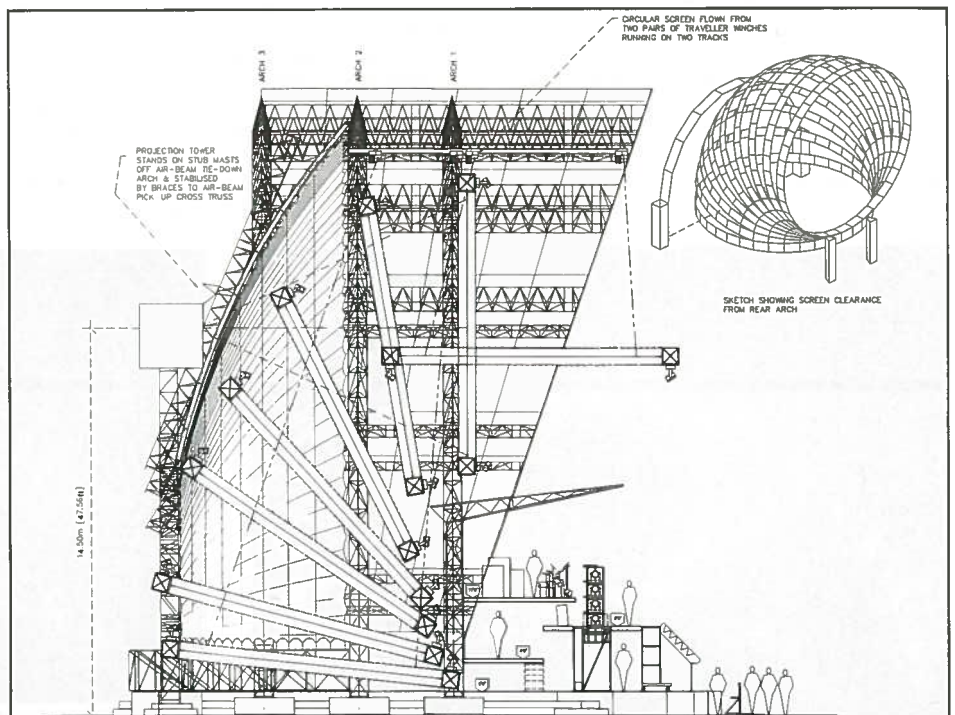
"The co-operation was so fantastic, it was more like a party most of the time, and the fact that we were all enjoying ourselves, more than anything else, was what made it all possible." It is a considerable valediction on the state of the industry that a man of Fisher's undoubted status and huge talent is happy to contemplate the freelance existence which, by its very nature, depends almost entirely on outside help. He is not a person whose temperament and professional training allows him to tread on ice without taking routine precautions, even though some would say that walking on water is not beyond him either. He takes risks, yes huge risks with his own conceptual designs, but these are generally the risks associated with the territory, albeit uncharted, and one always feels that they are entirely contained under his

control. He is enormously self-assured and comfortable with his own abilities, which can be quite intimidating to others, though I am sure he doesn't realise it.

Of course, in this case he was implementing someone else's conceptual designs and in such an imprecise creative process as that described, there are always going to be casualties. Some which occur later are more costly, others which are tipped out in the design process less so. Such was the scale of the injured list in the Floyd case, or 'hostages to impossibility' as Fisher likes to call them, that one item scrapped well before rehearsals was nothing less than a Brickman proposal to incorporate an Imax or Omnimax movie projection, neither of which were deemed bright enough for a screen of the huge scale intended. "My idea was to create a huge focus on the performance area," Brickman told me later. "To virtually dwarf the stadium, using the arch and the big screen technique to create an opening into another world." In the end, it was found that Telescan's new Telejector 6k HMI projectors outshone everything else on the planet and they were selected for still and animated large-frame slide projection, created by Four I's, as well as for partner Peter's liquid effects.

Here again there is an element of controversy. Those involved in the forward projections were apparently disappointed with the receptive quality of the material selected for the rear stage wall which served as the screen in place of a regular eye. According to Fisher it was especially made to look black when the lights are off, but sufficiently reflective otherwise. Nevertheless, the fabricators, Landrell Fabric Engineering, deserve considerable praise for their ingenious high-pressure, inflatable construction system which is virtually self-supporting with the help of water tanks as ballast.

Moving pictures were not out however, for one of the other main elements of the set was to be resurrected from the previous tour - a ten metre circular projection screen to be made this time by Tomcat. This was to be lifted and turned through 90 degrees from the floor of the stage to sit vertically above the heads of the band during the performance. Consisting of a ring of truss with a white, high transmission BP screen stretched across like a giant drum skin,



A cross-section showing the flight path of the circular screen



The circular screen in movie mode, a porthole onto an unreal world with imagery by Storm Thorgusson.

surrounded by VL2Bs and VL4s, it was to swing up in front of a crow's nest projection platform, rear stage. There sits a Bran Ferren-designed 70mm, 10k Xenon, SMPTE-controlled movie projector of 6,000 foot reel capacity. With special imagery conceived by Storm Thorgusson, the photographic half of the late-lamented Hypnosis duo, this was to conjure up an almost three-dimensional tunnel in the set - a virtual porthole on an unreal world.

Fisher shares with Brickman similar feelings about the scale of a stadium experience, but with a slightly different conceptual interpretation - that everything should be large enough to fit visually, hence the largest touring stage ever. "This is the first stadium show I've done which doesn't need FOH video, and the reason is very simple. The scale of the performance-setting rendered it unnecessary. This is where I think Madonna and others who use CCT get it wrong. Instead of concentrating the eye where it should be, on the stage, they are distracted to the screen. It's like comparing the impact of a television with a cinema

screen." In Fisher's book, rightly in my opinion, a rock show should be a different experience from watching the television. Brickman puts it this way: "If you walk to the very back row of the stadium, the stage looks even bigger than on a video screen. The energy must come forward and that is a very important part of a Floyd show. You should feel the scale and Mark Fisher really enabled me to achieve that."

So, while Brickman was involved early on in shaping it all, he then went off to do other things while Fisher and Williams et al put it together - by the beginning of August it was all set. At this point Charlie Kail's Brilliant Stages swung into action and commenced the stage construction which occupied their entire premises for weeks. Probably the most 'interesting' aspects of this were the five rows of Periaktoi set into the stage apron. Before you reach for your Ancient Greek dictionary, Periaktoi is the plural of the Greek word for what is best described as a Toblerone (actually I must be one of the few people on the planet who knows that, including Michael Caine.) So

you see there's nothing new under the sun, the Athenians had rotating billboards years BC!

However, it won't surprise you to know that the Brickman/Fisher/Kail version is hardly antediluvian in either concept or execution, nor is it by any means trivial. No less than 15 carts, each containing five 2.4m long toblones, each with a facet of eight individually-controllable, high intensity, ultra-narrow beam 26v Par 46 lamps, a big transformer and a system of 12 slip-rings, combine to make the overall effect - a total, on its own, of 600 lighting control channels, 75 dimmer packs and 900 slip-rings! And a programmer's hell, for the idea was that it should be able to operate as a matrix - in fact, as a virtual newscaster! Even the Wholehog might have turned its snout up at the prospect. The other faces are simply mirror or black finished.

The control solution which presented itself, perhaps surprisingly in view of the rock industry's well known prejudice to anything which lacks manual faders, involved the maker of the PC-based rigging control system, Artistic



VL5s and Daleks combine for a big cyc effect.

photo: Lewis Lee



Crackling effects, startling colours and saturated hues from Rocklite's copper vapour laser.

License, being pressed into action. The motor control system they have provided is not trivial in itself. Though it controls a mere 25 driven items on the stage, unique software allows the rotating motors to synchronize their positions one to the other, an absolutely vital ingredient with moving machinery. When it came to the lighting requirement, Wayne Howell of AL, developed a system called Light Tramp, allowing programming from a geographical map on the screen. It enables, for example, the ability to type in a word which is transcribed in software and directly transmitted in DMX to the dimmers. 'Hello Dallas' and 'Teacher' being prime examples, the latter generating another of those giant gasps from the audience which heralded each of the big events of the show, as the band slogged through their infamous signature number.

Both the circular screen and the Periaktai are carried-over concepts from the 1987/8 tour, as is the giant mirror ball of the finale - why bin your best stunts when you can make them bigger and better next time? Anyway, over the years they have acquired iconic value, but then so have the 'pigs', but that's yet another story!

Meanwhile, StageCo were erecting and re-erecting their structure to get the hang of it for the real thing. Concert Productions were appointed to supply the lighting technology with the Vari*Lites, and Britannia Row commissioned to deliver the sound.

So, fast forward again to March and rehearsals in the world's largest aircraft hangar in San Bernadino, California - so massive, that the ground plans show huge planes just lying about all over the building. This, of course, is where it all comes together, or it doesn't, as the case may be. Here, Rocklite's enormous Oxford-built 50W Copper vapour laser will meet up with pyrotechnics by Pyrotek and Le Maitre, and four of the big JEM Roadies which were specially modified with on-board DMX modules. Here the reveal mirror ball, being constructed by State-based Ethan Silva Associates will be mated to the fabulous ex-Hoffend Starlift, now improved and the proud property of Tomcat. Here Peter Willson's liquid light show will have its first real test on the Telejector 6k HMI projector in overhead mode. Here Ferren's movie projector will mate up for the first time with its back-projection porthole. The power hungry US-made Lightning Strikes which simulate the discharge of atmospheric electricity, will meet the UK-made WWG Daleks, a simulation special from a previous existence. Then there are the new Obie Xe-Scans: a combination of 2k Xenon compact source, a twenty-four colour scroller and a Telescan automated head, they are the French company's presence in the US, and will challenge the Gladiator III followspots in their own coliseum battle. And, finally, it is here that most of the control equipment and their operators will handshake for the first time with the source equipment.

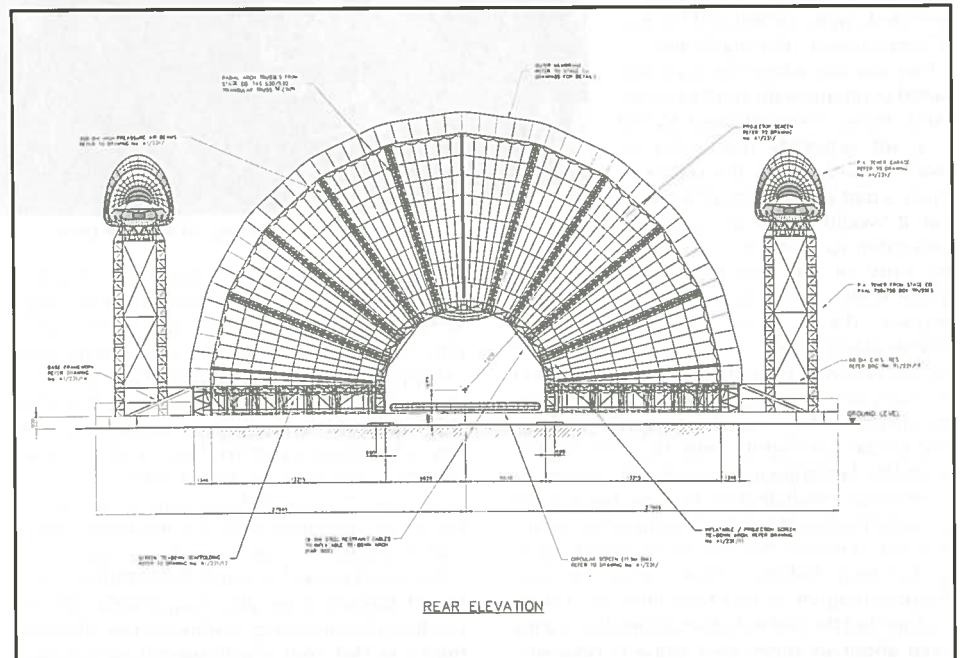
Organising the rehearsals was where Richard Hartman's Mr Fixit role came into its own. Since moving to the States he had become a technical consultant with Tomcat, but when the Floyd tour came along he readily agreed to become the interface between the production team and the various makers in America.

According to Fisher, Hartman takes the role so seriously that makers are quaking in their shoes at the prospect of a progress visit from the tenacious ex-pat. In San Bernadino he acquired the official title of rehearsals project manager, organising the space, liaising with the Air Force and the Norton Air Base (I told you it was a military operation), co-ordinating the vendors, and, unusually, setting up an on-site workshop manned by skilled operatives. "Unlike my



Oz Owen's Vari*Lites do their stuff.

photo: Lewis Lee



Atelier One's drawing of rear stage elevation illustrating the ingenious high pressure inflatable backdrop.



Like a flower budding, blooming the mirror ball slowly unfolds.

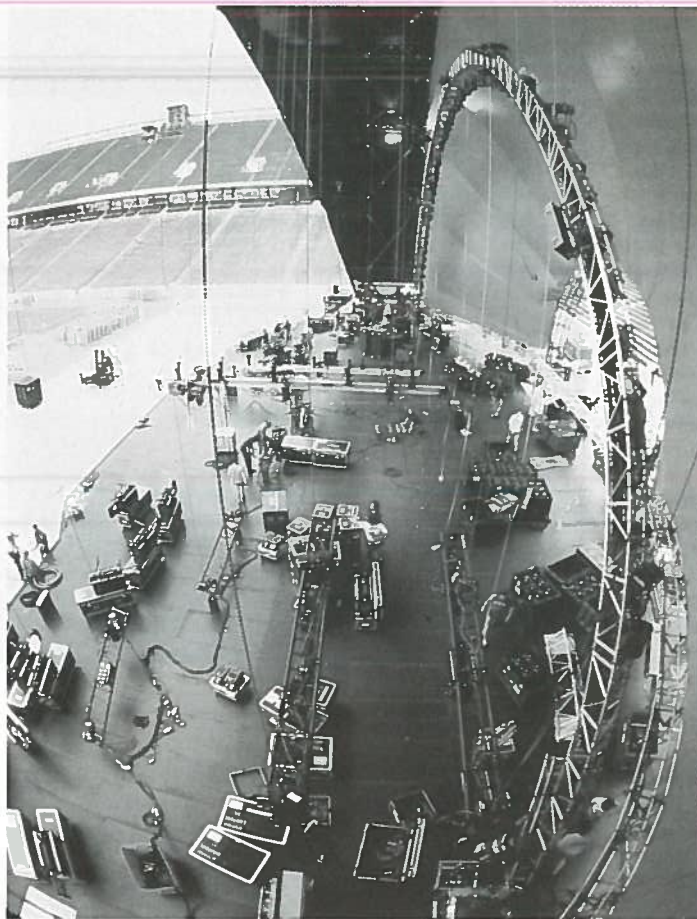
previous experience with Genesis and U2, where all urgent modifications were farmed out locally with all the hassle that involves, it proved invaluable," said Hartman. "We could build and modify what was needed in our own dedicated facility on the spot, it is something all future productions should consider."

This would also be where Carol Croft of Concert Productions, whom I grossly libelled in a previous article when I suggested, albeit in jest, that she was the subject of father-in-law's nepotism, proved her point by being swiftly adopted as Marc Brickman's assistant, which basically made her lighting director for the critical rehearsal and programming period. A great credit to her undoubted skills. This was no small job either, with no less than six lighting desks - an Artisan under the masterly control of Oz Owen, the Wholehog, an Avolites desk, two Telescan Compulites, the Rocklite's laser desk, pyro control and the two PCs mentioned, plus duplicates.

This was also where the assembly parted company with another major effect, not so far mentioned. While it is not generally productive to dwell on such things, this one is so much a part of the story of the tour that it would be in the order of censorship to gloss over it. This is the story of the over-the-top, rig-climbing cranes which never quite made it to the top. Indeed, there were, apparently, some spectacularly unsuccessful attempts before Robbie Williams deemed the cranes one effect too many and sent them packing, blaming their late arrival on the scene. "I personally think we tried to take on slightly more than we needed to, and the late appearance of these large pieces in rehearsal, meant that by the time they arrived we had already got a show. So when they didn't work out it wasn't the end of the world when we left them behind." Mark Fisher concurs. "People are quick to point out the cost of such a failure, but the fact is that scrapping the cranes saved about six times their value in on-costs. There is no doubt that given more time, they were going to be a very spectacular item indeed." Apparently, due to other delivery problems, Brickman had been forced to get on and programme that part of the show without them, and it went so well that by the time they arrived there was really no room for them.

"I marvel at the extraordinary generosity of the crew and the band, who could've widely canvassed, had they wanted to, the biggest design failure since the collapse of the Tower of Babel," Fisher confesses. "As it was, there was a slight rueful eyebrow raising and nothing more. So, once you get over the pride thing of having been shown you were wrong, it's not too bad really. It was a brave call, made by Robbie and Steve O'Rourke when the emotional pressure to carry on was huge." Fisher sees it as a fine example of how uncertain the craft of creating these large shows really is.

Actually, it seemed to me, when I finally saw the show in very select company indeed, as noted in last month's L+S, that there was barely room for anything else. One spectacular stunt followed the other, until the crowd must have wondered where the next surprise was coming from. The wind-up starts long before the show begins, and the first big effect of the evening is the live liquid light show which covers the



Bird's eye view of the stage from high up on the side truss.

entire stage. It is an effect rarely seen since the Sixties when a 1k mains-driven projector lamp sufficed, now we were experiencing the same effect on a 6k HMI projector. In the vernacular of the period, and though I say it of a production of my own firm, it was a mind-blast. It is also Brickman's favourite effect, he told me later. "A link with the past, just like Floyd's other Icons. And the same goes for the Daleks, I just love you guys!" One 'I love you guys' from Brickman, is worth a million words from others, and this is why he can be so disarming.

The four Daleks for which Peter Willson and David Morrell were also responsible, which produce disorientating, visible beat oscillations from a 4k HMI source with special giant colour generator, produced for WWG by High End Systems, did suffer somewhat for the lack lustre in the backdrop, but nevertheless were pretty impressive in their chromatic solarizations.

One very nice touch in the set design which becomes apparent in the first half, is the tented clear vinyl canopy stretched above the band like an Eastern potentate's sun shade, though in this case it provides protection from a different element. It also, whether by design or accident it doesn't matter, creates a lovely collector of colour from the lights; presumably Vari*Lite VL5s are used for this purpose. The first half continues to build with effect after effect used, then thrown away - Brickman's great skill as a lighting designer, according to Fisher. We see the big format front projections, and some crackling effects, startling colours and saturated hues from the Copper Laser. The culmination is a great explosion of pyro and the emergence of the 'pigs', actually more like wild boar, from their pens atop the two PA towers. Yes the pigs are there again. "We sat around like a bunch of Hampstead intellectuals agonising over whether or not to have the pigs and people were generally not in favour. And then three or four days before the end of rehearsals in San Bernadino, suddenly everyone is saying, 'we have got to have the pigs'," Fisher recalls.

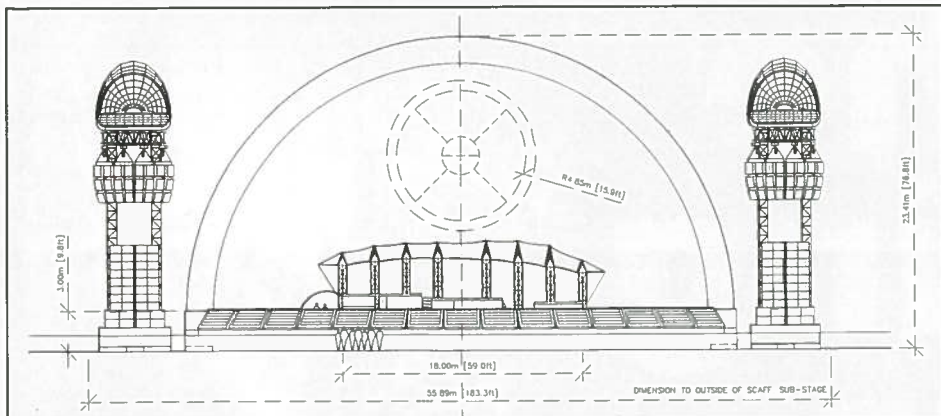
Brickman is gesticulating throughout, just like an orchestral conductor. "I am not really directing so much as timing; everybody knows what they have to do, but timing is paramount." He is contracted to be present at every performance.

The rain held off the first night in Dallas, but for the second it was not so kind. The open stadium, so that God can keep an eye on his favourite team (Floyd are obviously on the wrong wavelength), erupted with a major storm during the interval and beyond. Somehow, it just seemed like another stunt; nobody moved and the show carried on virtually seamlessly, a credit to current technology and the design of the stage. Earlier in Houston they had not been so lucky and a performance was abandoned.

After the interval, the circular screen and some truly beautiful Vari*Lite work, courtesy of Oz Owen, the 150 VL5s, 90 VL4s and 16 VL2Bs came into their own. This was also movie time, and more, and different front projections, squigged liquids, the Periaktol in 'Just another Brick in The Wall', more and better laser, more and better fireworks and then, just when you thought you were safe, something strange stirred in the middle of the auditorium.

The front of house mixing ensemble, a twentieth century miniature bedouin tented-city cascading from level to level, like a vast grey grub lying in the centre of the stadium, also houses a VIP viewing area and the Telejector projection loft. If you studied it from a helicopter you might wonder what the large covered protrusion at the rear was for, otherwise you probably wouldn't even notice it. Then imperceptibly, the roof concertina'd back and, when fully open, triggered another vertical movement as the wonderfully engineered and conceived Starlift started to slowly unfold, eventually revealing the world's largest mirror ball. Five metres across, it rises to a height of 20 metres, and gently starts to turn. Now with the Gladiators focused on the surface, the effect that originally inspired a thousand dance halls in the forties and fifties and a thousand discos in the sixties and seventies, simply turned the stadium into a vast revolving carousel, a swirling galaxy of light of a scale so vast as to reinvent the original illusion from scratch. To say that people were stunned is an understatement: 40,000 jaws dropped as one and the combined sound of intake of breath was followed swiftly by roars of approval, especially when operator Elizabeth King stops the revolve, to achieve a brief rocking motion, the effect of which is amplified a million times over the distance to the eye, before starting it up again. And all achieved without the help of recreational pharmaceuticals! (Even Fisher was knocked back by this last move: "I really thought it had broken," he told me.) There's more - like the fast playback of a flower growing, budding, blooming, the ball slowly unfurls and, as the limes fade out, a vast 14k HMI bursts forth from the core.

Wow! At my first viewing, on best advice, I retired to the terraces to witness the explosion and was suitably amazed, but on the second I was in the projection booth immediately in front of the stored device. There it sits like a vast silver spider all squashed flat, it has to close-up first as it lifts. The experience from close



Elevation showing general arrangement and dims, together with PA towers, either side of stage.

quarters was quite something; undeniably a close encounter of the weirdest kind. I never thought that I would ever again be amazed by a mirror ball, but I tell you the earth definitely moved for me.

When I asked the normally febrile Brickman to sum it all up sitting in the canteen (catered appropriately by Eat Your Hearts Out) after the show, he seemed to be suffering once again from a characteristic melancholy, generously decrying what he sees as his inadequate skills in favour of his crew. "My crew are incredible, especially Mike Owen who is a genius. I can't even begin to understand what he does or how he does it. I really had wonderful support and I was allowed to do exactly what I wanted by the band, nobody else gives me that amount of freedom, or that amount of total creative control, and that really helped me to make it so hot. As I said before with the production process, I really don't feel that I do a lot of work and I really do sometimes feel very guilty about that. These guys put up the show every day, they take it down and I just cruise in and cruise out again. I sometimes have a hard time with that, but you know, if I weren't the catalyst, it wouldn't be happening would it? And without the music none of us would be there. I love those guys, and I just want to say thank you."

What about the sound? It is well known that the Floyd have been into quadrasonic since 1977, through the 1987/8 tour, and this one is no exception. It is also known that their involvement with Britannia Row Productions guarantees that you will be hearing their Turbosound Flash and Floodlight rig. What may not be obvious is the configuration being used. The entire system, including delays and quad system amounts to 200 boxes, of which 112 provide the forward projection across two steel towers, 24 TFS high boxes in a 3x8 array and 32 TFS bass units. Chris Hey of Brit Row commented on this set up: "This configuration gives us large horizontal, and front to rear

coverage, with even dispersion to the extremes of the audience areas, optimized by flying the high boxes from the steel towers and stacking the bass tall and narrow in the PA wings." In additional boxes, a combination of narrows, wides and base cabinets make up the quad environment with six focused and six bass units on each of three delay towers. One consideration which weighed heavily in favour of the Turbosound combination is their deceptive size-to-performance ratio, which enabled the entire system to travel in only three trucks.

The 136 channels of quadrasonic were controlled by two Yamaha PM4000s, selected for their panning control and ability to generate swirling effects, and a PM3000 just to handle the effects returns. Midas provided four XL3 mixing consoles, of which one was dedicated to the quadrasonic panning system. Incidentally, it will come as no surprise these days, no fold-back wedges onstage, just Radio Station in-ear monitoring.

So there you have it, though as those other great dinosaurs of Rock also travelling this year might have it, 'this could be the last time' with all the individuals involved in these big stadium productions staring the big five-zero in the face, or even glancing wistfully back at it in some cases. Sad to think that nothing quite like it may come this way again, though I rely on Prince and possibly Madonna to correct that imbalance. It is a rare occasion these days that two such great bands as the Rolling Stones and the Floyd are on the road in the same time frame, so at least we have the opportunity to wallow in nostalgia and consider the 'might have beens'. Others, however, are already talking 'has beens'.

When I arrived in Dallas I read the following piece in the Dallas Observer by a cynical journalist, who had clearly either received the treatment from the PR lady, or been sent completely the wrong press pack. In reference to 'The Floyd tour will totally redefine the

stadium experience', he wrote: "Don't they mean, attach strings to the stiffened corpse and make it dance for about two hours? From a strictly egalitarian point of view, the spaced out, post-New Age sound featured on the Pink Floyd's latest tour offers hundreds of thousands of blue-collar hotheads and acid freaks the chance to escape the quiet desperation of their lives, and perhaps feel that they're tuning into a philosophical plane higher than commercial Rock-n-Roll usually offers. After all, getting wrecked and watching 'The Wall' was a favourite pastime of teenagers not so long ago." And he goes on to describe Dave Gilmour as a "wishy-washy front man, echoing the style, but not the substance of his glory days" and condemning stadium rock for "its sheer bombast, and emphasis on spectacle over sound" and so on, and so on.

Dear oh dear. I can only say that there were 85,000 people in Dallas willing to part with upwards of \$35 each to witness this necromantic party. But you get my point?

The Stones will be another great Fisher production starting in Washington at the beginning of August, and these two productions under his design direction will have put down a huge marker for others to follow, if others there will be. Fisher is not optimistic either, heralding the inevitable decline of the great stadium show as we know it, so he has more cause than most to ponder what came after the demise of the dinosaurs. Is he considering new, more fertile pastures on which to apply his copious talents? He is keeping his own council, but whatever he has in mind, it will surely be something quite extraordinary. Watch this space.

Pink Floyd World Tour 1994

Other Production Credits:

Structural engineer: Neil Thomas (Atelier One)
Rehearsals project manager: Richard Hartman
Rehearsal lighting assistant: Carol Croft
Production manager: Dave Russell
Head rigger: Brent Anderson
Head of backline: Phil Taylor
Head carpenter: Greg Wilson

Lighting crew:

Lighting stage manager: Bill Martin
Chief electrician: Pete Wills
Telescan desk: Gilbert Assam
Telejector desk: Olivier Paton
Vari*Lite Artisan: Mike Owen
Wholehog: Gareth Williams
Rocklite desk: Warren Toll
Queen of liquids: Laurence Duhamel
Queen of mirrorball: Elizabeth King

Sound crew:

Sound engineer: Seth Goldman
Quad effects: David Lohr
FOH engineers: Andy Jackson/Colin Norfield

All photographs and drawings were executed by Mark Fisher unless otherwise stated.

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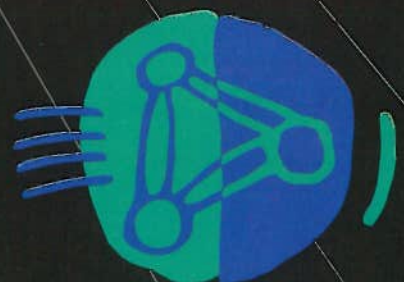
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EDINBURGH GETS ITS FESTIVAL THEATRE

John Offord provides the background to the restored 'Third Empire'

On Saturday 18th June the curtain will rise on a remarkable theatre. One which merges history with modernity via two remarkably different 'halves' - at the same time offering an excellent example of what can be achieved with the combined vision and support of the public and private sector. As a lyric theatre, variety palace and opera house the Festival Theatre is a new jewel in Britain's cultural crown, and it is the venue that Edinburgh and its International Festival have been awaiting since 1947.

It has a stage with the dimensions to cope with the very biggest productions, which will now be able to perform in Edinburgh throughout the year. On the 'modern' side, the foyers are light, bright, airy and functional to welcome a new age of theatre-goers with no shortage of competing ways to spend their leisure time. Cross the threshold, and the auditorium is as it should be: a wonderful restoration of the Empire Theatre's former 1928 glory, and a dramatic mix of art nouveau, beaux arts and neo-classicism.

"Technically the Edinburgh Festival Theatre



Edinburgh Festival Theatre: the curved glass facade fronting in Nicholson Street.

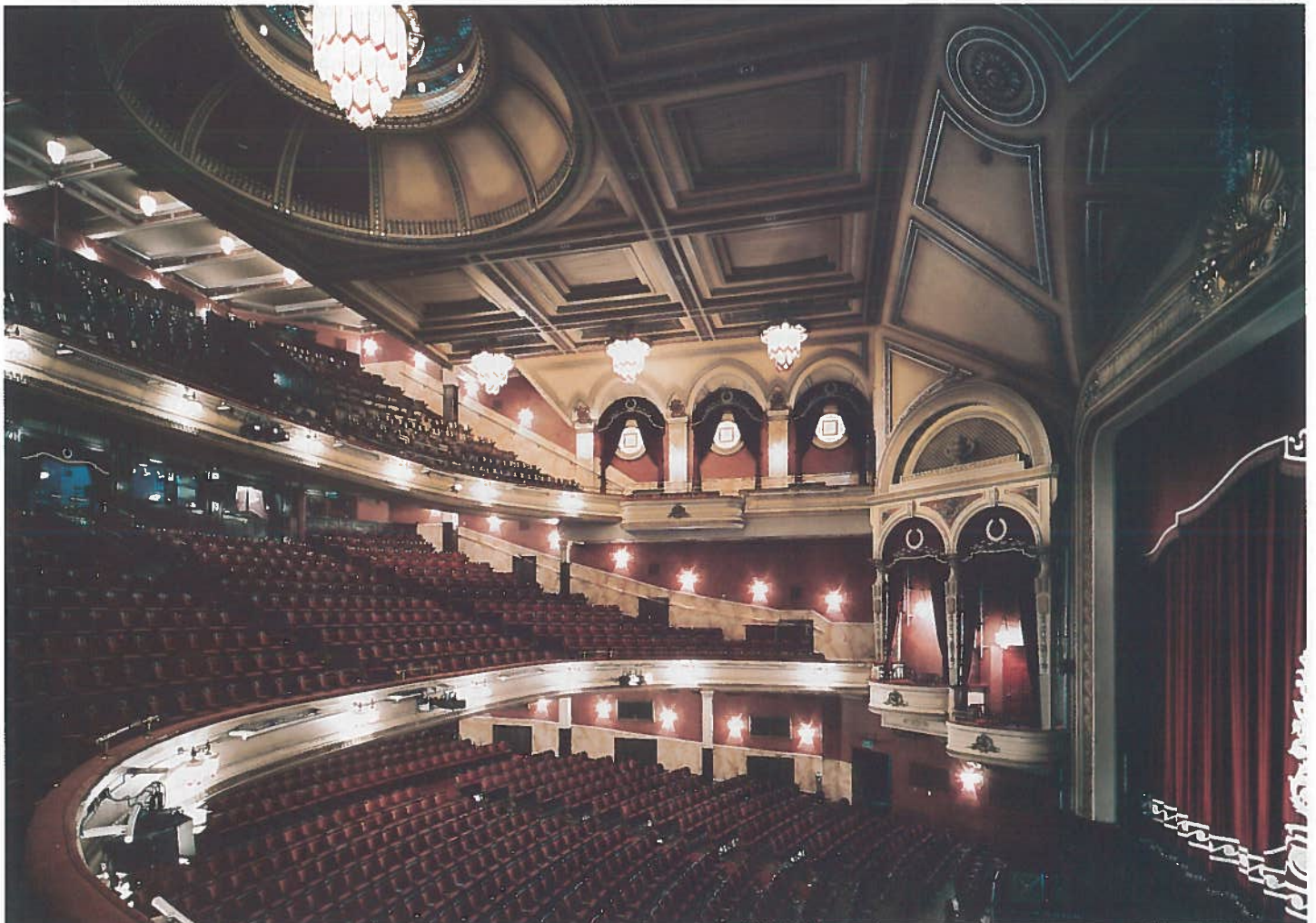
can accommodate with ease the biggest and most complex of opera, ballet and drama sets," technical manager Alan Campbell told me. "It is intended that it will be the new East of Scotland venue for the national opera and ballet companies, and we can now look forward to welcoming the larger companies

from around the world."

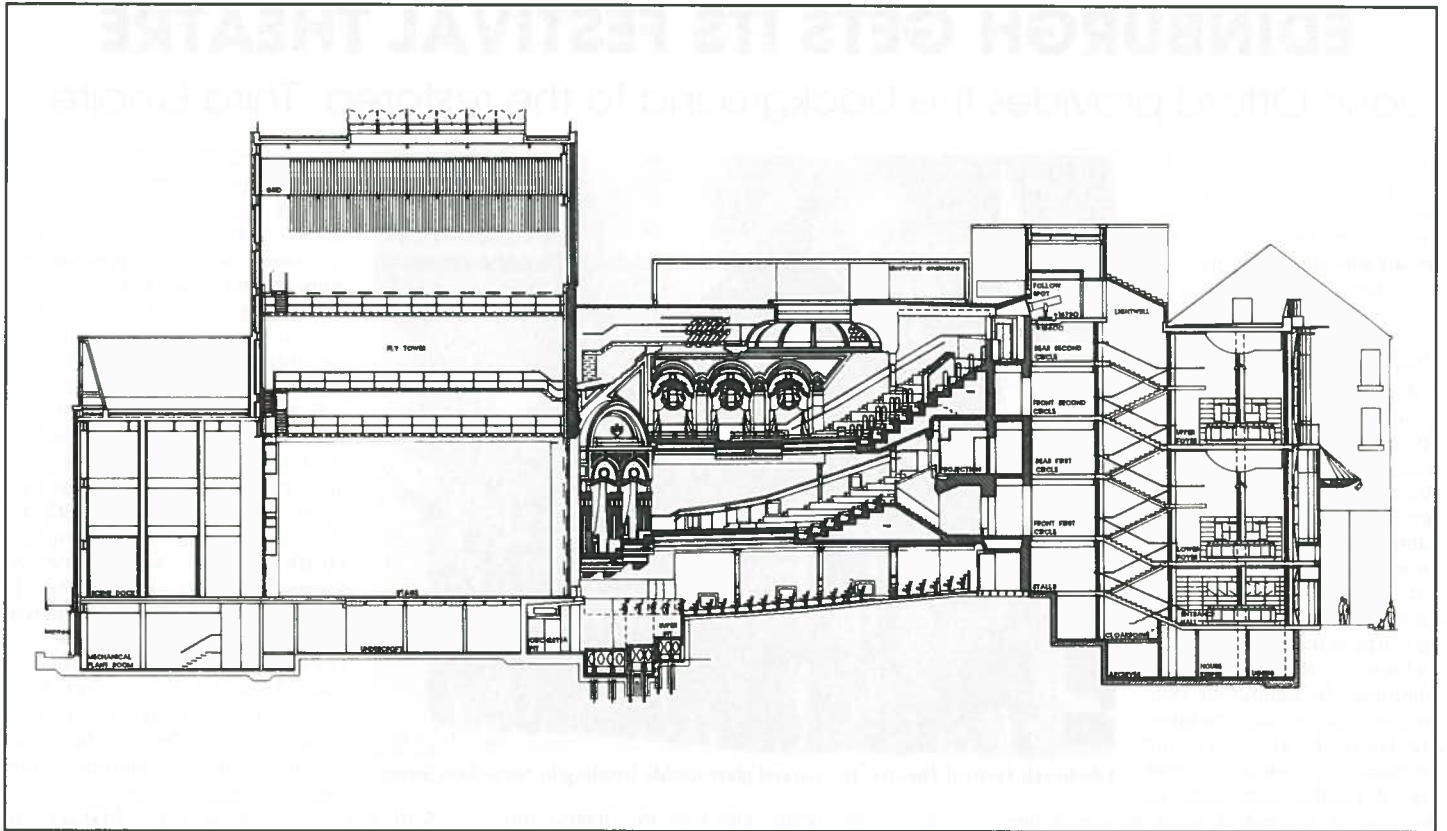
Edinburgh's previous inability to present large scale theatrical and operatic productions was in danger of becoming a permanent embarrassment to a city which had established the first post-war international arts festival, and successive attempts to resolve the problem had failed miserably.

However, a new spirit of partnership emerged from within Scotland's capital. The importance of tourism to its economy had been recognised with Lothian Regional Council, Edinburgh District Council and the newly formed Lothian and Edinburgh Enterprise Ltd (LEEL), who shared the common goal of re-positioning Edinburgh as a major European tourist destination, and this provided the motive force that resulted in the decision to move ahead and use the Empire as the region's premier venue.

And the site has a long history in entertainment terms. Since 1830, the new Festival Theatre's Nicholson Street locale has been the longest continuous theatre site in Edinburgh - for 60 years it was Dunedin Hall, the Royal Amphitheatre, Alhambra Music Hall, Queen's Theatre and Newsome's Circus.



"Britain has much expertise in the renovation and redecoration of Victorian Theatre, but the Empire is Milburn in 1927, a period more familiar to the North American heyday of theatre building. So, we encouraged the appointment of a decoration supervisor from another continent, one of those known to us from our US work. This was to be the Canadian David Hannivan who has produced a glorious and theatrical effect with shading and glazes." (Alan Russell, TPC.)



A Longitudinal section of the Festival Theatre (architects Law & Dunbar-Nasmith).

The First Empire

On 7 November 1892, Edward Moss, as managing director of the Edinburgh Empire Palace Ltd, opened the doors of his magnificent Empire Palace Theatre, and so began the famous Moss Empires' chain of theatres. It was built by the greatest British theatre architect, Frank Matcham, with lavish decoration: elephants with Nubian riders, nymphs and cherubs abounded in the ornamental plaster work. The Empires sat 3,000 theatre-goers on four plush levels of green, cream and tobacco gold.

On 9 May 1911 there was a disastrous fire on stage, started when the illusionist Lafayette accidentally ignited a stage-drape with a lighted torch. Within seconds, the whole stage was ablaze, and panic broke out in the

audience. Calm was restored when the orchestra struck up the National Anthem. The safety curtain descended and a packed house walked to safety. But eight people perished on stage, including Lafayette. The stage was rebuilt in three months and the stars returned, but by 1927 the Empire decided to brace itself for the threat of the talkies by equipping itself for bigger shows.

The Second Empire

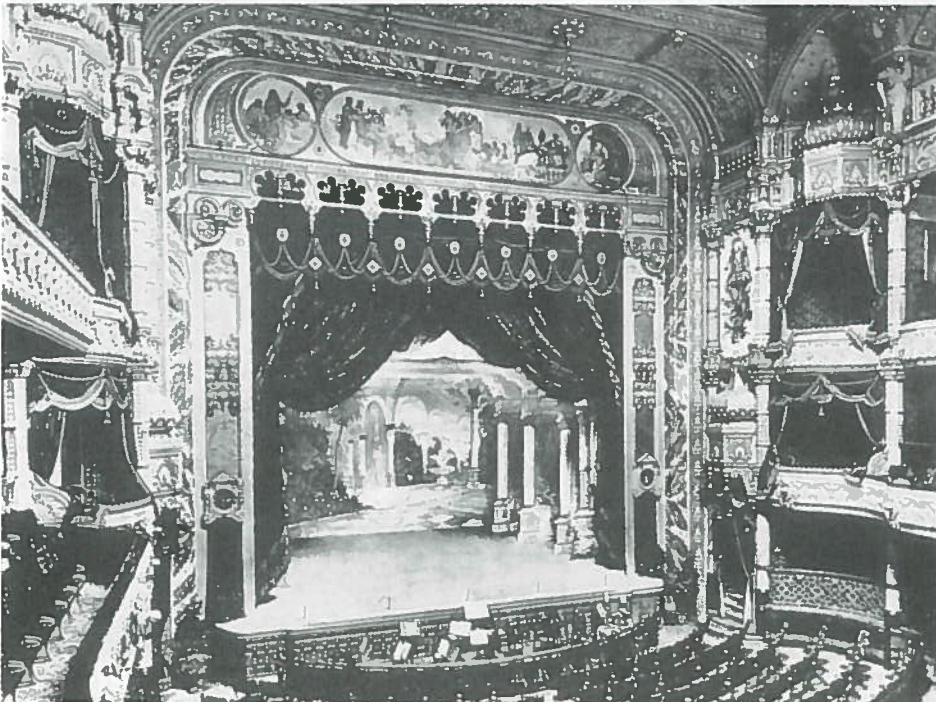
In less than a year, the brothers W and TR Milburn designed and reconstructed a new Empire Theatre. It opened on 1 October 1928 with the musical *Show Boat*. The architects re-used some of Matcham's structure, just as he had always re-used elements of previous theatres. From 1928 to 1963 the Empire was a

variety, musical and opera house, often including ice shows, and from 1946 to 1963 it was one of the main venues for the Edinburgh International Festival, and particularly associated with international ballet.

From 1963 to 1991 the venue was a bingo hall, its wonderful acoustics (admired by Sir Malcolm Sargent and Dame Joan Sutherland among others) resounding with the calling of numbers. But, pressed into service as a temporary live theatre for recent Festivals, the memory and potential of the Empire remained.

The Third Empire

This is the new Festival Theatre of 1994, and the job of bringing it back to life fell to Colin Ross of architects Law & Dunbar-Nasmith, who are based in the City. "This is a remarkable place in many ways," he explained. The unusual geometry of the 1928 Milburn Brothers design provides a house of some size while retaining a wonderful sense of intimacy between actor and every member of the audience. There is not a bad seat in the house and its fondly remembered acoustic character



The auditorium of the first Empire in 1892.



American consultant David Hannivan at work restoring the theatre to capture a look of elegance and age that would have occurred naturally had the building been maintained with its original finishes and decor since 1928.

remains with us.

"Edinburgh and Scotland at last have a touring lyric theatre which works and, being canny Scots, we have managed to do two things rather economically: we have preserved and enhanced this fine old auditorium, and have given the City a good new piece of architecture."

Whilst taking advantage of all the virtues of the auditorium, Ross and his team were also aware of its shortcomings. As a result, various changes have been made. The stalls seating has been re-raked and new stalls seats have been made to match the restored originals in the dress circle, a new control suite has been inserted at the rear of the dress circle, there are new entries to the upper circle and new and nearly invisible ventilation system complete with comfort cooling has been installed.

"We threw away the old Empire stage because it was too small and the old front of house because it was completely inadequate for the needs of a 21st century theatre," continued Colin Ross. "The new stage is flat and is large enough to ensure that any show which tours from anywhere in the world will now be able to tour to Edinburgh."

Theatre consultants for the project were Theatre Projects Consultants, who were invited to form a team for the project with the architects, and were appointed by Edinburgh City Council's technical department pending the formation of the eventual client, the Edinburgh Festival Theatre Trust.

"There was no written brief (the design team were to produce this later as their Stage D report) but we already understood the main requirements," explained TPC's Alan Russell. "The opportunity of the old Empire Theatre was that it offered an excellent 2,000 seat auditorium with, uniquely in Edinburgh, potential development area behind it to construct the large stage which the city so craved in order to attract those large scale works of dance, opera and musical theatre from overseas as well as Scotland and the rest of the United Kingdom.

"We also knew that it should be a lyric theatre rather than simply a low cost version of the Opera House of past ambitions. It had to work for Rikki Fulton and Stanley Baxter as well as for Tristan and Manon. We also knew the budget would be a major challenge!

"Although the fate of the existing frontage and front of house consumed much time in deliberation, the needs of the project demanded a simple strategy - keep the grade one listed auditorium and rebuild the rest. The auditorium proved to have excellent sight lines and acoustics, and no great changes were required, but modern touring demands a flat stage floor (originally raked) and, mindful of (a) the new emphasis on dance and (b) the future use of forestage areas, we have tweaked the sightlines by raising the stage front to the benefit of the gallery and by increasing the stalls rake for better sight of dancers' feet.

"Three orchestra elevators deliver the flexibility for the maestro and the box office: small pit for panto or musical drama, regular pit for median touring orchestras or open 'mozart' orchestra (none under the stage); super-pit for 110 or great openness. Alternatively these areas are seated, or the first two can be stage extensions. Other auditorium additions are the control suites: director broadcast/translation; sound; lighting; scenic projection, stalls sound 'cockpits' and the substantially hidden integration of lighting (motorised ceiling blinds hide ceiling positions)



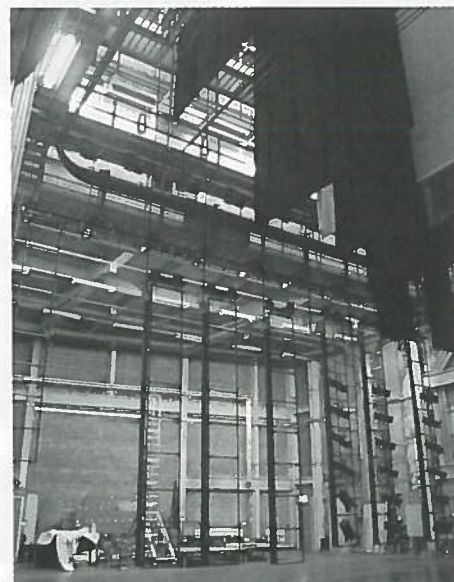
Colin Ross of Law & Dunbar-Nasmith (left) with Iain Mackintosh, Theatre Projects Consultants' director in charge of the project, pictured front of house at the new Festival Theatre.

"The scale of Milburn's auditorium of 1928 is splendid. It has been challenging to give nearly 2,000 people all they would expect in a new theatre and yet retain the character, intimacy and the excellent sight lines that helped to make the old theatre justifiably famous." - Iain Mackintosh

and sound reinforcement.

"The stage is above all else an achievement of area and height, and the largest in the UK. Huge acoustic/fire doors separate the stage from rear stage and this from the loading bay. The rear can be used as a scene dock or as extra stage depth. Equipment monies were largely devoted to an adequacy of basics, although fibre optic lighting of the fly rail and dip troughs makes a debut. The backstage workhorses are the 84 counterweighted scenery suspensions which with careful planning of the roof structures hang at the absolutely uninterrupted 200mm centres which our design group always strives to achieve."

The role of the acoustic consultants, Sandy Brown Associates, was to ensure that the refurbishment of the auditorium to its current splendour did not affect the features that make for good acoustics, and to enhance them where



A stage large enough to cope with the biggest productions.

possible, so as to achieve the optimum acoustic conditions for opera, dance, musicals and drama. The new Orchestra Pit has been designed to achieve the best balance between flexibility of use, auditory contact between the orchestra and audience, between the orchestra and singers on stage, and to achieve suitable conditions for the players themselves.

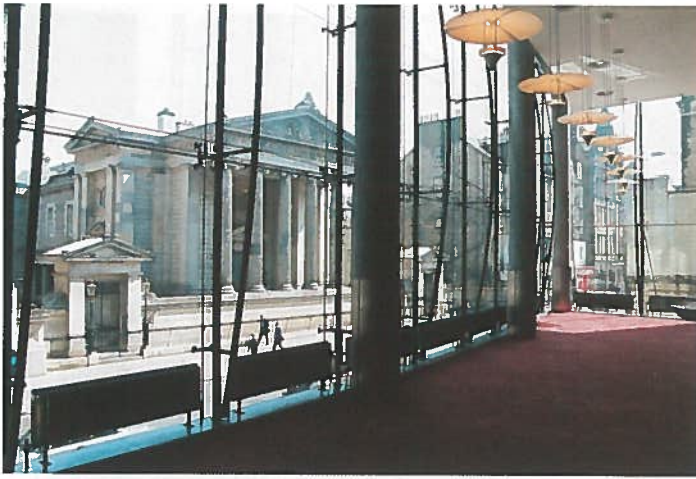
The achievement of a quite ambient noise level in the auditorium involved upgrading of the existing auditorium shell, and new structures such as the flytower were built of dense masonry to attenuate external noise. Sound lobby entrances have been provided to the critical spaces. Specialist elements such as the large acoustic doors in the stage area, and the smoke vents on the roof of the flytower have been designed to match this degree of sound insulation. Sandy Brown Associates also advised on noise control measures required for the building services installation.

New lighting positions have been created by opening up the existing ceiling and dome panels, with the eight roof panels each housing five 2.5k Strand Alto 8/16 zoom profile spotlights. Additional FOH lighting can be sighted on the box booms (6) and on bars running the full width of each circle. Backstage the lighting bridge is the main permanent overhead source and additional lighting bars are available. All terminate in Socapex connectors which can be run direct to the grid for plugging. Sidelighting positions consist of two perch booms per side, a dedicated lighting gallery each side and 12 fully mobile ladders.

The ladders can fly in sets three from grid to stage and track up and downstage as required, making them fully flexible for all types of theatre. Lighting control is via a Strand Galaxy Nova.

The theatre's technical management is well aware that touring shows usually prefer to use their own equipment, and this has been taken into account by the installation of cable routes to both of the stalls mixing positions. Those who choose not to tour sound gear will find a fully installed speaker system and many other 'luxury' extras (see equipment list).

The redevelopment cost was £21m and contractors responsible for the complete stage lighting, sound and rigging installation were Glantre Engineering Ltd of Reading.



Connecting architecture: inside looking out.



One of the main stairways leading to the auditorium.

Sound and Communications

Playback

Soundcraft 200 Delta 24:4:2 mixer
 2 x Revox PR99 III tape machines
 Tascam DA30 DAT and remote
 Tascam 112 MKII cassette and remote
 Denon DCD-2560 CD and remote
 1 x BSS DPR 402 2 channel compressor/limiter
 2 x Yamaha SPX 1000 multi-effect processors
 2 x Klark-Technik DN360 stereo graphic equalisers
 2 x Tannoy CPA5 monitor speakers

Installed PA System

12 x Meyer UPA-1B speakers and controllers:
 3 x stereo pairs,
 1 x central cluster
 2 x Meyer USW-1 subwoofers and controller

Vocal Enhancement System

11 x Apogee SSM speakers
 18 x JBL S4 ceiling speakers

Rear and Side Auditorium Effects

26 x Electrovoice S80 speakers
 8 x Bose 101 speakers

Stage Speakers

4 x Electro-Voice S200 and flying frames
 4 x Bose 101
 1 x BSS EQP 01 (master) programmable equaliser
 6 x BSS EQP 02 (slave) programmable equaliser
 4 x BSS TCS-804 digital delay
 2 x BSS DPR 402 4 channel compressor limiter

Microphones

10 x Shure SM58 dynamic mics
 4 x Neumann KM 84i condenser mics
 4 x Crown PCC-160 cardioid boundary mics
 4 x BSS AR116 active phantom powered DI box
 6 x BSS MSR-604 active microphone splitter

MIDI

1 x MIDI programme changer
 2 x MIDI thru units
 2 x MIDI merge units
 1 x MIDI patch panel

Communications

1 x (auditorium) talk-to-stage system
 1 x stage managers desk
 1 x portable control unit (intercom, paging)
 20 x cue-light patch system
 RTS 4-channel technical intercom system

Lighting

72 x Strand Alto 2.5 8/16
 48 x Strand Alto 2.5 14/32
 8 x Strand Alto 2.5 20/38
 48 x Strand Cantata 1.2 11/26
 96 x Strand Cantata 1.2 18/32
 8 x Strand Cantata 1.2 26/44
 4 x Strand Prelude 650W 16/30
 16 x Strand Prelude 650W 28/40
 3 Strand Bambino 5k fresnel
 24 x ADB 2k fresnel
 12 Strand Cantata 1.2 fresnel
 4 Strand Prelude 650W fresnel
 24 x ADB 2k plano convex
 36 x Strand Cantata 1.2k plano convex
 4 x Strand Prelude 650W Plano convex
 2 x Strand 1k beamlite
 8 x Strand 500W beamlite
 30 x Thomas Parcan CP61
 16 x Thomas Parcan CP95
 8 x ADB 4x1.25 cyc flood
 4 x ADB ACP 1.25 flood
 6 x Nocturne 1k flood
 12 x ADB 4x625W groundrow
 3 x Strong Xenon followspots



Lighting control: the Strand Galaxy Nova in the control room.



Sound control with a Soundcraft 200 Delta 24:4:2 mixer.



The massive stage viewed from the auditorium.



New lighting positions have been created through installing catwalks above the dome. Eight motorised ceiling panels allow the voids to be closed when the house lights are on.



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Fax: (1) 214 350 8051

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Fax: (39) 376 780888
Contact: Mike Lowe

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Fax: (1) 818 842 1064
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MARTIN ON THE WAVEFRONT

John Offord attends the launch of Martin Audio's latest loudspeaker range

A smart piece of computer-generated ultra-glossy colour output (only moan, it wouldn't accept my fountain pen ink notes on the back!) served as the invitation to attend an 'exclusive press launch' of the new Wavefront Series. The fact that we'd already been introduced to the boxes at Frankfurt in March didn't matter - this was the 'real' press do. And the news that lunch was part of the package and that the people from Martin Audio had taken the trouble to check our diaries well up-front, meant that they had a good turn-out of the regular trade press who'd marked the day down on their rosters in permanent ink.

The demonstrations took place in the company's demonstration room at its headquarters in High Wycombe, and looking on, in bronze bust form, was the late Dave Martin, the founder of Martin Audio. A poignant moment this, as the event was taking place concurrently with the murder trial in Reading Crown Court (see this month's news story). However, David Bissett-Powell, managing director, was in buoyant mood as he described the range, coming as it does at a time when sales are booming at double the 1992 levels and the operation is reportedly ever more profitable.

The Wavefront Series all feature high efficiency, high power and constant directivity, housed in rugged plywood enclosures and built using the same construction techniques as the larger Martin touring systems. For the demonstrations, sales and marketing manager Martin Kelly stood by at the mixer.

The W1 Wavefront System is a high performance, ultra-compact trapezoid loudspeaker system, designed for specific applications where both high output capability and small size are required. It features a high power 10" bass driver and a 1" exit compression driver, and is ideal for audio-visual presentations, theatre sound and club sound reinforcement. To simplify installation, the W1 is fitted with threaded steel inserts for the fixing of rigging hardware.

The W2 Wavefront System is a switchable active/passive two-wave enclosure which



Martin Audio's Wavefront presentation: (left to right) Simon Jones (R&D engineer), Bill Webb (technical director), Sara Kendrick (marketing executive), David Bissett-Powell (managing director) and Martin Kelly (sales and marketing) in the company's demonstration room.

utilises specialist high power drive units to achieve the maximum SPL's possible from such a compact enclosure. It features a high power 12" bass driver and a 1" exit compression driver. Typical uses for the W2 include theatre sound, club sound reinforcement, underslung/in-fill for concert sound reinforcement and on-stage instrument monitoring. It comes complete with threaded steel inserts for the attachment of rigging hardware and for touring use, the W2 can be fitted with optional flying points which link between the cabinets to provide a fast and secure arrayable flying system. Its ease of flying, employing a quick release stud, was a point emphasized by David Bissett-Powell.

The W3 Wavefront System is an

exceptionally efficient full-range system employing advanced engineering principles to achieve true 3-way full frequency performance from an enclosure only 28 inches in height. The W3 features a powerful 15" bass driver, 6.5" mid and a 1" exit and compression driver, is ideally suited for any professional applications where high sound pressure levels are required from a compact enclosure and typical uses include theatre sound systems, live club sound reinforcement, concert sound reinforcement and music playback in nightclubs. This unit is also fitted with threaded steel inserts and can be fitted with optional flying points.

The WS2 Wavefront system is a dedicated subwoofer for use with Wavefront Series full-range enclosures in situations where ultra-



Martin Audio's packing area full to overflowing with part of the major assignment for Singapore.



Dave Martin in bronze. The casting was made at the foundry used by Henry Moore.

low frequency is required. It features twin high efficiency 15" drivers and the system is capable of reproducing levels of deep bass normally associated with much larger enclosures, and due to its compact dimensions is particularly suited to theatre and nightclub applications.

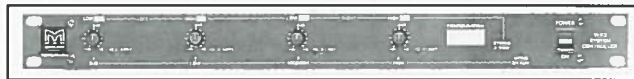
The WX3 is an extremely versatile electronic controller designed to maximise the performance of Wavefront Series loudspeaker systems in their various modes of operation, and it was used during the demonstrations. Crossover frequencies, relative output levels, phase adjustment, group delay and equalisation are all pre-set for a given Wavefront system by a system-specific, plug-in board. The WX3 can be configured either as a two-way stereo or 3/4 way mono device depending on the Wavefront system in use and the application.

Martin Audio's miniature EM15, a trapezoid full-range loudspeaker capable of producing SPL's normally associated with larger enclosures (113dB peak), was also demonstrated to great effect. Being only 28cm in height, it has been designed specifically for applications where minimum loudspeaker size combined with sensitivity and dynamics is required.

The EM15 features twin 5" drivers in a unique two-way configuration utilising patented ICT (Inductively Coupled Technology). The revolutionary ICT principle uses the magnetic field generated by the low frequency driver's coil to inductively drive a duralumin high frequency diaphragm located at the centre of



Martin Wavefront Series (top) and WX3 dedicated controller (below).



the unit and horn loaded by a phase plug and waveguide. Because the HF diaphragm is energised by induction, it has no voice coil, and this means that the most common form of failure in background music systems - tweeter voice coil burnout - has been eliminated. For ease of installation, the rear of the EM15 enclosure is provided with threaded inserts to accept wall and ceiling brackets, and inserts for a horizontal yoke are also provided.

It's the sort of unit you vaguely and secretly hope they might give you a couple to take home with you under your arm, as more than one journalist was bold enough to comment.

David Bissett-Powell and his team are very happy with them too. Thousands have been sold since they started coming off the production line last autumn including no less than 2,000 to China alone.



The ultra-compact EM15 trapezoidal enclosure.

Martin F2 Goes East

Martin Audio have announced the successful completion of a 1 million Singapore Dollar contract to supply an F2 System to one of Asia's premier sound and lighting companies - Highway Light and Sound. The system also comprises 24 LE700 high powered floor monitors and a substantial quantity of VRS1000 full range systems which will be used for side-fill purposes. The F2 System has been supplied by Hawko Trading Co PTE Ltd, Martin Audio's Authorised Distributor for Singapore.



Antrepro



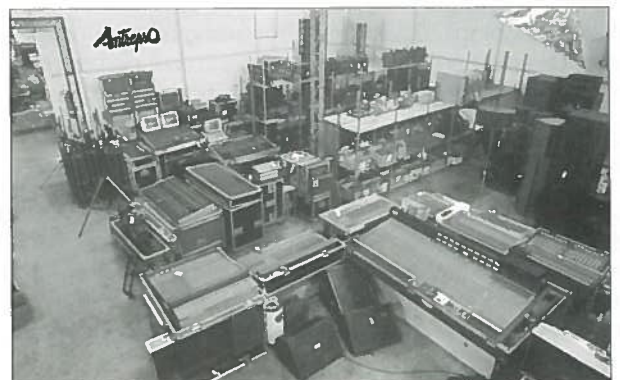
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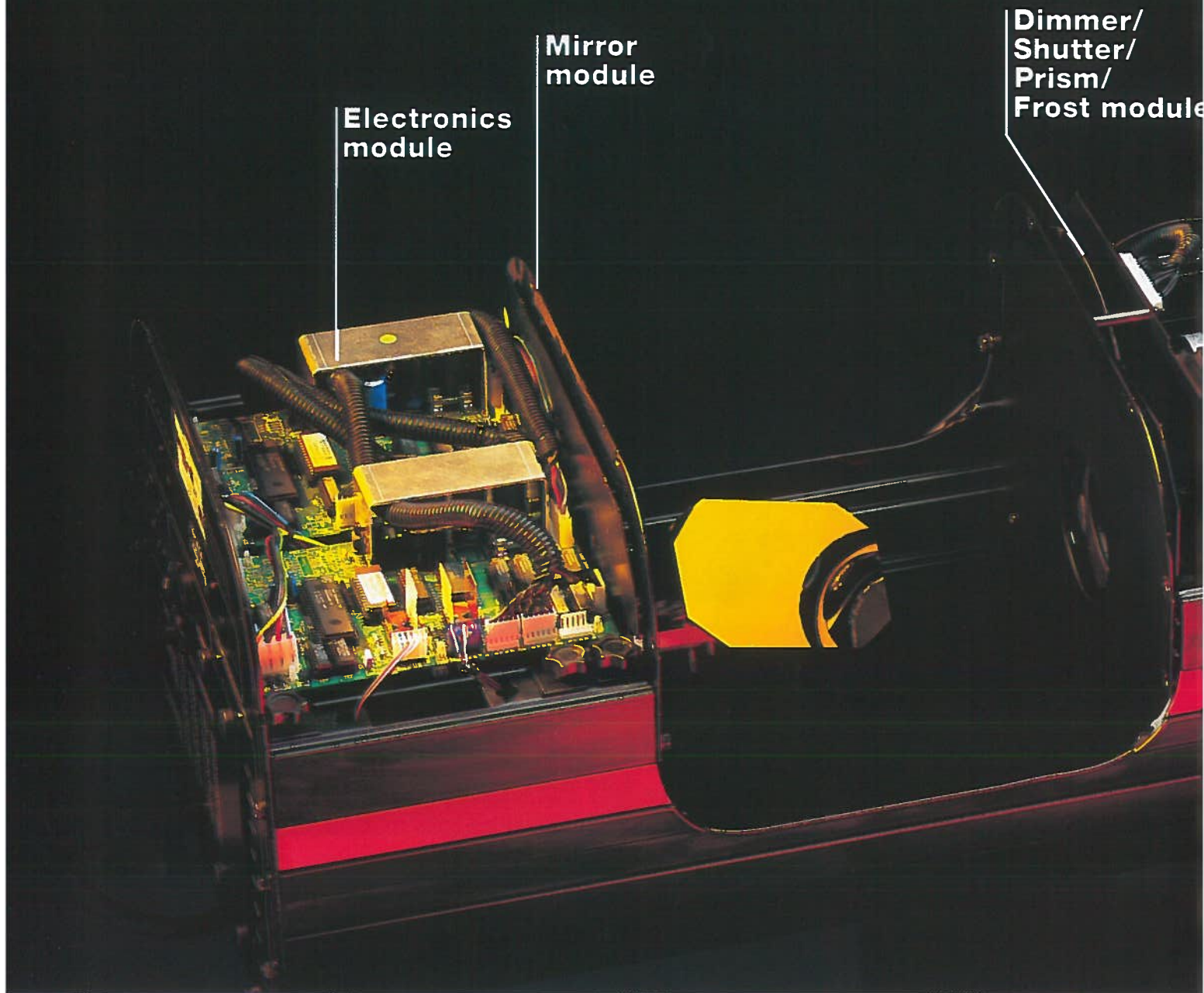
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Phone +45 86 21 44 11, Fax +45 86 21 50 01

Martin Professional UK Ltd

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Tel 0622 790164, Fax 0622 790166

A CHORUS FOR THE ANVIL

Graham Walne looks at Basingstoke's new building

I have written before on these, and other pages about the value of creating the right title for these articles; 'le mot juste' should become at the same time a prompt for, and a summary of what follows, and all writers of a 'certain age' owe much to Fred Bentham's titles in the lost and lamented Tabs.

For example I called my review of the refurbished Haymarket Theatre Basingstoke (L+S1 October '93) 'Transformation Scene' because it so aptly described the very theatrical changes which architects Renton Howard Wood Levin (RHWL) had wrought on the old theatre. The same team is now responsible for a new building at the opposite end of the same town's centre, conceived they say "as the millennium's solution to the traditional nineteenth century Town Hall."

This is a triumph of choosing the right phrase because it sets the context for assessing the building itself. Significantly RHWL's press release does not use the phrase 'concert hall' yet that is what Arup Acoustics call it, whilst the Anvil themselves use the phrase 'arts entertainment and conference centre', rather a mouthful but perhaps more accurate. Certainly the Anvil contains a hall for concerts, in RHWL's phrase a building 'designed specifically for symphonic music'.

For my money RHWL have redefined what the town hall looks like, and in doing so, might just have begun to refresh the term in the process, because, this hall is certainly built specifically to serve the town (although 1m people live within a comfortable driving distance). The Anvil is in fact, three spaces, the main 1400 seat auditorium itself, a flexible space called the Forge, which caters for 80-150 people, and the Linden Room for small receptions or business meetings. This is in addition to spacious bars and a cafe/bistro. Perhaps suitably for a town like Basingstoke, no one architectural style appears to dominate, the public areas have an air of the thirties about them, notably in the light fittings and glass-brick walls.



The Anvil's main entrance with box office to the right.

The impression that these areas give is suitably modern for the youngsters, suitably familiar to the oldsters. This contrasts rather powerfully with the main hall which, whilst built to the familiar concert-hall plan with raked tier and side galleries, is nevertheless dominated by the exposed structural steelwork of the roof, which also carries the lighting and service galleries. I can't recall any other concert hall with so much of itself exposed in this way and it certainly comes as a shock.

Wisely, lighting designer Andre Tammes has chosen to wash the whole roof space with dark blue light to suggest a night sky, but even so the roof dominates the room, contrasting with warmer tones on the acoustic panels below. I would be interested to see the hall in different formats because 16 different dedicated lighting 'scenes' are possible. Andre Tammes has also designed the lighting

for the public spaces which use energy-efficient metal halide for general and daylight purposes, changing to warm incandescent for the main routes at night. Bars are lit with exposed low voltage to provide sparkle.

It seems to me a challenge to modern architects to create a building which has instant character. I recall Rod Ham, one of our senior contemporary theatre architects, once saying that the architectural vocabulary is not as rich today as it was in the time of, say, Frank Matcham. Hence, it is a real achievement to present a modern theatre space with the instant atmosphere which the Forge has. Echoing the overall building shape, the Forge is asymmetric, and, whilst its unusual 'footprint' might present some designers with a challenge, it will soon enable work presented there to be invested with a unique character.

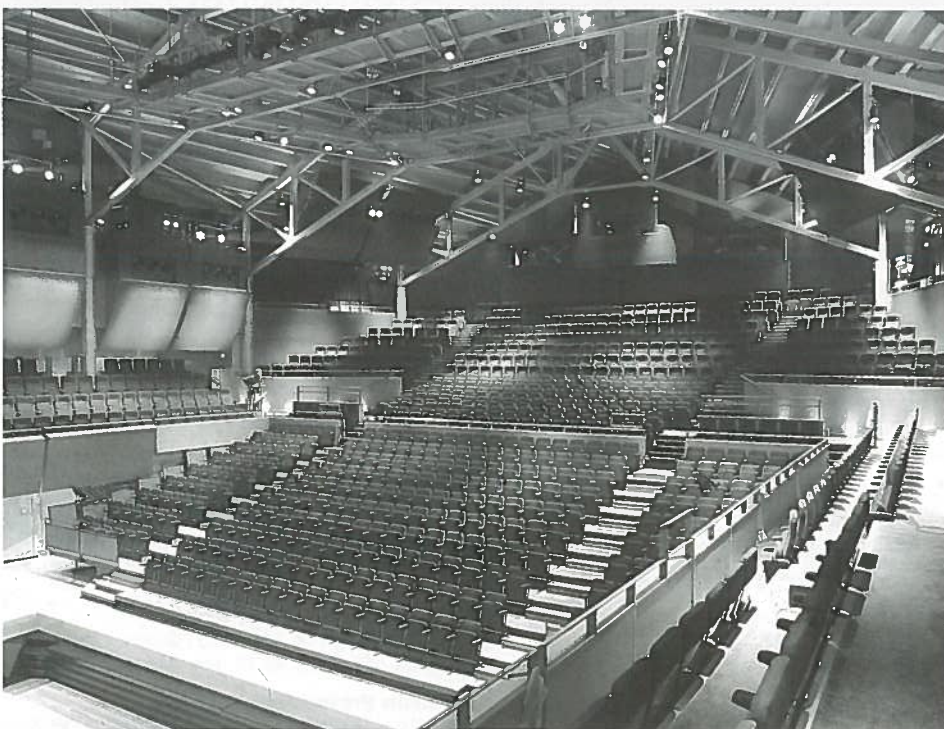
A dominant feature hanging centrally in the Forge is a colourful circular neon sculpture, commissioned by the local authority, and intended for use in receptions, dinners and general non-theatrical events for which the space is also designed. Sensibly, these functions can be enhanced by daylight if desired. The neon sculpture is the work of Peter Freeman who has also designed two large 'A' light sculptures for the building's exterior, and which dominate the skyline at night.

In fact, the local authority commissioned four artists to produce work for The Anvil, and the designs were intended to form an integral part of the centre, rather than exist as separate entities which were screwed on afterwards. RHWL's interior designer, Clare Ferraby, worked closely with the artists in this respect, in conjunction with local authority officers. Items by other artists include a curtain to hide the bleacher seating, coloured glass 'piercings' of the auditorium wall, and metal arc patterns on the proscenium which is hoisted up out of the floor.

This latter item was in place on my visit and all I can say is that it I hope the design grows on people. I found the arc patterns distracted from the proscenium arch itself and not reflective of any other theme in the auditorium. Surely a prosc arch is the only vertical link between the higher and lower elements of an auditorium, and, as such, it should not have a life of its own.

The performing space (particularly towards upstage) appeared cramped for the ballet company who were in residence on my visit, (upstage is 6m narrower than downstage) but I suppose no more so than the visits of other ballet companies to other concert halls (such as the RFH) where they have had a long and happy history. The stage area is provided with eight variable speed electrically-winch bars and 20 hemp lines for lighting and scenery suspension, but, since at least half the electric winches would be taken up with lighting, the dependence on manual flying thus seems a shame, in a hall where the capacity could attract musical productions with complex scenery requirements. Acoustic reflectors hide the flying system during concert events and other acoustic adjustments are also made (see separate story for more information on the acoustics).

A screw-jack elevator allows the whole of the floor to be levelled with the platform and in this mode the floor is at the same height at the entrances and foyers making exhibitions and



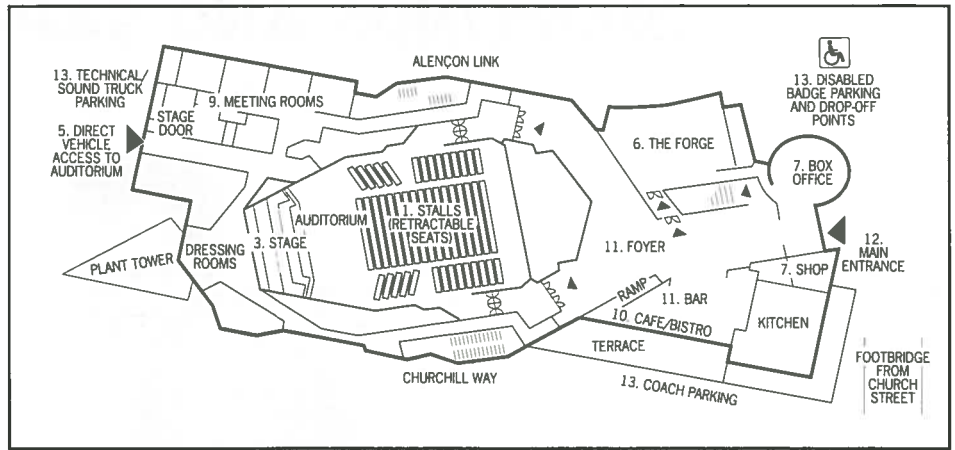
The 1400-seat auditorium has a flat floor capability.

dances very easy to set-up and run. The elevator also enables the front seating to be stored below, and it is on air-casters whereas the rear raked set is retractable by electric motor. Other side seats are set by hand. A roller film screen is stored under the platform and this can be set up in a number of positions depending upon the presentation required.

An extensive lighting and sound system has been installed in the main hall (see specifications), video relay to the public areas is provided for latecomers, and this system also goes backstage; video tie-lines and data distribution networks are also installed for high-tech conferences (Basingstoke is rich in such industries) and also for audio-visual presentations.

The Anvil is the first concert hall in Europe to be fitted with 'Talking Notes', the aural equivalent of the printed programme. The local authority have calculated that, out of their nightly 1400 capacity audience, 42 people could have some difficulty seeing and obviously want to ensure that they are not left out, a decision reached by English National Opera who also use the system. The information is relayed by infra-red and begins ten minutes before a concert starts, and five minutes before the end of an interval.

If you have received the impression from this article that The Anvil is a collection of disjointed items then I apologise, but, whilst there is some truth in the view that many of the visual elements would not normally be seen together, the value of RHWL is that their experience has taught them when to take calculated risks, and here their courage has paid off. The Anvil demands attention, and in a town like Basingstoke, not rich in cultural history, that is essential to its survival.



Plan of the theatre showing the stalls and ground floor areas.



The Forge, with neon sculpture.

Contract Data

Client - Basingstoke and Deane Borough Council
 Cost - £12,400,000
 Architects - RHWL, led by Nick Thompson with Clare Ferraby for interior design, appointed August 1991, project completed March 1994.
 Consultants: Acousticians - Arup Acoustics
 Technical Equipment - TechPlan
 Lighting - Lighting Design Partnership

Anvil Concert Hall

Concert hall format - 1388 including:
 12 disabled
 150 choir
 100 orchestra
 Arena format 1392 full capacity
 Proscenium format 992 (928 with orchestra pit)
 1060/736 conference
 516/820 cinema
 Flat floor format 520m² exhibitions/banquets

The Forge

Banquet format 80/90 seated
 Performance 100/120 seated
 Proscenium stage 17m(w) to 11.7(w) x 11.5(d) stage is flat and semi-sprung opening 10m(w) x 7m(h) flying height 20m orchestra pit 18m x 3m
 Dressing rooms 3 conductors' soloist rooms
 2 x 4 person rooms
 3 chorus dressing rooms
 Lighting Strand Lightboard M, 168 2.5 kW, 12.5kW
 12 x 2kW/24 1.2kW profiles,
 16 x 1.2kW fresnels,
 16 x 1.2k Parcans,
 4 x 4 1kW cyc toplights,
 2 x Pani followspots

Anvil Acoustics

The new Anvil Concert Hall at Basingstoke looks set to become a venue of international reputation, built around its excellent room acoustics. The concert hall is an ideal size for the very highest standard of acoustic performance, and the arrangement of the seating ensures theatrical intimacy between the audience and the performers. Similarly, the acoustic design ensures that the listener is enveloped in the sound which combines clarity with warmth and reverberance. The gentle convex curves of the side wall panels provide important early lateral reflection. Slightly diffused by the curvature to avoid 'glare' from highly directional instruments. The strong early sound is balanced by a warm reverberant sound developing within the volume of the auditorium, which is close to 14000m². The mid frequency reverberation time of the Hall exceeds two seconds, and higher values at low frequencies support the bass response. Care has been taken to control the number and type of exposed technical fittings to ensure that the full bloom of the sound can develop.

Although the hall can be converted and may be used for other purposes, the building has been designed with concerts as the primary use. For other uses, over 400m² of sound absorptive banners can emerge from sealed compartments to be stretched along important wall surfaces, within the roof space and around the stage, reducing the reverberation.

The auditorium is comprehensively insulated from external noise. It is cocooned within 'buffer' zones and has a double-skin upper wall and roof construction providing excellent protection from external noise. At the same time, noise from building services equipment has been controlled in the planning, by construction of a separate plant tower and use of very low velocity air distribution systems. The auditorium enjoys a very low background noise level, close to NR15. By operation of the air supply system in zones, it is possible to reduce the background sound level even further. This offers superb potential for use of the hall as a recording venue of the highest standard.

Richard Cowell, Arup Acoustics

Equipment:

Soundcraft Venue II theatre 32 input desk, 1 Revox PR99 reel-to-reel, 1 Denon DN 2000F CD, 1 Tascam DA30 DAT machine, 1 Tascam 122 MKII cassette, 1 Yamaha SPX900 digital FX, Rane dual 1/3rd octave equaliser, EV CD horn and bin cluster with delay, 4 large sub-woofers, EVS40 image/shift stage lip loudspeakers, Amcron amps with Yamaha D2040 controllers, portable systems include 2 x EV FM 1202, 3 x EV S1503, and 2 EV S200. 48 input wiring, 12 return system and extensive audio, loudspeaker and computer tie lines throughout building in addition to tie lines to high level for touring systems.

Communications: Stage manager's desk with cue lights, ring intercom, paging and show relay, video show relay. Infra red induction loop in both auditoria.

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DIAMONDS AND SAPPHIRES

John Offord discovers the cutting edge of Avolites

Exactly three years ago, Richard Salzedo and Steve Warren had been made redundant from the 'old' Avolites company and had to sit down, get their heads together, and figure out what to do about their futures. "We saw two options," said Salzedo. "We could either go and get a job with someone else, or we could keep doing what we liked doing. We decided immediately to investigate ways of doing the latter.

Meantime, although some of the industry was aware the company was for sale, since service and support was always provided, Avolites continued to run more or less as normal.

Salzedo and Warren probably knew most about Avolites and felt that, unless they were involved, the company would be a shell of its former self. "The best way to ensure we were part of it," said Salzedo, "was to buy it!"

Joined by financial director Meena Varatharajan, they indeed became the new owners of Avolites. Looking back, the changeover must have been as good as seamless, because it's hard now, just three years later, to even remember the circumstances. It has also surprised a lot of people that two 'Mr Nice Guys' (and I obviously mean that most respectfully), so closely involved and part and parcel of the industry, have made it good as shareholder directors, where the decision-making often calls for a bit more cut and thrust than is often associated with the more technical side of business. I seem to remember some questioning at the time as to how long they would last in the cold, hard light of the business day.

Well last they certainly have. Avolites today is a very well co-ordinated company that has produced the 'goods' by very cleverly keeping up with the old Avo traditions. Their control boards still look 'Avo', but they're also bang up to date with the technology.

Within six weeks, Avolites was trading again, and we immediately informed existing agents and customers that it was business as normal. The team worked hard, concentrated their efforts, and rode their good luck. An early order from the Royal Opera House added a touch of prestige, certainty about the future, and did no



Avolites' sales director Steve Warren (left) and managing director Rick Salzedo with the Diamond II console at their north London headquarters.

"To me there is no doubt that not listening to our end users would lead to our eventual demise. We would end up not making new products or putting in the features people wanted. We have to listen and take note of all this kind of comment."

harm at all in helping them on their way.

"We knew that three wasn't enough, and that we needed software expertise. Shahid Anwar (Shad) was the only person to choose," said Salzedo, "and he is certainly the best!" The rapid expansion of the company also required Nuri Waheishi to join as production director.

So, presenting the 'official' line-up running Avolites: Richard Salzedo as managing and design director, Steve Warren as sales director, Meena Varatharajan as financial director, Shad Anwar as design and software director and Nuri Waheishi as production director.

"We overlap in many ways," said Salzedo. "Shad and I, in a triangle with Steve, share design, whilst about 50 per cent of my time is

spent doing other things, such as working closely on general management with Meena, whilst Meena and Nuri work on production planning."

The management changes, product development and introduction of new control desks, seem to have continued without blips. "The highlights have been the PLASA Light and Sound Show every year, since that's where we've introduced new products," continued Salzedo. The first year we launched the QM Diamond. The success of this took us by surprise. Demand was ten times greater than our original predictions. We knew the product was good, but we simply did not expect the immediate level of demand we received.

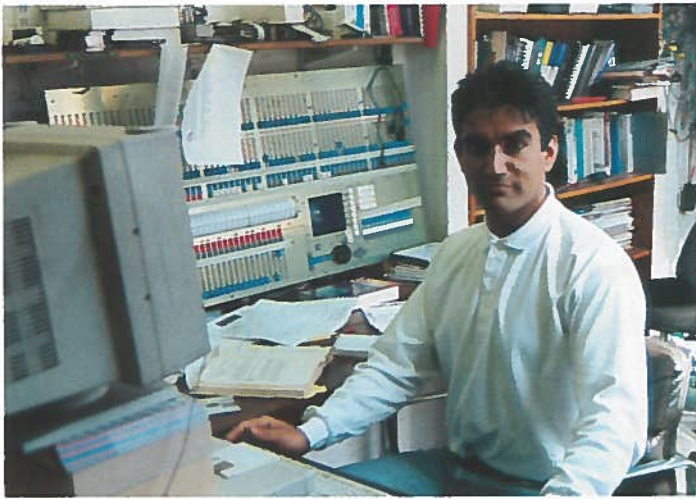
"We had the TD theatre desk as part of the QM range and it had some very powerful features and contained a great deal of development work. Shad and I knew that we could produce a rock and roll desk from it, and our idea was to take our lead from the TD and produce a completely new generation rock



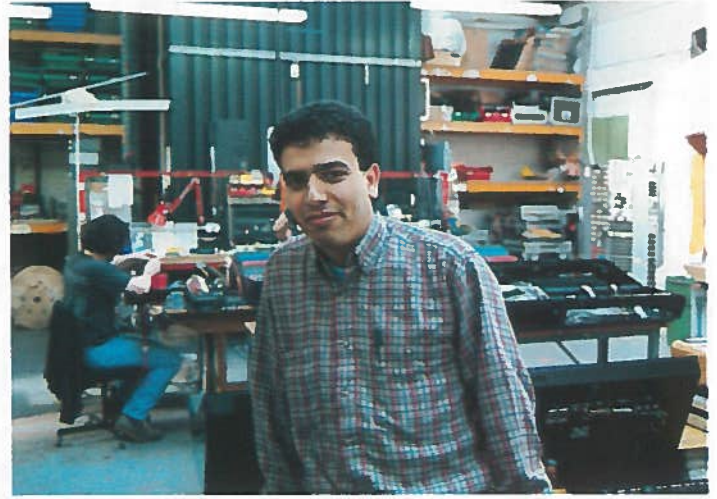
The Diamond II.



Rick Salzedo with financial director Meena Varatharajan.



Shahid Anwar brought valuable software expertise to the company.



Production director Nuri Waheishi.

desk. "What we realised when we produced the Diamond I was that it was actually a theatre desk for rock and roll, and that was something that hadn't crossed our minds when we set about making it. It became a very versatile desk. This success was really the ace up the 'new' Avo owners' sleeves.

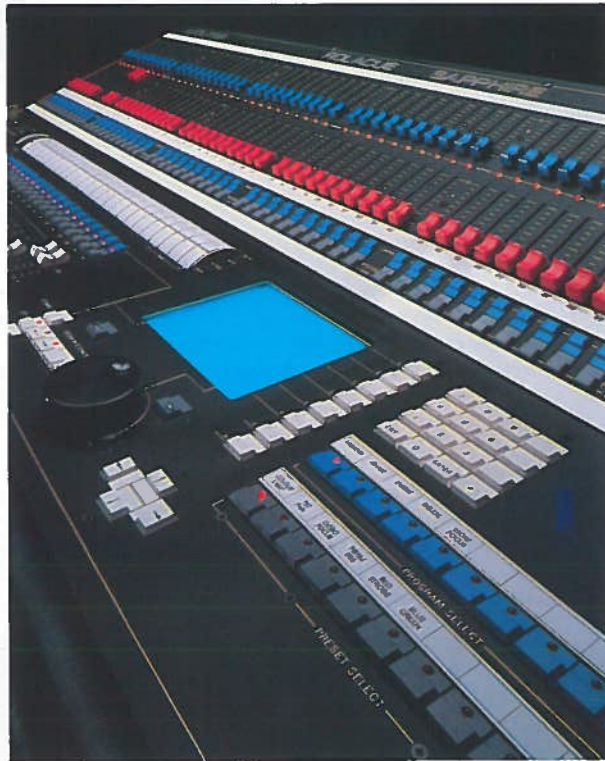
"The next stage came a year later when we launched the Rolacue Sapphire at PLASA in 1992. This was a totally new design with moving light features. Again, we expected it to be a good product in sales terms. We planned to produce somewhere between four and six a month, but demand outstripped supply and up to 11 a week have often been shipped. It is the fastest selling desk we've ever produced, and we're quite proud of that. We're still selling lots and will continue to do so for some years, as there will be continuing software enhancements.

"Last year we introduced Diamond II. At the time we came out with the 'I' version we never expected moving lights to be as popular as they are. So, as with the Sapphire, the Diamond II can control 'intelligent' lighting. From a sales point of view it is excellent, because what we are offering now can take care of rock and roll, theatre, AV jobs or industrials, and there shouldn't be any reason for our customers to turn away work. You can use the Sapphire and Diamond II for both conventional lighting or for shows with lots and lots of moving lights, and this is where they differ from a dedicated moving light desk," said Warren.

Avolites' view is that the proliferation of moving lights has been a big bonus for desk manufacturers. "It was difficult to come up with anything new," said Salzedo. "Now we have a whole different set of problems to deal with, and it is much more exciting to design things for something new. We are coming up with fresh ideas, and ways of doing things, rather than just re-designing the old."

The company works exceptionally hard at keeping its customers. "We consider the purchase of a product the start of the relationship, not the end," said Salzedo. Meena Varatharajan emphasized the point. "We have a policy of making sure we sell a customer the right product, and not necessarily the biggest one. What is best for the customer is, in the end, best for us. When we start working with somebody we want that relationship to continue for the years to come."

And the policy continues through to user operation. As features are added into one desk



The Rolacue Sapphire: new features will be launched at PLASA 94.

"You can use the Sapphire and Diamond II for both conventional lighting or for shows with lots and lots of moving lights, and this is where they differ from a dedicated moving light desk."

they are also added across into others, and even those boards already sold get the same treatment. If you've learned one Avo board, within a few minutes you can grab the essentials of another.

And, although the outward appearance of the desks has changed across the years, they still look like Avos. Meena Varatharajan: "The trick is people don't perceive them to have changed. If you put two desks from different periods side by side they look dramatically different, but if you see one on its own you know immediately it has been manufactured by us."

Steve Warren: "The terminology we use, the desk's features, the aesthetics, and even the functionality we try and keep 'in line'. I have seen more and more as you train people how difficult it is for them to jump between different desks. I often feel sorry for the lighting designers out there having to do this, and it would be completely wrong if they got to know one particular Avolites desk and were not then able

to work the others in the range. Our goal has been to make a family of desks, and as Rick, Shad and I have all been involved with the designs, it is inevitable that desks are going to be similar and this is exactly what we want to achieve."

One of Avolites' hallmarks is that they refuse to use 'bought in' technology. "We design all the processor cards to drive the desks, the cards to drive the outputs, and so on," explained Shad Anwar. "There was eight months' work involved in getting this running," he said, waving a VGA driver card in my direction. "Basically, all the cards we design are optimised for particular functions. We are not taking a general purpose card and running a lighting desk with it. We want to run a number (up to 30) of complex chases and keep the ultra fast bump and swap response that the QM has always had. We are using state of the art digital signal processors to compute the output, and this means when you press a button, enormous numbers of computations can be done in a very short space of time.

"The company's strategy has been to evolve products by bringing out something that looks new, but is in most cases the further development of a previous idea. We don't want to change anything so dramatically that it doesn't look like Avolites, and that has been the case with both the Diamond and the Sapphire.

"Whilst we are always working on new ideas and developments, the Diamond and Sapphire desks will be with us for quite some time and there are no short

term plans for their replacement. Rental companies in particular want to get hold of a desk that is going to last for at least five years so that they can get their money back, and it would be a mistake to keep changing things for the sake of it. We are continually adding features to Diamond II, which is fairly new, but then we'll go back to Sapphire and put more features into that as a result of what has come out of the development of the Diamond. People who have bought Sapphires will then get these new features automatically, without any extra charges.

"Customer training is considered one of the company's most important services," said Steve Warren, "and now more than ever with the majority of our customers wanting to control automated luminaires as well as conventional dimmers. There are many new techniques required to work effectively with moving lights, and we feel that we are in a good position to help lighting designers come to grips with these

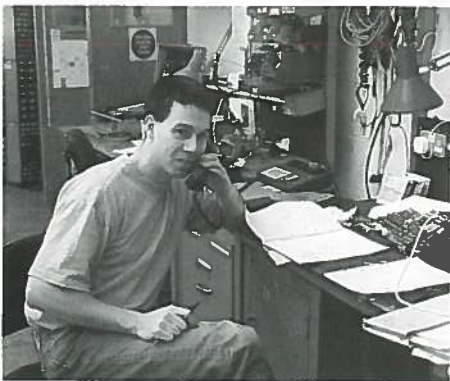


Sales director Steve Warren with sales manager May Yam.

methods of working."

In fact, as much as half of Steve Warren's time is spent hosting visiting designers and operators at the company's Park Royal head office. "To help people who do not have the time to come here, or who are too far away, we are in the process of making a full training video," continued Steve. "It will have full operating instructions for the Diamond II and Rolacue Sapphire as well as a 'live' section with a full rig being set up and the Diamond II console being used 'on the road'.

In addition to the famous consoles, Avolites manufactures the industry standard FD and TV dimming systems. These systems, found on nearly every major tour, have been complemented by a mains distribution system. Other equipment from the Park Royal stable includes DMX splitter boxes, DMX distribution



Adam Proffitt, service manager.



Avolites rentals manager Tony Shembish (centre) pictured in the main production area at Avolites' Park Royal, London base.

amplifiers, hoist controllers, multiplexes and so on. In fact, they'll supply you with almost anything that you need to get the best from your required control set-up.

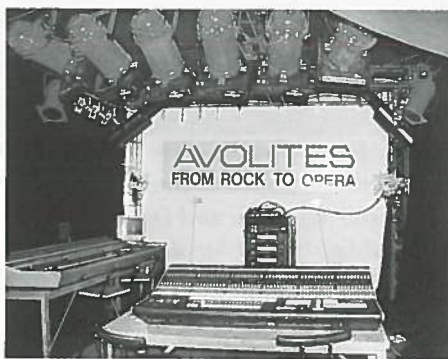
Steve Warren emphasized that the major difference between the old and new Avolites is that they are listening to people a lot more. "I am sure every company says this, but to me there is no doubt that not listening to our end users would lead to our eventual demise. This means we design the right products with the right features.

"When LD's come in off tour we literally try and suck out of them all the information we can on their likes and dislikes, whether they've been using our desks or one from another manufacturer. Interestingly, there was a feature we recently dropped from the Diamond II, which we are now going to put

back. I thought nobody ever used it, and it was only by pure chance that I mentioned it to someone and he said 'yes, I always use it, it's something I really like!'"

For the forthcoming 1994 PLASA Light & Sound Show at London's Earls Court 2 in September, Avolites are keeping strictly to their philosophy and will be bouncing new features into the Rolacue Sapphire. "We will be launching a new software package for the Sapphire which will include multiple VGA screens and our unique chase editing using the 'unfold' feature from Diamond II," said Steve Warren.

Avolites' future looks bright, with further expansion to be announced shortly. And at the PLASA Light and Sound Show this year... what product will Avolites launch? Salzedo grinned. "You'll just have to wait and see," he said.



Avolites' compact showroom where visiting LDs learn and develop their console skills.



Receptionist and PA Pauline Wareham.

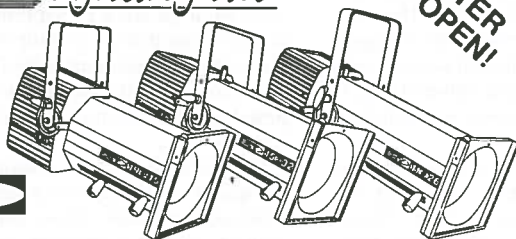


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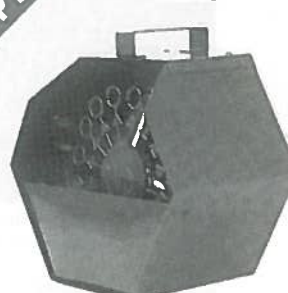
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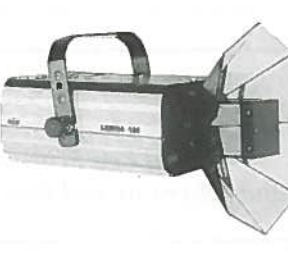


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ON TOUR

by STEVE MOLES

AND PRODUCTION NEWS

David Lee Roth

Bradford St Georges Hall

LD: Charlie Wilson

SD: Kieran McClelland

"High honey, that's a nice outfit you're almost wearing". Yes, David Lee Roth is still pulling them in and they love it. So maybe this isn't the NEC and yes, it is a long time since he's had a hit, even longer if you look back to 'Jump', but people are still hungry for this quirky performer and women, in various states of undress, are still draped around the hall apparently lusting for him. Curiously, his stage presence is a mixture of sex appeal and clownish comedy; he comes on dressed in tight fitting, high waisted black trousers, the type that Christopher Dean would wear on the ice, a dark shirt and black waistcoat - and for all the world he looks like the kind of tight-arsed, swivel-hipped Italian wine waiter who insists on pinching your girlfriend's bum. But his demeanour is frequently that of a shambling fool; slightly stoned and with a broad wide-mouthed grin, he looks more like Jerry Lewis in a rock star's body. Perhaps that's his appeal; he's funny but vulnerable. Sexy and funny are unusual and uneasy partners and it says much about the man and his performance that he continues to 'pull it off'.

LIGHTING

Charlie 'Cosmo' Wilson had no hesitation when he was offered the chance to design for David, even if it did mean handing over the reins of the seemingly never ending Rod Stewart tour to someone else. "I knew I'd be working for a lot less money too," Wilson explained. "But after I'd had a preliminary meeting with David in Toronto I realised he and I felt the same way about how the light show should be. I remember when we'd finished the first show, we were both really happy with the result." The lighting system is unassuming in terms of technology: "David didn't want the latest intelligent lighting, just a genuine rock and roll show." There are front and rear 40 foot trusses, with between them, five 16 foot trusses fanned out like splayed fingers.

The 350 lamp rig (all in pre-rig truss) from Neg Earth also features 68 ColorRams and five 5kW fresnels fitted with Rainbow scrollers. The follow-spots are all Lycian Starklites, four out front and two on the rear truss, and dotted about the rig are five Death Star strobes. The show is run from an Avo QM Diamond and, interestingly, Cosmo runs all the scrollers from a ColorMag desk: "I've become very attached to this controller, I know I can run everything through the Avo board but I like to keep all 90 channels for lights, and the LSD board is easy and accessible. The various protocol



The 350 lamp rig (all in pre-rig truss) from Neg Earth also features 68 ColorRams and five 5kW fresnels fitted with Rainbow scrollers.

converters required for different scrollers as we tour the world was the one unusual thing I asked David to pay for."

Cosmo's show is, as you might imagine, full on most of the time with generally never less than 100 Pars on at any one time. The 5kW fresnels, positioned as downlights on the extreme downstage end of the finger trusses, are rarely used alone and these lamps are frequently in very dark colours and just 'warm-up' the stage. The whole rig is coloured in Lee Filters but Cosmo has the scrolls made up in GAM colours: "We did a club gig at the beginning in Puerto Rico where they only had GAM colour equivalents which I was obliged to mix with the Lee Filter I'd brought with me. The subtle differences in hue worked very well so I decided to make it a part of the show." All the Pars are very narrow and their colours are predominantly dark with Cosmo generally using them in two colour combinations.

For example, the song 'Sunburn' is washed in deep mauve and primary red whilst 'Beautiful Girls' is in purple and yellow; so lurid is this latter combination that it might be more aptly titled the Edwin Shirley song as it perfectly matches the livery of that company. The spots work in a variety of colours - it's not unusual for David to be picked out in a complete hybrid like orange and blue with the soloist in green: in fact, you could say Cosmo's show is rather vulgar, but that would be to miss the point. In David's words: "I see the show as a train ride, with each song moving on from one place in time to the next," - and that is how it is with each number distinctly different. This is a genuine performance, not 'just another' rock and roll show.

SOUND

Kieran McClelland typifies the laid back LA approach to sound engineering - he is calm, unflustered and totally at ease with his PA and completely 'into' what he is doing. "I use a PA

supplied by Flat Systems in the US, designed by Dirk Shubert. Here I've taken out the A2 system from Audio Lease: it's another trapezoidal system but incredibly powerful and with excellent horizontal dispersion." Developed by Audio Lease to replace the old Motorhead PA it needed to be powerful and certainly is. From the moment David hits the stage you are aware of tremendous amounts of air being moved (this is the bottom end QSL subs driven by Crest 7001s, the mids are off Crest 4801s), but despite the pressure levels it

never became painful at any point during the night and Kieran obviously still retains some aural sensitivity at the high end.

For mixing purposes he uses a Yamaha PM3000 out front, the system crossover is the

Yamaha 20/100 digital unit which he says "does everything you could ever want it to," and he also uses several channels of a Midas Pro40 board for effects, but this console is mainly for the opening act Jason Bonham's 'Motherland'. On top of the six QSLs are four cabinets a side, with a further two flown each side at balcony levels, a remarkably modest rig in this relatively small room and certainly a lot less visually intrusive than some PAs. David uses an 'Ear Monitor' on stage but curiously has a wire microphone. Perhaps two belt-packs would have been too obtrusive under his waistcoat.

David first walks out onto stage looking startled: where did all these people come from? he could be asking himself. They've all come to see me? Aw shucks!

Charming and disarming he is, his rapport with the audience is consummate, witty (the crew laugh at all his jokes because they are new each night), and at ease. His repertoire of songs ranges from rock like 'Jump', to the Hendrix-style blues of 'Panama' and the whimsy 'Just a Gigolo' - an interesting and varied performance. If you've written him off in your mind as old hat, go check him out.

"High honey, that's a nice outfit you're almost wearing. Yes David Lee Roth is still pulling them in and they love it."



Tori Amos
York Barbican
LD: Simon Sidi
SD: Mark Hawley

The stage is bare except for a gleaming black grand piano and standing to one side looking embarrassed and awkward, a rather battered upright - a mongrel of no pedigree. The show starts in darkness and as Tori walks on stage a single soft-edged beam of dim ultra violet fades in and splashes across the keyboard of the Bosendorfer. As she begins her first song 'Icicle', more deep violet fades in from a lamp positioned out in the house and from back stage left a tight, split colour shaft of forest green and white cuts across and silhouettes her face. This was obviously not going to be any ordinary show by a young and successful pop star.

LIGHTING

Simon Sidi was asked to design for Tori by production manager John Witherspoon. Initially, there had been no budget to speak of and Simon had demurred, but with Tori's star very much in the ascendancy over the past few months, the position improved, much to both men's delight. The two of them had worked together on World Party last year and John was keen to use Simon's talents again. Their minds were definitely in tune for when John turned up to speak to Simon in detail about his lighting ideas, he opened the conversation with "I think we should be doing this with just a few lamps." "What, like six Icons," replied Simon, and the scene was set. Simon had, in fact, only recently trained on the Icon system for the World Party tour in November: "Rehearsals had been at LSD's Gravelly Hill establishment. I'd train during the day and programme the show by night. I like imposing a bit of pressure on myself; by knowing I had to have a workable show by the end of rehearsals I never allowed myself to waste time."

After only a short tour it must still have been quite daring to take out just six lamps of a system you were barely conversant with: "I seem to specialise in these minimalist shows; I've designed and operated for Wire and Nitzer Ebb in the past and I enjoy the challenge small rigs impose." The rig now comprises seven Icons and Simon is contemplating adding an eighth sometime in the future. With no trusses and just three Manfrotto stands, he is dependent on the facilities of each venue.

On the show I attended at the York Barbican three lamps were hung on a single electric at the back of stage equally spaced across its 50 foot width, two further lamps were positioned upstage either side of the grand piano on the floor, approximately 30 foot apart, and the last two lamps were out in the house, hung from beneath a catwalk, a good 40 feet from the front of stage. The only other piece of equipment from the stocks of LSD was a Kraxoil machine tucked away back stage right behind the black backdrop. With such an acoustic set up - only Tori and piano - the noise of the cracker had been a problem but Simon's assistant and Icon technician for the tour, Daniel Bocking, had the solution. The 'Bocking Device' takes the second compressor input for the cracker, and fits an open ended hose to it, by simply bending the end of this hose and fixing it thus with a strong rubber band, a controlled release of excess air can be made from the system which reduces noise considerably and with only a surprisingly small loss of generated mist.

Simon is using the latest 2B2 software for the Icons. The new 20-line menu panel on the console allows him to move rapidly from one song to the next without any need to scroll through and it is now also much simpler to update cues. With the constantly changing lamp positions forced upon him by his lack of trussing he finds this a welcome new feature. The varispeed strobe function is also new though he only has the chance to use it once. With such a small system Simon often uses split colour beams and expresses a preference for English Icons over the US version, as the colours are in a different order and he gets better combinations.

He uses a preponderance of dark colours, violets, greens, ambers and, if it's not a contradiction in terms, a rich steel blue, though this richness is due more to the intensity of the lamp than the saturation of the filter. Most of the songs are statically lit and generally very stark,



Lighting designer Simon Sidi's minimalist light parade for Tori Amos.

sometimes with only one light on. For this reason Simon spends a great deal of time on his focus, walking all around the hall to make sure he has Tori perfectly centred in each beam: "with only a few lamps, imperfections and mistakes are glaring, not only to me, but to the audience as well." Although his show is apparently simple, just fades between songs, it is actually quite complex with multi-layered time cues: the effect is subtle, almost unnoticeable changes of emphasis from one song to the next. He only once did 'the safe thing' and lit Tori from front of house in a light colour hard edge beam with soft washes coming from the rear, but more often the house lamps would be in a dark wash, key light coming from acute side angles. Simon's artistry was in never letting the show look like a seven lamp rig, such was the diversity of combinations that it looked like a full size system with carefully selected scenes for each song.

SOUND

Mark Hawley, mixing front of house sound on a Midas XL3, was similarly confined: "The quality of the desk is important, with such an exposed performance the slightest sound flaw is acutely noticeable." Tori's performance, it should be pointed out, was received with all the reverence afforded a classical presentation. The audience sat hushed (not daring to even cough) throughout each song and then clapped rapturously at the end. Mark was using an MT2 system supplied by SSE in Birmingham: "I'm not using an MT crossover but a Toa digital programmable cross-over instead - its set up makes the PA sound very clean and open, a natural sound essential for this type of show." This ethic was confirmed by the lack of effects front of house, with only a harmoniser (Eventide H3000) used for a couple of songs. Marcel Van Limbeek on monitors, also uses a 40 channel XL3.

Wasn't this an excessive amount of not inexpensive hardware for a solo female vocalist and two pianos? "Well for a start, any other band at this sort of touring level would be carrying something comparable, so the expense is not out of the ordinary. More importantly having two identical desks ensures balanced equipment and eliminates one potential source of hiss or hum." In fact, Mark uses all 40 channels front of house, eight for the support band, four for the harmonisers and the rest are doubles of every source on stage - doubled because he is making digital eight track recordings of every show. Despite the reverential hush of the audience and the acute audible nature of the show, not a blemish was heard to mar the performance.

For just one number, 'Bells', Tori strode over to the upright piano and played this startling sounding instrument standing up - startling for it sounded more like an 84 pipe wind chime than a piano. In bare feet, her jeans cut off at the knees and simple white sleeveless top she looked every bit the ship-wrecked waif, forlorn and vulnerable. Don't be fooled, the so called 'cornflake girl' is not some pallid, frail songstress with a broken heart - her singing is powerful, her lyrics intelligent and her performance complete.

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EQUIPMENT NEWS

Series 16 Sampler Range

Citronic Pro Audio has extended its Series 16 Sampler range with the launch of two new rack samplers - the RS16 and RS32 - using the award-winning Citronic Series 16 sampler hardware engine and presented with new features in a standard 19" rack housing. Both units configure the total memory available, 16 seconds and 32 seconds respectively, into four or eight individual memory banks.

Record start/stop, playback start/stop, instant restart during playback, continuous loop, fast memory bank access and variable pitch control allow effects such as 'seamless splicing' and beat matching of samples, 'stutter start' and 'pitch shifting'. On-board battery back up provides non-volatile memory allowing valuable samples to be saved for up to six months.

For more details contact Citronic in Melksham, telephone (0225) 705600.

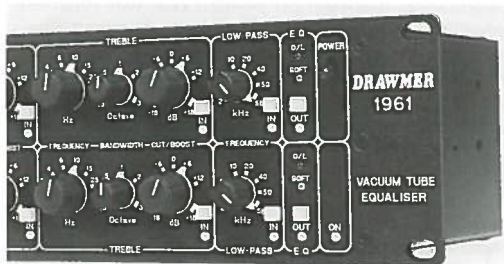
TG-X Additions

Beyerdynamic have added a quartet of brand new mics to the TG-X range featuring the latest advances in neodymium magnet technology. According to the company, utilisation of an optimised neodymium-magnet-iron-circuit made of stainless steel gives a higher magnetic density in the airgap, leading to an even better transient response. Using computer-aided calculation and simulation the oscillation performance of the diaphragm has also been enhanced. Changes to the acoustic resonators and acoustical attenuation have improved the polar pattern, even at the lowest frequencies, resulting in an even more angle-independent pattern than was previously possible.

Also added to the range are two new headworn mics which are omni-directional and cardioid respectively. Designed for hands-free use, they can also be plugged into a pocket pack wireless transmitter.

For further details contact Beyerdynamic in Lewes, telephone (0273) 479411.

Drawmer Sweep Up



Drawmer have introduced the 1961 Vacuum Tube Equaliser, designed to complement the successful 1960 Vacuum Tube Mic Pre-Amp/Vacuum Tube Compressor.

The 1961 is a dual-channel unit, each channel having the following features: four main equaliser sections, each having six switchable, overlapping frequencies; variable bandwidth from 0.3 octave to 3 octaves and +18dB of boost and cut; variable high pass and low pass filter sections with 12dB/oct 'roll-off', and separate tube sections for each of the four main equaliser bands for increased harmonic clarity.

For further details contact Drawmer in Wakefield, telephone (0924) 378669.

Coldflow Upgrade

The Coldflow low-lying fog generator from Lightwave Research is now being fitted with a new High Pressure Flow Valve. This improvement allows Coldflow to be used with a 50 lb. high pressure LCO2 dip tube tank without the use of a pressure regulator. The Coldflow unit has been re-engineered to work with pressures up to 1000 lbs. (69 BAR) per square inch without the use of external regulation or Dewar type tanks. For details contact High End Systems in Austin on 512 836-2242.

LightPaint Lite

LightPaint Lite is a 'stripped down' version of its predecessor The LightPaint colour scroller, and is easy to use. Simply set the DMX channel, power up, and away you go. It has retained however the useful feature of its predecessor in being able to be programmed independently,



without the need for an external control board, and has a frame by frame function whereby the gel string always lands in the centre of the colour selected.

A strong feature of the LPL is the fact that it has no fan, and the electronics can therefore be enclosed in a sealed unit. This prevents harmful substances from harsh environments entering the electronics and clogging up the mechanics. LightPaint say they ran tests and found that the life of a filter was not improved by the use of a fan, providing that you use Rosco Supergel or Lee HT and avoid the heavily saturated blues. In a situation where you constantly change the colours, there isn't even a restriction with the heavy blues. For those who want to control the speed and fan levels the original LightPaint is the natural choice.

LightPaint Lite is available from Lighting Technology, telephone 081-965 6800.

Rainbow Colour Changer

M&M Camelont launched a Rainbow 15" colour changer which is now available to fit standard 2 to 10k luminaires and also available in a cyc form to fit the Iris 1 and Orion cyc lights. The new unit comes complete with the Pluscard.

By using three separate DMX channels the fan can now be controlled via one exclusive channel allowing for fine control of fan levels. Fans can be turned down or off when the lantern is not in use and brought up only when colour is required. A thermal trip will bring the fan back into use should the Scroller overheat. The Pluscard gives up to 12 bit resolution allowing for very slow smooth cross fades, whilst frame-by-frame mode allows colour to be exactly positioned in the frame of the Colour Changer without the need to step through 10% increments on the board.

Other advantages of the new Rainbow 15" are its lighter weight and its slimness when seen on the luminaire. Both standard and pole operated lanterns can be used with this new product.

For more details contact M&M Camelont in London, telephone 071-284 2504.

XTBA DMX Guide

Following the success of XTBA's DMX512 network input and output modules XTBA has released 'The Network Modules User Guide'. The guide details specifications, network systems design, power supply considerations and includes sample network layouts. It will prove invaluable for consultants, chief electricians and technical directors who need to design and specify multipoint DMX512 installations. For further details call XTBA in London, telephone 071-700 0996.

Command DMX

The Great American Market of Hollywood, California has introduced GamCommand, a hand-held remote-focus DMX control centre. The newest member of the Gam Tool line, it will address any DMX device from channel 1 through 512. It is battery operated and keypad address with simple English instructions makes it easy to turn on any dimmer or any group dimmers.

Details from GAM, telephone (213) 461 0200.



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ASLEEP IN THE STALLS

The National has been getting into trouble again - *Johnny on a Spot*, which I mentioned last issue, hasn't had the best of receptions, and last month's two new shows, *Les Parents Terribles* and especially *Pericles*, have had some equally lukewarm reviewing. Like Johnny, they both wear their budgets on their sleeves. In both cases, to my mind, they could have been better productions with a lot less spent on them.

There's little to complain about in the lighting or sound for either production: Mark Henderson and Jonathan Suffolk in *Parents* (which opens with both film and a pretty full sound score), Rick Fisher and Paul Groothuis in *Pericles*, have done all that they were asked and probably more. It's just the hugeness of it all.

In the Cocteau play, which in fairness brought raves from some critics, designer Stephen Brimson Lewis gives us a decaying Parisien apartment and a young girl's bohemian attic. The apartment, though a right tip, looks like a spare suite at Versailles, while the attic takes up the entire Lyttelton stage and boasts a 20 foot spiral staircase as its main decorative feature. Ceilings are flown in, there is a false pros and two frontcloths, and in a final, ghastly parody of the close of *The Birthday Party*, also in rep at the Lyttelton, the stage tilts up and trucks back to the rear wall. Where Stephen Daldry and Ian MacNeil found point in the Lyttelton machinery for *Machinal*, and Tom Piper used it to telling effect for Sam Mendes in the Pinter, this is machinery for its own sake.

I guess you can understand directors, given the run of the National, wanting to make their impact. In *Parents Terribles*, Sean Mathias was dealing with a pretty daft play, and his solution was to let his actors go just as far over the top as his technical team. For Phyllida Lloyd, making her NT debut on the big stage of the Olivier, the temptation to show off was also too great to ignore. Some would call *Pericles* a pretty daft play too, but recent productions by David Thacker for the RSC and Utlz for Stratford E15 have shown that, sympathetically handled, it can rank with the other great late Shakespearean romances of family separation and reconciliation.

Using a cast of both mainstream classical actors (David Burke, Henry Goodman, Douglas Hodge, Selina Cadell) and movement theatre specialists (Kathryn Hunter, Toby Jones, Philippe Giraudeau) Lloyd has gone all out for spectacle, joyously abetted by Mark Thompson's *Wizard of Oz* designs. Like Utlz before him, Thompson has solved the problem of the play's confusing multiplicity of settings by colour-coding their inhabitants, so that you know when you see white-clad Inuit fishermen with furry hoods and boots, and dervish-like knights with conical white hats and billowing skirts, that you are in the white zone of Pentapolis. The scenery is initially quite simple - a board disc upstage against the cyclorama, with tall double doors, reflected in a board-clad double revolve built on the Olivier's drum. The revolve comes more and more into play as the action proceeds, tilting to form the deck of *Pericles'* ship, even showing its underside as a rather unwelcome distraction when it forms the background to the final reunion of father and daughter.

Rick Fisher uses a lot of strong, primary-coloured specials to emphasize the play's colour coding, and has the luxury of two starcloths. Unfortunately, amid all the machinery and lighting, not to mention a very fine percussion-based score from Gary Yershon, the play's poetry is almost totally lost. It's possible to applaud Phyllida Lloyd for the high skill with which she marshals both technical and human resources (her large company plays against both gender and colour, and even tries to make use of what appear to be a number of poorly trained European actors on some kind of EC secondment); she comes out of the evening as a strong candidate for further large-scale work. But I do hope that next time she won't lose sight of the



Cocteau's *Les Parents Terribles* with lighting by Mark Henderson.

original function of the director, which is surely to aid the playwright rather than to leave a high-class calling card.

There are times, of course, when over-the-top design can mask the deficiencies of a play, which was the case with recent the Bush production of

Snoo Wilson's imaginative but chaotic *Darwin's Flood*. Funnily enough, it was turned down by the National, where the effects it calls for would have been a relative doddle.

In the Bush's upstairs pub room, which most theatres would think rather small as a foyer, the demands on Robin Don and the rest of the stage team were way beyond the call of duty. Item: a huge

stone head on the ceiling (Darwin's father, since you ask) which has to speak, split open and crash to the ground. Item: arrival of the Blessed Mary Magdalene (some time after Christ on a bike) - by helicopter - eat your heart out Miss Saigon. Item: an on-stage terrarium lit internally, which has to fill with water. Item: the stage itself has to be split open by the eruption of the new Ark. All delivered, with some particularly ingenious hydraulics in limited height for the Ark. It's not surprising that the lighting was by Chahine Yavroyan, who as a member of The People Show has probably seen stranger things happen on small stages in his time.

There are also times when designers seem to want to shoot themselves in the foot - I'm reminded of this by the sight of no fewer than three shows in as many weeks with black sets. Most difficult of all was Mike Alfreds' adaptation for the Cambridge Theatre Company of the Victorian thriller *Uncle Silas*, where Paul Dart's lacy drapes were arranged and meticulously rearranged throughout, to no great effect since each arrangement looked very much like the last. You pity the poor sod who has to light such an amorphous set - except that it's Paul Dart himself, so it serves him right.

For a memorable example of cast, director and technical team working in harmony we need look no further than Mike Alfreds' old company, Shared Experience, who have followed up their fine *Anna Karenina* with an equally stunning *Mill on the Floss*. Time and again a thrilling stage picture - usually no more than bodies at rest or in motion - illuminates the book; indeed, you could almost argue that Helen Edmundson, the adaptor of this and *Karenina*, has made the book her own by the simple strength of her stage imagery, using the most basic of bridged scaffolding sets and keeping back the big rain effect for the play's watery climax. Chris Davey's touring rig uses very few lanterns, but every one has a job to do and with them he can cordon-off two levels or light the whole stage and cyc, very much in keeping with a show where almost every cast member has to play more than one role. Such economy is not a restraint, but a bracing challenge to ingenuity. National Theatre please note.

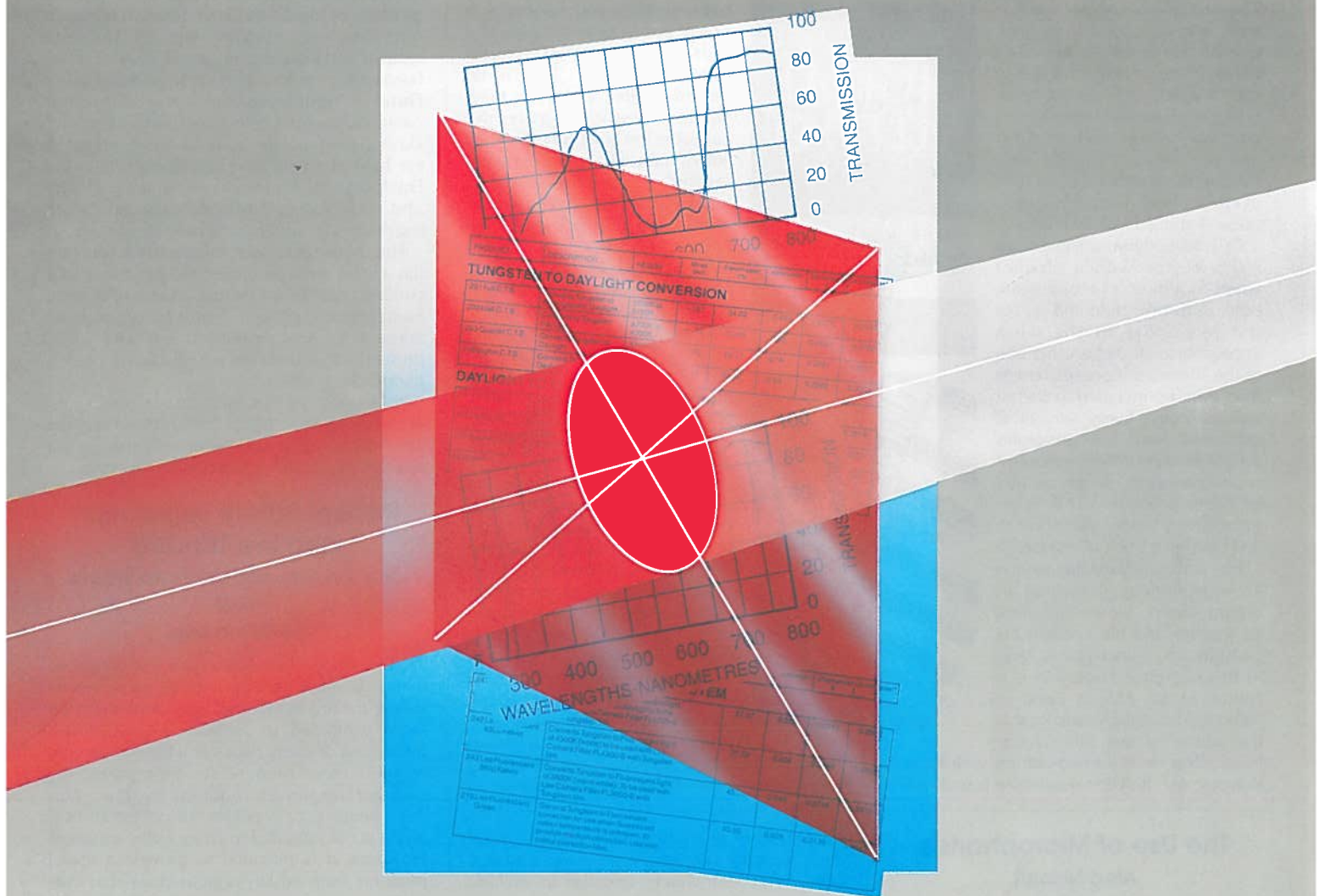
Ian Herbert

"In Parents Terribles, Sean Mathias was dealing with a pretty daft play, and his solution was to let his actors go just as far over the top as his technical team."



Rick Fisher's lighting for *Pericles* at the National Theatre.

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The Art of Digital Audio

John Watkinson

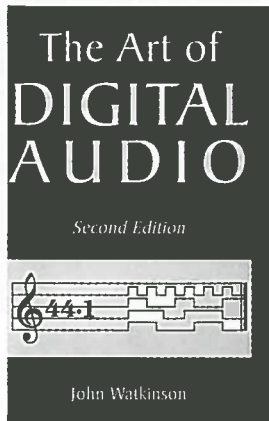
Focal Press

ISBN: 0 240 51320 7 £49.50

The first edition of this book is regarded as a classic in its field. Completely rewritten to reflect the enormous recent advances in the subject, it is even more comprehensive, and now covers practical devices such as DCC and MiniDisc, alongside new treatments of principles such as oversampling, data reduction, noise shaping, DAB and dither.

This new edition (pictured top right) begins with a chapter which is almost an introductory book in its own right and makes the remainder of the work accessible to all. At the other end of the spectrum more references than ever are included to permit serious study. Every subject is explained from first principles simply because if the mechanism is understood, it can be applied to many problems. This is an introductory theory, applications and reference book all in one.

The author John Watkinson is an independent consultant in digital audio, video and data technology and has brought his considerable knowledge to bear in this 686-page book. He is a Fellow of the AES, is listed in 'Who's Who in the World' and is the author of five other Focal Press titles. He is also co-author, with Francis Rumsey, of 'The Digital Interface Handbook.'



MIDI Systems and Control

Francis Rumsey

Focal Press

ISBN: 0 240 51370 3 £19.95

MIDI Systems and Control is a book about how MIDI, the Musical Instrument Digital Interface, works. This is its second edition, and it has been written firstly because the publisher has sold out of the first edition (always a good sign) and secondly because the field of MIDI control has grown out of almost all recognition since Francis Rumsey first started putting the title together in 1988. The book has been almost entirely rewritten for this edition, and an opening chapter has been added as an introduction to computer systems and terminology for those who need it. There are many more diagrams, and in all is roughly twice the size of its predecessor.

Rumsey originally wrote the book to explain the MIDI standard and show how it had been implemented in practical systems. That principle has been maintained in the second edition with coverage brought right up to date. Additional information covers ways in which MIDI may be integrated with digital audio and video systems. This is a book for anyone who wants to understand MIDI, and that

includes those who use MIDI equipment, as well as those who want to design devices.

Acoustics in the Built Environment

Edited by Duncan Templeton

Butterworth Architecture

ISBN: 0 7506 0538 3

This huge A4 book is an invaluable work of reference for the building professional, covering all aspects of acoustics. It is unique in its range of topics: the environment, transport infrastructure, building design, building systems and buildings in use. Each section has been written by an expert in the field and editor Duncan Templeton has brought together contributions from Peter Sacre, Peter Mapp and David Saunders. The book has been written in the light of recent developments such as the Environmental Protection Act and the Health and Safety Executive's Noise at Work regulations for minimising hearing damage.

The book presents informative relevant day-to-day work of project design teams in a concise, readily accessible and usable form. Frequent reference is made to appropriate Standards, Acts of Parliament and other prescriptive documents, which can be cited in performance specifications.

Its broad range of subject matter and its ease of use make Acoustics in the Built Environment an indispensable source of information for anyone concerned with building acoustics.

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Aveline Walne Associates have just published a new booklet offering a safety overview of recent theatre legislation. The document has been produced to increase organisations' awareness of safety issues and legislation, and to help them prepare for themselves the relevant responses required by law. This document is not a checklist, it is not exhaustive, and it is not intended to cover every situation. However, it is intended to provide a useful platform from which organisations can take further initiative by monitoring the effectiveness of safety control measures and familiarising themselves with the legislation currently in force.

The document is available from AWA in Broughton, telephone (0794) 301386.

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Alec Nisbett

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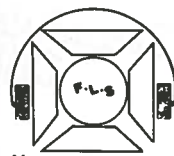
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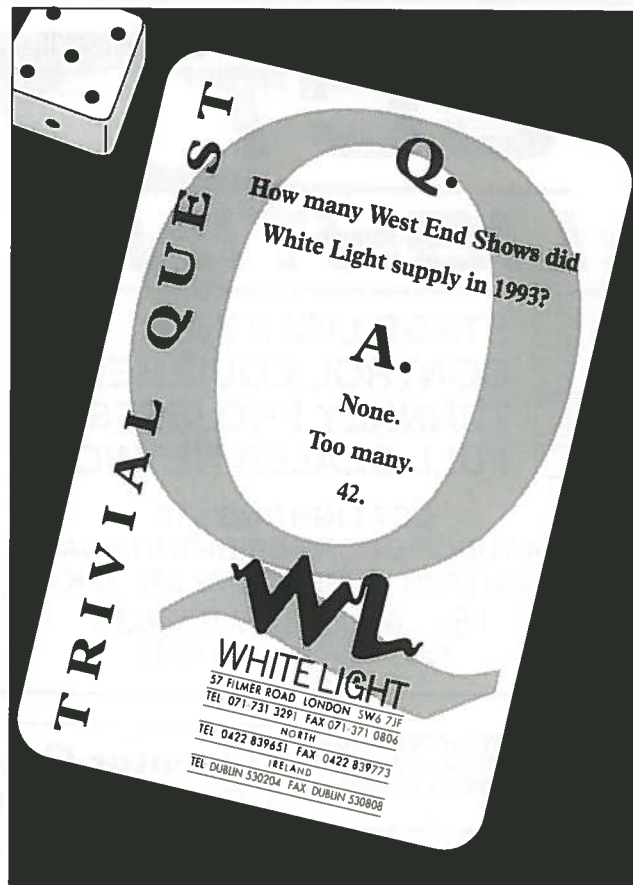
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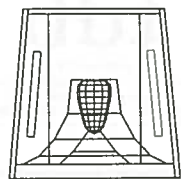
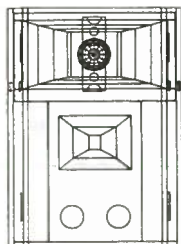
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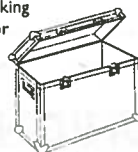
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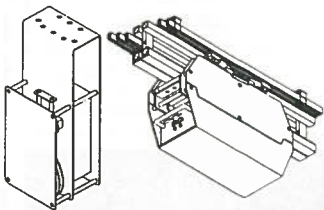
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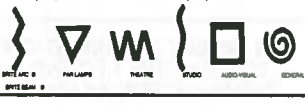
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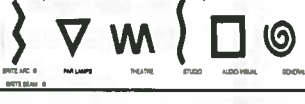
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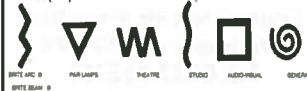
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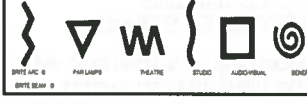
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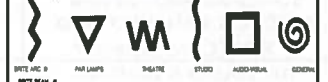
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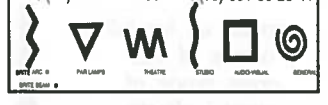
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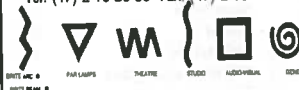
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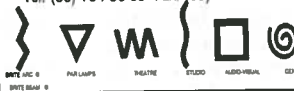
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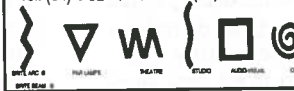
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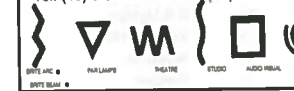
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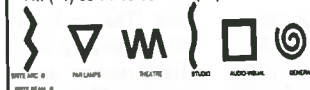
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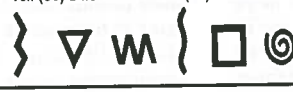


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VIEWPOINT

Ruth Rossington on

PLASA's Magazine: 100 and Counting

Unless you're one of our more fanatical readers you probably won't be aware that L+SI notched up its 100th issue in the Spring. When I noted this fact to my editor, John Offord, he immediately checked my maths and then kindly suggested that I pen a Viewpoint on those 100. Well, what a 100 they've been!

Let me for a moment take you on a brief journey back in time to that very first issue. I wasn't part of the team of lunatics running the asylum in those days, and DTP was yet to be heard of in Eastbourne. The magazine was painstakingly put together 'by hand' from galleys of text churned out of an old Compugraphic monster that sat and grumbled in a corner. We didn't actually despatch the thing to the graveyard until 1990 when we had our first brush with the modern world and started producing the magazine on a Scangraphic system via an agency. The agency didn't survive and the recession dragged us kicking and screaming into the DTP revolution, at which juncture we bravely decided to go it alone. Since that day we've not looked back. Until now.

That first issue was perhaps more important than you might think. It marked the coming together and broadening of the industry, and prior to Lighting+Sound International, there were no magazines offering such a wide perspective. That first issue cost just £1.50 but contained knowledge you couldn't put a price on. It featured the opening of the new Dome nightclub in Birmingham; quite appropriate then that this issue should carry a news feature on Dome 2, its offspring. Of course the magazine looked very different in those days and whilst we're always trying to improve the design and content of the magazine if you check back you'll see we haven't strayed too far from our original style. The PLASA Members page listed just 48 members and these in large type with room for a picture to boot. Now we're down to the smallest type possible, and three full pages and we're still struggling to get them in. We had just over a page of directory ads then and now we've got seven, so we seem to be heading in the right direction. The most significant thing over the years is that the mirror we held to the industry has shown it to be a vibrant, forward-looking one. Discotheques had much more coverage in the pages of L+SI in the early days, but then it was the age of the nightclub boom.

By mid-1986, the magazine was carrying glowing reports on the activities of PLASA and it was only then that the association had for the first time felt sufficiently confident about the

future of the industry to actually book Olympia 2 a year in advance for the 1987 Show. Looking at the PLASA Show now, it barely seems credible that it could have grown so much in such a short time. 1986 was also the year of the first exploratory trade mission organised by PLASA. In the February 1986 issue Manhattan Sound and Light's Bill Allen was musing on the future impact of moving mirrors - little did he know what lay ahead. And in that same issue we even managed to pin down Peter Stringfellow for a feature on the Hippodrome.

We also had space in those days to run ads reminding people of copy deadlines, advertising information and subscription rates. We don't have this luxury any more as we are determined that the magazine should be, above all else, an information service - and there's just too much news about this days to waste an inch of copy space.

By April of 1986, we had an exclusive on Andrew Bridge's lighting of 'Time' at the London Dominion, the first of many West End show features which, to my mind, we have to this day published better and quicker than the 'rest'. The end of the eighties continued to be dominated by discotheque coverage and just about every issue featured a major new opening. But a foretaste of things to come was hidden in the August 88 issue with a major feature on Aida at Earls Court, an early foray into an even wider view of the industry.

Perhaps one of our strongest and most consistent points has been our coverage of the touring scene; not an issue has gone to bed without some poor lighting designer or sound engineer being grilled by an L+SI scribe determined to unravel the mysteries of the design universe. And we've taken note of the products too; the equipment news sections have been and always will be packed with the latest product developments. We've not always stuck to the mainstream and have searched the globe looking for the more unusual applications of our technology. As a result the

pages of L+SI have travelled through Bingo Halls, down Black Holes, across Catwalks, and even sat down to tea in Cafe Satellite. Looking back through the issues the thought that kept occurring to me was just how young everybody seemed - and look at you all now!

We've certainly tried to reflect what's going on in the industry and the magazine has inevitably changed with it. Sadly, we haven't always been able to report good news and the magazine was put to harrowing use in the 1992 and 1993 to report the many companies who were unequal to the struggle with the burgeoning recession. Things are now on the turn and thankfully these stories are less frequent.

Two of our most determined policies are to a) inform our readers of the latest designs, products and techniques and b) to introduce as many new (and old) faces as possible to provide the links that hold the industry together. I hope that we've not only reflected what's going on, but also contributed.

The early issues set the pace for coverage and we've kept up ever since, the months and the deadlines have rolled past, the grey hairs on the heads of the editors have come and gone, and we're all getting a little bit older, but the industry is ageless, young people are attracted to it in droves and there is no doubt that it will always be an exciting industry to be in.

This issue sums up in many ways the current achievement and standing of the magazine with respected associate editor Tony Gottelier reporting from the centre of creativity with Pink Floyd in Dallas, and editor John Offord closely involved with the full technical team at the new Glyndebourne Opera House.

What's the point of this view? Well, to say thank you for all your support over the years and to fill a page we couldn't persuade anybody else to (only kidding John).

Ruth Rossington is assistant editor of Lighting+Sound International and is probably out looking for another job by now.

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