

LIGHTING+*SOUND* International



CARNIVAL CANARY STYLE: THE ISLAND OF TENERIFE DRESSES UP

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- On the Waterfront: Belfast's newest venue
- Show reports: the sounds of Frankfurt and the lights of Paris
- Carnival Time as Tenerife buries the sardine . . .
- Opera on Ice: The Finnish National Opera, Helsinki
- On Tour with Suede
- In Profile: sound engineer Mike Keating

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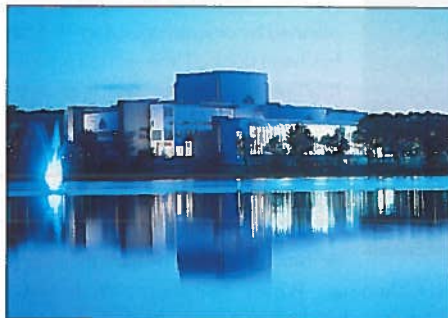
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LIGHTING+ SOUND *News* International

Expanding Industry Gears up for the Millennium

In the last few years, the industry has enjoyed a period of growth and consolidation and, thankfully, the news across the sector has been consistently positive. However, in the last few weeks, two well-established companies have both been forced to take the liquidation route.

Donmar, a company established in 1962, which made its name as one of the UK's largest suppliers of entertainment equipment, has recently ceased trading and is now in the hands of receivers. Lighting Technology have bought the name and will re-launch the operation as the Donmar Drama Department concentrating on core markets in education.

JYG Ltd has also been reluctantly forced into liquidation. The company had suffered several setbacks, including a number of burglaries and bad debts, and despite evidence of potential growth, including the possibility of a major contract for the Saudi Royal family, the company placed itself into Creditors Voluntary Liquidation.

These may simply be isolated instances, but more worryingly may indicate the inevitability of the boom and bust cycle. Are the cracks appearing? All the signs indicate otherwise, but it's as well for the industry to steer clear of complacency.

There are many positive indications of future growth across the international entertainment technology industry. European Leisure is set to pay its first dividend for six years after unveiling a 37 per cent increase in half-year pre-tax profits to £3 million, and most leisure operators are planning expansion of their club and retail divisions.

There is also much talk in the papers of a multi-screen boom. If current proposals become reality, Sheffield, for instance, will boast 79 cinema

"Are the cracks appearing? All the signs indicate otherwise, but it's as well for the industry to steer clear of complacency."

screens - typical of the rapid growth planned by cinema operators in what has been dubbed 'the second wave of multiplexes'. A big factor is their viability as anchors for new leisure developments. High profile sites such as Battersea Power Station in London are ear-marked for such schemes.

In theatre, this is a time of high ambition and one of the key players

is technology. Whilst indications are positive, there have been some notable hiccups along the way, perhaps best illustrated by *Big*, a technology-led musical that played for only a few months on Broadway last year, costing and losing its backers more than \$10 million.

It should be stressed that the problems are often artistic, rather than technical, but whatever the reasons for delays or reworks, the technical companies involved can often suffer. And there seems to be a growing uncertainty on the part of producers as to what will satisfy the public palate. Andrew Lloyd Webber has just postponed the Broadway opening of *Whistle Down the Wind* in order to rejig it and *Martin Guerre* had to undergo a major rework and relaunch last year.

Whatever the fluctuating fortunes of the industry, the long-term view is one of growth. Undoubtedly, there will be casualties along the way, but viewed against a backdrop of a strong world economy and an industry that has set its sights on gearing up for the Millennium, it would appear that the industry is taking a measured approach, thereby avoiding the boom and bust cycle. This has been aided by PLASA's recent securing of sector recognition for the industry - proof of a growing maturity, aided by a willingness for self-regulation.

Ruth Rossington

Showlight 97



Pictured above is the impressive De Vlaamse Opera House in Ghent, which will be the host venue for Showlight 97, the international colloquium on entertainment lighting. With less than six weeks to go to the event, which runs from April 28th-30th, arrangements are being finalised for the conference which features an international programme of speakers, alongside a trade show with over 33 exhibitors. If you haven't already registered, then now's the time to act - full registration details can be obtained from the offices of L+SI on (01323) 642639.

Strand Strategy

Following our news story in January concerning the relocation of Strand's entire operation to Kirkcaldy, it has now been announced that part of the operation will remain in the south.

Whilst accounts, warehousing, information systems and engineering manufacturing will transfer north, R&D, projects, UK customer and technical service and European and UK trading will eventually be relocated to another facility in the Heathrow area.

The DMX-Dongle by Artistic Licence Windows Software & Development Library now available

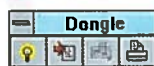
The DMX-Dongle is a high specification DMX512 Receiver - Transmitter.

It connects to the Printer port of any IBM PC compatible computer.

The DMX-Dongle is the perfect tool for any manufacturer, hire company or venue using the DMX512 protocol.

A Developers' guide is also available for those wishing to incorporate the Dongle into their own Windows or DOS software.

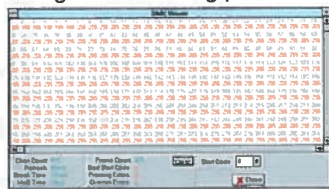
An extensive software package is included with the Dongle.



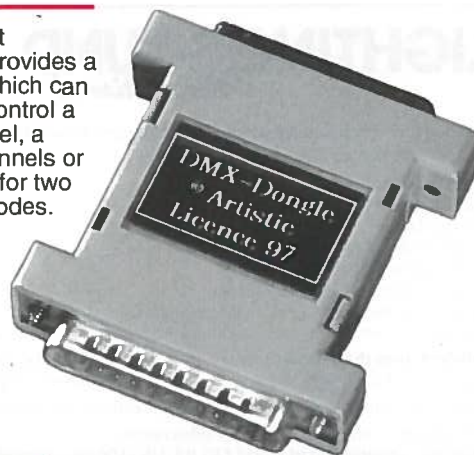
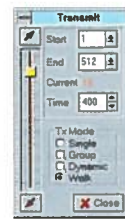
The Windows software contains four applications

which are accessed from a small task bar.

The Receive application features a full screen level display which can display all 512 channels along with all timing parameters.



The Transmit application provides a level fader which can be used to control a single channel, a group of channels or set the level for two automatic modes.



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Lighting Innovation Opens in Vienna



When Hermann Sorger, the long serving sales manager of Ludwig Pani, left the company in June last year, it was a safe bet that it wouldn't be too long before he re-entered the industry. Sure enough, he has now established his own company, Lighting Innovation, trading from an impressive office suite, complete with well-stocked demonstration room, in the heart of Vienna.

The company, which will be a family-run concern, will handle the line of Wybron and ETC products, alongside the lighting range from Eftel. Hermann Sorger has spent over 40 years in the industry, so is eminently well qualified to transfer that expertise to his new venture. He has already appointed a number of agents across Europe in Poland, Hungary and Russia and will work hard to establish openings in these countries.

Commenting on the decision by ETC to appoint Lighting Innovation, Bill Gallinghouse of ETC UK said: "ETC has always been about people and Hermann is a person we want to work with." Hermann Sorger (centre) is pictured above at LI's opening with David Catterall (left) and Bill Gallinghouse of ETC UK.

Lighting Innovations can be reached in Vienna on +43 1 523 09 68.

Sennheiser UK Takes on DAS

Sennheiser UK has become the official UK distributor for the complete range of DAS professional loudspeaker enclosures. This represents a major advance for the European speaker manufacturer, enjoying full UK marketing and distribution for the very first time.

The DAS product line covers the full breadth of the commercial loudspeaker market, including the installation, club, live music, theatre and touring PA markets. The company manufacture the only THX approved enclosures outside of North America, with all manufacturing carried out at their plant in Valencia, Spain, and all components tested to full AES standards. The company also employs its own driver technology in its enclosures, developed using CAD techniques, employing proprietary technologies and the latest materials.

Rob Piddington, sales manager at Sennheiser UK told L+SI: "We are very keen to make a success of this product in what we are aware is a highly competitive market place." Sennheiser will market the complete range from the small Factor Series to the full size Sound Touring Series PA cabinets. It is in the small and medium installation and venue reinforcement markets that the company expects to make the most significant inroads with the Factor, Reference and new Dynamic series.

A.P.S. Web Debut

A.P.S. Rental Management Systems has now arrived on the Web, with a comprehensive site that includes product information and technical notes, as well as the opportunity for visitors to download fully functional demo copies of the software package and submit their own feedback on the products to the manufacturer.

The company has also revealed that a new crew-planning facility is currently being implemented and will soon be available with their systems. This will aid compliance with forthcoming European laws on staff work and rest hours. You can find A.P.S. at www.aps-rms.com.

AVAB Name Change

AVAB Niethammer AB, the Swedish lighting control manufacturer in which transtechnik GmbH recently acquired an 80% holding, has changed it name to AVAB transtechnik AB.

A new management team, headed by Tom Weber, has been established to co-ordinate the two companies and to strengthen the international position of AVAB transtechnik AB.

Frankfurt Focus



Celco's Colin Whittaker (centre) made his 20th consecutive outing as an exhibitor at the Frankfurt Musik Messe (see main feature) recently. Colin is pictured above with (L-R) Jürgen Schulte, Raimund Riedel, Detlef Wiedenhöft and Frank Rethmann of Focus Showtechnic, who have taken up distribution of Celco's Ventura lighting console in Germany. Colin's first trip to Frankfurt was as sales director for Cerebrum, at the time only the third lighting company ever to exhibit at the show.

Light and Sound Fest

Futurist Light & Sound are organising a one-day trade event that will bring together manufacturers and suppliers with key decision makers.

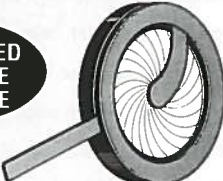
Light and Sound Fest '97 will be held at Bradford Alhambra Studio Theatre on Thursday 22nd May, and Futurist, with the help of suppliers, will be offering free travel from major towns and cities throughout the country. In tandem with M&M, the company is also hosting an Open Day on 23rd April at the Grand Theatre, New Briggate, Leeds, for the launch of ETC's Source Four Jr CE.

For more information on either event contact Frank Fallows at Futurist on (01924) 468183.

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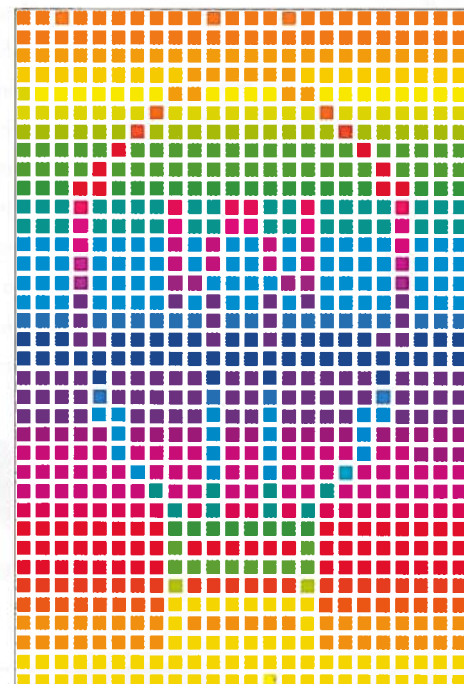
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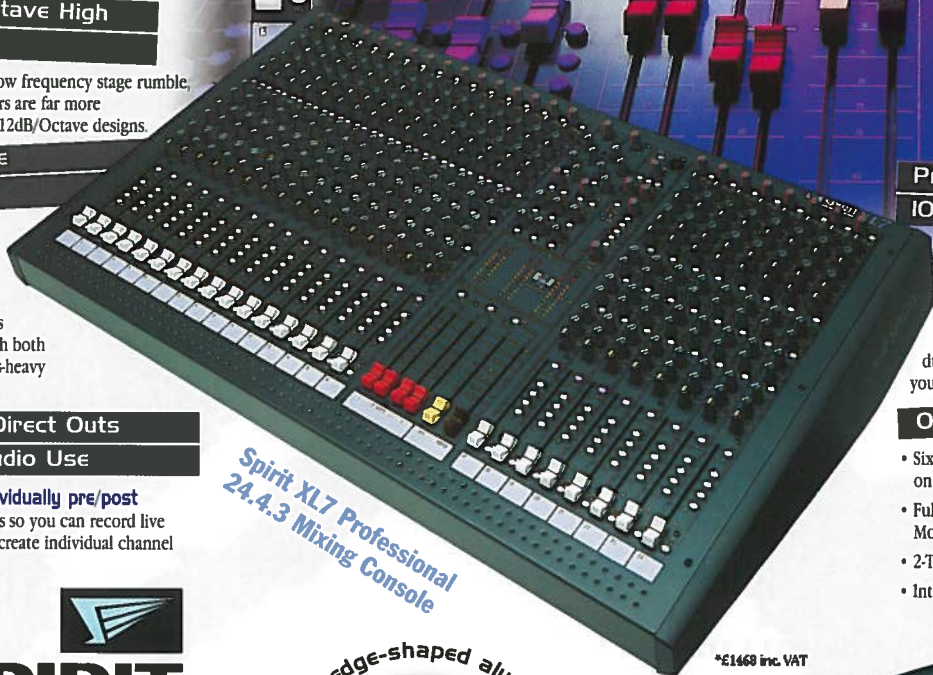
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Fast Lights to Launch New McLaren Mercedes



The Great Hall at Alexandra Palace witnessed the launch of Formula One racing's latest arrival from West-McLaren-Mercedes.

The stage measured a full 37 metres by 15 metres and supported a screen of 11m x 8.25m. The event, hosted by Steve Rider and MTV presenter Davina McCall, featured performances by Jamiroquai and the Spice Girls, before the arrival on stage of 16 roller skaters and four dancers all sporting the racing team's new pit crew uniforms.

The event lighting design was produced by David Atkinson with lighting direction for MTV by Alex Gurdon. The rig featured over 300 Par 64 and Par 64 ACLs, alongside 40 VL5Bs and four VL5 Arcs, 72 Starlites, a dozen 12 Clay Paky Goldenscan HPEs, six Super Troupers and five short-throw Pani projectors.

SLX Limited, part of the Stage Electrics Group, provided the complete production lighting equipment and crew for the launch.

Photo: David Copeman

Vari-Lite Open Week

Vari-Lite Austria will be holding an open week at their warehouse in Vienna from March 24th-29th. On show will be the full range of Vari-Lite products including the new VL5A.

Stockport and the Siberian Surfers

For those who remain sceptical about all the World Wide Web, E-Mail and Internet hype, a tale from Stockport-based PLASA member Audio Design Services, who went on-line with their own Web site in the latter part of last year, illustrates the potential of the Net. The company's decision to include the majority of their catalogue on the site has been repaid many times over following a chance response from the middle of Siberia, which resulted in a potential £100,000 order for explosion-proof loudspeakers.

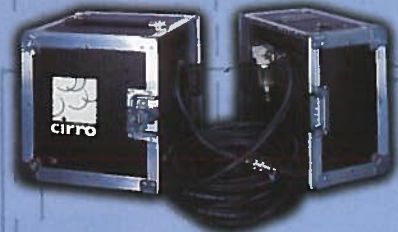
Company MD David Hopkins OBE was delighted with the prospect of securing business from an area which would otherwise have remained outside the scope of the company's marketing programme. This, combined with a number of other enquiries from other parts of the world, has made the Internet a valuable marketing tool for ADS and shows how PLASA has been instrumental in supporting its membership in this field.

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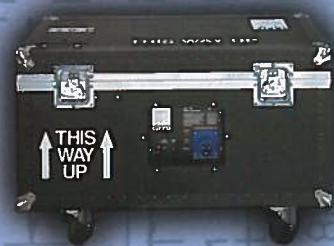


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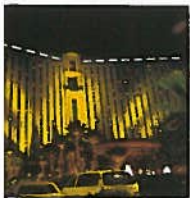
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Le Maitre's Pro Stage 2 Arrives with a Bang

Lee Baldock visits Le Maitre's Peterborough-based pyro factory.

"Prepare to be overwhelmed," is Rick Wilson's advice to first-time visitors to Le Maitre's fireworks factory in Peterborough, where the company's new Pro Stage 2 range of pyrotechnics is being manufactured. And considered advice it is too. At first sight, the varied structures scattered around a muddy field had more in common with a Hertfordshire pig farm I once visited, than with any pre-conceived notions of one of the leading professional fireworks production facilities in the country, but far more interesting aspects soon emerge. For a start, I never felt as well protected on the pig farm.

Safety procedures here are above and beyond those required by law. The reason for the sparse appearance of the site is the risk of explosions and the safe distancing of one potential danger point from another. In the case of the adjacent rooms containing the powder mixers and the hydraulic presses, the proximity is made possible by the existence of double stainless steel-reinforced concrete walls and sliding steel doors weighing a quarter of a ton, each with tiny bullet-proof glass observation panels. Before the doors lies a clean area where rubber oversoles must be donned to prevent the ingress of potentially hazardous dust and grit.

The company's chief chemist Colin Lindsey, a



Above: Le Maitre's chief chemist Colin Lindsey at the Peterborough factory and, inset, holding a Pro Stage 2 gerb.

highly experienced pyrotechnician who joined Le Maitre some eight years ago, showed me these rooms and explained the working practice of each. When the presses have been primed with cases and powder, the machines can only be started once the worker is standing on the other side of the locked bomb-proof door. This way, in the event of an explosion caused by a foreign body finding its way into the mix, the staff remain perfectly safe. As for the packing and storage areas, the same clean system applies, with a maximum of two staff working in each room and two doorways for escape should the need arise. This is, I am informed, one of the safest and most advanced fireworks factories in Europe.

Storage of powders is another very tightly

controlled operation. Large earthwork bunkers surround a number of steel storage boxes situated at safe intervals around the site. The most volatile substances are stored in the smallest containers and the smallest container of all holds a maximum of just 25kg of flashpowder. This sinister steel box is small enough to sit on, should you so wish, but when you consider that the container for the black (or 'gun') powder is the size of a garden shed, you'll probably decide against it. (The demonstration of a 'small' No. 2 Maroon illustrated the power of this substance - the Napalm Effect I can also thoroughly recommend, from a safe distance.)

The Pro Stage 2 range, building on the phenomenal success of the industry standard Pyroflash system, is aimed at the experienced designer/end user and offers a highly variable range of effects. Le Maitre Fireworks will be responsible for its distribution throughout the UK, while in Europe new sub-dealerships have been set up to cope with the specialised nature of the product.

Rick Wilson explained: "This is for people who know what they are doing. You don't plug them in, they come with loose detonators which you have to fit yourself, they come with different control systems or can be used with existing ones. So it's not a dealer product, and cannot be supplied through the established dealer network. We decided that in the UK, we would supply the product to professional people, provided we are satisfied that they are professional. It doesn't conflict with the Pyroflash range because the two systems aren't really compatible - you'll either want to use one or the other."

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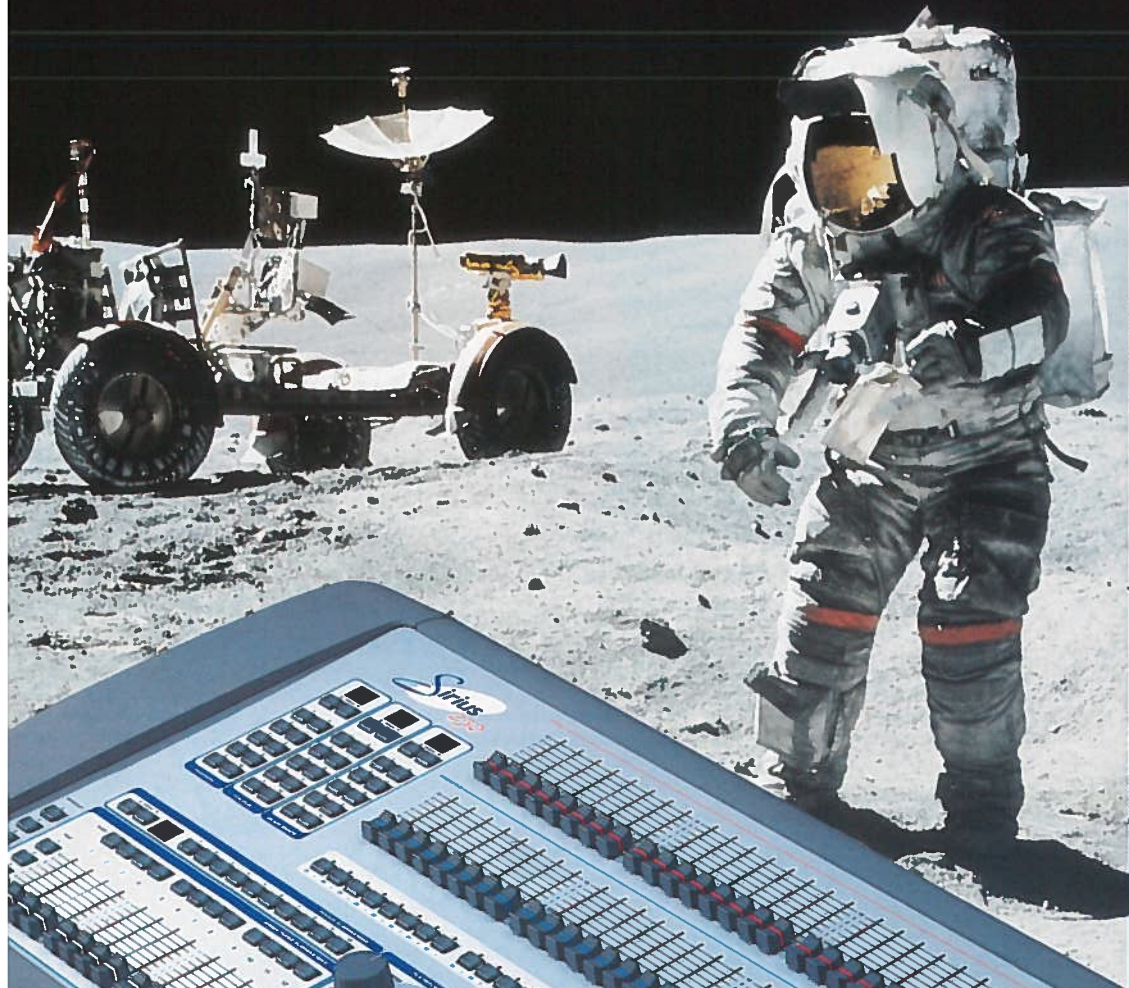
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Martin Take Initiative at Siel, Paris

Danish lighting giant Martin Professional chose the Siel 97 show to announce the purchase of their French distributor SLD. The new company will trade as Martin Professional France SA, in a move which follows the same pattern as other Martin corporate purchases in the USA, Singapore and the UK.



Karl Kristian Bro, Pio Nahum and Poul Dalsgaard of Martin Professional at Siel.

Pio Nahum, who is also Martin's general manager for Europe South, will head Martin France. The company also took the opportunity to announce that it would be exclusively distributing Jem smoke machines and fluid.

On the product front, Siel 97 heralded other significant developments for the company with the launch in the French market of 12 new products, including the latest addition to the MAC range of driven-yoke automated luminaires - the new compact MAC 600. The new ImageScan demonstrates the company's desire to move into new markets, and, in particular, retail point-of-sale applications. For the DJ sector came three new projectors - Punisher X250, Destroyer X250 and Lynx 100.

Building on the popular RoboColor range of colour changers is the RoboColor III. With a brighter discharge lamp and DMX control, the RoboColor III has 11 dichroic colours plus white and blackout. For professional lighting designers, Martin introduced two new products: the Highlight system is a virtual reality software package that allows designers to simulate their creations on a computer, whilst the Lighting Director puts the control of the lighting into the hands of the performers themselves, by dint of a controlled followspot system which locks onto performers on stage.

Finally, for the largest productions and tours, Martin have created the Case controller. Available in two models, the Pro 1 and Pro 2, the Case can handle a maximum of 70 automated luminaires.

A full review of Siel starts on page 57.

Avolites Hire Expansion

Following frenetic action on the hire front over the last 12 months, Avolites have decided to expand their rental stock. The inventory includes Diamond II and III, Pearl and Sapphire consoles - all supplied with a Graphics Tablet for hands-on convenience and VGA capabilities. Dimming systems are also in the line-up and all new Avolites products will be available as soon as they come on to the market with all existing stock will carrying the latest upgrades.

Avo Hire has recently supplied gear to Kula Shaker, Pearl Jam, Kiss, The White Room, Madness (via LSD), Bush (via Neg Earth), Maxwell and The Brits party (via The Spot Co), No Doubt (via CPL), The Royal Opera House, The London Astoria and The Brit School.

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De Courten Returns

Following the sale of his share in Power Light Productions in April last year, well-known industry figure Nicolas de Courten is back in business with his new company Nicolux Lichttechnik, based in Binningen, Switzerland. The new company will offer a range of services including consultation, installation and sales of lighting and staging systems to the entertainment, conference and leisure industries. Nicolux can be contacted on telephone +41 61-302 0574.



Tour News

Supertramp have decided to revive their Devonian Period by taking themselves out on the road again. The lighting design is by Roy Bennett and production will be overseen by Lars Brogard. With the tour already sold out, the scramble to win the lighting and sound contracts will be a tough one. And talking of ancient times, Laurie Small is about to have his historical memories rekindled as Camel tour the USA this March and there is talk of a one-off show at the Astoria in April.

LD Andy Liddle is off around the globe with, appropriately, the Orb. The good news is that Lighthouse Family, whose pre-Christmas tour he lit, are currently recording an album and plan to be touring again in the Autumn. Other old groups about to re-stock their bank accounts include The Moody Blues and ABC.

Steve Moles

Bizet's Carmen at the Royal Albert Hall, London

A new production of Bizet's Carmen opened in London's Albert Hall on February 6th, with a sound system designed and installed by Autograph Sound Recording. The 10-day production was a joint venture between the Albert Hall and Raymond Gubbay Ltd.

Autograph's design makes use of Meyer Sound's MSL-4 speakers, utilising two clusters of eight units each, supported by four secondary clusters of UPA-1s - each comprising four loudspeakers. The main clusters provide coverage to the principal seating areas, firing into the Albert Hall's problematic architecture.

Sound coverage for the audience in the choir



stalls, on either side of the famous Albert Hall organ, was achieved partly by the UPM-1 units firing up from the stage and partly by the UPA-1 secondary clusters. The production also employed 30 channels of radio mics, using Sennheiser SK50 transmitters with 1046 receivers, operating on a spread of frequencies.

The show's 10 principals each carry a dual radio-mic, with two mic capsules and two transmitters, acting as safety back-ups. The twin-channel arrangement is carried all the way back to the 110-input Cadac E-type mixing console, with two input channels reserved for each principal.

1997 Olivier Awards

Mid-February saw the Society of London Theatres presenting their annual Olivier Awards in London. Many of the awards were presented for productions which had already closed, somewhat lessening their potential as a PR tool! The musical *Tommy* was a case in point, winning awards for Outstanding Musical Production, Best Director (Des McAnuff), and Best Lighting Design (Chris Parry) despite closing just a few weeks earlier. In the other backstage categories, Tim Hatley won Best Set Designer for *Stanley* at the National, whilst Tim Goodchild was picked as Best Costume Designer for *The Relapse* at the RSC. A lighting designer was also nominated in the Outstanding Achievement in Opera category, though Wolfgang Gobel's work on *The Midsummer Marriage* and *Tristan and Isolde* was beaten by Elgar Howarth's conducting achievements. After surviving a difficult few months, *Martin Guerre* also picked up the American Express Award for Best New Musical.

Robert Halliday



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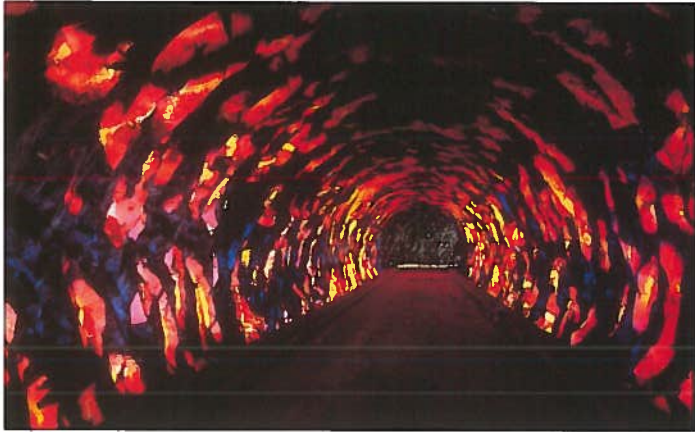
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Dante's Peak



Wildfire Inc, the Los Angeles-based visual effects company, recently completed work on Dante's Peak, a spectacular new attraction at Universal Studios in Hollywood. In collaboration with Universal's own planning and development team, the company designed the attraction, as well as handling the production of the scenery and ultraviolet lighting effects.

Dante's Peak, themed on the motion picture of the same name which opened on February 7th, takes visitors through a simulated volcano chute filled with fiery molten lava. The tunnel through which the ride travels actually spins, bringing dramatic motion to the already glowing scenic rock treatment.

Specialising in UV visual effects, Wildfire combined blacklight fixtures and bright fluorescent materials to produce the life-like volcano effect.

ABB Wins Malaysian Contract

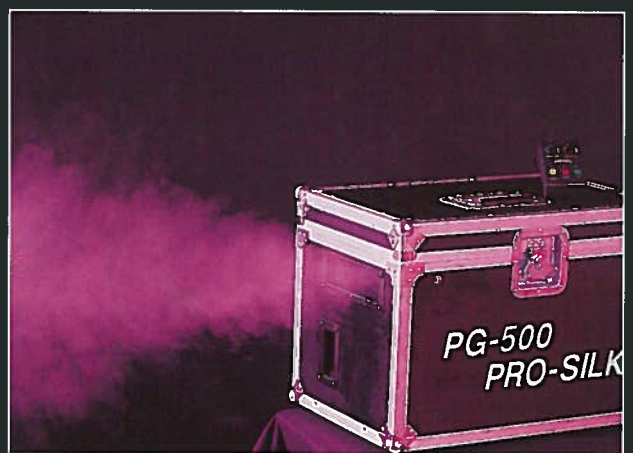
ABB Industrial Systems has secured a £2.3 million contract for stage automation equipment in Malaysia's new £50 million National Theatre in Kuala Lumpur, due for completion by late 1997.

The company is supplying 357 motors, 131 drives in cabinets and the electrical package engineering, while its strategic alliance partner, Bytecraft - the Australian theatre automation control systems specialist - is providing the control system.

This system co-ordinates the overstage machinery, selected from the 169 scenery point hoists, 61 scenery bar hoists and three motions of main curtain hoists, together with the substantial understage machinery. It gives producers the freedom to create imaginative 3D effects under computer control which can be stored and recreated quickly and easily. To achieve the precision and accuracy required, ABB is also supplying its ACS 600 direct torque control drive.

In addition, the company is handling the extensive power switching matrices with Bytecraft undertaking the electronic switching computation. The system handles the interconnection extremely rapidly, which means it is transparent to the operator.

Britain's Arena Studio and Stage Engineering is working closely with ABB Industrial Systems to supply the mechanical elements of the stage equipment, including the 230 scenery hoists, stage lifts and elevators, orchestra lifts, scenery wagons, fire and sound doors and secondary steelwork.



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Martin's Move of the Century



Massive expansion has forced Martin Audio to move half-a-mile across the Cressex Business Park in High Wycombe, to a brand new, purpose-built 20,000sq.ft facility.

Commenting on the move, Martin Audio MD, David Bissett-Powell told L+S: "We had long outgrown our Lincoln Road premises and this facility gives us more than twice the space and has plenty of headroom to accommodate the huge rate of expansion which we are experiencing. We now have improved production and R&D facilities, an acoustically-designed demonstration room and an open-plan sales and marketing area." The move has enabled Martin Audio to gear up to a heavy production season which kicked off with the Frankfurt Musik Messe (see report this issue), where they unveiled a number of new products.

Martin's new address is: Century Point, Halifax Road, Cressex Business Park, High Wycombe, Bucks, HP12 3SL. Telephone and fax remain unchanged at (01494) 535312 and (01494) 438669.

Theatre NVQs

The ABTT Council have approved the distribution of draft Theatre Sound NVQs for the industry's comments. Duncan Sones, chief executive of the Arts & Entertainment Training Council, will take part in a seminar during the ABTT Trade Show at the Royal Horticultural Halls on April 2nd at 11.30am, which will consider the draft NVQs.

The ABTT is encouraging every theatre technician involved in sound recording, playback, live mixing and rigging of sound equipment to attend the seminar, led by John Watts from the RSC, in the hope that they will have a broad contribution to the final proposals.

For further information contact ABTT in London, telephone 0171-403 3778.

White Book 97

The 14th edition of The White Book is the first edition to be published by its new owners, Inside Communications Ltd, who acquired the title in May 1996. The updated version now covers 896 pages with over 30,000 listings defined in nearly 400 categories to allow end-users to match events requirements and suppliers.

For a copy contact Inside Communications in Coventry, telephone (01203) 559658.

Unusual Rise to You Bet! Challenge

Does Nick Brown from Unusual Rigging have a permanent tilt to his head or was that just a ruse to prevent recognition when he showed his face in public again? If you've not the faintest idea what we're talking about then you'll have missed 'You Bet' (ITV, 6.15pm on Saturday 22nd Feb) when four grown men from URC made a challenge. Unusual's stunt was harmless entertainment, and the three point pick-up that flew Nick Brown around the Docklands Arena looked great fun and obviously engaged the punters.

NJD's Next Stop

NJD's Kevin Hopcroft recently travelled to Ghana to offer technical advice on the installation for what is probably the first high tech club in the country.

Situated in the capital, Accra, The 'Next Stop' club forms part of a small leisure complex. NJD picked up the contract following a visit to the UK last year by the club's owners who were keen to hand the entire project - from the sound system to the intelligent lighting - to one company.

On the UK front, NJD were recently asked to supply a four-day sound and light show to mark the opening of the Mondo mega-store in Nottingham. The company supplied a range of their sound and lighting products for the show, and also chose the event to display and demonstrate their new Cobra range of loudspeakers, arranging for a guest appearance by its namesake, Cobra, from TV's Gladiators.

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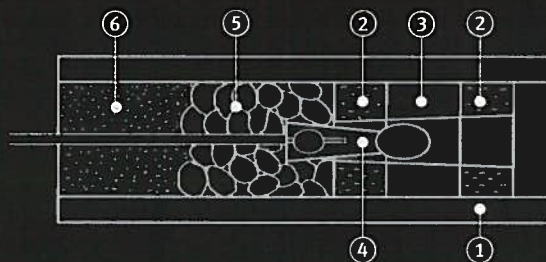
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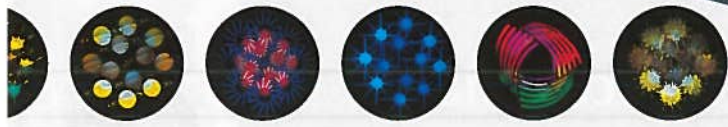


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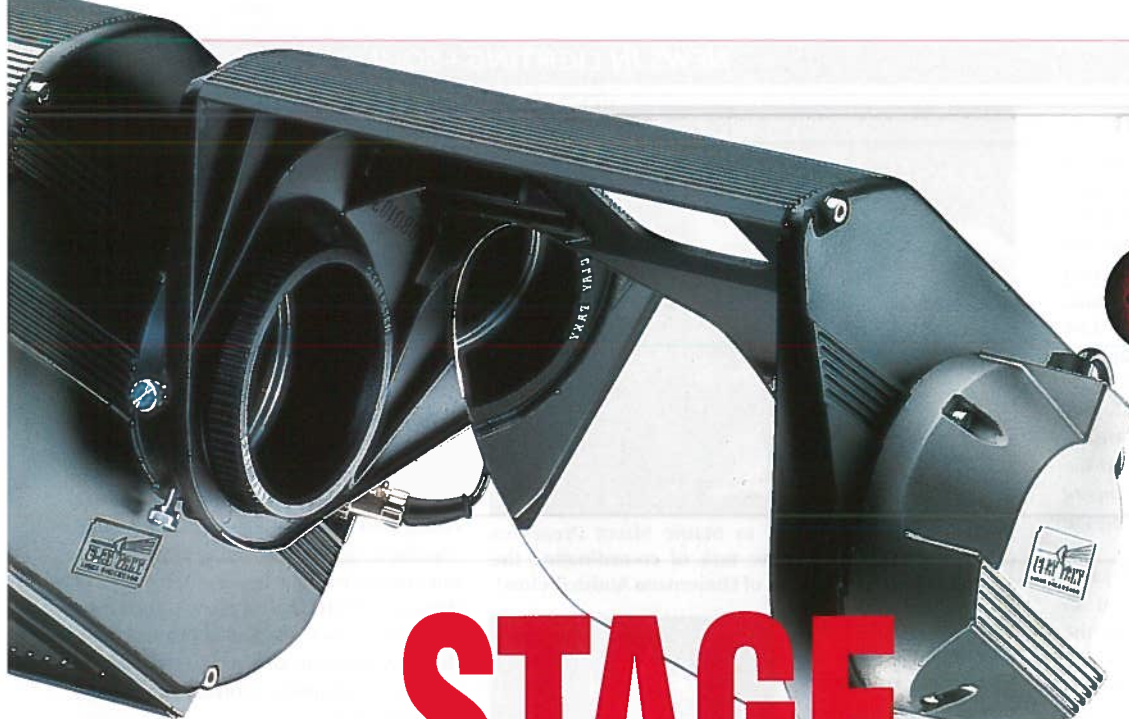


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THE STAGE

your fingers or getting dazzled. That's just one of the details that make Stage Scan particularly suitable for professional applications.

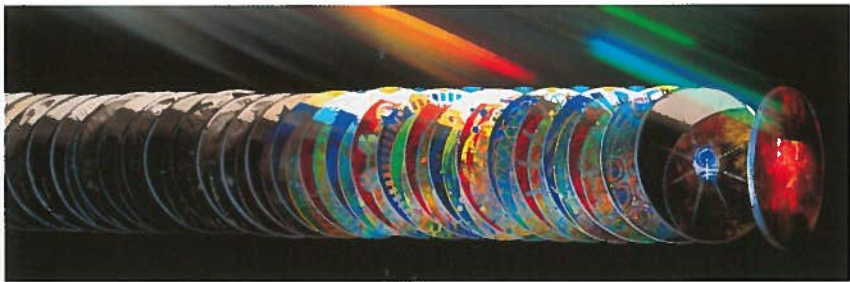
Further examples include: **easy access to the electronics**, mounted on the inside of the conveniently hinged back cover; conventional fuses replaced with

the more efficient and safer **circuit breaker**; totally simple **mains voltage/frequency changeover** system, making Stage Scan fully compatible with all world electricity grid standards. Noise? Hush! - every Stage Scan luminaire features a carefully designed **silencing system** that will meet the tacit approval of even the most attentive audience. So if you're into stage lighting, you've probably realised by now that Stage Scan has absolutely top-level credentials - just take a glance down this features checklist:

- HMI 1200 lamp, 110,000 Lumen, for uniform color temperature and extended life;
- Hot-restrike igniter;
- Gobo unit with two separate wheels controlled independently or in combination;
- 4 M-size metal gobos - static position and interchangeable;
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- 10 additional gobos supplied as standard in a special housing in the body;
- RGB colour mixing with ultra-pure dichroic filters for an infinite range of colours;
- Special effects filters (bi-colour concentric beams, four colour beams, colour temperature conversion and ultra-violet);



- Three frost filters including the exclusive Clay Paky "frou effect";
- Multi Step Zoom (MSZ) for beam angles of 13°, 14,5°, 16°, 18°, 21° and 25°;
- Electronic focus;
- Independent access to the effects, to the lamp and to the electronics sections;
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- Circuit breaker replacing fuses;
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- Compatible with the most widely used digital control signals: DMX 512, RS 232 (PMX).



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PROFESSIONAL SHOW LIGHTING

Brit Awards, London

At £350 for a seat in the dining audience, only the fattest industry cats and most desperate fans were going to be persuaded to show their faces at the year's premier record business event, the Brit Awards 97 at Earls Court. But those who did part with their hard cash were in for an enormous thrill, and we are not just talking Spice Girls. Live performances by the Manic Street Preachers, Sheryl Crow, Skunk Anansie, Jamiroquai (with Diana Ross) and the Bee Gees, and slightly less than completely live offerings by Mark Morrison, The Artist (you know who) and Fugees, had the audience in a party mood all night, while compère Ben Elton did an admirable job of balancing the hysteria with bouts of political wit.

In conjunction with show producer Mick Kluczynski, TV expert Bill Laslett designed an imaginative set around a ring theme. While the stage infrastructure was built by Stageco and the rigging supplied by Unusual, all of the elements that created Laslett's set were assembled by Blackfriars. Central to the stage was Screenco's largest JTS-17 Jumbotron to date, supplied through Black Pig. Measuring 11.76 metres wide by 6.25 metres high, the screen was suspended from a specially-built structure which raised and lowered it depending on set changes during the show. The video screen director was Screenco regular Dick Carruthers who worked on one of the company's big 1996 highlights: Oasis at Knebworth. As on that show, the video feeds for the Brits came from Creative Technology's 16:9 digital OB truck. CT also provided three cameras and several TV monitors for backstage viewing.

A man with much experience in television lighting and camera work, Brits LD Micky Sutcliffe hired most of his rig from CPL and LSD. The rig comprised 80 Icons, 16 Golden Scans, 84 Robocolors (from Entec), eight Troupers, five Pani projectors on the back truss, 157 VL5s, four Lightning Strikes, two 4kW Sky Arts and around 200 Par cans. The main artist lighting was controlled from an Icon board which also controlled the Vari*Lites. All the architectural lights on the set rings and towers were cued from an Artisan, while an Avo Diamond ran the



Best British Group went to Manic Street Preachers (above) whilst the massive task of co-ordinating the audio fell to Derrick Zieba of Dimension Audio (below).

Robocolors, scans and conventional lights.

The Blackout team provided and installed truck loads of starcloths, red velour dressings, fake leopard skins and ceiling drapes to set the scene and also worked with designer Bruce French of Riki Tik on the after-show party.

Both the front-of-house and monitor mixing positions resembled mini warehouses of consoles and racked control equipment. The main monitor men were Alan Bradshaw and Gareth Williams, although a number of bands brought in their own engineers to work at any of five Midas XL3s. This was certainly the case at FOH where Steve Ludlum either mixed the artists or babysat consoles for visiting mix engineers, whilst Chris Coxhead looked after all of the live vocal to playback performances, presentations and VT inserts. No fewer than four Yamaha PM4000s and a Midas XL3 with a 16-channel stretch were at the back of the hall and subject to a major feat of organisation on the part of Derrick Zieba of Dimension Audio - the Brits audio suppliers for the fifth year running.

A problematic show in 1996 (though nothing to do with Jarvis Cocker) led Zieba to secure the back-up of Britannia Row who took care of the

installation and servicing of the PA while Zieba concentrated on the audio design, crewing and liaison with television personnel. "Brit Row has pretty well everything that's needed in their warehouse, so everything interfaces well together first time. If I'm involved in the Brits next year, I will certainly go down this route and, hopefully, with the relationship that's been forged between Dimension Audio and Brit Row, we will use this arrangement on other major shows."

Designed to provide an even dispersion of quality sound around the hall, especially during award presentations, the PA was configured around a flown Turbosound Flashlight rig, the positioning of which was determined by the television-led nature of the event. With cameras allowing no space in which to stack sub bass or front-fill cabs, Brit Row's Pete Brotzman organised for the subs to be uniquely incorporated into the flown clusters.

In total, the front clusters featured 18 Flashlight and 16 bass cabinets, four underhung highs and two underhung mids per side. These clusters were flown at a considerable height to prevent the PA from obstructing camera views of wide stage shots. The side hangs for the tribune were four Floodlight boxes and two underhung mids per side, whilst in-fills consisted of eight Meyer UPAs and four Turbosound bass cabinets per side.

Delays in the upper balcony were catered for by four Floodlights per side, while the total of cabinets, left and right, in the main delay clusters amounted to 16 Flashlight and 16 bass. Another noteworthy element of the show was the involvement of Manor Mobiles who recorded the entire show for broadcast on Carlton TV on the evening after the event. A total of 260 lines were sent to the mobiles, which returned to the PA engineering crew playback feeds from the SADiE system, audience feeds, walk up stings and VT information whilst mixdown and video editing for the 8.00pm broadcast was completed overnight and during the following morning.

Mark Cunningham



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Hardware Hoofers

Hardware For Xenon's Optimal Light System (see SIEL report) is currently hot-footing it around the globe with the Irish dance sensation Riverdance, which, following critical acclaim in both the UK and US, is shortly to open in Australia.

The projection system employed on the US tour (currently in Minneapolis) consists of six 5000W Optimal Light System automatic slide changers and marks one of the first outings for the new wide angle 105mm system. The UK tour of Riverdance is presently in Edinburgh using four 5000W Optimal Light Systems with automatic slide changer and the new 105mm lens.

Reflekta in Void

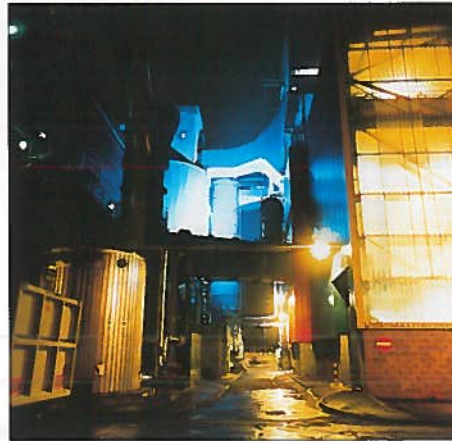
Reflekta, the new sound range from Acoustic Sound Systems (ASS) has been selected for The Void dance venue in Stoke.

The club awarded the £70k contract to light and sound installation specialist Tarsin. The project included an unusually large amount of kit with some 20k in just one medium-sized room. ASS equipment has been used throughout, 30 cabinets in all, with Reflekta MX600s, BS1200s and SB12Hs in the main rooms, while ASS's Arena range has been used in the chill-out areas with the entire system driven by Crest.

Meanwhile, Riverside, the multi-purpose entertainment venue in Newcastle, has had a new Arena system from ASS, again installed by Tarsin.

The system, which cost around £70k, includes 30 12" horn loaded speakers to provide a more rounded sound for vocals, as well as serving the club nights. In addition, the system had to integrate with some existing equipment and, unusually, Tarsin found themselves assessing, testing and servicing everything including wiring, cabinets, desks and anything else that might prove to be a weak link in the new facility.

Light Waste



LT Projects, part of the Lighting Technology Group, have been awarded a contract to illuminate a new waste incinerator plant at Tyseley, near Birmingham.

LT Projects produced a technical specification to translate and implement a highly visual design by light and space artist Martin Rickman. The design includes Irideon AR500 luminaires which are used on the main facade of the building and lengths of a special optical guidance system, which works along the same lines as 100mm diameter optical fibres, and also changes colour using DMX-controlled light sources.

Look North

The ABTT North Committee will host a conference on the 11th-12th October focusing on the Georgian theatres of the British Isles, and will take place at the Georgian Theatre at Richmond.

The committee are now issuing a Call for Papers to all interested parties which will provide an insight into the Georgian theatre era. Papers should consist of no more than a 200-word typescript summary on the proposed subject.

Submissions should be sent no later than 31st March to David Wilmore, Theatresearch, The Lodge, Braisty Woods, Summerbridge, North Yorkshire HG3 4DN.

White Light Seek Limelight

White Light (Electrics) Ltd has taken over the business of Cranleigh-based theatre lighting provider, Limelight Services Ltd. The take-over signals White Light's planned and continued expansion and they will be looking to offer flexible hire periods and subsidised transport costs to established Limelight customers.

The company has also been appointed the sole UK distributor of the Smoke Effects' range of machines. The line-up includes the Goblin, the Gremlin, the Predator and the Terminator.

The Moving Light Company, part of the White Light Group, has recently moved to new premises following the company's purchase of new lighting stock which includes High End Studio Colors, Imagescans and Cyberlights SVs. In addition to valuable warehousing space, the new premises will provide customers with a fully-equipped demonstration and training area.

Moving Light Co are now located at Unit 15, Parsons Green Depot, 33-39 Parsons Green Lane, London SW6 4HS, telephone 0171-371 0885.

A Grand Life

Birmingham-based Bovis Midland has won a £6million contract to reconstruct and extend Wolverhampton's historic Grand Theatre. Work is not due to begin until February 1998, but the Bovis team is already providing a pre-construction service which should ensure that everything is in place for the start of the tight 10-month construction period.

The work at the Grand will involve improvements to facilities both backstage and FOH, giving more space to allow larger productions to be staged and to create a more comfortable environment for audiences. The theatre is a Grade II listed building and is the work of leading Victorian theatre architect C J Phipps - it is considered to be one of his finest designs. The work will be funded by a £2 million grant from the European Regional Development Fund and, it is hoped, by almost £6 million from the National Lottery.

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Show Technology Australia

Following our news items on Sydney-based companies in our last issue comes the story of another bustling outfit, based in Rydalmere, a 30-minute taxi drive west of Sydney centre. Here, Rod Salmon and Emmanuel Ziino of Show Technology manage the magic feat of taking care of both



Rod Salmon (left) with Emmanuel Ziino of Show Technology.

Clay Paky and Martin Professional in Australia - which puzzles a lot of people, most particularly those from outside the country. I can, however, bear witness to the fact that their 20-strong organisation is highly efficient and set up in a way that seems to keep both protagonists extremely happy. Salmon and Ziino have an extensive background in the technical side of the industry and follow their major suppliers' approach in concentrating on maximising relationships with their dealers. "We recently won an award for the best marketing initiative by any Martin distributor world-wide," said Emmanuel Ziino.

The ploy is working. Show Technology's turnover has trebled over the past three years and the company currently has 223 dealers or resellers scattered around Australia and New Zealand. The operation's main business activity is involved in the importation and distribution of lighting and associated equipment for the entertainment and display industries, and with the country 'on a high' in the run-up to the Olympics, the company have set themselves up for a large slice of the action. Also located within their modern facility is an associated design company, fully CAD-based, with a team of seven people.

Obviously Martin Professional and Clay Paky take up the major part of Show Technology's energy, but many other leading manufacturers benefit from the connection including JEM, Pulsar, Geni, ADJ, MA Lighting, Elektralite, Studio Due, Kupo and, most recently, MEC truss systems from the UK.

Located next door, or at least 'over the fence' to the Olympic site, I had the privilege of a grand tour following a more than decent lunch in Rod Salmon's very own hotel/restaurant. Rod Salmon is also back into his favourite sport of motor rallying, and by all accounts he's up there with the elite with a fully-fledged race team. I prised out of him, without too much difficulty, the promise that if you're visiting Australia you should stop in for a drink at the Wentworth Hotel. Funny, but on looking at my notes I didn't get a promise that he would pay for it, but I feel sure he would.

John Offord



Rod Salmon with technical director Vince Haddad.



Emmanuel Ziino with personal assistant Suzie Murdoch.

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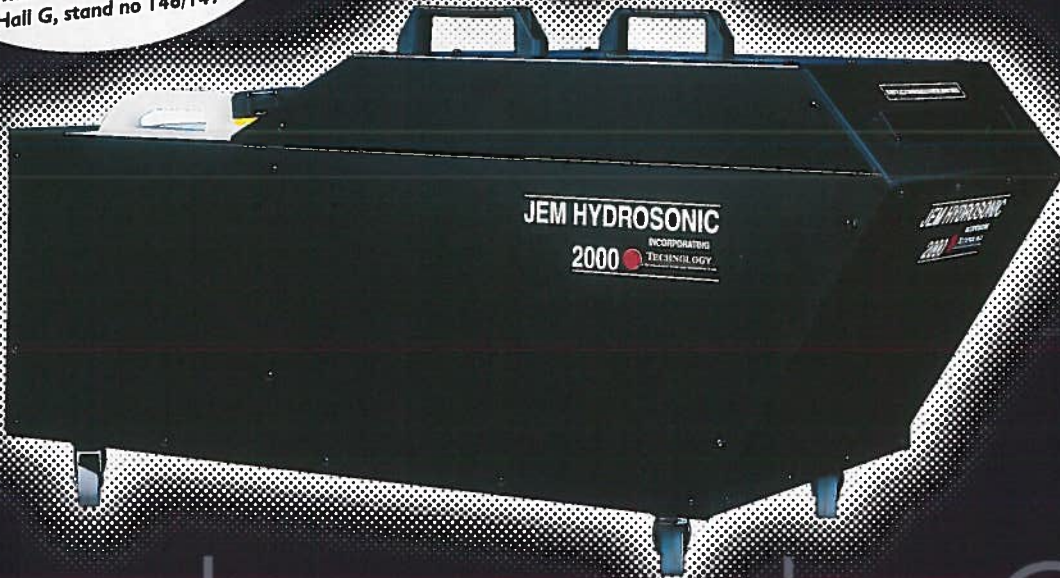
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This is achieved by producing large quantities of minute airborne water base particles. The machine then pulses these, with extreme precision via in-built transducers, to create cavitation of the fluid as small bubbles are formed on the surface. These bubbles burst and the resulting matter is blown from the machine. **This is HOT technology.**

The JEM Hydrosonic 2000 uses this unique technology, and creates its effect without the need of heat, temperature controls, jets, nozzles or compressed air.

The JEM Hydrosonic 2000 is completely silent in operation, and being water based leaves no greasy deposits on lenses and filters. A powerful in-built fan guarantees the optimum dispersion of effect, whilst the machine will remain on station indefinitely, subject to fluid capacity.

The restyled JEM Hydrosonic 2000 is compact and sturdy, making it ideal for both touring and installation applications.

Naturally control via DMX 512 for output level control is available.



Size: Length = 875mm
Height with wheels = 475mm
Height without wheels = 415mm
Width = 405mm
Weight = Approx. 32Kg

Fluid Type: JEM Hydrosonic Fluid

Fluid Capacity: 9.5L (in removable bottle)

Approx. run time: Unlimited - subject to fluid capacity

Remote bottle option: 25L-250L

Atomizer Tank

Evacuation System: Allows the Atomizer Tank to be emptied into the bottle before transportation.

Control Panel Features: Timer
Output Level Control
Fluid Control
Machine Status
DMX Address settings

Display Type: 4 Digit, 7 Segment LED

Remote Control Options: DMX 512 for Output Level Control

Power Supply: Europe 220V to 240V AC 50Hz, 400W
USA 110V to 120V AC 60 Hz, 400W

Specification for JEM Hydrosonic 2000 Incorporating -HOT Technology-

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Gaiety Grandeur



Sound system specialist Marquee Audio recently completed one of their more unusual and challenging contracts, fitting a fully-specified sound system into the Gaiety Theatre in Douglas, on the Isle of Man.

Carrying the Peavey MediaMatrix computer-controlled system, the brand new Soundcraft K2 desk and a powerful FOH EAW sound system, this was no ordinary install. The Gaiety theatre is one of the few remaining testaments to the work of the great Victorian theatre architect, Frank Matcham. Designed in 1900, it is fitting that it should celebrate its centenary in the year of the millennium, and according to Mervin Stokes, who became house manager in 1970 and set up a ten year restoration fund leading up to the millennium, the Gaiety has stood as an act of defiance. A landmark venue, each year it grows in stature as the restoration programme is further advanced.

With the new sound effects kept as discreet as possible, what patrons will see won't be entirely dissimilar from that first audience 97 years before: opulent plasterwork enriched with almost 100% pure carat gold leaf, relieved by a superb series of fresco panels depicting the four seasons and various muses and a stained glass rose window in the main ceiling, that has at its eye a sunburner.

The venue's production manager, Séamus Shea, says that the theatre perennially closes in January-February for its seasonal upgrade, and it was the Island's politicians from the Department of Tourism who this time last year demanded the new sound system after attending a production and commenting on the dreadful quality. "They promptly told me to do some research and find out how much I needed to spend, promising that they would come up with the money," recalls Shea. His search led him to the ABTT Show in London last April, where he met Marquee Audio's Spencer Brooks.

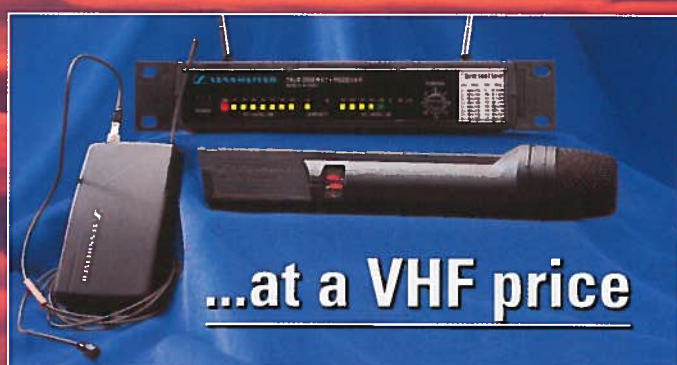
Mervin Stokes adds: "We were determined that the Gaiety would not be disfigured by ill thought-out intrusions of speaker cabinets, which spoil so many of Britain's old theatre stock. My priority was to get a fairly sympathetic system that would be invisible."

Their only compromise was to sacrifice the specified EAW JF100s in favour of the slightly smaller JF80s, which could be sited more snugly. In addition to these, there are Kef Ci200QT sidefills, RCF monitors across the stalls, circle, balcony, bars and foyer and Electro-Voice Sx200s acting as stage monitors. Yamaha amplification is combined with Cloud CXA6 six-way amplifiers and the aforementioned K2 32-channel mixer, alongside Denon kit, AKG, Crown and Shure microphones, EMO DI boxes and an Ampetronic induction loop system. In addition to the sound system, a new stage floor has been installed, a replica of a Victorian coffee bar, all the original wallpapers have been reprinted and rehung and the original carpets rewoven and laid!

Tomcat Record Attendance

Over 80 people attended the fifth Annual Tomcat Hoist School held earlier this month at their base in Midland, Texas. The classes covered the theory and operation of Columbus McKinnon theatrical chain hoists led by Wally Blount and Jim Krull from CM. The rigging materials, techniques and safety class was presented by Rocky Paulson from Stage Rigging Inc, whilst Knut Skjonberg presented a seminar on hoist control systems, and Tomcat's chief structural engineer, Jay Edwards, led the session on truss design and usage. Plans for the 6th Annual Tomcat Hoist School are already being made for February 4th-7th, 1998.

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\$150m Upgrade

Audio Independence, US distributors of Turbosound and C Audio, have carried out a major installation at the Oakland Alameda County Coliseum as part of a \$150 million upgrade. The company specified 16 TFS-780H Flashlight mid/high enclosures and 16 TFS-780L Flashlight 21" bass enclosures as the main arena speakers, with two LMS-700 digital system managers, augmented by three Turbosound Impact 120 speakers covering the plaza and 230 Impact 50Ts around the concourse and under balconies.

The installation also marked a first for C Audio. Appointing Audio Independence as their exclusive US distributors in November, this was their first major showing Stateside. Six SRX-3801s, rated at 1340W per channel, were used to drive the bass and low-mids, while a further nine SRX-3701s, with a rating of 920W per channel, power the high-mids/highs. Six Impact ST-1000s have also been dedicated to powering the Impact 50Ts.

Bell Rings the Changes

Bell Lighting Ltd is undergoing a name change to ARRI Lighting Rental Ltd. Bell became part of the ARRI group of companies in 1988 and their subsequent success led to expansion in 1994 when they acquired the business of the Cinequip Lighting company. The integration of Cinequip is now complete with branches in London, Manchester, Birmingham and Cardiff. The new ARRI Lighting Rental is the UK arm of ARRI Rental in Germany with branches in Munich, Berlin and New York.

People Moves

In a series of new staff appointments and internal promotions, ETC Europe has strengthened both its customer and technical services departments, as well as creating a new position in the sales department.

Miranda Hunt has joined the company as internal sales support. Previously sales manager at Donmar, she will provide much needed day-to-day back up for sales director David Catterall and project co-ordinator Adrian Hicks. **Neil Talwar** has been

promoted from warehouse operative to customer service assistant, working with Tracey Smithen who joined ETC as customer service assistant five months ago. Heading the team is **Sharon Todd**, who has been promoted to customer service manager. The technical services team also welcomes **Richard Lambert** who returns to Britain as technical services engineer after two years in ETC's New York office.

Stage two of Shuttlesound's internal restructuring has been implemented. Having appointed **Graham Allen** (sales) and **Bill Woods** (communications) directors, the next priority was the establishment of a customer care team. **Alison Salter** heads the department as customer care manager, assisted by **Amanda Payne** as customer



ETC strengthens its sales and service departments (left to right): **Miranda Hunt**, **Tracey Smithen**, **David Catterall**, **Steve Vialardi**, **Adrian Hicks**, **Neil Talwar** and **Sharon Todd**.

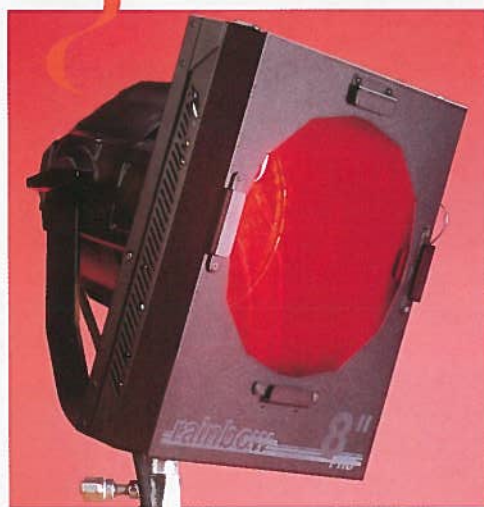
care/service administrator, whilst **Tim Gray** will be handling product, technical and service enquiries.

Richard Rowley has moved the length of High Wycombe from one loudspeaker company to another. After a short period with EAW, the well-known sales technician has joined Martin Audio. He will act in the new capacity of applications engineer, interfacing between sales/marketing and R&D.

TOA Corporation has recruited **Ray Morrison** to its growing sales team, to take on the newly-created role of UK sales distribution manager. Well known to the industry as former sales manager of DNH and Next Two, Morrison is assuming responsibility for all distribution for the TOA organisation.

Communicate 2

A Radical Upgrade



That work horse of theatrical lighting, the 8" Rainbow Colour Changer, has undergone a major revamp, resulting in not only a faster colour changer but also a cheaper one.

Major advances in colour changer technology have been applied to the 8" Rainbow. Called the 8" Pro, the new model can be trimmed to take up to 33 colours, which it will scroll through in 3.6 seconds or a frame to frame time of 0.3 seconds. But the 8" Pro is also one of the slowest scrollers on the market with an absolutely smooth and step-free, slowest self controlled speed of 1 frame in 20 minutes.

"The new 8" Rainbow is not only faster, but cheaper"

An auto gel-load facility and self calibration make for simple and speedy loading of scrolls, which in future will last almost twice as long thanks to the built-in heat shield. A universal adaptor, which allows the 8" Pro to be fitted to most 1k lanterns, does away with the need for adaptor plates.

The 8" Pro also has all the features of the Pluscard fitted as standard, including proportional fan control using a separate DMX channel; frame-by-frame colour selection; stepless timed crossfades, up to 12 bit resolution; self-testing and diagnostics; fully upgradeable software; and the facility to custom program the Rainbow from a pc or hand terminal.

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**ALLEN
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Second Take . . . John Watt's view from beside the camera

Readers of L+SI may not immediately recognise the similarities between your typical hack lighting correspondent and a seagull? But picture me atop my lofty eyrie in Lincolnshire, feathers unruffled, yellow feet firmly clamped to my perch and a beady eye open as the Channel 5 production teams trawl the freelance market, ready to swoop on any scraps left behind by the bigger and faster birds. Occasionally, I make a low level sortie while they are too busy preening their feathers to notice a stray morsel which will keep me alive for another day or two.

Happily, as spring approaches, the pickings aren't bad, so speed and mobility are essential and again our feathered friends provide a useful technique that we could perhaps adopt. Have you noticed that seagulls crap on take-off? This is no accidental biological function or a form of feathery incontinence, but nature's method of ensuring a minimum payload - an admirable maxim in lighting and life. For instance, if the last time you worked with a director you punched him on the nose (under extreme provocation) or let down the tyres on his Nissan Sunny, or seduced his 'partner' then you have far too much load to take off successfully next time - well if you let his tyres down anyway.

For my sins, I have been commuting around a big triangle of late - Norwich, Maidstone and London - so my mind is occupied by hotels and motorways, whilst the car is largely occupied by dirty washing and McDonalds wrappers. The disadvantage of the Norwich/Maidstone leg is that you have to throw 20% of your daily rate into the basket at the Dartford tolls. This amazing piece of technology allows you to toss in any combination of coins which it sorts and checks before opening the barrier. If they can do that, why can't we have barn doors that work?

What a pity no-one has yet lit the bridge - the new one at Honfleur looks

magnificent at night, with some very blue, punchy lighting that reaches hundreds of feet up the towers.

Away from the street lighting, the oncoming headlights seem to produce more glare than ever. Yes, a problem which increases with age, but the area of headlamps is decreasing for sleek styling and I have noticed the emergence of apparently simple plano convex lenses of only about three inches in diameter. No wonder they glare: you always get more complaints about a low key or eyelight if it's a mizer than if it's a pup with a bigger lens. There, you knew some real lighting would creep into this column if you stuck with it.

So midnight arrivals at hotels are the order of the day at the moment. Thank goodness the staff are also part of show biz (that's what I am - despite what they think upstairs) and so smile and do the PR bit, even though they've done a 12-hour shift.

Their tempers cannot be helped by the 'muzak' which we seem to be stuck with wherever we go. I suppose the on/off switch is in Milton Keynes. I can imagine the conversation when Stakis Hotels bought the system: "You won't need any air-conditioning, it will run on a 10 amp socket, you can listen to it from any direction and you won't need any experts to run it."

Never mind, there is a God. Maidstone Studios were built just before the world went mad and you can put up lots of lamps more or less wherever you want them. OK, it's not a monopole grid, hence 'more or less', but the self-climbers are packed in as tightly as any I have come across and there is a dedicated set of motorised pantographs for the cyc lights.

The kit is pretty comprehensive too; no nasty twisters to spoil your day, so you only need bring in the specials and Maidstone isn't really far, in spite of what the Soho chattering classes think, so there are plenty of purveyors of profiles to the

gentry within reach. If it was much better I wouldn't have any excuses left.

Elsewhere, part of the skill is coping with the idiosyncrasies of the system, which can be OK with careful planning, stealth, cunning and a scaffolding spanner. Directors are allowed to change their minds, but it would be nice if they gave the show some thought before getting to the edit. What seems to them a simple request requiring a couple of extra heads can ricochet around an awkward grid like the balls in the lottery, with equally unpredictable results.

Near the Tottenham Court Road someone has just built (or rather converted) a new studio with the complete answer to all my ravings about inadequate grids - they haven't got one! This isn't all bad, as you can treat any job like a location one, i.e. a battle between the location, the production requirements and the lighting designer's ingenuity. Speedy and economic it ain't, but a challenge without doubt.

The area must have been intended by the original architect as a place to keep the dustbins, and it features several very large pillars. Among other wild cards, the designer has decided to disguise these by cladding them with mirrors, which may work - watch this space.

We've already done a quiz series in one corner and I'm really not sure whether it's a triumph or disaster from my point of view. Suffice to say there are four cameras, all locked off (not robotic), three mid shots and a wide, a voice-over man asks the questions, a computer provides scoring, on-screen graphics and statistics (and probably orders lunch), the director does his own vision mixing - and there is one each for sound, VT racks, lighting and make-up. The studio assistants assess the inside leg measurement of each contestant and stand the short ones on the appropriate pancake. We make 10 half-hour shows a day! It wasn't only the Belgrano Mrs Thatcher sank. Oh and it's riveting viewing, dammit - but then it bloomin' well would be!

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ALL CHANGE

Steve Moles looks at the integrated systems, principally on the audio side, behind the 'multi-functional' Waterfront Hall in Belfast



The opening night concert for the Waterfront Hall, which featured James Galway and Barry Douglas.

The Waterfront in Belfast opened officially on January 17th this year. It has been over six years in the making and three in the building. With such long planning stages the danger is that original concepts become dated, modified, and ultimately corrupted. You start with a clean sheet, a coherent plan and a clear objective and, by the time the curtain goes up, not only are there so many alterations on the plan you can barely see it, but much of the original ink has faded. From looking at the sound side of this establishment, it's clear that whatever the preliminary view of how the hall would be used, the late nineties predilection for 'multi-functional' venues and all the commercial imperatives that implies, has clearly been superimposed upon it. Thus, when the Waterfront opened its doors, it was already home to two quite distinct PA systems. One rigid, fixed and highly tuned for a very specific purpose, the other modern, flexible and designed for rapid redeployment.

For the major installed systems - everything from intercom networks to main hall PA - Glantre Engineering were called upon to provide the system design and oversee the installation. I use the word 'design' cautiously; independent consultant Peter Mapp working as a sub-contractor for main technical consultants Carr and Angier was responsible for drawing up the technical specification. "It's one of the longest lead-in times I've ever encountered," Mapp noted, "and because of

"With money a major consideration, all equipment was chosen entirely on price. Who says sound men can't find perfect pitch?"

the need to fix the price and specification so far in advance, there's a strong argument that, presented with the same brief today, I would have done some things differently."

That's probably true of any installation, hindsight being what it is, but with Mapp receiving a brief to specify a main hall system for cabaret use and some light instrument amplification, "more a reinforcement system than a PA." It's a relevant rejoinder. As we'll see later, now that the hall is finally open, it's defined usage has been expanded to embrace virtually any performance art. Glantre's on-site project manager Ian Pogson, who drew up most of the detailed design work, the schematics for the intercom, the control links, outlet boxes and the many other systems, is best placed to describe the equipment used: "Our brief was to manage all sound and communications for technical use - absolutely everything communications-wise, bar the PBX telephone system - plus we did paging systems, data and video networks."

Glantre's brief also included the lighting systems and control for both house and stage lighting, multi-lingual simultaneous interpretation systems, a seven channel Communal Aerial TV system and a great deal of integration of all the lighting and sound control systems into the voice evacuation-alarm system. When the panic button is hit, many automated events take place such as the 'PA level down, house lights up'. For self-evident, if rather unfortunate, reasons, there is great emphasis on ensuring the rapid, safe and controlled function of all the emergency systems at the Waterfront, perhaps more than at most venues.

The installed PA for the main hall is a centre cluster of Community components as Ian Pogson describes: "There are two RS220s facing back onto the choir stalls with three Bose 402s tucked up in the roof above. Arrayed to the main hall are three RS60 full range cabs, three LF212 subs and five 215s. There are also seven RS220 delays out in the ceiling at the far end. The HF stuff in the cluster is focused into very specific areas - there's about 20 TOA HFD260 compression drivers on an assortment of pattern control flares from EV and Community. The complete cluster is driven by Carver amps: 700s, 950s and 1400s and the whole system runs from a TOA digital audio processor via a PC where we can remotely modify EQ delay curve, etc."

Ian Pogson and Peter Mapp spent many hours over a period of eight days tuning the

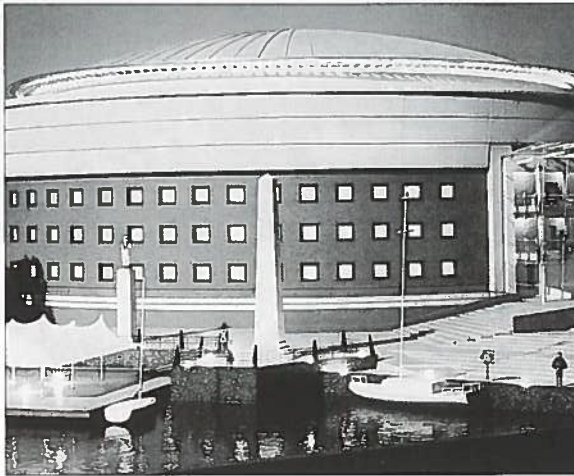


Waterfront manager Tim Husbands (above) and an artist's rendition of the impressive facade (below).

system to perfection: "We used 16 locations in one half of the hall to measure readings," said Pogson, "the hall being symmetrical enabled us to duplicate the data for the other half. Using a Teff 20 analyser system with a matched microphone and a laptop PC we made sweep recordings (20Hz-20kHz) at the various locations and built up a graph of the room. It has a 2.3 second delay (an intended part of the design by Sandy Brown Associates, the acoustic architects) and it's just lovely for orchestral work. No sound reinforcement required at all. But I wouldn't like to mix a rock band in there, it's quite a lively room, amplified music would bounce around all over."

This was confirmed by Peter Mapp, who expressed it more simply: "The room is just not sympathetic to reinforced sound. However, careful array of the large format horns has allowed precise targeting. The back wall was especially nasty for reflections. With the PC accessed remote system control (via RS485 to the TOA) we have built in a number of 'scenes' (potentially 16) where different parts of the cluster can be switched in or out, with varying EQs and delays, to suit different types of presentation." Which is really where the design dilemma comes in, for all sorts of presentations - not just orchestras - are expected to pass through and perform at Belfast's flagship venue.

John Kerr is the technical manager for the Waterfront, the man to whom falls the responsibility of dealing with the day-to-day traumas of the wide variety of shows intended to be staged here. Kerr spent five years at the Belfast Opera as a technician, then moved on to Her Majesty's in Aberdeen, eventually becoming technical manger before spending several years gaining touring experience as a sound engineer, his favoured role. As the man who has to make it all work, it was to him I spoke to discover the second part of the Waterfront's sound system: "I came on board as TM just over a year ago. I looked at the overall system and because of my technical



background realised it was inadequate. The Soundcraft Venue (40:8:2) that's installed is a fine desk," he continued, "but the single centre cluster is a bit outdated for what's now intended. There was even a gramophone player included in the original spec! At least with that I was able to speak to Carr and Angier and get a mini disk player substituted for one of the Revox machines.

"The central cluster does have its uses - I see it very much as a speech and conference system. The main hall is very warm, almost everything sounds tremendous, so I wouldn't dream of mic'ing up choirs or soloists for a classical-style concert - it's just not needed. The City Council (who put in the lion's share of the £25m budget for the Waterfront) want the venue to stage anything - ballet, opera, rock, jazz, dance, folk - there's even an art gallery space in the building. So I approached the Arts Council and put in a bid for Lottery money. Of the £800,000 secured, a fair percentage went on sound equipment. I bought a d&b audio 402 system (14 stacks to be exact) from Dave Hopkinson at Wigwam, three racks full of effects from Spencer Brooks at Marquee (including lots of BSS graphics, compressors and gates, as well as a Varicurve, plus Lexicon PCM80 and Yamaha SPX990) and a selection of extra microphones, a Midas XL200 for house mix and for monitors a Soundcraft SM12 plus a bunch of d&b Max cabinets for wedges. I also purchased a flying system developed by

Wigwam specifically for our needs, with trussing, Stagemaster hoists and control from Total Fabrications."

With money always a major consideration, all equipment was selected through a competitive quoting process and, Kerr's personal preferences aside, was chosen entirely on price. Who says sound men can't find perfect pitch?

The 800K wasn't just for sound, as Kerr explained: "In the original building spec' there was £70,000 for lighting and £100,000 for sound. The lighting budget went down to £35,000 and eventually to £10,000, so without the Lottery money we'd have had virtually nothing. Mind you, the original sound spec' went through pretty much as planned."

All the lighting systems, both stage and house, are dimmed from ETC smart racks (including 10kW channels available for visiting TV companies) with control variously achieved through a Strand Premier, Lightolier and ETC Expression giving potential for the full gamut of configurations from a multitude of pre-programmed 'room states' automated as simple button functions, to more complex and custom-designed and programmed shows. Stage lighting is primarily from ETC Source Fours chosen specifically for their almost silent running, an important consideration in such an acoustically lively space (a 2.3 second delay). There's also extensive motorised Triple E tracking systems for drapes or light scenery, smoke and foggers from the Smoke Factory and a bunch of Rainbow scrollers.

In keeping with the aspiration to be multi-purpose, the main hall can be re-configured, from 2,235 fully seated, the stalls (all on air castors) can be cleared to allow for 1,000 people standing, increasing overall capacity to 2,800. Thus, anything from one person and a guitar to a full-blown rock act can be quickly and easily accommodated. Of course, the irony here is that the d&b system is also quite capable of fulfilling the function of the centre cluster, and probably at quarter the size, something that would no doubt please those pernickety orchestra players who object to any lump of technology interfering with 'their' acoustics. However, precision hanging would be paramount and that would take some practice; but it would not be impossible. As with all such venues, the proof is in the pudding. What will the 'gigs done' list look like in a year's time? And which systems will have performed what tasks?

Of the entire integrated technical systems, the many comms and control inter-links, John Kerr is very flattering: "Although some of the system is perhaps a bit redundant, it's all operating exactly as it should. Our first ISDN conference, for example, went very well. The main thing we are finding so far is how surprised visitors to the venue are at our speed of turn around. Often we stage events in the afternoons with something different in the evenings. Of course, we have a good team here - all seasoned professionals, especially our stage manager Michael Kyle and my fellow sound engineer Trevor Hanna. Speaking personally, I have no hesitation in saying this is now the premier venue in Ireland."

And the fact is you didn't need a well-tuned PA to hear the note of pride in John Kerr's voice.

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ON TOUR

by STEVE MOLES

AND PRODUCTION NEWS

Suede

St George's Hall Bradford

LD: Phil Wiffin

SD: Steve Phillips

The last famous man to sport such a foppish fringe was pretty adept at rousing a crowd into a frenzy and although I don't believe Bret Anderson is about to annex the Sudetenland, he does get the sap rising, and with some vigour. That his vehicle Suede have lived through the departure of such a fundamental member of the band as Mr Butler, with his distinctive screaming guitar signatures, also says much about the vitality of the ensemble. While the British charts have variously focused attention on boy and girl bands, Suede have quietly regained their momentum by gigging heavily with their new line up, and have - without anyone noticing - produced an album that's just gone platinum in the charts. The fact that they're currently touring the C circuit of sub-3,000 seaters is not through any lack of appeal but, as LD Phil Wiffin explained: "A desire to only play to full houses."

LIGHTING

Like the new guitarist, Phil Wiffin has come to be the band's designer only recently, admitting: "They're an act I've wanted to do for a long time." To qualify this, he then went on to add that this was the first time he'd worked for a band whose albums he already owned (but will they reimburse him the cost?). Wiffin was recommended for the job by front-of-house engineer Steve Phillips, the two of them having worked together previously on the Charlatans and Boyzone. This is the second time I've encountered this cross-discipline camaraderie on tour, so it would be nice to find an LD returning the favour to the sound boys. Wiffin has what, at first glance, appears to be a fairly modest rig out of Lite Alternative's new yard in Haywood: 18 VL6s, five VL5s, five Golden Scan HPEs, four four-lamp bars and two six-lamps, with everything controlled by an Avolites Sapphire.

The rascal failed to mention the five Svobodas across the back truss - he has spread these relatively few lamps about to create a big lighting picture. The back truss also sports a kabuki (black backdrop with banner name in white, over white cyc) and three vertical blinds decorated in a swirling Zebra pattern of monochrome stripes suggestive of the mattress on the band's latest album cover.

Two things stood out about Wiffin's lighting approach: a liking for backlight which he says is "to get the dynamic in there. Trouble is, Bret Anderson doesn't like to see the audience, other than a few front rows." Despite which, he's managed to battle a few concessions and does spray the VL6s out quite frequently. The other is his choice of lamps: "I'll decide what I want to see and then find the instrument to do it," rather than the eclectic catch-all box of tools approach. Thus, all the VL5s and HPEs are on the front truss specifically to give front wash in two distinct



Blue, purple and amber Suede at St George's Hall, Bradford.

flavours. The rest of the rig is spread about the rear truss - two VL6s hung low each side on half genie frames, and two 16ft upright trusses with a tree of lamps festooned about them either side of the drummer. Add to this a couple of Pars around the floor and the potential for beams from many angles is great and one Wiffin does not fail to exploit. It was nice to see a pale bastard amber used in a rock show, and used as a colour, not a flesh toner, cross beamed with a pale blue against a deep mauve front wash. It's montage lighting: 'Saturday Night' saw a spotty back cyc with alternating split beam fans from clusters of three VL6s about the rig, with wash and spot laid on from the front. Whatever the combination, Wiffin always seemed to pick a rarely seen mix of colours.

SOUND

Steve Phillips began his spell at the faders for Suede shortly after the release of their Dogmanstar album in late '94. He's always used a d&b 402 system from Wigwam for Suede, although he didn't have the luxury of d&b subs back then on the first outing (the system having only just emerged out of development). Now he's got three of them per side in Bradford's St George's Hall: "Christ, we normally only send that many out on an Arena tour!" cried Chris Hill back at Wigwam. It's a fair plea, but Phillips uses them to counterweight a band sound loaded with top end potential, the sheer gravity of the lows offering some dimension and balance against the trowelled-on distortion of the guitar. Phillips mixes from a Yamaha PM3500, a desk he's quickly become very fond of since being flattered with a loan of prototype desk No. 00002 in Japan on an earlier tour. "Sonically, it sounds good, and more importantly I can lift it," quipped Phillips, referring to the board's relatively modest dimensions - and he's no lightweight physically.

Taking full advantage of the MIDI scene control, Phillips runs a fair number of effects: TCM5000 reverb and TC2290 delay on Anderson's vocals, and a Summit valve EQ on both lead vox and for

the guitar: "It helps me take the fizz out of the guitar, which sometimes is just distortion laid upon distortion. It allows the vocals and cymbals to come through."

For St George's, Phillips has two stacks of 402 flown at the upper balcony with six stacks downstairs each side, which puts a lot of power at his disposal - but it's the character of the hall, not its size, that demands the large amount of boxes. This is an exercise in getting the sound into all three levels and every corner of this long, high-ceilinged box; there's even a couple of UPAs for the middle balcony where it overlooks the stage.

The amount of PA is not without its uses, particularly for the vocals. Monitor man Graham Lees (using an XL3) has five PS15 wedges, plus side fills and a single in-ear piece for Bret alone. Couple this with the backline and you're looking at an easy 100dB+ at the back of the hall before you turn the PA on. Still, as Phillips said: "That's the nature of the beast and I do get a buzz off the energy on stage. Bret's voice is also a godsend, he's such a strong singer he can distort a 58."

And it's true that his voice does cut through it all - that meandering twang and whine of his clearly discernible above the fusillade of guitar. I liked it. It's such a pleasure to go to a show and have your head blown off by sheer energy and music, and still be able to hear the barman when you nip out for a pint during the encores. In view of all the above, the reluctance for Suede to play the bigger houses solely to guarantee that packed-out, sweaty atmosphere is perhaps misplaced. There is a greater demand; the album sales show that.

But there is a stronger argument for them staying where they are. One is longevity - they have the durability to survive, but it only takes one bad tour in the B circuit to change that (as the poor old Cure have found). The other is that these venues are Suede's natural territory, where the audience can be touched by Mr Anderson's presence. So long as they don't try to conquer the world, Suede's second coming could last a thousand years (with apologies to *Mein Kampf*).



A computer-generated graphic for U2's highly anticipated tour.

It's the tour everybody's talking about, the only trouble is, nobody's allowed to talk. If that sounds a bit Irish, that's because it is, for the contracted suppliers for the forthcoming extravaganza by Ireland's finest - U2 - have all been sworn to silence until the tour begins production rehearsals in April. The single press conference the band have given thus far does give an inkling as to what they are planning. The rehearsal site gives the clue to the chosen imagery: "trashy" was how Bono himself characterised it at the conference. The Pop Mart stage is a contrivance of kitsch - every set company of any note is already busily engaged in building, variously a 100ft high golden arch, a 35ft high mirrored lemon and a 12ft diameter Olive (stuffed with lights, of course) to be sat atop a vertiginous 100ft toothpick.

Dominating the stage will be the world's largest video screen and it's here that we see rock and roll's penchant for pushing at the boundaries of technology fully expressed. Built by Belgian company VIP/Lorimage, the 150ft x 150ft screen will be the first spectacular outing for LED screen technology. This type of screen has been made possible by the arrival of the blue LED, and an example of it could be seen at the PLASA show last year on the stand of Real Color Displays. The main advantage gained by this high stakes manoeuvre is the saving in weight (and inherently space and time), plus the screen is supposed to be brighter than any other, and despite its huge size, weighs in at just 30 tons. Video will be fed from a six camera OB team (from PSL) with as yet unannounced special effects and recorded input.

Joe O'Herlihy once again takes the sound honours front-of-house and, as ever, expect a sizeable quantity of Clair Brothers equipment as the main PA. Currently quoted on the band's Web site as 30 tons, this sounds a bit modest for an S4 stadium system, but we shall see - perhaps it's just a reference to the racks. Lighting is suitably extravagant for a band of this stature. The confirmed general contractor is LSD, who will be supplying over 1,000 instruments - in addition to the 20 xenon searchlights, three 70kW Lightning Strikes from Cirro-Lite and 5,000ft of rope light. The designer is, as ever, Willie Williams, with assistance from his long-time U2 associate Bruce Ramus.

John Lobel at LSD has been heard to say that so involved is the customised nature of set and lighting for the tour that the production is proving more challenging than the Atlanta Olympics. It's an observation confirmed by the presence of Richard Hartman as consultant, whose expertise is being called upon to provide engineering and logistical solutions to getting this behemoth quickly in and out of every venue. If their last tour, Zoo TV, was anything to go by, this is going to be one event not to be missed.

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MESSE BUSINESS

Mark Cunningham returns from Europe's premier music technology event - Frankfurt's Musik Messe - with news of some of the hottest audio product launches

So there I was at Gatwick with a suitcase full of camera gear and press releases, mentally prepared for the onslaught of even more information when I reached my final destination: the Frankfurt Musik Messe . . . where else? With 15 minutes to go before my flight departure, I found myself at check-in queuing behind what seemed to be the entire Japanese population. Surely, I was doomed, but a soft-focused angel beckoned me and uttered the immortal words: "My counter is free, sir. Bet you thought you'd escaped Frankfurt for a minute, eh?" I blushed, remembered my Messe baptism of fire last March and resigned myself to another few days of aching feet and sweaty collars, the traditional journalistic burden associated with negotiating 110,000sq.m of exhibition space in search of the Truth.

Maybe it was my imagination but compared to last year's Messe, there were fewer earth-shattering new products in evidence. Unless, that is, you consider the presence of higher quality at the lower levels of the market, thanks to some clever tactics by major players, more of whom later.

WORDS DRAWN FOR THE IN-EAR WAR

Frankfurt '97 will, however, be remembered for the gnashing of teeth and cries of battle as four manufacturers of Goliath status - AKG, Sennheiser, Shure and, of all people, RCF - revealed their gleaming alternatives to the Garwood Radio Station in a bid for glory in the in-ear monitoring stakes.

Yes, we all knew it wouldn't be long before those with enviable track records in wireless microphone technology decided to pit their wits against that lonely but lively Cricklewood establishment which has spent the last seven years leading the market with, frankly, no opposition. (Engineers are already referring to IEM systems generically as Garwoods.) Now, of course, Garwood has every reason to be running scared, or at least you'd think so, wouldn't you? This, however, does not appear to be the case - a point underlined by the distinct absence of the IEM giant at the show. That's confidence for you. Having spent some time investigating the new systems, it appears



on first glance that only AKG has something to seriously rival Garwood's industry-standard product ('product range' to be accurate). As for the rest . . . well, let's just say that they have much to live up to.

AKG product manager Walter Ruehrig makes no secret of his long association with Garwood and particularly his friendship with Chrys Lindop, who developed the original Radio Station with Martin Noar back in the late 1980s. But there can be little room for sentiment when the gloves are off and a serious challenge is being made from Vienna. The product in question is EMS 1 system - a wireless UHF 16-channel stereo package with switchable frequencies which includes several features in common with the Radio Station.

As to what is so different about the AKG product, Ruehrig explained the background to its on-board Individual Virtual Acoustics (IVA) processing: "AKG has a long history in binaural audio processing and six years ago we introduced a consumer headphone product (Audiosphere BAP-1000) which simulated the ambient qualities of speakers. When you

normally listen with headphones you have the feeling that the music source is within your head, but our processor gave a more open impression. So when we decided to investigate the in-ear market I saw the potential to combine the basis of what Garwood had done with our own processing technology.

"Live musicians are not used to headphones and 'feeling' their monitor signal in their heads. They need it to sound as if it is part of their environment, and this system simulates the positioning of the music source around the stage and its various acoustic and reverberant reflections, as would be the case with traditional wedge monitors. The ear pieces are also a unique product to AKG and they can be personalised following a visit to an audiologist. You need a particular type of ear mould which completely seals your ears from the outside world, especially in this case where all the ambient processing is conducted through the system."

AKG claims it spent two years evaluating the in-ear market and its potential strengths in what is essentially a specialist area, although this actual product started life at the design stage around eight months ago. Shipping of the systems is expected to begin in October.

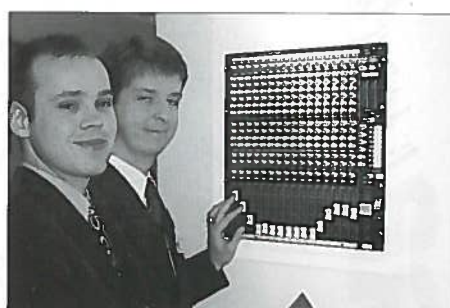
When I interviewed Professor Jorg Sennheiser in 1995, he hinted that his company would be introducing an IEM product this year. Sure enough, Frankfurt '97 was the chosen venue for the launch of the 3050 system which includes the EK 3052-U belt pack UHF stereo receiver featuring PLL-controlled switchability over 16 frequencies and Sennheiser's HiDynplus noise reduction circuitry. Accidental adjustment of the on-board volume control is prevented by an optional cover. Both single and dual channel 1U stereo transmitters are available and are easily configurable for multi-channel operation. The system can be purchased from August, but I asked Rob Piddington why it has taken so long for Sennheiser to enter the game. He replied: "It normally takes 18 months to two years to get to the final working prototype, and this is a very complex product. We're going to be head to head with Garwood and taking into



Shure's Geoff Ingle and Stephan Scherthan with the personal stereo monitor.



The HLA Series takes centre-stage on the JBL stand.



Allen & Heath's David Kirk and Bryan Waters with the new WZ 16:2.



JBL's Mark Terry at the HLA press conference.

consideration all the features on our product, it is very keenly priced to bring IEM to users who may not have been able to afford it before now."

Shure displayed its new PSM-600 Personal Stereo Monitor System which will be available in both wireless UHF and hard-wired versions when it is shipped in April. The system comes with Shure's proprietary E1 small ear pieces and a the P6R body pack which gives maximum control to the user. Applications manager Stephan Scherthan commented: "With our reputation for wireless microphones, the next logical step was to build a quality wireless in-ear monitoring system. At each trade fair over the last few years, we have been receiving requests from our microphone customers for IEM products. This forced a decision to bring forward plans."

Two variations of the system will be available - a 600MHz version intended for the American market, and an 800MHz model for use within Europe. There are a total of 10 compatible frequencies for selection, each of which can operate in conjunction with other Shure UHF and VHF systems. "The system comes with the PA760 UHF Wireless Antenna Combiner which allows up to four P6T transmitters to be combined into one transmitting antenna," explained Scherthan. "Upon opening the battery door in the body pack there are four dip switches. The first is for the frequency selection, the second is a stereo mix mode switch for custom monitor mixes, the third is a presence boost and the fourth allows the choice of limiter on/off, although we strongly advise people to activate the limiter which helps to prevent any hearing damage." Scherthan added that Shure is promoting the product to PA rental companies, semi-pro and professional musicians.

Last year, RCF began its campaign to market its own brand of wireless microphones and its commitment to the wireless market is now underlined with its introduction of the TX500 IEM system which, unlike its Frankfurt rivals, is a VHF-based package aimed at the low-end user. Currently undergoing tests for European Type Approval, the system will operate within the 170-240MHz range and its belt pack receiver offers 120dB of headphone power level. It



Trace Elliot's MD Mark Gorday has eyes fixed on the PA market.

also features an on-board automatic limiter to control harmful volume levels. This system may prove to be the dark horse of the pack, especially where semi-pro club musicians are concerned.

NEW BOXES

Place every single loudspeaker cabinet at Frankfurt on top of each other and it's likely that they would have rivalled the Empire State Building for height. Of the more recognisable manufacturers, JBL received top marks for effort when it hosted a canapes and wine-lubricated press conference in the Harmonie Hall for its European launch of the HLA (Horn Loaded Array) Series touring PA system. The only thing missing was a good live band to show off the system's potential - we listened instead to a CD demo. This system is most certainly a different animal to anything else out in today's touring world and comprises new materials, designs and many new components. DCD (Dual Cone Driver) technology lies at the heart of the HLA and doubles the power handling capabilities, while JBL's new SpaceFrame offers riggers and set designers several rigging options and other practical advantages.

We were informed at the conference that the first three sales of HLA, most appropriately for the event, have all been to Europe and shipping began in the third week of February. The first system sale was to Dutch rental company Story Sound whose co-founder Michael Story said at the conference: "We were very impressed with



Richard Vickers of Kelsey Acoustics.



Community's Bruce Howze.

the new qualities HLA offered in flown applications and are very excited about getting our system out on the road this year to give our clients a much improved service." EML Sound & Lighting of Belgium has also invested in HLA with an order for a 40-box, three-way system and a 20-box subwoofer system. Production manager Walter Dace added: "I think this HLA development is probably the most significant in touring PA so far in the nineties. It will certainly influence EML's future business."

Martin Audio has taken a sideways step and produced a new sound system specifically for the cinema industry. The Screen 4 system is designed to conform to THX requirements for two 15" speakers in a vertical enclosure that is sufficiently shallow to be fitted behind a screen. Designer Bill Webb said: "We've used the same technology that is present on our Wavefront 8 system, have got rid of the 2" compression driver and its inherent distortion problems and produced a 90° version with our 6.5" high/mid device which operates above 500Hz. We also have a new phase ball loading device which maintains the constant horizontal coverage required by a cinema."

Added to the Screen 4 is the surround sound Effect 2 speaker which has an 8" bass driver and 1.25" HF device on an elliptical constant directivity waveguide to deliver a 90° x 60° pattern. Webb commented: "We have a number of distributors who are heavily into the cinema market, so we will be looking to gain some presence soon in countries like Japan and Korea, although we are testing the market slowly for the time being." Martin also announced upgrades to the LE Series of monitors, introducing the new LE350A, LE400C and LE700A. All feature component changes and enhanced voicing with greater high frequency extension, as well as an increase in power handling.

Not only did RCF launch its IEM product, it also introduced its latest high performance active loudspeaker systems: the ART Series, in which there are four models - the 200A, 300A, 200AM (with on-board PA mixer) and 300. In addition, two bass extension speakers, the active 600AS and passive 600S, have been designed to complement the ART Series. Phil Price said: "Looking at the



Martin Audio's cinema system fronted by designer Bill Webb (right) and new Martin recruit Richard Rowley.

way market trends are leaning towards compact, easy to use boxes and the developments in plastic enclosures, we felt we could improve on what was out there. In developing the ART Series we could enlarge our status in the professional and MI businesses, as well as the increasing multimedia market where a system needs to both sound good and be easy to set up."

The newest speakers from **Apogee Sound** are the loud AE-7 full range speaker which can run continuously at 132dB and AE-7SB dual 15" subwoofer. The processor-based AE-7, a 60° x 40° cabinet is mainly intended for use in dance venues where it will be pushed to the limit. Pat Price said: "It can certainly be used as a full range cabinet by itself but we have also doubled it up with the AE-7SB subwoofer which shares identical external cabinet dimensions for simple arraying."

Maldon bass and guitar amplification legend **Trace Elliot** has dipped its toes in the PA market over recent times with its Evolution Series and has been threatening to make serious impact with a top level pro system in the future. This gradual process now seems to be taking shape in the form of monitoring with its new 1000W M3 monitor speaker which features a Precision Devices driver. Mick Calvert said: "We have been working with Villa Audio to try to create what we feel is the ultimate wedge monitor system. We are building 20 initially for Villa to go out and road test and we will then develop the product to the stage where we can hope for major sales to rental companies. From this point we will be working towards a full



Pat Price of Apogee in full flow.



John Halnon of John Hornby Skewes with the Scanner mic range.

professional system, complete with power amplifiers. Everybody perceives Trace to be purely a backline specialist but cynics will soon learn that there is much more to our design and manufacturing capabilities." Whispers of Harman's interest in Trace Elliot over recent weeks finally culminated in the announcement at Frankfurt of its distribution of Trace products in Germany.

Additions to the **Turbosound** Impact range were the Impact 50 and 110. Available in blue, black or grey, the injection-moulded Impact 50 is aimed at wine bars, restaurants, hotels, theme parks and retail outlets. The Impact 110 is a passive sub-bass box which can be run with two pairs of 50s. "We are definitely going to do some business with these new models," said Martin Reid.

Added to the new HiLight series was the THL-2 - a full-range, switchable, bi-amp passive box with 15", 6.5" and 1" drivers, designed for club and other fixed installations. Its 90° dispersion pattern suits small, one-box-per-side PA applications.

Celestion announced its new CRn Series of four compatible full range units and one sub bass box, which are fitted with eight M10 flying points and feet to allow the choice of flown or floor-mounted installation. The CR Series has been upgraded to include Speakon connectors and jack sockets, and both product series feature Powerguard protection for the



Turbosound's David Bruml and Sean Martin.

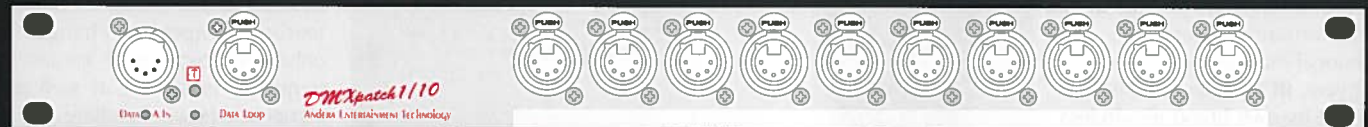
respective HF units. Reviewing the past 12 months, Richard Wear said: "We've enjoyed tremendous growth and seen a 90% increase in our European sales. To underpin our commitment to sound reinforcement we are planning further product introductions following the three new ranges we introduced last year."

POWER & PROCESSING

There are three models in the new GB series of amplifiers from **C Audio**, offering 200 (GB 202), 400 (402) and 600 (602)W per channel, all into 4 ohms. The amps are all Class AB design and use bi-polar output devices, which is a departure for the company known traditionally for its MOSFET products. Richard Moore said: "The amps are priced to be competitive with the most cost-effective on the market. Although the series does not include the current sensing aspects of the SRX range, it does feature an application of C Audio's AMPSAP protocol which provides the ability to insert analogue crossovers and limiters into the back of the amps. As well as switchable limiters, the amps will have a switchable high pass filter to remove subsonic information. The GB range is ideal for lightweight installations, but later on this year C Audio will be launching a new dedicated installation amplifier which will have the full implementation of AMPSAP on board." The GB range enters full production on April 1.

Apogee Sound's MA series amplifier is a modular multi-channel amp in which each of its eight channels delivers 200W into 4 ohms. Pat Price commented: "The demand for this

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JBL's Walter Ruchrig.

amp has arisen through theme parks that may have thousands of channels of amplification to drive speakers. It also has automatic ducking to allow for emergency announcements and includes a circuit which, by way of a subsonic carrier tone, informs if a speaker is functioning incorrectly."

BSS Audio has responded to the current trend towards lower pricing by introducing its Opal Series, which features the new DPR-422 Dual Compressor/De-Esser and DPR-522 Dual Noise Gate. David Neal explained the rationale: "Because of the manufacturing techniques that we have developed over the last two years we have been able to significantly lower the cost of manufacturing of certain items. So with the Opal Series we have been able to produce the same BSS quality at a more competitive price level, thus opening up the BSS name to more market sectors."

The Opal products share a dramatic new look. "We wanted to keep the standard BSS identity noticeable by including the lights in the middle of the fascia panel, but rather than retain the square shapes we have featured two split oval shapes which have a more modern feel." Expect additions to the range by late summer.

BSS's designers have certainly been busy - they have also changed the shape of the DI box as we know it. The new phantom or battery powered AR-133 Active DI Box/Line Balancer has an arched design which incorporates a high degree of strength, as successfully tested under the wheels of a 40 foot artic truck (some road test!). The AR-133's arched shape allows cables to be dressed underneath the unit for neat cable management.

Interesting new consoles were thin on the ground, but the **Allen & Heath** WZ16:2, the first in the Mix Wizard Series and an ideal purchase for the installation business, did manage to capture one's attention. An affordable desk with a rotating connector for simple set-up, it has 16 balanced mic/line inputs, four band EQ with two mid sweeps and six auxes.

Bryan Waters commented: "There are 100mm faders as on the GL2 and GL2S which sets this desk apart from competition in this price bracket. We have attempted to make the signal path as short and clean as possible to deliver the best possible performance." An updated, 32-channel model of the GL2000 console was also introduced, and the GL4000 received its European premiere.

MORE NEW PRODUCTS IN BRIEF

Community made its first significant leap into the professional touring world with its AirForce concert system, designed by president and chief engineer Bruce Howze to perform louder with lower distortion than any existing



Lisa Fletcher models the GB range of amps from C Audio.

loudspeakers. AirForce consists of the DSC42 digital system controller plus six distinct loudspeaker products, covering long, medium and short throw applications.

Audio Technica launched seven new microphone products including the ATM-89R hand-held condenser in the popular Artist Series, while a new arrival in the PRO Series is the PRO-35R small clip-on condenser instrument microphone.

Stephen Court described the new **Court Acoustics** Club 8000 five-way 3kW speaker system as "the most powerful product of its kind, designed predominantly for dance music and live bands. It's a five-way version of the old 'Black Box' which gave us our fame years ago."

ASS of sunny Southend announced the completion of its Refleka range, designed to "achieve 99.99% satisfaction by users and engineers." Some boast! The actual range includes the MX600 long throw mid-range cabinet, MX1200 bass enclosure, MX900 full range cabinet, MX121RT medium throw sub bass unit and two floor monitors: the Stage CAB L and Stage CAB M.

Beyerdynamic were showing a range of new microphones, including the NEM 194 neck-worn mic, the MCD 100 digital studio mic and the MPC acoustical boundary mic.

New from **Citronic** was the ZM100 four-input two-zone mixer (ZM200 model including remote control) along with the ZM-Slave, which can extend the mixer to four or six zones.

The latest Series 02 cabinet from **d&b audiotechnik** - the 702-LS - was on show for the first time. With a similar arrayable cabinet to the 402-LS, the 702s will help to broaden and enhance the near-field coverage of a 402 array. Also new is the E-PAC, a dedicated, small



Max Exner (left) with Bernd Wittenberg and BSS's DI box - old and new.

format loudspeaker power amplifier controller which can drive up to three of d&b's E3-LS cabinets.

Kelsey Acoustics introduced its new S-JTC multicore which includes several new features as a result of the latest cable developments in technology.

Metro Audio introduced the MA-SMAC stage management audio control unit, which aims to bring all theatre FOH and backstage audio into one control unit and combine it with the intercom system. The 2U box has six inputs in addition to the intercom input, including stage manager, FOH, stage door and voice evacuation. Also new was a 1U wireless intercom base station, the MA-CWBS, which features a built-in two to four-wire converter, full Duplex TX/RX and a 538-475MHz TX/RX range.

Meyer Sound had three new self-powered products on show. The CQ (constant Q) -1 and CQ-2 are self-powered reinforcement loudspeakers, the PSM-2 is the stage monitor version and the PSW-2 the self-powered subwoofer.

Peavey were showing a number of recent additions to their enormous product range for the music market, including the Eurosys floor monitor range and the MaxSys and HiSys enclosure lines.

Soundcraft extended its commitment to Ghost console customers by announcing its new 24-channel expander module for Ghost and Ghost LE.

Four products in the LA Audio Millennium range were launched by **SCV**. They were the EQX2 dual three-band parametric equaliser, the GCX2 dual compressor/gate, the MPX1 multi processor and the MLX2 dual mic/line pre-amp with DI input.

Focusrite has added two new products to its Green Range: the Green 4 Dual Compressor/Limiter and Green 5 Channel Strip, which are being shipped to dealers in March and April respectively. At the press launch, MD Phil Dudderidge said: "We're bringing the quality of the Red 3 comp/limiter to the Green 4, and we expect both products to be extremely popular."

SPEAKERCHECK

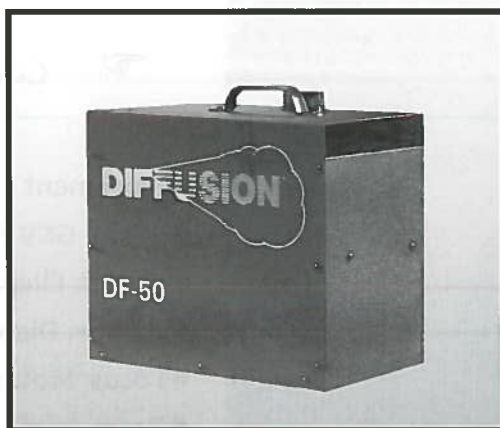
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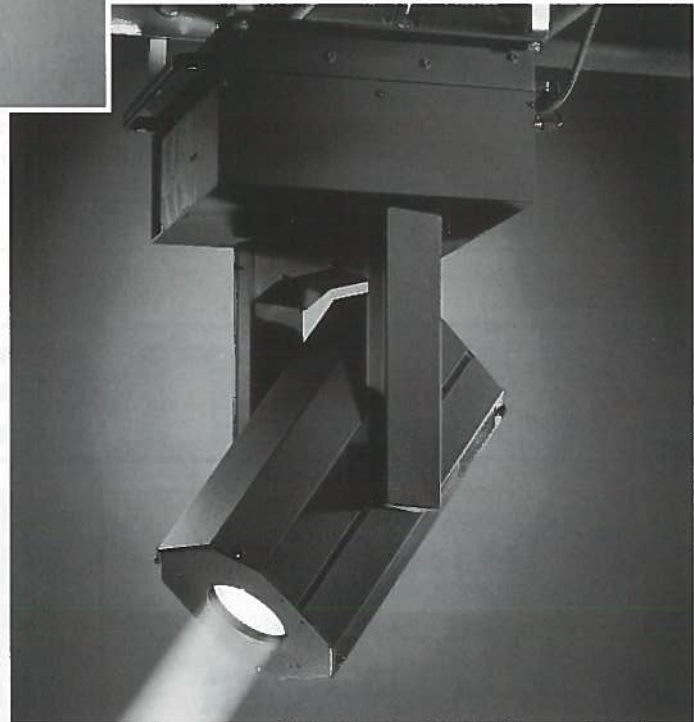


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CARNIVAL TIME

Steve Moles journeyed to the island of Tenerife to cast his eye over the spectacular celebrations surrounding the 'Burial of the Sardine'

It would be ungracious of me not to start this feature by thanking the Tenerife Tourist and Development board for their generosity in transporting an agent of this august magazine to such exotic foreign climes. However, to say the journey to and from this sun-blessed island was less than pleasant would be an understatement. Whatever your feelings about visiting a tropical paradise, it's wise to bear in mind how far removed are the standards of what's acceptable service to those that apply in the colder North.

Although I have flown from London to Nairobi in a turbo-prop that took over 24 hours to complete the 7,500 mile journey, stopping just once in Benghazi, Libya to rest and refuel, I can still honestly say that this trip was worse. L+SI is not the place to bore you with tales of travellers woes - I mention it only to expurgate it from my mind and to state publicly that, travel aside, the three short days I spent in Tenerife were fantastic and I have endeavoured wherever possible not to allow the trials of my journey to cloud my judgement of these colourful people and their abilities.

For a volcanic outcrop to the west of Africa, Tenerife exerts a seductive allure. Despite its small size, just 50 by 30 miles at its extremes, the island sports a six lane highway from the Northern airport to downtown Santa Cruz, its capital. The tourist industry of the Canaries is well documented, but much less well known, and surely the best kept secret in the Canaries, is the annual Carnival.

Each year, from the last week in January to mid-February, Tenerife (and especially the capital Santa Cruz) hosts a carnival that, like others around the globe, is inexorably linked to both Christian and pagan festivals. The carnival is, as its Latin root 'Carne' suggests, a festival of meat - or more loosely, food. In the case of



Tenerife, this breaking of the Christian Lenten fasting is, appropriately for an island nation, celebrated by the symbolic 'Burial of the Sardine'. Now don't chuckle - a sardine here is of equal merit to a prime cow in Texas or a sheep in Wales.

The trouble is, the solitary fish is physically small, so the islanders have woven it into the Caribbean and South American tradition of grand spectacles using extravagant costumes to make the finny creature equal to its cultural value. The remarkable statistic about the Burial of the Sardine, and the whole carnival extravaganza around it, is that this carnival is claimed to be one of the largest in the world, second only in fact to Rio in Brazil. It is quoted in the Guinness Book of Records for the world's

longest conga! Perhaps of greater import to would-be attendees is its more wholesome family orientation.

As prominent Spanish TV personality Ignacio Salas said to me during the ride from the airport into town: "This carnival is also a lot safer and a lot more fun than Rio," and he should know; he's been attending both for many years. Like all carnivals, it elects itself a Carnival Queen each year 'Gala de la Reina'. It's the final stage of an elimination contest, where clubs from all over the island select a girl from their midst and then concentrate all their efforts and resources into ensuring she has the most elaborate and fantastic costume for the carnival. The grand finale, a huge spectacle, is now staged in the recently-built Centro Internacional De Ferias Y





The theming of the show is merely a fine glue to bind it: so riotous and unbridled are the imaginations of the costume designers.

Congresos (CIF&C) and broadcast live to all of the Canary Islands, (and later edited highlights are broadcast throughout the Latin-speaking world). It's here that a fair dollop of British expertise has come to bear over the past decade, thanks mainly to the show's technical designer Luciano Delgado and the business relationship he has built with John Coppen since his time as production manager at CPL and more recently from within his own company, Cirro-Lite.

Delgado, as we'll come to see, is also the man mostly responsible for pulling off this four hour extravaganza. To give you some perspective on the scale of this event, the CIF&C is an enormous curved turtle shell of a building, 225 metres long, 75 metres wide, with the single span roof arching up to 18 metres at its highest point. The Leyher scaffold stage was set widthways, over 200 feet across and 60 feet deep. Temporary seating and stands for some 8,000 people are arranged in a broad sweep across the whole room.

The theme for this year's show was the 'Dawning of Man', something largely conceived by Luciano Delgado with set design by Justo Gutierrez. "Justo does the visualisation then I bring in the set builders and attend to the practical detail of making it work," said Delgado, giving the first hint to just how much of a producer's role he really plays.

Incidentally, Charlie Kail of Brilliant Stages was at the Carnival this year as one of the panel of judges to select the Queen. This was a gesture by the organisers in recognition of Brilliant's thus far fruitless work over the past four carnivals to tender for building the stage set. However, with ambitions to produce next year's show 'in the round', it's finally beginning to look like Brilliant's expertise will be indispensable and they'll get the job.

The set is relatively simple - a 50ft high semi-circular wall encloses the stage from behind, with large gateways stylised in stone standing to each side which serve as entrance and exit for the massive costumed Carnival Queen finalists as they parade across to be judged. At the centre rear is another gateway backed by a polystyrene mountain and to each side are gaudy cartoon crystal structures made

from inflated tubes of coloured PVC. Palm trees and boulders continue the motif of the island's volcanic heritage and tropical present, but for the most part the stage is bare, leaving ample floor space for the masses of dancers and musicians who accompany the proceedings.

The theming of the show is merely a fine glue to bind it: so riotous and unbridled are the imaginations of the costume designers and the many other facets of colour, music and dance that run through the whole carnival event, that it appears as if virtually anything goes. However, it does give cohesion to the televised show and provides the most marvellous spectacle for the opening sequence.

Thematically, the overall effect lays somewhere between Jurassic Park and The Flintstones - part comic, part scary. The sound of volcanic eruptions rumble through the hall,

"... the rebuilt dinosaur sported a splint, three bandages and a sling, much to the delight of the audience and the press."

lightning flashes (thanks to a 250kW and two 40kW Lightning Strikes from Cirro-Lite) and eerie green lasers (Laser Grafix) flicker through the smoke and lick the audience. A parade of monsters includes some very realistic-looking dinosaurs and is followed by a steamy jungle sequence where giant insects, a sinister 20ft tall praying mantis among them, march mechanically through the audience.

This is pure Disney and the largely family audience are enraptured. Eventually, primitive stone age man arrives and drives all before him asserting his dominance over the land.

It's a relatively short sequence, perhaps no more than 20 minutes, but it's met with loud applause by the live audience and a very visible sigh of relief from the enormous phalanx of operators in the crowd's midst at control central. The reason for this sigh is two-fold: Firstly, the whole event lasts four hours and if you don't capture the crowd's enthusiasm in

the first few minutes then it's going to be a long uphill struggle to sustain momentum; secondly, because of demands on the hall, particularly eliminator rounds in the preceding days, the opening sequence is never actually rehearsed. The mechanics of costumes, monsters, dancers, lighting and effects is naturally far more complex and involved than the brief paragraph above can possibly relay. The tension was palpable.

(In a brief digression from the main story; above the front of stage were hung two enormous dinosaur skeletons, perhaps six metres long, carved entirely from expanded polystyrene. During an eliminator round the previous day, one skeleton had disintegrated under its own weight (they had no inner framework) and fallen 30 feet into the audience. Rather than the safety investigation that would have been obligatory in the UK (as it happens no-one was hurt, nor were they likely to be from a block of expanded poly') the bits were hurriedly carted off and re-built. In a great show of self effacement, the rebuilt dinosaur sported a splint, three bandages and a sling, much to the delight of the audience and press.)

The prime mover of the show, Luciano Delgado has his background in television (TV Espagne) and he is currently head of TV lighting for the whole of the Canary Islands. Starting in theatre, where he says he learned the most, he also worked for TVE on mainland Spain before returning to the island of his birth. His theatre background has proved invaluable for this show: he co-ordinates a fair invasion force of resources for the extravaganza. From CPL and Vari-Lite comes a battery of four Sky Trackers to surround the building, while within are eight Gladiator followspots and 120 Vari*Lite (a mixture of 80 VL5s and 40 VL6s). "Although this goes to a large TV audience," Delgado said, "it's the people's carnival. I light it for the people of Santa Cruz and they expect a modern show."

Three 7kW ETC xenon projectors come from Galerna in Madrid and the company deserve much praise for recognising and responding to the dilemmas posed by an unrehearsed show. They brought in a stock of over 100 film rolls from which Delgado was able to select appropriate motifs to decorate the



The overall effect lays somewhere between Jurassic Park and The Flintstones.

stage's huge back wall. The lasers have already been mentioned, a powerful presence on such a vast stage, but one new addition from the UK for this year's show was a pair of Barco 9100s and screens from PSL. These were essential for the more distant live audience out at the extremes of the hall and this tendering to audience needs was well received in the local press reviews the following day.

In fact, PSL's commitment to this show was far greater than the income from two projectors would warrant. Luis Fidel, a well known tech' in the UK, was part of their two-man team. A Spaniard by birth and bilingual, for several years now he has acted as co-ordinator between the Anglo and Spanish elements of production. With so much of the show reliant on unrehearsed 'visualisations' of what was supposed to happen, Fidel's abilities to translate not just the literal, but also interpret the technical aspects, prove invaluable. This was acknowledged by all involved, from Delgado especially, through Vari*Lite programmers to the long-suffering Julian Hogg from PSL who carried the lion's share of projection responsibilities.

Most of the conventional lighting, and indeed all the sound for the show, was provided by Vision Sound and Light of Tenerife, but with such a big project they were never going to have enough equipment. Lighting-wise they sub-contracted in from Seville Lighting, a 500+ Par lamp rig run off top spec' ADB dimmers and an Avolites Diamond desk. The lamps were split 50:50 between a run along the top of the stage set wall and a similar spread across the top most rail of the bleacher seating.

Needless to say, such remote lighting locations would stretch the cabling resources of many companies, but unfortunately the twisted bare wire solution was resorted to, which inevitably created many problems. These, it must be said, were largely addressed by John Woods from CPL (fortunately on site a week ahead of the Vari*Lites) and Manuel Fernandez Zambudio, the very able and helpful technical manager of CIF&C.

Sound-wise all the equipment was sourced on the island, but was an amalgam of systems. Four clusters of eight DAS three-way cabinets were flown (very gingerly, it must be said, from this low weight-rated roof) across the front of stage, while beneath was an assortment of Prosound AD and Bose 402s and 802s in both the pit area and as delays around the hall. For a room this size, there was just not enough boxes. The rumbling volcano eruption at the start of the show was pitiful by the standards of



Technical designer Luciano Delgado (left) watches proceedings from the control centre.

bowel shaking to which audiences have become accustomed.

However, once the opening sequence was completed the rest of the show was a mix of short parades by the aspiring queens, interspersed by links from the compés plus dance and band parades. Here, in terms of speech intelligibility, the system worked fine (not that I could understand a word being said, but the words was discernible) and the music was audible, if a little thin in the middle. The several engineers took varying responsibilities (some for playback, some for specific bands, one for effects) and all resisted the temptation to overdrive the system into distortion in a craving for a few extra dB.

The system was run from a Yamaha PM4000 with a 38-channel Mackie slaved on the side with most of the material pre-recorded (for example, the potential to mic up an 80-piece kazoo band in 30 seconds just didn't exist) and run from four Tascam DA88 eight tracks.

Many of the sound effects came pre-made from four CD players with the usual gamut of Lexicons and Rolands for more traditional effects processing. For TVE, there were eight cameras, two rostrum in the house, two rostrums in the pit along with a HotHead and crane and a hand-held, plus two hand-helds on stage. Lighting-wise, the show always read on camera, although compositionally some of the shots were poor - it was not uncommon to catch sight of the crane arm in the foreground of the main shot!

As to the Vari*Lites, this was a labour of love for Jason Truman, who deserves a medal for not only constantly maintaining momentum for so long, but also the 48 sleepless hours he spent programming. It may not have been state-of-the-art TV lighting from a Vari*Lite point of view, what with the constant calls for movement, but this is no ordinary show.

With lighting forced to be so distant from the object (despite the small flown PA this is really a no-fly venue) much of what the camera saw was inevitably flat, but in such an environment it's a no-win situation. Unless, that is, you sacrifice the live audience and start building lighting towers in front of the stage, and with the focus of the event firmly on the people of



Jason Truman and Matt Croft (seated) keep themselves busy with the Vari*Lites.

Santa Cruz, that wasn't an option.

By the time the audience pitched out at 1.30am it was time to start revving up for the Carnival Parades. The Queen elected on Wednesday made her first grand procession on Friday accompanied by all the hoo-ha and razzmatazz we're all familiar with from carnivals the world over.

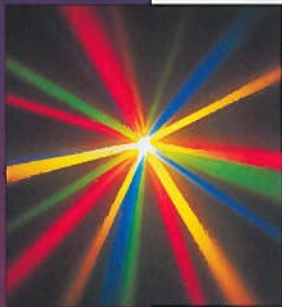
Stamina is the main requirement - the parade starts at nine o'clock or thereabouts and runs all night and for the next three nights, only to be repeated the following weekend after the infamous 'Burial'. As I departed by cab for the airport at six the next morning, the revellers were still out on the streets and the music from the many 'Murgas' bands could still be heard throughout the town.

The denouement to this spectacle is that Tenerife, and especially the CIF&C, would like to offer their venue for the European MTV Awards in the not-too-distant future (which may, I suspect, be why I found myself out there). That being the case, they have several points in their favour. The venue is certainly big enough and there's ample space surrounding it in which to build the usual temporary village of dressing rooms, studios and production offices. (Although I suspect the bulk of these structures would have to be shipped in from someone like De Boers.) The CIF&C administrators are realistic and have recognised the needs of such a big show; power at the site is in abundance, and from what I saw, big, fully-protected and breakered 3-600 amp three-phase supplies can be placed anywhere in the building. One of its major weaknesses, the roof, has also been addressed. They have just purchased a 23 ton roof from Tomcat capable of being rigged 32 metres wide by 24 metres deep, plus wings, which should more than accommodate the usual MTV stage. The hotels might need some attention (this is at least an hour's drive from the hod-loads of tourist hotels down on the Playa de las Americas).

Charlie Kail was accommodated near me in one of the better establishments and found the showers decidedly lacking - just the sort of thing that a plane-load of American TV exec's will just not tolerate - and there's going to be hundreds of them. That aside, the only other worry was the airlines themselves. When I went to check in for the second leg of my flight home at Madrid airport, the entire Iberia boarding system crashed. There I was in Spain's capital city, the hub of their National flag carrying airline and it was 50 minutes before any announcement in any language was made to explain what the hell was going on. Great climate though!

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OPERA ON ICE

Ian Herbert on the long-awaited arrival of Helsinki's Opera House

Helsinki's Opera House has been a long time coming. The first project was mooted in 1817, but it wasn't until independence in 1917 that the Alexander Theatre, formerly used to entertain occupying Russian troops, became the de facto centre of opera in Finland. In 1971 a competition was announced for a purpose-built house, which was won in 1977 by the local partnership of Eero Hyvämäkki, Jukka Karhunen and Risto Parkkinen. In 1981 the Government approved the final drawings; in the spring of 1987 tenders were invited, exterior construction finished in 1991, site works were completed in February 1993 and the Opera House opened on 30th November 1993 with the world premiere of Aulis Salinen's opera *Kullervo*.

The opera house sits on a triangular site along the Töölön bay, across which it looks back at Helsinki's city centre. What was an industrial area is now parkland, but the white tile facades of the building are a reflection both of its industrial past and of the landmark Finlandia Concert Hall which is also on the bay shore, nearer the city. Although one of the city's main arteries passes it, traffic on the site is largely kept out of sight by a system of service roads under ground, and the ample car parking space is away across the road. The 'industrial' image of the building, emphasised by its no-nonsense white-tiled central fly tower, is alleviated by an arched, conservatory-like glass wall the length of its waterside elevation, and a smaller echo of it on the opposite, street side. The building is probably at its best set against one of Helsinki's not infrequent falls of snow, but in summer it basks in a softer surrounding of mature trees.

Inside, the exterior is continued in spacious foyers, most of them glass-walled, with floors of blue-grey Carrara marble - the architects say that they were looking for the atmosphere of a castle courtyard. These public spaces are usefully flexible - when I visited, the Opera orchestra were giving a free jazz concert in the upper foyer. There are two formal performing spaces, the 1,365-seater opera house and an adaptable 'small space' which can accommodate audiences from 300-500. The main house has 727 deep blue seats, continental-style, in its spacious area, with a further 638 rising above in three horseshoe balconies. That cool white theme of the exterior is still there in the balcony fronts and ceilings, but warmth comes from beechwood walls and matching wooden floors. Every seat has its own air-conditioning sensor. The proscenium height and width can be adjusted from 7 to 10 and 13 to 16 metres respectively. This area is painted midnight blue, a colour which also dominates Kristiina Wiherheimo's safety curtain painting.

In designing their stage machinery, the Helsinki team have gone for a flexible technology without being dangerously over-ambitious - they've obviously learned from the nightmares at Paris's Bastille. On each side of the roughly 20 metre square main stage are parallel spaces where scenes can be built, and behind it another stage houses the revolve,



The Finnish National Opera at Töölön bay, Helsinki, now settled in to its programme of 300 opera and ballet performances each year. photo: Thomas Mayer



The auditorium viewed from rear-stage. photo: Harald Raebiger

which can be tracked forward when needed. Even this relatively simple solution has presented its problems, since the side-stages are not of the right height to facilitate easy trucking on of built scenery. With the auditorium, the four stages form a cross at the heart of the building.

The main stage has a full system of risers, which can be used to raise and lower scenery and equipment to and from lower storage areas, or distributed scenically to copy the formation of any other opera house, a great help to touring productions. The core of the stage is four floor hoists, each 16m by 4m, with an upper system that includes a hydraulic lift capable of carrying 1000kg. The front curtain can be driven sideways or upwards.

The orchestra pit, seating 110, can be adjusted in width and elevation. For concerts, three hoists bring its forward component to auditorium floor level to create extra audience seating. The orchestra's rehearsal room is

directly below the pit, and the hoists can also be used to raise instruments - but not people.

The control position is at the back of the stalls. Lighting control is from a 1200-channel ARRI Imagine desk (dimming is also from ARRI), while the audio mixing is carried out by an AMS Logic 2 console. There are easily accessible lighting positions above the top balcony and in two front-of-house bridges, with side towers and a whole string of positions accessible by catwalks behind the pros.

The stage lighting consists of various Pars, Reiche & Vogel

beamlights, floods and cyc lights from ADB and DeSisti, profiles and Fresnels from Niethammer and Strand and projection from Pani.

The 'small stage' Almi Hall, used for dance performances, educational outreach and experimental opera, is a blue box which is highly adaptable. In its normal configuration it can offer a rehearsal stage area the same size as the main house, with full orchestra pit, but this means a low proscenium opening and very little possibility of flying scenery for actual performances. You can, however, adjust floor heights to give a flat-floor thrust or in-the-round performance. There are lighting catwalks across the whole roof, with the control room at the same height.

For the audio, the main auditorium has 40kW-worth of Electro-Voice speakers, nearly 100 in total, which can be used for effects or sound enhancement. The sound possibilities of this space are extremely flexible. To quote acoustician Alpo Halme: "Reverberation times

may be altered by adjusting sound baffles, stage draperies and seating capacity to achieve anything from a studio-like acoustic dryness to a nearly cathedral-like echo."

The foyers and auditoria are what the public see, but in fact they represent only a fifth of the total space. There have to be offices and facilities for the establishment's staff of 520 people. Orchestra, ballet, soloists and choir all have their own specifically designed rehearsal rooms, and there is, of course, a full wardrobe, scenery workshop, and prop-making facility. The ballet company even has room for its own separate school.

Great care was taken to insulate the auditoria acoustically from the rest of the building and its machinery. This was achieved by the venue's heavy cast-concrete construction, which uses sound-reducing joints. In some of the rehearsal areas it was necessary to go for a 'room within a room' principle, with acoustically insulated walls resting on a 'floating' floor within the concrete frame.

If you should doubt that this is a state-of-the-art opera house, it's worth a look at their information system. There's a network of over 100 computer workstations, a telephone



A production of Swan Lake at the Opera House.

switchboard that runs its own automatic 24-hour reservation system and an internal TV system with eight house channels, as well as the Finnish network. Technical staff have four-channel radiophones, a paging system and duplex connection in both auditoria. By the time I got to see the opera house late last year, it had reached the end of its honeymoon period with the Helsinki public and settled down to a programme of 300 performances a year evenly split between ballet and opera, with three or four premieres each season. Both auditoria

were well run in, teething problems ironed out and audience attendance steady at a very satisfactory 93%. It's probably no coincidence that these last three years have seen an enormous increase in attention to Finnish music and musicians.

Their conductors are in demand worldwide: their singers are good enough for the opera to cast its *Don Carlos* entirely with local leads and new Finnish operas abound. Jonas Kokkonen's *Insect Life*, based on the inter-war play by the Czech brothers Capek, has just opened to great acclaim.

To achieve all this cost 762 million Finmarks (approx £93 million) in building and a further 42 million (£5 million) in furniture and fittings. Running costs are helped by a state subsidy which meets 68% of them and a further 10% from the City, leaving the box office to cover 12% after a small contribution from sponsors. Are there lessons here for Covent Garden? Undoubtedly, but there are also funding lessons for our own central and local government.

(Note: I was greatly helped in the preparation of this article by Leena Nivanka, the Press Office of the Finnish National Opera, and by the beautifully illustrated book on the building edited by Tapani Eskola and published in 1995 by Kustannus Oy Projektilihti.)

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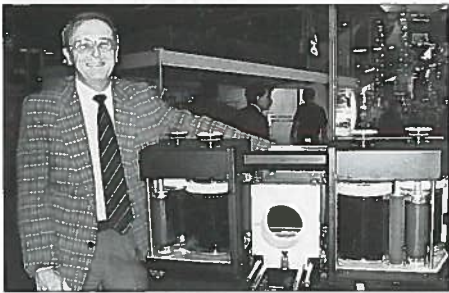


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FRENCH FASHION

John Offord reports from SIEL in Paris



Yves Ruellan of Hardware for Xenon shows the company's new double scroller unit.

Maybe I'm being too critical, having visited the event continuously for the past nine years, but the feeling that SIEL was down a notch or two on the presentation level and carried less than its usual high standard of theatricality at the front end of Hall 3 at the Porte de Versailles complex in Paris, probably reflected the current state of the French economy. On-costs in France are high, and those odd percentage points have to be accounted for somewhere.

Where it wasn't 'down' was on the attendance front. SIEL is probably the best purely national entertainment technology show in the world and a one-stop shop for anyone in the 'business' in France and the Benelux countries. And to back up the obvious importance of the market, Martin Professional announced the takeover, lock, stock and barrel, of their distributor, SLD, and set up shop as Martin France with their very own company. And they launched a string of new and enhanced products and product 'takeovers', which are detailed elsewhere in this issue. Pio Nahum, the company's area sales manager, will lead Martin's French charge with due Latin style and gusto.

Clay Paky were showing their highly-rated Stage Scan in France for the first time, following its LDI launch, together with the neat



Mike Musso and Christian Leonard launch ADB's presence at SIEL.

three-strong Display Line series of compact projectors. The VIP 300 is equipped with two low voltage electrified guides which accommodate a lens and a host of different effects that can be combined. Source is a 300W HTI discharge lamp. The VIP 250 is identical to the 300, but is fitted with a 250W 24V halogen source. The SIP is also the same as the 300, but the guides are not electrified, enabling it to use non-motorised optional effects. Also on stand was the new Golden Fog unit which carries Pulsar electronics on the DMX version.

News from Pulsar, who will have the Clay Paky Display Line projectors and Golden Fog units available in the UK in the near future, is that work has now been completed on upgrading all units in their Rackpak and Minipak ranges to comply with the Low Voltage Directive. Features have been enhanced along the way, and all Minipak models now have built-in level controls on each channel for stand-alone use. Two new models in the Minipak range include three and four channel hardwired versions.

Le Maitre's range of smoke machines were previously distributed in France by Clay Paky and Pulsar, but with the introduction of the latter's Golden Fog, a new arrangement was desirable. The result is a company called



Pulsar and Clay Paky business: Ken Sewell with Pasquale Quadri and Enrico Caironi.

Ketchup Distribution, which I'm sure sounds a lot better in France than it does anywhere else and certainly provided Le Maitre's Rick Wilson with the opportunity of setting you up in disbelief until you regain sanity and find confirmation in the show catalogue.

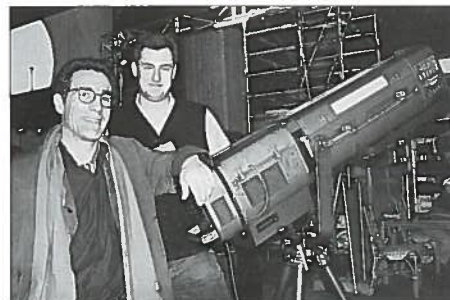
Projection is always a strong feature of SIEL, and the compact Cyclope unit was demonstrated alongside Diafora colour changers. The unit has a capacity of 25 images and comes in three different lamp-source versions - 1200W HMI and 1000 or 2000W HQI. A DMX control console can handle 15 units with 200 memories and 10 sequences.

Hardware for Xenon are based in France but figure internationally with offices in the UK, USA and Germany. They billed their Optimal Light Projector as the first major innovation since the creation in 1987 of their high power 5kW xenon slide projector.

It offers 80 per cent of light on the slide and the ability to use all the power of the lamp on an 18 x 18.5cm slide without the risk of damage. Excellent luminance distribution, with elimination of the central hot-spot, allows for levels of at least 75 per cent on the slide edges when compared to the centre. A new wide angle 105mm lens has been produced for use with the Optimal Light Projector to provide high



ETC's Adam Bennette (UK) and Troy Starr (US) with Olivier Panhuys of Workshop (France) and Bernard Bouchet (ETC France).



Patrice Bouqueniaux of Robert Juliat and Tom Mannings of DeCoupe with a Margot followspot.



John McDowell and Vickie Claiborne of High End Systems in Status Cue control on the CSI stand.



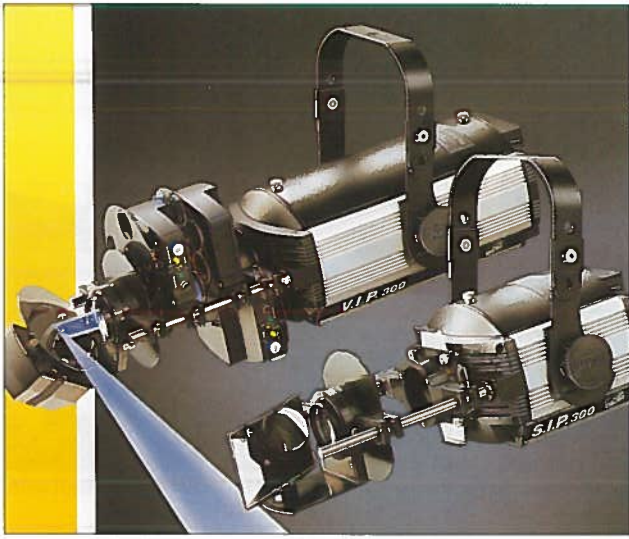
Pio Nahum of Martin Professional with Jon Petts of JEM.



A lighting trio of ETC's David Catterall, Strand's Celia Pope and CCT's David Manners.



Colin Whittaker of Celco (left) launches the Ventura in France with the help of Philippe Coudyser of distributors Sonoss.



Aiming for the leisure market: the Clay Paky Display Line opens up a multitude of installation possibilities.



Design and colour on CSI for High End Systems.

quality images 30 metres wide at a distance of 20 metres.

Also shown by Hardware for Xenon for the first time was their Double Scroller, which has a capacity of two scrolls of 40 metre long images, offering precision positioning to within 0.02mm and programmable speed control between 1mm per minute to 1 metre per second, a bidirectional link and graphic visualisation of the programme.

ADB have redesigned their Tango and Bolero lighting control desks - both now have an integrated power supply - and the popular Tango has a planned re-launch in around six months time, with added features incorporated. The new luminaires launched at PLASA are now in full production.

The biggest news from ADB, however, is on the international scene and sourced from the UK, where LSI have projects covering the globe, from Glasgow to Kuala Lumpur and from Cardiff to Shanghai. Worldwide Vision 10 sales have outstripped all expectations and include a recent order for five systems from the BBC. To complement the Visions, BBC Glasgow are investing in 400 ways of Eurodim2, and continuing to use Memopack portable

dimmers, which can also be found in numerous studios throughout TV Centre in London.

Further Eurodim and Eurorack installations have taken place in Egypt and Greece, and literally thousands of Eurodim dimmers and ADB luminaires, 40 of which are motorised, have now been shipped to the Malaysian National Theatre and Shanghai Grand Opera. Both of these projects required design work and project management by LSI, and extensive on-site training will be given prior to the venues' openings. Big business for ADB is also being done in Japan, according to general manager Mike Musso, where RDS are ADB's official distributor. One recent order alone accounted for 1000 Niethammer luminaires.

The **Robert Juliat** stand reflected the company's continual development of luminaires using long-life sources, and the full range of Fresnels and profiles is now available in tungsten, HMI/MSR, MSD or HQI. Relatively, the huge Juliat range uses a small number of lamp enclosures and parts and the commitment to sheet metal construction allows for the continual development of components to suit the different requirements of the new light sources, along with the ease in

bringing in improvements to the whole range.

The Juliat 2.5kW tungsten profile is now in production and the lamp house has been redesigned for the greater heat dissipation required for the bulb. A new fan has been fitted giving a 3dB noise reduction. Followspots are now a feature of the Juliat range and three new models were launched at SIEL. The 2.5kW Margot is designed primarily to replace the CSI units used in television studios, and it will be available with either a tungsten dimmer or a mechanical dimmer to maintain colour temperature. Other new units are a 1kW tungsten and 700MSD catering for the smaller venue with the 700W MSD offering an output said to be greater than many 1200W units.

Running in 100 Volt guise for the North American market, Juliat's digital distributive dimmer, the Digitour, comes complete with twist lock connectors. This high quality six channel unit is designed to run at full load (16A) for 24 hours continuously.

Lighting the stand was the Copernik dichroic Par can, which we drew attention to in our last SIEL report. Comprising seven MR16 Birdie bulbs, two each in the primary colours and one in yellow, by balancing the four control



Maris Ensing with Jean-Francois Cheron of Durango.



Gordon Pearlman and Michael Hall promote Rosco and Horizon on the Dimatec Stand.



Wayne Howell and Tracey Patterson-Skinner offer the Solution for Artistic Licence.



Cerebrum's John Lethbridge (left) and Graham Thomas (right) with Augusto Andraghetti of Spotlight and Brigette Delehaye of Durango.



Stuart Gibbons and Sally Noble of Le Mark TVS launched the company's new Blacktak product and set up two distribution deals.

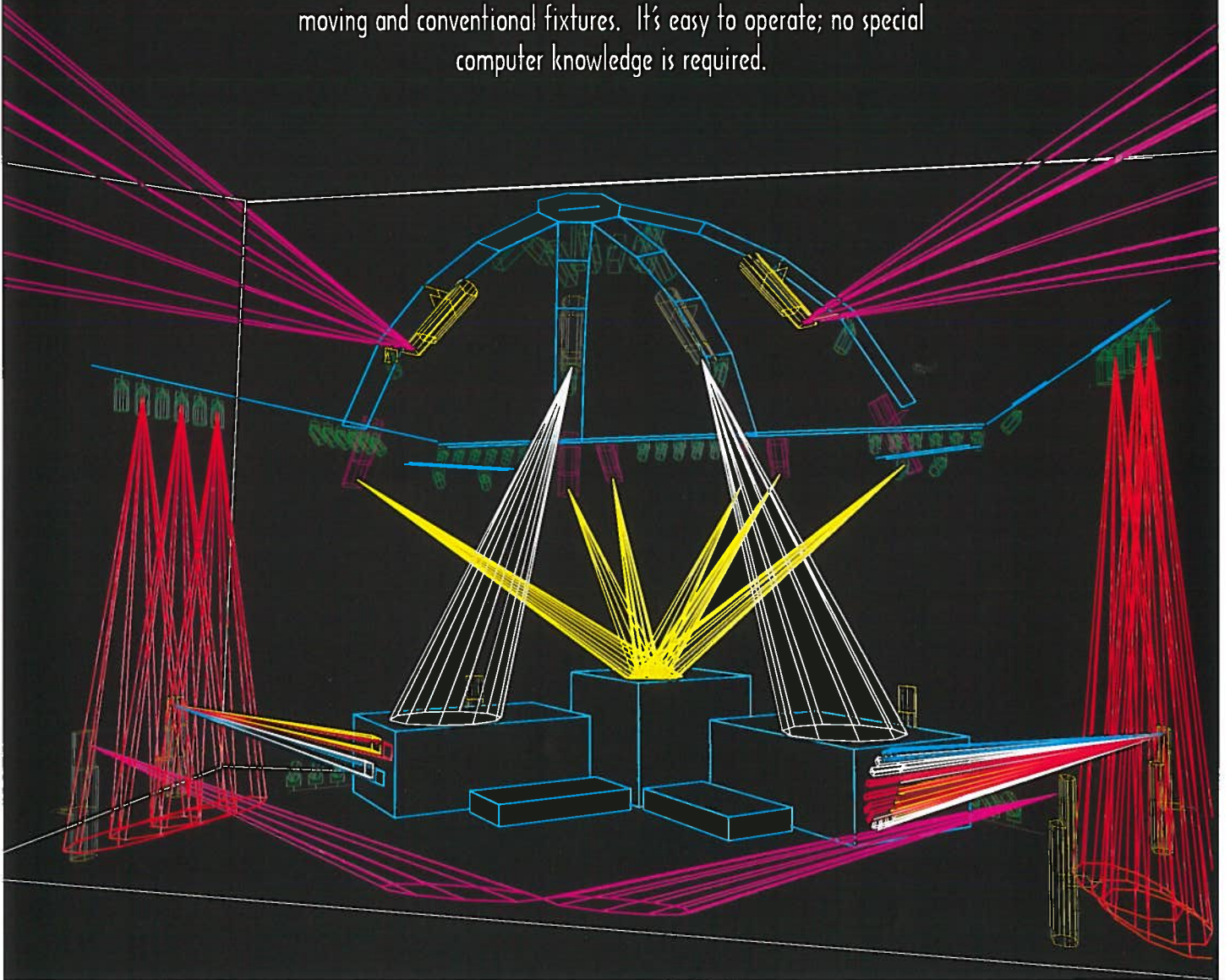


On tour: TMB's Mark Thompson from their London office with company president Marshall Bissett from California.

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Andrew Harvey shows off the Le Maître range on the stand of Ketchup Distribution.

channels it is possible to create the most subtle of colours through to deep saturations. The strength of the system is the additive mixing which enables very precise off-white tones giving it the 'edge' over subtractive systems.

Strand Lighting had a much more obvious display this year with a broad range of product on the stand of Eclalux. It provided an opportunity for the first showing in Europe of their 520 console with GeniusPro operating software, together with upgraded versions of the 530 and 550 systems.

Electronic Theatre Controls appeared in many places, but took a bit of searching out - until I found Bernard Bouchet, their man in France, with an Express 72/144 console on the stand of Stacco. He sourced me Adam Bennette, in from London and brainstorming in a back room with Troy Starr from the US, and soon others appeared, as if by magic, including David Catterall, their director of North European sales. The main area of discussion with these men is ETC's production capacity for Source 4 luminaires and forthcoming offspring. Back in Madison, Wisconsin, I gather they've had to build a new and bigger home for their production.

AC Lighting had a joint stand with **X+Y Systemes**, the moving yoke people, and displayed a range of kit including their fast-selling Chroma-Q colour changers and Strong followspots. Also on first showing was their Vision Light Enhancer 100, which creates microscopic particles of food grade mineral oil to form a fine mist. An LE200 with increased output is on the way.

The first person to catch the eye on arrival at SIEL each morning was Tony Shembish of **Avolites**, in the front line on the stand of Dimatec, complete with PLASA award and the Diamond III control console, 16 of which have



Paul Tonder of Gogler (Denmark) with Rod Bartholomeusz of Lightstorm Trading.



Chiara Pellicelli and Luigi Pederzani of Griven. Five new products are promised at SIB in Rimini this month.

disappeared via sales invoices since the London Light & Sound Show. New products include The Shape Generator, a plug-in software module which enables designers to create moving or static patterns and shapes automatically and then manipulate them in real time, prior to recording into memories or stored as a new shape for future use. Velcro technology has assisted with the new Avolites DMX Truss Splitter which is mounted in a rigid plastic tube and designed to be attached to anything! Also on the Dimatec stand were **Rainbow** colour changers from M&M and the men from **Rosco** with the Horizon system launched at LDI.

The French talent for staging was evident on the stand of CSI, particularly in showing off the products from **High End Systems**. On stand here were two new CO₂ET machines from **The Effects Company** which via a two-axis moving head project a powerful jet of liquid CO₂ up to seven metres high, but leave no residual 'smoke'. The shriek of these units firing off put me in mind of Gare St Lazaire in Monet's day, and I would strongly advise not introducing your trouser leg to the vicinity of the jet (more details in this month's Equipment News).

Also on CSI were the products of **Light Processor**. Their new Input Extender is an optional upgrade for the QCommander 256 channel DMX controller and can be retrofitted to existing systems, as well as supplied fitted to new ones. Control inputs to the QCommander can be patched to the Input Extender, a bank of 16 faders and flash buttons. Setting up the patch is done on the QCommander itself and allows scenes, chases, keys, channels or groups to be controlled via the faders. Accessing an effect via a fader creates direct manual control of the overall level of that effect. The operator can subsequently choose to include all channels in the patch or just the HTP channels,



Avolites' Tony Shembish - front of hall maestro.



Strand Lighting's Celia Pope shows the 520 console to Europe on the stand of Eclalux.

thus enabling the fading of intelligent lighting sequences without affecting mirrors and other normally LTP channels.

More smoke, this time from **JEM**, was presented on the **Martin Professional** stand. They liked JEM so much, they bought the company, and a buoyant Jon Petts reported that re-styles and new products were "in the pipeline" now that the takeover operation has settled down successfully.

Amongst the distributors, ESL's busy stand included **CCT** and their Freedom range of luminaires, Stardraw 2D from **Artistic Licence** (who also had their own stand, more of which later), **Jands** control desks, **RVE** control equipment and **Sagitter** projectors. Another popular regular is Sonoss with **Celco**, **Thomas** and **Wybron** products competing for space. Featured here was Celco's new Ventura console, launched at PLASA.

Lee Filters' Paul Topliss explained that the company's up-dated Lighting Filter Comparator was now available on request and that more gobo designs were on the way in the near future.

Durango, where **Cerebrum Lighting** have a connection, had a selection of **Anytronics**, **Maris**, **Powerdrive** and **Andolite**. Also on view was the DMXEye show recorder from **XTC** products, which is primarily designed for lighting control in situations where the same pre-programmed sequence of lighting scenes needs to be triggered by a 'turn-key' operation. By sitting in line between any standard DMX lighting console and the dimmers or moving lights, the DMXEye can record a complete show and store it in internal memory along with the times at which the lighting cues occurred. By setting the key-switch protected mode to 'playback' the DMXEye's can then continually loop through the captured lighting scenes at



Chris Fenwick and Tim Burt show Zero 88's Sirius 250 on the stand of distributors LCB.



CCT's David Manners outflanked by Flashlight's Fons de Vreede on the ESL stand.

precisely the rate they were originally recorded. The original console can then be removed from the site. The DMXeye Plus has additional features and 96 channels against the standard unit's 48.

Also on Durango, Maris Ensing concentrated on a touch of interactivity. As people walked past or onto the stand, pressure sensors mounted underneath the carpet were used to trigger lighting and sound effects. The Maris Stinger show control took care, not only of lighting and sound effects generated by the Liberty sound store, but also the occasional burst of smoke. A second interactive system was also being shown: Fly Palette, one of the interactive specialist systems currently being developed by Maris Ltd, changed colour depending on the amount of movement, and also echoed the bright colours coursing the stand. This control system used a camera mounted in the rigging, aimed downwards. A computer then analysed the images and decided which colour was to be used depending on how much movement was detected. If a particularly bright colour was seen, it then matched that using the Fly's capable dichroic filters.

More magic from Maris will be announced in future editions of L+SI, most particularly the story of a major London project due to take place this month, and it is hoped to persuade the company to employ their expertise in the foyer and front-of-house areas of the PLASA Light and Sound Show in London in September.

John Jones of **PCM**, based in the UK, reported that the company are now handling all European and Russian sales for Columbus



PCM's John Jones shows the new Prostar hoist to Mervyn Thomas of James Thomas.

McKinnon chain motors. On stand was the new lightweight CM ProStar with a lift ability of up to 600lbs. It is available in 110v, 220v single phase and 415v three-phase versions.

Mobil-Tech France presented a new range of telescopic lifting stands designed for awkward, and particularly sloping sites. Eight models are available, two of which, the ALP4 and ALP5, can carry loads of up to 200kg and 300kg respectively and attain heights of 5.4 and 6.6 metres. The key to their stability is a system of four articulated legs mounted independently on adjustable jacks ensuring stability on all terrains and guaranteeing the lifting equipment remains vertical under all circumstances.

Stuart Gibbons of **Le Mark TVS** exhibited at SIEL for the first time and used the show for the



Mobile-Tech's all-terrain telescopic stands.



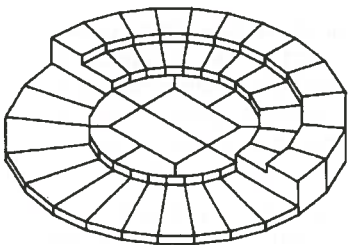
The SIEL AC Lighting team of Nic Tolkien, Mike Falconer and Mark Tonks.

launch of their new ultra matt black self-adhesive aluminium foil, Blacktak, which has been developed for use in the film and theatre sectors. Blacktak has a working temperature of 180°C and can be used for masking light spill, creating shadow effects, gobo adaptations and many similar light masking applications. This continued expansion of Le Mark's product range coincided with the appointment of two French distributors to handle sales of Blacktak, Magtape and LeMark Pal labels.

To conclude on a high note as far as the UK is concerned, and I would judge the only manufacturing company from Britain within SIEL's lighting section in its own right and not relying totally on distributors, **Artistic Licence** showed their complete rack-mount Solution range for the first time. It includes the Protocol Converter, DMX-Merge, DMX-Demux and DMX-Mux. The latter is the latest and has been developed to facilitate analogue to DMX512 conversation. It all means you can operate just about anything in the control room seamlessly, whether DMX driven or not! I'm told there are a further two new products in development. To complete their day, two new distributors have been lined up by Artistic Licence: Cerebrum Lighting in the UK and Space Cannon in Italy. And the company are on the look-out for more 'progressive' distributors!

As our regular readers will know, you won't find the audio aspects of SIEL covered in this report for the obvious reason that all the news on this front comes from Frankfurt a couple of days later, and is printed in this same issue.

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With these words at the forefront of our minds we designed a 16 frame advanced technology colour changer with few moving components housed in an injection moulded UL listed composite shell that is light, quiet and inherently durable.

We also tried to solve some of the more practical problems associated with normal colour changers. For example, we optoisolated

the DMX connectors to eliminate control problems, we made each unit separately DMX addressable to ease setup, and insisted that if the units temporarily lost power during a show, they would remember where they were without going through that embarrassing calibration sequence when power is restored. Servicing was a design priority too, the complete colour changer can be stripped in under a minute with the removal of just 4 screws.

This uniquely designed product has had quality built in right from the start. All components are manufactured by ISO9000* companies and the assembled colour changer goes through an exhaustive final testing procedure prior to shipment.

Oh, and by the way the motor industry was right. By taking their advice and setting up a mass production facility, we are now able to bring the Chroma-Q to you at only **£239.00!**

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*ISO9000 is a quality standard recognized world wide indicating excellence and consistency

TECHNICAL BOOKS IN REVIEW

STAGE LIGHTING - THE CD-ROM

Dan Redler

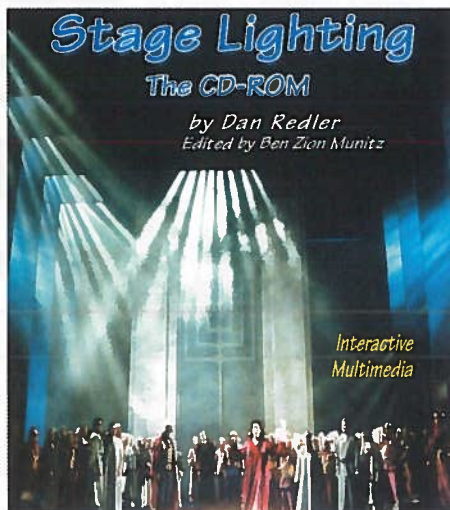
Focal Press

ISBN: 965 222 733 1 £39.99

The lighting textbook moved into the digital age at last year's PLASA show with the launch of Stage Lighting - The CD-ROM, created by Dan Redler of Danor and Compulite in Israel. Now anyone with a 486DX/100MHz or better PC with at least 8Mb of RAM, 4Mb of free disk space, Windows (3.11 or 95, 95 required for the CAD demo to run) and a CD-ROM drive can learn about stage lighting on-screen.

The CD-ROM follows the basic format of a book, being divided into chapters on lighting history, light and vision, light sources, theatrical luminaires, colour, control, effects, dynamic lighting and the process of stage lighting. The chapters are divided into sections, which in turn lead to lists that can be clicked on for extra background information. The author has also used the strengths of the CD-ROM medium to add cross-referencing, whereby clicking on technical words will lead to an explanation of the expression (these definitions are also available directly through a glossary) and to include a huge range of illustrations and even short 'movie' animation clips. This is the CD's real strength over a conventional book: lighting is a dynamic medium, and the ability to see a film of a lighting cue running (albeit at the colour and resolution limits of a PC) is wonderful. The 'interactive' images, wherein buttons can be pressed to change the way the scene in an image is lit, are also fun.

Fortunately, the creators haven't concentrated on the graphics in favour of the text: apart from the occasional slight spelling, grammatical or formatting slip, this is clearly written, accurate and informative - even referring to such practicalities as the lighting designer's fee! If anything, the text is too over-divided: the main sections are fairly short, and you end up clicking at lots of sub-references to find out more. While this means that you can filter out information you're not interested in, it also makes stumbling across something interesting by accident much less likely. And it's a shame that there's no way



of moving straight from one subtopic to the next without stepping back to the subtopic list each time.

There are other niggles too: poorly cross-referenced glossary entries (for example: 'UL - see Underwriters Laboratory' - why not just jump straight to the latter entry?), some words which should have glossary entries but don't, the relatively low resolution of some of the graphics, and the fact that text jumps up and down a page at a time rather than scrolling smoothly, making it very easy to lose your place. Some areas would benefit from extra animations - the explanation of the operation of thyristors, for example. And it's a shame that the show pictures don't include the names of the designers involved.

All in all, however, this is a very useful product for anyone learning about stage lighting. It's not a replacement for existing text books, but with its mixture of artistic and technical information, its glossary and its graphics, it does complement them very well. Hopefully, future editions will build upon those strengths, perhaps adding more equipment reference information to help people when they start applying the lighting techniques the CD teaches for real, rather than just experimenting in the interesting, but rather tricky-to-operate, demonstration CAD package that is included on the CD.

Rob Halliday

LIGHTING TECHNOLOGY - A Guide For The Entertainment Industry

Brian Fitt and John Thornley

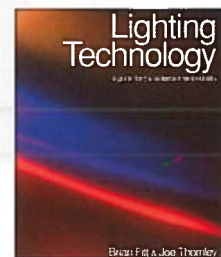
Focal Press

ISBN: 0 240 51449 480pp £35.00

Lighting Technology is a comprehensive guide to the basic theory and practice of lighting. It collects together a wealth of technical detail and reference data for the lighting industry and if you are a lighting practitioner involved within stage, film, television or still photography you will find this guide a useful reference source.

The authors are eminently qualified to write this book. Brian Fitt spent 13 years in the BBC's television operation department, followed by 20 years in the planning and installation departments. He is also the author of the BBC luminaire and dimmer specifications and is now a technical consultant for international broadcasters. Joe Thornley has worked with all the major lighting manufacturers on numerous projects in television, theatre and film studios and is now a consultant engineer.

Lighting Technology includes the latest product advances, additional information on theory, up-to-date references on European safety legislation and detail on the control of light.



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Butterworth-Heinemann

ISBN: 0 7506 2788 3 256pp £25.00

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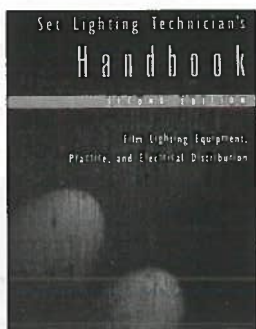
SET LIGHTING TECHNICIAN'S HANDBOOK

Harry C Box

Focal Press

ISBN: 0 240 80257 8 416pp £25.00

This handbook provides both students and professionals with practical, hands-on information about the day-to-day practices, equipment, and tricks of the trade essential to the motion picture and television set lighting technician.



All aspects of the job are covered in a comprehensive, friendly manner, providing a wealth of basic knowledge and a discussion of the most advanced aspects of electrical distribution. This book has been fully updated to include valuable checklists, National Electrical Codes, safety guidelines and extensive appendices of vital reference materials.

PLASA's Technical Book Service carries a comprehensive range of titles. Further details are available on (01323) 642639

ESTA RECOMMENDED PRACTICE - For Ethernet Cabling Systems in Entertainment Lighting Applications

Anyone who has tried to connect together a group of standard PCs to create a Local Area Network (LAN) at work (or even at home!) will know that an apparently simple operation is, in practice, full of hidden difficulties.

This ESTA Standard is to be recommended as it not only contains detailed information relevant to the entertainment business, but is a very good guide for do's and don'ts in general Ethernet use.

The booklet starts very sensibly by defining the various arrangements of wiring that are used within Ethernet cabling systems. These are strictly known as 'topologies', one of many terms that is covered in an excellent glossary at the rear of the booklet. Where Ethernet for lighting differs from standard Ethernet is that the design is more critical as no chances can be taken. As every lighting director knows, audiences at a venue do not take too kindly to excuses of any kind if the show has just stopped! Just as useful are the lists of advantages and disadvantages set out for each design.

Lots of simple, common-sense notes are



included - particularly noteworthy are those on the labelling of outlets to show where they go and sensible comments on grounding and termination.

How many of us have a socket in the wall in our offices which does not carry any information about where the cable goes or how much cable you can have between

your computer and the socket?

As Ethernet works at very high speed, such information is actually rather important. All four types of Ethernet - 'thick', 'thin', 'unshielded twisted pair', and 'fibre optic' are covered.

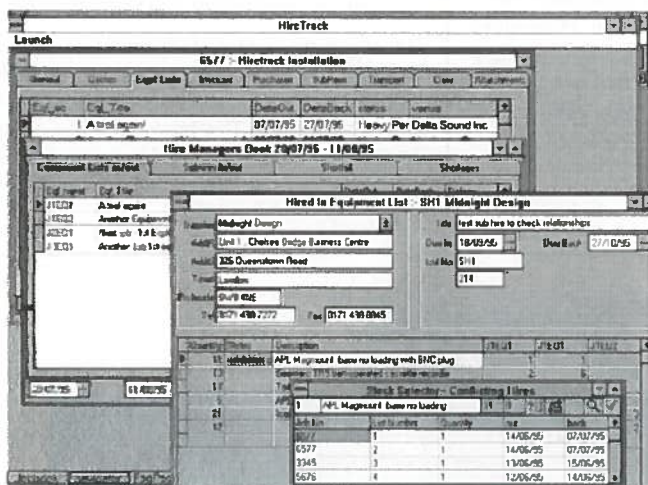
Unusually, the ESTA Technical Standards Committee is one of the very few organisations that has ever talked to the American IEEE, authors of the Ethernet Standard 802 (strictly speaking ISO/IEC 8802-3 or IEEE 802.3), and asked them to vet the booklet. Technically, therefore, the document is more reliable than most books on the subject.

If you ever have anything to do with Ethernet, I would wholeheartedly recommend this booklet.

Peter Brooks - Zero 88

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EQUIPMENT NEWS

Transtechnik's Alex/M

The Alex/M from Transtechnik is, at first sight, a 3U 19" dimmer module, with six or 12 load circuits protected by automatic circuit breakers, each circuit handling 5kVA or 2.5kVA. But it is also, Transtechnik claim, a lighting console, allowing the user to store up to 12 presets on site, calling them up individually or simultaneously and weighting them as required. The unit also features a chaser function which can provide simple chases or complex sequences of stored presets.

For further information contact Transtechnik in Germany, telephone +49 (0) 8024 9900.

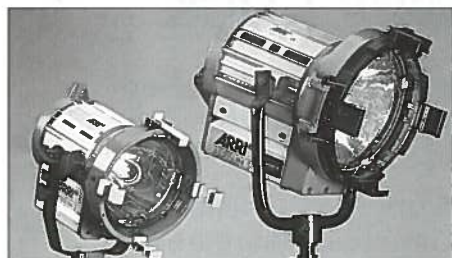
Rotating Gobo

The Goboram, which made its theatre debut earlier this month, is the industry's only three-gobo changer and rotator in one, according to Wybron. Lighting designer Ken Billington has been working with the company on a beta test for the Goboram and has employed several in a Canadian production of *Jeanne La Pucelle*.

Wybron first unveiled a Goboram prototype at LDI '96, and the company has since been working to perfect the technology. It is designed to slide into the pattern slot of Source 4 and Shakespeare 600 fixtures and holds three gobo patterns, changing and rotating them according to pre-programmed DMX cues.

For further information, contact Wybron Ltd in Slough, telephone (01753) 333001.

ARRIsun Rising



ARRI has continued the development of small Par luminaires with additions to the ARRI sun range.

The 200W ARRI sun features a drop-in lens for which five 130mm converter lenses are available, a frosted fresnel and a compact 200W electronic ballast in either AC or DC. The ARRI sun 5 (575W) is similar in design to the Junior 1000 plus, but has an optional set of 175mm converter lenses and frosted fresnel. The new ARRI lux 125 weighs just 1.2kg and can be used as a traditional Par luminaire, a gobo projector or a zoom profile unit.

For further information, contact ARRI in Middlesex, telephone 0181-848 8881.

Hi-Lo Digifogger

CITC's new Hi-Lo Digifogger produces 12,000 cubic feet of haze per minute, and is aimed at large applications where an immediate and thick haze is required. The company claim its output is 400% greater than conventional haze machines. With a touch of the Hi-Lo switch, the hazer can be switched from a high setting to low, where a slow, light continuous haze is needed. The fogger has self-cleaning nozzles, remote control timer, fluid gauge and a 'safe temperature' digital read-out with ready lights. The machine uses CITC's non-toxic high performance fluid.

For further information, contact CITC in the USA, telephone +1 520 771 8268.

Liquid-lensed VL5A

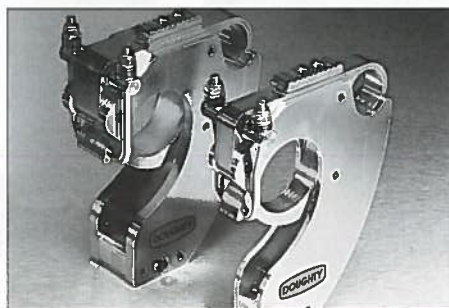
Vari-Lite has launched the latest addition to its family of VL5 wash luminaires. The VL5A features a 575W, 5,600 degree K arc lamp and diffusion is achieved with the technology of the Vari*Beam liquid lens. This fluid-filled lens technology gives a wide range of beam angle variation, smooth transitions and even field coverage.

With the intensity of the arc source, the luminaire is well suited for long throw wash applications and bold columnated beam effects. Like the VL5 luminaire, it features the radial colour changer with enhanced dichroic filters for full colour spectrum crossfades and a cold-mirror reflector avoids the use of noisy fans, providing silent heat reduction, while a douser provides full-field dimming of beam intensity.

For further information contact Vari-Lite Inc in Dallas, telephone +1 214 630 1963.



Doughty Overlocker



Doughty have launched their Overlocker, described as a cross between a hook clamp and a scaffold coupler, with more sophistication than either. It utilises a quick release locking system that can easily be operated by one person. There are 20 variations on the basic clamp, providing the end-user with added flexibility.

For further information, contact Doughty in Ringwood, telephone (01425) 478961.

CO₂ Jet from Effects Co

The CO₂ Jet System from The Effects Company was launched at SIEL 97 and will be available for sale from the end of April.

The CO₂ Jet System is a two-axis moving head which projects a powerful jet of liquid CO₂ which creates a white jet up to seven metres high - but without any residual 'smoke' effect, as it immediately disappears. By the use of skilful programming and a range of accessories, a variety of jet effects can be produced. The system comprises a head and a Datalink Module which in turn is connected to a standard DMX 512 desk. Up to four heads may be controlled.

For further details contact The Effects Company in Crawley Down, telephone (01342) 718399.

Sirius Control

Zero 88 has announced the arrival of the Sirius 250. Carrying on the traditions of the Sirius 24, this first of a new generation of controllers offers a useful combination of generic and moving light control.

The desk will handle up to 48 luminaires, of any type, of which up to 24 may be automated fixtures. The 256 control channels are automatically assigned to match the control requirements of the selected fixtures, the first of which is 4 Wheel Drive, an ergonomically designed layout of control wheels giving precise finger tip control to all moving head parameters. Cueline provides a quick and simple means of precisely linking together all the cues for complex shows in real time and the unit also boasts a comprehensive range of fully programmable chases and sound driven effects with up to 999 steps per chase and 999 chases.

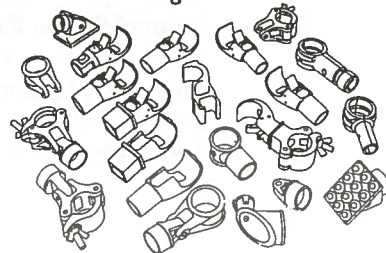
The Sirius 250 will be on show at the forthcoming SIB exhibition in Rimini, Italy.

For further information contact Zero 88 in Gwent, telephone (01633) 838088.

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Aghast in the Stalls . . . Ian Herbert

When it comes to iffy musicals, there's always one poor soul among the merrily knife-wielding critics who can see no wrong in them. It's usually me: *Moby Dick*, *Children of Eden*, *Snark*, *Which Witch*, I've loved them all. Even *Fields of Ambrosia* had its moments.

So I wasn't especially worried to be going along to the Hammersmith *Heathcliff*, two weeks into its run, after its murderous reception both in Birmingham and now in London. Cliff and I go back a long way, though he seems to have found a more effective tailor and hairdresser than I in the 40-some years I've been a fan. The start was promising: most of the predominantly female audience were at Labatts Apollo half an hour before curtain, queuing for their £30 designer t-shirts or a pair of heathcliff hankies, a snip at £10. The front-of-house staff were splendidly attentive. Then came the show. Friends, it is with no pleasure that I report to you that this time the critics are absolutely right. *Heathcliff* is a stinker, and the scent is wafting from some very unlikely quarters. It's time to name some guilty men, and I'm afraid they include some people you and I admire very much. Because the worst thing about the show is its technical presentation. Steve Moles has written lovingly and knowledgeably (L+SI Nov, 1996) about the kit that went into this production.

As you know, I'm supremely ignorant about PALs, Pars and Panis, their focal length, shutter speed and miles per gallon, but I can tell you when they're being properly used and here they're not. It's a sad waste of a vast amount of money. Sound first: we can't blame the engineers for what was presumably composer John Farrar's choice, to use totally synthetic sound, but there's the first big mistake: this ex-Shadows music may sound fine on the album, but backing a staged story based on a Victorian novel with an off-stage group who can only do sixties twang and thump is a very silly move. Even the excellent on-stage guitarist, Gordon Giltrap, doesn't help the period atmosphere much with what sound like sub-flamenco improvisations.

We can, however, blame the engineers for some pretty terrible balancing. The twang and thump win time and time again over Sir Cliff's light baritone, and most of his sung words can't be heard. (When you hear his spoken words, which come through with all the clarity and, unfortunately, all the emotion of a station announcement in an acoustically perfect terminus, you may feel grateful for it. His American-Yorkshire accent is a treat.)

His co-star, Helen Hobson, proves to have quite a rock belter voice - surprising after *Passion* - and can certainly be heard, but once again the effect is singularly inappropriate. (Would Cathy be a belter? Maybe, like everyone else of my age, my



impression of Miss Earnshaw has been too heavily influenced by Kate Bush.) Overall, the effect of the sound is like being trapped in a very small room with the CD player on max. The visual impact of the sound system leaves a lot to be desired, too: most of the cast, including the principals, are wearing flesh-tone versions of those dreadful telephone-operator mics clamped across their cheeks, which makes it look as if there's been an epidemic of some terrible skin disease on the tour.

Let's turn to Joe Vanek's set. Joe is a good mate and his *Lughnasa* set was one of the best ever, so what went wrong here? Steve told us not to expect much flying - I wish he'd been right. At Hammersmith we get far too regular intrusions from a set of ugly flown screens that remind you vaguely of the Typhoo Tea symbol and are about as useful. Slides are projected on to them - not only period nickings from the *Strand* magazine or maybe the *Boy's Own Paper*, but what the director must have thought would be helpful linking captions. Is this a lantern lecture or a grown-up musical, for gawdsake? PS, the fade on the captions always comes a second or two after the screens have been flown out.

Actually, this late cueing is generic to the show - before almost every musical number there's an agonising silence while the go signal is presumably carried by pigeon to the off-stage band. Electronic wizardry in communications? I think not. But back to the set. The influence of Kaspar David Friedrich has been cited. In the terrifyingly superfluous colonial journey ballet at the end of part one (eat your heart out Agnes de Mille) the influence seems more to be *Aladdin*, Rhyl, 1957. And the rocks which make up most of the stage furniture look exactly what they are - extruded polywhatever.

They do get quite animated when, in what should be the quiet and dignified

funeral scene towards the end, they start whizzing around like a Scalextric on heat, but at no time do they create a feeling either of reality or of fantasy - and that's the whole problem. It's nothing but a very stagey set. Where's the magic? I won't go on about the costumes, except to say that most look as if they are meant to fit someone other than the person wearing them.

Let's turn to the lighting, designed by Andrew Bridge. Did I say comfort? Look guys, get this: either you're doing a musical or you're doing a rock concert. You can't do both at once, unless it's *Tommy*. When Cathy goes mad on the heath, it's hardly surprising, since she seems to be in the middle of a somewhat anachronistic air raid, with searchlights everywhere. Immediately afterwards we get hard-beam primary colours. Great for rock, but they look like Christmas-tree lights on a conventional set. And who put that effing great spot on stage behind the rockery for the funeral - it was

"Heathcliff is a stinker, and the scent is wafting from some very unlikely quarters."

the only interesting thing to look at on stage by then, and all eyes were on it. And you can pile on the Vari*Lites till you're blue in the face - as so many of the cast so frequently were - but they have to be used by a stage lighting designer to create any imaginative effects.

The other big problem with not just the lighting, but much of the other kit, is sheer noise pollution - even the wind machine on the heath couldn't drown out the constant whirr, and when the Ninagawa snow-blower came on, things got even worse. (To be honest, the worst noise pollution was probably Tim Rice's lyrics). Not a great night out, then - but there was a standing ovation at the end.

This was largely because of the hardened Cliffhangers, who had no doubt seen the show many times already and so invaded the forestage before the end of the finale to throw flowers, cuddly toys - probably incontinence pants for all I know. What I do know is that the rest of us had to stand up at the end or we couldn't see the stage.

As I fled, I read the message on one of the control screens at the back of the hall. It seemed to be a programmer's complaint about his equipment - something along the lines of 'Adam and Eve had an Apple, too - and look what happened to them. Next time use OS/2'.

The worrying message of this evening is that money can't buy you good musical staging, and if too many misguided managements persist in thinking so, it will seriously hasten the already imminent death of the great British money-spinning musical.

Ian Herbert is the editor and publisher of the critical journal, Theatre Record.

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Steve Moles talks to Sound Engineer, Mike Keating

Mike Keating is one of those big, avuncular men, the kind that small children want to hug. In keeping with his physical stature, in his spare time he likes to drive giant earth-moving equipment, bulldozers and the like, and in his native Pennsylvania that's just what he does when he's not on tour.

Such a robust hobby, which, it must be said, he does professionally, makes him the target of much lampooning amongst his peers at Clair Brothers Audio, but they do well to remember that this man's certain touch with a 50 ton machine has also been responsible for front-of-house sound for Bruce Springsteen, Don Henley and Elton John, and he's spent the last few years sculpting the acoustical terrain for Sting.

Born in 1953 in West Chester, Pennsylvania Keating lost his father when only five, shortly after the family moved over the State line to Wilmington, Delaware. His mother worked for Dupont and, finding it difficult to do her job and raise a family, packed him off to boarding school. He stayed until graduation and in that time assimilated two simple truths about himself: "For me, school work was bullshit so I took shop classes. . .", demonstrating a love for things mechanical, especially motor cars, that has never left him, ". . . and I joined a school band as the bass player because I wanted to be where the action was".

That may sound trivial, but such decisions often affect destiny heavily, and the two certainly combined to steer Keating's. "By the time I left school I needed a job to support my muscle car habit and because of my mechanical ability, it fell to me to figure out how to work the PA for the band."

Ironically, both influences kept him firmly in the music business, although initially he was obliged to work in a grocery store for a couple of years to subsidise his passion for gas guzzlers. The band, meanwhile, gigged regularly for several years, often frequenting the Stone Ballon bar on the campus at the University of Delaware, a popular music venue run by a certain Bill 'Bull' Stevenson. Keating was soon replaced on bass and became permanently assigned to sound duties. During this time he assiduously figured out what each

knob did on his ageing Sun Controller 2 and taught himself the basis of what constitutes good sound. Ever a black art - who knows what genetic characteristic gives a person 'good ears'? - but he seemed to have them and this fact did not escape Stevenson.

The pivotal point in Keating's life came inevitably by that freak combination of circumstance, timing and his growing ability. "Bull lined me up to mix for a band called Dakota, a band he co-managed with a friend of his, Mike Stahl. They were a big vocals band in the style of Chicago or Toto. Mike Stahl also happened to work for Clair Brothers and a couple of years down the line he was out handling front-of-house sound for the 1980 Queen tour when the band decided to sack their opening act. Keating had played Dakota tapes during the walk-in each night and within minutes of suggesting them as a replacement was on the phone to us. Queen were out on the West Coast at the time and I remember 'Bull' out on the tarmac having to bribe the Air Cargo guys to remove a dead body from the plane so we could get our Hammond B3 in the hold. It was the only flight that would get us out there in time, so now you know where Bill gets the name 'Bull' from."

Within days, Keating came to the attention of CBA co-founder Roy Clair: "For a guy who's been hanging around doin' bars and clubs you've got a good ear for our system," Clair told him, and promptly offered him a job. At the time he knew nothing of CBA: "I had no idea who Clair Brothers were or the magnitude of the company, but I accepted the offer, although I did make a point of admitting to Roy that I had no technical training and told him I'd just been lucky with the system."

Whatever his own misgivings, Roy Clair had no doubts and put Keating straight into house mixing position jobs. "It was a bit awkward at first - there were a lot of other guys ahead of



Mike Keating.

me at the company in terms of time served, but if I run a console I give it my all and that's where I was, so I got on with it."

Starting out with Sheena Easton's tour of Japan, Keating moved through many famous acts over the years, taking over Bruce Springsteen from the famous Bruce Jackson for the Tunnel of Love tour, and even doing a stint with the rarely-seen Steely Dan.

Despite this auspicious list, it's a less famous band, 38 Special, who he cites as his most formative influence: "They're a band who really give me something to work with at my end. They were a great training ground; trouble was they were always, always working. I almost couldn't get away from them."

Now with a wife, Judy, and his five-year-old daughter Kristi, Keating is of an age where he's presented with a similar dilemma - how to get away from the road. Bulldozer driver's wages won't support a family, and certainly not one that runs a collection of three classic Mustangs (one a '66 special with a 400hp 5.8 litre engine. Woof, woof). But a new avenue may be opening. Like many in his profession Keating is called upon more and more frequently to mix for live music TV shows. "It's a new field for me and one I'm told I have a natural ability for. I'm not the type to bail out on a tour, and Sting is a great artist to work for, so it'll have to wait a while. But it's something to work towards."

Which poses the question, what will the likes of NBC and ABC make of a man who drives bulldozers for fun?

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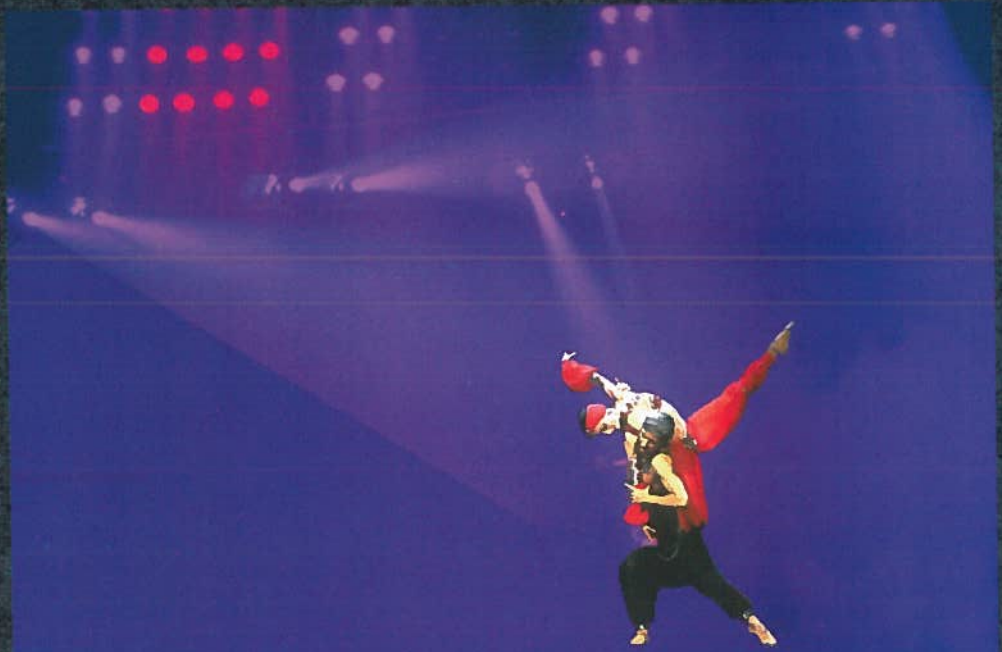
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