

LIGHTING+SOUND

International



LE PALACE, PARIS

- Julian Williams on Broadway
- Cover Story: Tony Gottelier in Montmartre
- Memory Lighting Control Survey
- APRS and ABTT Show Reports
- Ben Duncan at the Glastonbury Festival
- Tim Frost at Autograph Sound

JULY 1990

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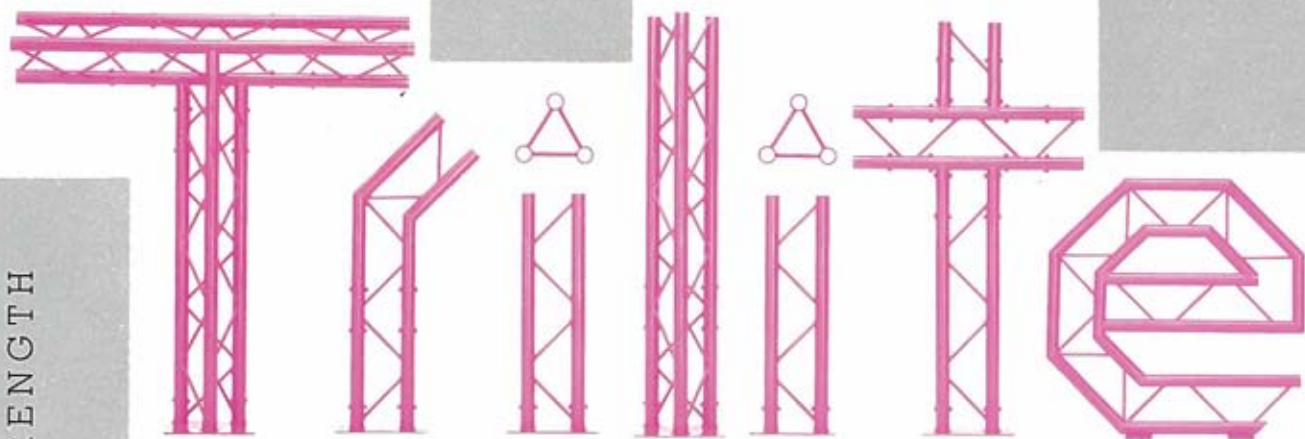
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$$C = \pi d$$

(Archimedes: 250 B.C.)

$$I = E/R$$

(Ohm: 1827 A.D.)

$$F = M.a$$

(Newton: 1687 A.D.)

$$E = mc^2$$

(Einstein: 1905 A.D.)

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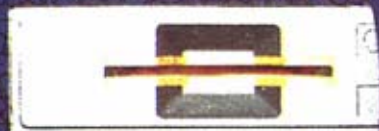
live wire
spoken here

while others have been trying to impress you with past achievements we've been designing the next generation of control consoles

celco introduce the

PANORAMA range

designed to synchronise and automate the control of moving lights, colour changers and generic lighting in one console.



and, whilst others have been making their dimmer systems bigger we've been shrinking ours.

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Farmingdale, New York 11735, USA tel: (516) 249
3662 fax: (516) 420 1863.



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Assistant: Ruth Rossington

Advertising: Alison Hunt

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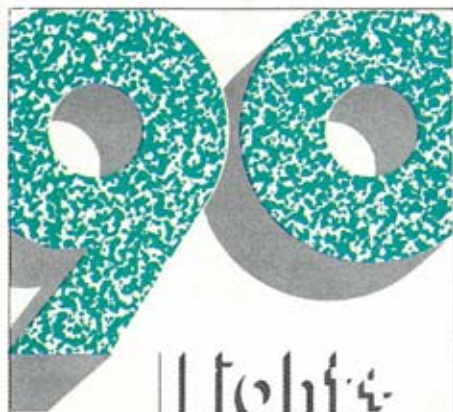
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Regular Contributors: Ben Duncan, Catriona Forcer, Tim Frost, Tony Gottelier, Mike Lethby, Francis Reid, Graham Walne, Julian Williams.



Light & Sound Show

9-12 September
11am-6pm
Sun/Mon/Tue
11am-5pm Wed

Olympia 2
London

Britain's premiere international trade show.

If you are involved with equipment used in discotheques, clubs, theatres, leisure complexes, opera houses, symphonic halls, presentation arenas or film and T.V. studios then you can't afford to miss the Light & Sound Show.

No admission under 16.

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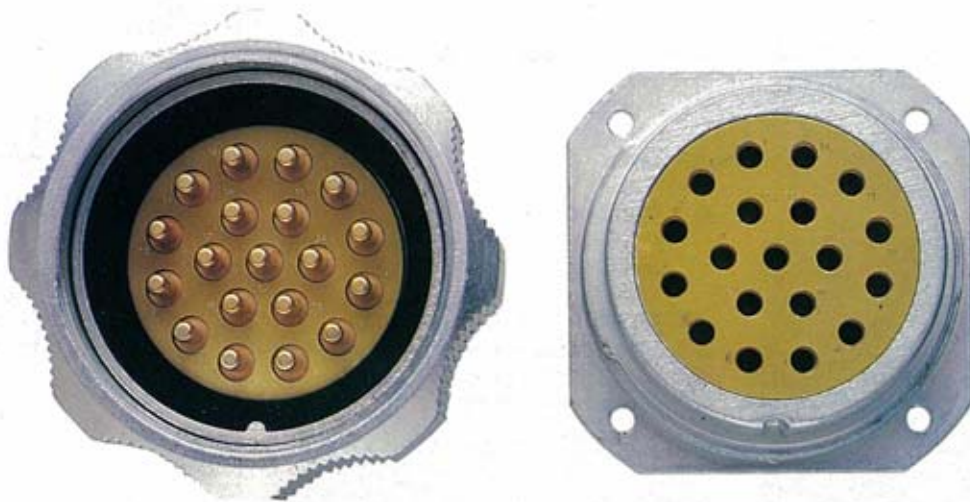
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Eurolight buy Lytemode and Green Ginger

Lytemode Ltd and Green Ginger Ltd have now been bought by the Eurolight Group. The companies have been acquired from the two previous joint venture shareholders GTE Rotaflex Ltd and Genlyte UK after a nine month period of extensive negotiation.

During June, Lytemode and Green Ginger moved to Eurolight Group premises in Feltham in Middlesex to a new purpose-built manufacturing unit. Some of the original staff are being relocated together with old Green Ginger faces rejoining the operation, including John Coe and Graham Bowen. A complete restructuring of the sales department has taken place which now ensures dedicated personnel are responsible for product lines both within the UK and export markets.

Managing director of the Eurolight Group, Nick Mobsby, told L+S-I: "Lytemode and Green Ginger have always been major product lines for Eurolight. Over the past few years the companies seem to have lost their direction

and consequently Eurolight felt that our marketing skills could be used to re-launch the Green Ginger range. At the same time as completing the purchase we have also signed a Licensing Agreement with Lightolier Controls in the USA. This ensures that Lytemode can continue to manufacture and distribute the Lightmaster range of architectural lighting controls plus a new range to be launched later in 1990. The Eurolight Group are looking forward to the next few years of company development. Clearly there will be a small interruption in supply due to the relocation and we ask for customer understanding during this period. The entire Group product range will be shown for the first time at the Light and Sound Show in September."

Lytemode and Green Ginger will have a new telephone number (081-751 5449), and all communications should be addressed to Lytemode or Green Ginger at the Eurolight head office in Feltham, Middlesex.

On the Move

During July, Dutch company Flashlight will be moving to larger premises in Utrecht, their fourth move since they were formed by Gerard Jongerius 14 years ago. The move will allow them to expand their lighting rental and sales business, and also move into a whole new area of interest. Flashlight will be dividing the rental and sales operations into two separate companies, Flashlight Rental and Flashlight Sales. Their new address is Gietijzerstraat 5, 3534 AV Utrecht, Holland.

Discom 90

The 10th international trade fair of equipment and technology for the entertainment and leisure industry, Discom 90, will take place from October 28-30, 1990 at the Parc des Expositions in Paris.

Discom is one of the most important French shows for discotheques, entertainment and leisure venues, more than 100 professionals will present their latest products. For further details contact Jean Baron at Infopromotions, 15/17 Avenue Ledru Rollin, 75012 Paris.



Todd Wells (left), Soundtracs chairman and managing director with Marc Oldmar, president of Audiatur AB, Sweden at Audiatur's offices.

Soundtracs Swedish-Style

Soundtracs have recently announced the appointment of Audiatur AB as their exclusive distributor for their complete range of audio mixing consoles. Audiatur will address the video post production and broadcast industries direct and appoint three key dealers for their fields of recording and post production. Intensive product and technical training is shortly to be undertaken by Soundtracs of staff from Audiatur in order to ensure that Swedish customers enjoy the full support for which both companies are renowned.

TGI Acquires Martin

TGI plc has acquired the entire issued share capital of Martin Audio Ltd. TGI incorporates three of the leading companies in the UK audio industry: Tannoy, Goodmans and Mordaunt-Short, and states that it is the largest manufacturer of loudspeakers in the UK. The company's Tannoy-Audix subsidiary operates in professional broadcasting and public address.

David Martin, MD of Martin Audio, commented: "Operating within the TGI Group as an autonomous company, we plan to capitalise on our highly successful F2 system, introducing both it and derivative systems to new markets. New systems now nearing the final stages of development will enable us to consolidate our position in the tour and corporate sound markets, and further penetrate the installation market. These systems will be demonstrated at the PLASA exhibition at Olympia 2 in September.

"It is my belief that the small specialised manufacturer will in the future face increasingly tough competition from larger audio companies as these try to muscle in on areas that were previously their exclusive province. For us the route to increased growth is clear. We now have excellent opportunity to use the manufacturing and design strengths within the TGI Group, and share resources, to develop a new breed of competitive, high performance, loudspeaker systems."



SEDA 90: Attendance Up

This year's SEDA exhibition at the Woodville Halls in Gravesend in June saw increased attendance from both exhibitors and visitors alike. Personalities this year included The Adventures of Stevie V, Darryl Pandy and the UK Mixing Champion, DJ Reckless.



Covent Garden Demo

Autograph Sales Ltd. held a Meyer Sound Studio Products open day aboard the french premier mobile recording truck 'Le Voyageur II' parked on the West Piazza at Covent Garden Market on Monday 11th June.

Among the products demonstrated were Meyer Sound's new near-field monitor, the HD-1, much celebrated by Grammy Award winner engineer and producer Roger Nichols (Steely Dan, Ricky Lee Jones). He was on hand for advice and consultation for the whole day along with personnel from Meyer Sound and Autograph Sales Ltd.

Autograph say the self powered monitor is the most accurate linear loud speaker system ever to have been developed, and it is suitable for a wide variety of critical sound reproduction applications from near-field monitoring, to psycho-acoustical research, and even home usage. With an extended low frequency response to 32Hz, the HD-1 needs no external sub-woofer. The control electronics and power amplifier are built into the cabinet, eliminating the need for additional equipment or rack space. Electronically corrected for amplitude and phase accuracy, it operates through a two-way active (bi-amplified) system. Each unit is individually factory aligned through a calibration port.

The picture above shows Aviva Ozin (marketing manager) and David Solari (managing director) from Autograph Sales Ltd and Yves Jaget and Vincent Pibras from Le Voyager II.

JBL Sound at Shepperton Studios

Every link in the soundtrack recording chain at Shepperton Film Studios now uses JBL speakers. The company's speakers have been installed over the past two years as part of a continual upgrade programme by Delta Sound Services, who run the sound studios. The equipment has been supplied by Marquee Audio, who are also based at Shepperton. The most recent installation, which completes the three steps in the film sound recording process, is a system for the preview theatre. Three JBL 4675As were installed behind the screen and six TLX12s were supplied for surround sound, using JBL 5235 2-way electronic crossovers. Prior to this, a new system for the dubbing suite was commissioned.

RB Catalogue

RB Lighting Ltd have just produced a trade price list detailing theatre, studio and display lamps, consumables and lighting equipment. Copies can be requested by calling RB Lighting on 081-977 9665.

Virgin Install Databeat

Much has been happening for Databeat Digital Music Systems lately. The company has just installed the new 'End User Cataloguing' version of their intelligent 120 CD music system in the revamped Virgin Megastore in Edinburgh. The system is being used to play certain styles and eras of music automatically without staff having to lift a finger. Information about the songs playing is to be relayed from Databeat on to the video screens around the store. The 'End User Cataloguing' version of Databeat allows the user to add simply and automatically any CD to the system's catalogue, thus eliminating all restrictions on CDs which Databeat can play. Designed specifically for end users who want this total control over the choice of music, it is ideal for applications as diverse as record stores and consumers with an existing large library of CDs.

APIAD and Italy at Light & Sound Show

This is the fourth year APIAD, in co-operation with ICE (Italian Trade Commission), has organised the participation of Italian companies at the PLASA Light & Sound Show held in London from September 9th to 12th. Artick, CTM, FLY, Music & Light Production, Outline, ProgramSistem, Lite Beam, SGM, Spotlight and Tecnitron will all participate directly at the show. "This is both to make a name for ourselves with those businessmen who do not who do not usually come to SIB/Magis in Rimini," explained APIAD's chairman, Nicola Ticozzi, "and to consolidate the Italian companies' image and reliability."

Eastern Trade Link

Business & Industrial Trade Fairs Ltd of Hong Kong, founders and organisers of the annual Pro Audio Asia convention, have announced their intention to create a new annual trade show dedicated solely to the rapidly expanding Sound and Light market in the Far East/Pacific Rim region. The show will be called Sound & Light Asia 91 (SALA). Though in a separate hall, the show will run concurrently with the Pro Audio Asia show in July 1991 in a major Far East business location. The exact dates and city will be announced shortly. Experience has shown that many registrants at the Pro Audio Asia shows also have strong interests in the sound and light markets. DTI support for a British joint venture group has been solicited, and practical and economical travel packages will be offered to exhibitors and visitors. A meeting for interested parties will be held during the PLASA show. For further details please contact Chris Sogno at the PLASA office, telephone (0323) 410335.

The New Juliana's

Juliana's not only have a new name — Juliana's Leisure Group — but a whole new corporate identity. The company will be running a series of advertisements to launch their new image which will replace the dancing lady, traditionally associated with them. The new identity reflects the increased range of services now available to a wider client base. Juliana's are now full consultants to the hospitality industry and cover concepts, design, documentation, lighting, sound, video, special effects, installation, project management, turn-key renovation, music, maintenance and promotion.



Strand Brightens Vaudeville

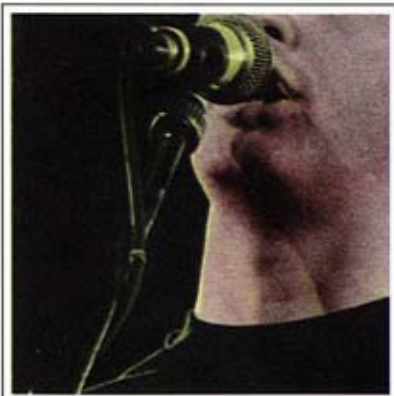
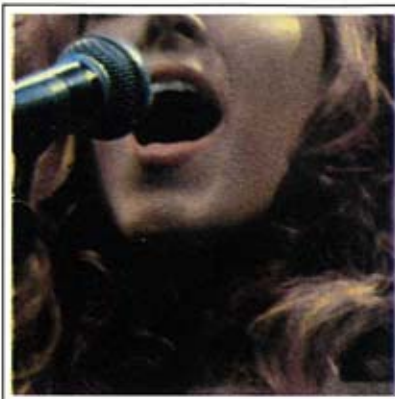
One of the most historic theatres in North America is now being lit by Strand Lighting luminaires and controls following a complete refurbishment.

The theatre complex in Toronto was constructed in 1913 to include a Wintergarden Theatre and the Elgin Theatre (pictured above). Both formed part of the Yonge Street Vaudeville Theatre which has now been designated a National Historic site as a tribute to its contribution to Canadian theatre and architecture.

During restoration, the original 1913 Wintergarden decor of a simulated 'fantasy English garden' was cleaned using a traditional solvent — 1500lbs of flour, mixed with water and applied as dough.

Strand's Toronto dealer, Canadian Staging Projects, installed all new lighting for the theatres. This included more than 130 Lekolites, 30 Fresnels and 11 Iris 4's in the initial luminaire package, supplemented by rentals to a total luminaire complement of 400.

Dimming is by way of 156 dimmers in a unique arrangement. To give both theatres maximum flexibility, CD80 dimmer packs are housed in two rolling racks, designed by CSP. Each rack can have as many as five packs placed in it, depending on the requirements of the production. Performance lighting is controlled by a Mini Light Palette in each theatre with a Mantrix 2S backup.



The Name Speaks Volumes.

How your performance comes across can mean the difference between success and failure.

That's why it's hardly surprising to find the Celestion K Series behind so many well-known professionals.

This range of loudspeakers has been designed intentionally to deliver a totally accurate response.

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CELESTION

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Tel: (0473) 723131

A & H at Festival Hall

The Royal Festival Hall, who already use an Allen & Heath sound reinforcement console SR12 in the Purcell Room, have just bought a SR16 for lunch-time performances in their foyer/bar area.

Allen & Heath dealer Photo Acoustics, who supplied the SR's to the Hall, specialise in communication installations and have adopted the A & H SR sound reinforcement console as a standard. Although they also equip recording studios, much of their work takes them outside of musical environments where operators are not necessarily sound-oriented. The SR is used by several government departments in non-music applications, and also for making 'talking newspapers' for the blind.

Allen & Heath equipment has also been installed in the Glasgow Concert Hall. Working closely with Scottish dealer Northern Light, some details of the large frame 40:8:8 Saber PA Matrix Console to be installed in the main control room are being modified to meet the client's requirements. In addition to Penny & Giles faders and stereo input modules which are offered as a standard option, the Saber will have a modification to the master module intercom circuit, switches on all aux sends to provide pre-post switching, and a cut out chassis to accept multicore sockets. Northern Light have also just signed a contract to supply an Allen & Heath 24:8:8 PA Matrix Saber to the Barbican Centre York.

The company have recently appointed Pyramid Lighting and Sound Services, East Grinstead, as a new dealer for their range of PA consoles. Recent sales include a 40 input Saber PA console to the 800 seater Hawth Theatre in Crawley and a 32 input Saber PA to the 500 seater Harlequin Theatre, Redhill. Other recent Allen & Heath sales include an SC Plus 416XA console to BSB British Satellite Broadcasting for in-house presentations and light entertainment foldback and PA.

Setting Record Straight

In a press release recently received at this office T.I.P.S., The Training Initiative For Professional Sound has categorically stated that it has no involvement, in full or in part, with a company trading as 'Productivity Europe' from Olney, Buckinghamshire that has recently begun to run two day workshops under the name of 'Total Improvement Proposal System' and abbreviated the initials to T.I.P.S.

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Wartime Stock

Laser Grafix Sales & Hire Ltd. say they are now offering the only World War II searchlights available in the United Kingdom for hire to non-military events. William Marshall, laser hire manager of the newly created searchlight division, told L+S: "The stock of 12 lights are a great addition to our hire stock. This will complement our extensive laser stock and our laser bus."

The World War II lights use a powerful 4,000 watt xenon bulb and the beams diameter is 90cm. They need a 3 phase, 16 amp supply to run them. The company are also offering their own designer built single phase, manual or automatic, 3,000 watt xenon bulb searchlight. This is unique because it can be plugged into a normal 13 amp socket.

Squire On The March

The end of last month saw the opening of Europe's largest disco store in Trafford Park, Manchester. Squire Sound & Light moved from Salford to a new purpose-built unit in Mercury Way, a few hundred yards from the proposed siting of the Olympic Games in 1996.

The new unit is striking in appearance from the outside and inside its 3,500 square feet of space comfortably sits the huge showroom. This has been designed to show off the nightclub rig which is the centre-piece. On show are the latest lighting and special effects suitable for all types of client.

Squire Sound & Light's parent company is County Sound Plc., which is one of the South's most successful radio stations. The move into the discotheque and club industry came about last year when Piccadilly Radio decided to sell Piccadilly Squire. The new company has relocated three of the five UK branches in the first six months of trading.

Nexo in Eire

Nexo distributor CCT is building on the established success of the company's speaker systems in the Irish market. Latest sales include a Nexo speaker system for Irish folk band The Wolfe Tones, and a Nexo installation using the S12000 systems in Cork's latest nightclub, Sir Henry's. The venue is scheduled to host the Euro Rock concert in September featuring over 30 bands, which will be shown on network TV all over Europe. In addition CCT's own Nexo hire system was to be seen working on the extensive Irish and UK tour for The Chieftans and James Galway, which culminated in a concert at the Royal Festival Hall, London on June 28th.

MSL At Music Fair

First time exhibitors MSL Pro Light and Sound will be showing a selection of the very latest pro audio, lighting and special effects equipment at the British Music Fair this month. The MSL service covers sales, hire and installation, and products distributed include Pulsar, Citronic, Turbosound and Bose. Le Maitre, JEM and Powerdrive.

A massive Astralite gantry is being used to display all lighting and features the highly acclaimed Clay Paky Super Scan and Golden Scan '2' projectors. The BMF marks the first UK appearance of both these 'intelligent' lighting effects. At the show, MSL will be taking applications to fill their 12 remaining 'open' UK franchise territories. Interested parties are invited to visit the MSL stand for more information.

LSC From XTBA

XTBA has announced in addition to their existing range of control interfaces and 'event control' systems XTBA have been appointed as the UK distributor for the L.S.C. Electronics range of DMX Interfaces, Soft Patches and Control Desks. L.S.C. Electronics has fast built a world wide reputation for reliability and product innovation with regard to their control and interface systems.

The L.S.C. product range includes: PRECEPT 12, 24 and 36 channel manual control desks, the LINKLIGHT control system, SOFTLINK, a self contained 256 channels into 512 dimmers DMX512 soft patch requiring no additional monitor or remote, and the small MINIMUX and MINIDMUX systems for multiplex/demultiplex in 30 channel units.

For further information contact XTBA at 104 Blundell Street, London N7 9BL. Telephone 071 700 0996.

Cadac in Chicago

Export business is continuing to boom for Clive Green & Company, one of the leading manufacturers of theatre consoles, as the company announces the installation of its 'A' type desk for the new Chicago production of 'Phantom of the Opera'. This latest contract represents the seventh international production of the hit musical to use Cadac consoles. Sound design for the production has been handled by Martin Levan, who specified the 56-input console for the Chicago show.

Studiomaster Service

The Studiomaster Service Department has moved. Due to the need for increased production area following the successful launch of the Gold range of mixing consoles at Frankfurt this year, the service department has been relocated to an adjacent industrial unit. The new address is: Studiomaster Service Department, Unit 5 Studiomaster House, Chaul End Lane, Luton, Beds LU4 8EZ. The phone number remains unchanged (0582) 570621.

Celestion Expand

Celestion International, not content with doubling its sales over the last three years and increasing its workforce by over 50%, has committed to further increasing production capacity with the addition of 25,000 sq feet of warehousing. The site, owned by the company, sits alongside Celestion's current facility and will further increase production workspace by around 30%.

NEW

SUPER SCAN

The powerful, reliable projector, assuring professional features, for top quality effects in show lighting.



BUILT-IN EFFECTS

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- Eight standard colours: yellow, red, orange, green, blue, violet, pink, white.
- Seven dichroic filters, selected for colour uniformity.
- Colour changer: with fixed positions or continuous (*).
- Bicolour beams, by positioning the colour wheels in intermediate positions (*).
- Colour change with or without blackout (*).
- Rainbow effect, by continuous rotation of the colour wheel (*).
- Wide range of rotational speeds.
- If required, a filter may be inserted to convert the colour temperature from 5600°K to 3300°K (useful for TV studios).

COLOUR MIXING

- Vaste range of colour available by mixing the primary colours Red, Green and Blue.
- Virtually all possible hues and levels are obtainable.

GOBOS

- Two wheels with 4 Gobos each. You can project each pattern separately or in combination.
- A total of 16 different patterns are available.
- Gobos change with or without temporary blackout (*).
- An evocative rolling effect is available by shifting of two superimposed Gobos.
- Gobos are interchangeable and easy to replace.
- A wide range of Gobos is available on request.

IRIS

- Fully variable beam size.
- Iris speed is totally controllable by the operator.

PRISMS

- Three trioptic prisms create multiplication and overlapping of projected patterns.
- The prisms have 3, 5, 9 facets.

STOPPER/STROBE

- High speed stopper to cut the beam as long as required.
- Strobe effect rate fully adjustable from 1 to 7 flashes per second.

DIMMER

- Mechanical. Full adjustment of light intensity from zero to 100%.

OBJECTIVE LENS

- 1:3/250 mm achromatic doublet lens, giving the best colour and transmission performance.
- Focussing remotely controlled.

INPUTS

- The SUPERSCAN can accept either analogue or digital control signals, from controller or computer.
 - analogue input: 0-10 V.
 - digital serial input: RS 232/43 - DMX 512.

MOTORS

- 17 high resolution steppers motors, controlled by internal microprocessor.

CHANNELS

- 12 control channels:
 - Channel functions:
 - channel 1 = Iris
 - channel 2 = Colour disk
 - channel 3 = Gobos
 - channel 4 = Stopper/Strobe
 - channel 5 = Pan
 - channel 6 = Tilt
 - channel 7 = Fading Dimmer
 - channel 8 = Prism
 - channel 9 = Focus
 - channel 10 = Red colour Mix control
 - channel 11 = Green colour Mix control
 - channel 12 = Blue colour Mix control

SAFETY NORMS

- The equipment is manufactured according to the latest safety regulations.
- Protection degree: IP 20.
- Power supply cable in compliance with CEI 20/22 III norms.

DIMENSIONS

- mm. 430x230x1320
- weight 50,7 Kg.

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Big Names Move



Mike Wood Andy Collier Bob Gordon



Peter Barnett Julie Garton Chris Pike

Andy Collier is leaving Italian-based Teatro and will be returning to the UK in September, and he still has to work out how Italians manage to have so much disposable income!

Mike Lowe, managing director of Teatro, told L+SI: "The reasons for Andy returning to the UK are nowhere near as newsworthy as some of the rumours we have been hearing. Right from the start it was agreed that Andy would be with Teatro for around three or four years. Whilst with Teatro he has developed a whole new range of skills which I know will be a tremendous asset in his future career. Andy's contribution to the formation of Teatro has been invaluable and he will be sorely missed as a colleague and friend."

Wybron Inc. has announced the appointment of **Bob Gordon** as vice president of sales. He moves from The Great American Market where he has been sales manager for the past three years. "This opportunity is very exciting since Wybron is a company that seems to be expanding technology for all areas of show business and making that technology accessible to areas from schools to Broadway, concerts and film," he told L+SI.

JEM Theatrical Supplies and Special Effects Co. Ltd. has announced the 'acquisition' of **Mike Wood** who will be joining the JEM management team in August. Mike's extensive industry experience is well known and includes working at the BBC for six years prior to his joining WB Lighting where he has spent the past five years.

Optikinetics have just appointed a new UK lighting sales manager, **Chris Pike**, to replace **Julie Garton** who is leaving to pursue freelance activities. Chris is a familiar face in the lighting industry and was formerly with Mode Electronics where he was customer services manager for eight years.

Moving into Mode Electronics is **Andrew Morris** who takes up the position of sales director (lighting). It is a return trip for Andrew who used to work for Mode prior to his five-plus years at Avitec where he was sales director.

After spending over three years at Strand Lighting, marketing manager **Camilla Aitchison** has left the industry. She has taken up a new post with Unipart in Oxford.

Planned Equipment Ltd have promoted **Peter Barnett** to the newly-created post of manager, dealer sales.

Court Expansion

Court Acoustic Systems, based in Windsor, are about to launch a complete new range of products including the road version of their SYSTEM 1000 4-way JBL based system. Also in the new range are 1200w and 900w power amplifiers. Court are presently seeking a sales and marketing director for this new series.



New Tomcat Grid

After much secrecy surrounding Tomcat USA Inc's new outdoor support grid, Ben Jumper of Mid-America Entertainment Services took delivery of the first 66' x 55' roof in Nashville, Tennessee for use at the Summer Lites Festival. The roof has a 73,000lb. U.D.L. capacity with only a 9% reduction in 40mph winds. The 40' high towers are connected by internal ladders and 'X bracing cables', making outside guying in the audience area a secondary safety factor for wind speeds over 40mph. The concept was designed and engineered by British designer Neville Lee and structural engineering completed by Mike Cartwright of Parkhill, Smith and Cooper of Lubbock, Texas.

More for Avolites

London Contemporary Dance Trust recently took delivery of a custom-built Avolites FD Series 72-way Dimming System. The project included re-packaging of their DEMUX unit to accommodate it within the rack drawer. The Scottish Ballet have placed an order with Avolites for a complete lighting control system to be delivered in time for their autumn season. The system will include a QM 500-TD with electronic back-up and 3 FD Series 48-way Dimming Systems with Avolink DMX decoders.

These two companies join Welsh National Opera, Opera North, Sadlers Wells Royal Ballet and the English National Ballet as major touring companies owning and using Avolites control equipment.

Audio Visual

Cornwall-based CDS Audio Visual are to open a newly-refurbished showroom this month. CDS is a long-established company, dealing in sound, lighting and large screen video equipment for sale or hire. On display throughout the opening on the 19th July will be the latest equipment from JBL, Cloud, Citronic, Bose, H W International and NJD.



Hamilton Point, a brand new entertainment complex overlooking Strathclyde Park in Glasgow, is about to open its doors to the sound of JBL and has already been designated a JBL 'Prestige Venue'. The man behind the project is Gordon Bavaird, a self-made millionaire who has made his fortune from a string of successful leisure ventures. Pictured above (right) he receives the JBL plaque from Tony Kennedy of Teknique Systems, the local sound specialists who specified the system.

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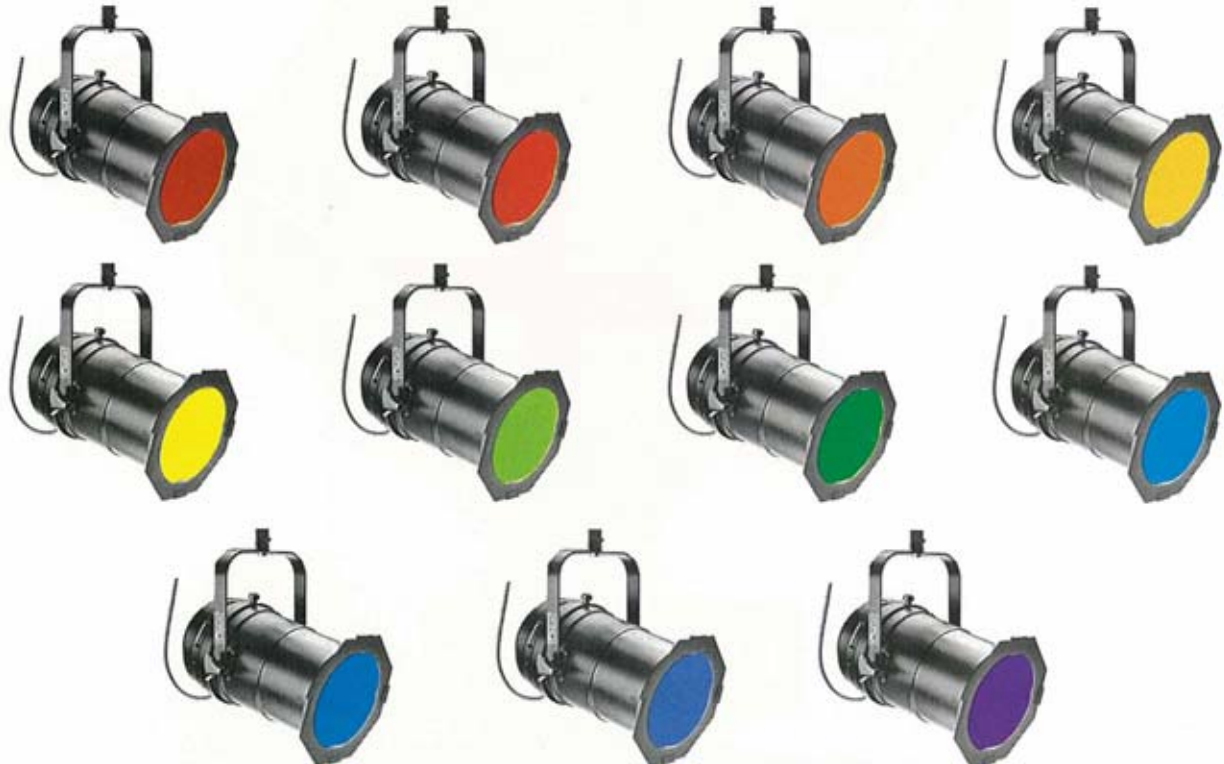
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A CITY OF ANGELS

Julian Williams discovers a new theme on Broadway

In these past few weeks much has been happening on West 44th street, off Broadway. Late April saw the 'end of the line' for America's longest running Broadway musical — A Chorus Line — which finally closed after a 15 year run. At the Broadhurst earlier in the month, Andrew Lloyd Webber's Aspects of Love opened alongside his Phantom of the Opera playing at the Majestic Theater next door.

I was searching for the missing link on Broadway. When was the traditional 'all-American' musical last seen? Where had the elite of these age-old musical products vanished to particularly at a time when even a producer such as Hal Prince has gone elsewhere to direct a new musical 'Kiss of the Spiderwoman' which recently opened. For the new season, 'Nick and Nora' is expected shortly, and they are taking bookings already for 'Shogun' due on Broadway in November.

I found it! Two such musicals opened on Broadway in December last year. One was Grand Hotel, with lighting design by Jules Fisher, the other was City of Angels. Some three months later I returned to New York to make sure that they had both survived in this the most ruthless of musical cities, where the critics words can notoriously wipe a show out of town.

Directed by Michael Blakemore, who directed that similarly complicated piece, Noises Off, City of Angels is like a film-within-a-musical and focuses on a frustrated screenwriter and his fictional creation — the private eye Stone. The screenwriter's story is told in vivid colour, whereas the travails of the detective are seen in black and white, resembling that of a movie scene in 1940s L.A.

I sought out lighting designer Paul Gallo, (whose current successes are Anything Goes now running in London, and the Tony award-winning comedy Lend Me a Tenor running on Broadway) to talk about his unusual, yet seemingly unpretentious design. He had a few moments to spare as he was focusing Six Degrees of Separation in the Mitzi New House studio theatre at the



A musical line-up on West 44th Street off Broadway.

Lincoln Center. He is also working on 'Elliot Loves' at the Promenade theater, and is shortly to light Stephen Sondheim's new musical — Assassins.

City of Angels has 47 scene changes, with nearly 30 sets, and what lies at the heart of it is the skill needed to make it appear like a film with everything in the same proportions as a screen in a type of '5 x 4' format. This theme is further developed on with the screen seemingly having a wipe, a fade out, and an iris. In terms of stagecraft the masking and borders move to create different sized openings, sometimes closing like an iris to give the illusion of watching a movie. The whole piece culminates with a reveal of a complete Soundstage set as at the Master Pictures studio in Hollywood where they have been producing a film version of the play.

Paul Gallo found A City of Angels to be especially challenging. The technical success of the show relies heavily on its fluid staging; requiring effortless continuity from one scene to another, like a film. "There hasn't been an American musical which has

been really successful here for five or six years," he explained. "It has a lot more colour than one thinks. It is perceived as a monochromatic palette. The trick is to get that effect on-stage. The human mind has a tendency to fill in what it doesn't see. We found ourselves sitting in a cue (when rehearsing in production) for a very long time — and all of a sudden you would find yourself thinking this has more colour than it did a few moments ago. The eye accepts it as being one thing, and it is really not that colour, but another!"

"We found it was a case of comparison. It was the juxtaposition that made the black and white scenes actually look black and white. As long as you played it in the time that it took, your eyes would adjust to the colour, and then when 'hit' with the stark contrast, it appeared very much black and white."

The colourful parts of the show use a lot of very vivid, very bright lighting effects, perhaps more so than usual, to emphasise the difference. The live scenes are played alongside a black and white scene with a



City of Angels: Jim Naughton and Dee Hoty in performance.



The entire company of A City Of Angels on stage at the Virginia Theatre.



Paul Gallo at work on the show production.

distance of only 10 feet. "We found that white light was the worst thing to apply to a black and white scene," Gallo explained, "because white light has so much colour in it. We also discovered that we had to use excessive amounts of blue and colour correction to be able to get the colour out to really grey it down so that it had a pale straightforward look.

"This show doesn't deal with special effects, it doesn't deal with flashy lights, it deals with getting a balance of a palette to really make you believe that you are somewhere else.

"I think in a subliminal way people really

enjoy that. You don't come out saying 'wow' you come out saying 'hmm — that was very good!' London has been producing musicals consistently well. What it comes down to is that you have to have a good book or a good storyline. You don't come out of this one whistling a tune."

Arriving on Broadway at the close of the season, when the shows are being assessed for the Tony awards, afforded me the chance to find out what's happening in the field of theatre as it will be several months before another musical opens on the strip. Paul Gallo was a nominee for a Tony award in the category of 'Best Lighting Design' alongside

10 other nomination categories for the show; surprisingly for a show with such noted comment for its ingenuity and style of lighting, he lost out to Jules Fisher, who took the award for his 'Grand Hotel' design, which was played in a basic set.

With modern musicals in mind, I asked him if he consciously chose to break away from modern stage lighting with effects. It appears that, apart from the use of black and white, which becomes the theme in a *City of Angels*, he has deliberately steered clear of introducing stunning lighting effects which are to be seen in many musicals these days. He expanded on his reasons. "We looked for it and it really didn't come — it just wasn't there. Having said that there are elements of the show which are extremely technical and which probably haven't been done on Broadway before.

"We are the first show to use the PanCommand PC spots. Andrew Bridge used another version of them on *Aspects of Love* with Strand's PALS system but no-one, to my knowledge, has used a PC spot like this on a Broadway show before. Because there is so little space on stage we were forced to use certain equipment as there was no way we could get an instrument in the right place. As this unit can change focus, gels, gobos, direction, beam size etc we found it to be crucial!

The board is a Colortran Prestige 3000 (350 channels and 400 dimmers). "I like the board because it allows me to have my own computer at the production desk. I can take the disc from the board and actually change some of the cues without having an



A scene from Michael Blakemore's production of *A City of Angels*.

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electrician involved.

"Because of the union rules, I can't run the board, but if I take the disc and put it into my board I can run the show — just so long as it doesn't bring up lights. I'm able to sit here, correct my own cues, then take the disc and put it into the main board which will then record those cues and produce the lighting from that.

"I find that in a musical like City of Angels where there are so many changes going on at the same time during the technicals I could have an assistant focusing, or other work going on, whilst I could be readjusting the cues so that more than one thing can happen at one time.

"We have 60 colour changers, because with black and white sequences a lot of units have to change colour to be able to do the colour in black and white as needed."

On the trucks with the scenery, which are constantly moving, all the practicals have radio-controlled dimmers from Howard Eaton Lighting who provides, in my opinion, the best system for that. We also have four follow spots — two Colortran short throw from the front and two Lycian 400 watt HMI units at the front sides."

I asked Paul Gallo how little the rig was now that the quantity of instruments in use on such shows is gradually diminishing. "We are using less than 500 instruments as the PC spots carry much of the load which couldn't be accomplished in any other way. The follow spots are tricky and tremendously important and the operators are extremely good on this show.

"In order to get the colour difference, the

two side follow spots are very critical in that when two characters are standing next to each other where one is in black and white lighting and the other in colour lighting, they have to keep switching depending on which side of the stage they are on. The follow spot operators have to switch person and switch colours at the same time as the actors cross the stage in the acting area. It actually looks to the eye as if they never change colour.

"Here is high technology in use — without anybody noticing. And that is the difference in answer to your question 'is there any attempt to create a theatrical magic, interest or desire in a special effects way? Yes, but in such a way that the audience is not aware that high technology is being employed. It happens to be a very complicated section of the play, and at the end, the whole point is that you don't notice anything."

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LE PALACE — PARIS

Vincent Rice checks out the nightlife. Ooh! La! La!

About 12 years ago something happened that changed my life, I went to a nightclub. It wasn't an ordinary nightclub however, it was Le Palace in Paris. I had been heavily involved in the running of discos and concerts at university (indeed it proved my academic downfall) and had frequented the 'formula' nightclub chains of Britain so I was no stranger to the discotheque concept — but this was different. It was the first time I had seen such a huge, beautifully decorated building devoted to dancing; the first time I had seen a high power scanning laser, and the first time I had seen someone whose only job was to play the lighting in sympathy with the music and the atmosphere — which were loud and electric respectively. I don't want to go on about it too much, but it was in Paris that I realised that this level of excitement could be created by the use of lighting and sound technology. It opened my imagination to the possibilities, and I have been trying to realise them ever since. It was also the first time I paid £7.00 for one drink (ten years ago!) The creator of Le Palace, as I first experienced it, was the late Fabrice Emaer and his influence over the subsequent style of European nightclubs is great indeed.

I was certainly not the only person whose imagination was sparked by the Le Palace experience. George Hendry also saw the possibilities and changed the name of his then embryo nightclub from the Camden Theatre to the Camden Palace and employed Steve Strange and Rusty Egan to become the 'animateurs' that the concept required. Time

marches on; or does it? If we take a more holistic view of the world, which of course is the trendy thing to do, the synchronicity of events in our small business is astounding. George Hendry is now Director of Discotheques for European Leisure, who now own Le Palace; Tony Gottelier was the designer of Camden Palace; Wynne Willson Gottelier Ltd have just completed the refurbishment of the Le Palace lighting; I used to work for European Leisure at Camden Palace, and am revisiting the place that dictated my destiny to this point in time. What does it all mean? Sod all, probably.

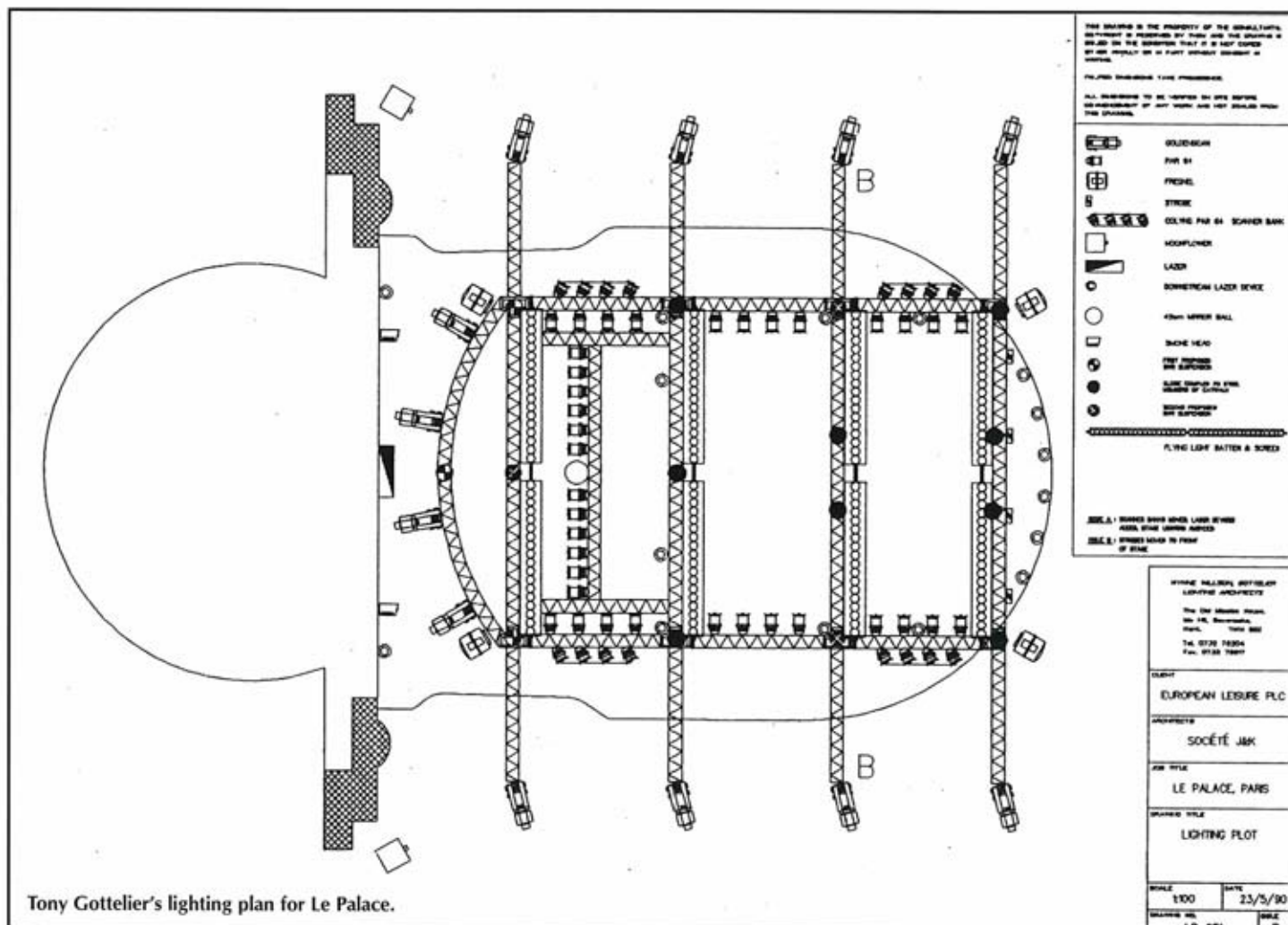
Paris is absolutely wonderful when it is raining and one is on expenses. It is not so wonderful when it is raining, they shut off the Champs Elysees for a bloody corn festival (I kid thee not) and you have to walk miles to find a taxi. Le Palace is in Montmartre, a sort of grubby wino/sex shop/kebab house/nightclub area and its deceptively small entrance is pretty well in keeping with its neighbours. On entering the club, I felt some twinges of disappointment — one's memory plays such tricks. The place seemed much smaller than I had remembered it, (which is strange since I have only expanded sideways rather than upwards) and the punters seemed so extraordinarily ordinary. No outrageous cross-dressing, no blatant sexuality and no heavy house music, in fact nothing faintly 'fashionable'. They played Roxanne by the police for God's sake. Indeed, Sting is so popular here that he could easily become

Mayor if he so wished.

Any road up, enough of my romantic memories and European's notoriously unimaginative door policies. Down to the technology, which most certainly was not a disappointment.

Tony Gottelier's design for the main lighting system may be seen as a distillation and advancement of the original Camden Palace concept. It consists of four large lateral ceiling mounted rigs each consisting of two three metre long square battens containing 18 Lynx FX100 spot heads wired in series on one face and a Par 46 police sweeper on the reverse, and two flat battens carrying 16 neon 'hoops' each — as with the Camden Palace panels it is the movement of the rigs that produces the effect. The lighting battens break at the centre point which can be lifted up or down to give a 30° angle differential, in any position the battens can rotate to four 25° positions. The flat neon panels are stored vertically front and back of the lighting batten and can fold down to a flat horizontal position. Each rig can be lowered from the Trilite supporting truss, the level of each under proportional control. Outside the central rigs are 12 Golden Scan '2's on outriggers. As with Graham Barron's rig at Dukes, Chelmsford, there is the attempt to get away from the traditional 'disco' look of loads of different whirling gizmos and move towards a purer lighting/engineering concept.

The connection between the two club's rigs runs deeper in that both were constructed by Lynx Lighting of Yeovil, and take advantage of



Tony Gottelier's lighting plan for Le Palace.



Drowning in a wave of laser light, from its central position under the proscenium, the Purelight laser generates multiple, multicolour super scans.



A close view of one of the rigs showing the light curtain. The neon flaps fold down to form a tunnelled neon ceiling.



Looking through the rigs, to the balcony of le Palace.

Lynx Lighting of Yeovil and take advantage of the 0-10v proportional control developed by the company. In the case of Le Palace, an OSKA was being used as the controller of the rig movement for the first time. John Hockey of Lynx Lighting deserves a special mention for the engineering realisation of Tony Gottelier's dreams.

I had a slight problem with Graham Barron's rig at Dukes in that I felt some fast rotational movement was always relevant in discotheque lighting. By happy chance Tony Gottelier had the opportunity to re-use the existing Par 46 'fuzz lights' at Le Palace, and they emphasise the movement of the lighting battens beautifully. The angle break between the two light curtains is a unique idea and offers huge possibilities when used in conjunction with variable height and rotation. The advantage of the use of an OSKA in this situation is obvious in that all sweeps, angle changes, and height variations can be synchronised.

Playing rather more than a supporting role are 12 of the latest Golden Scan '2' again

ideally controlled from the OSKA. Advantages over the original include much better colours, including a new pink, two sets of superimposable gobos, fast continuous colour rotation and much swifter and more accurate movement. These features were already being taken advantage of by OSKA person Mick Martin in the first phase of programming. Herein lies the problem of using any computer for total integrated control — the amount of programming required to cover the musical and operational requirements is phenomenal, and takes a long time, a good programmer, and a good operator to use it all.

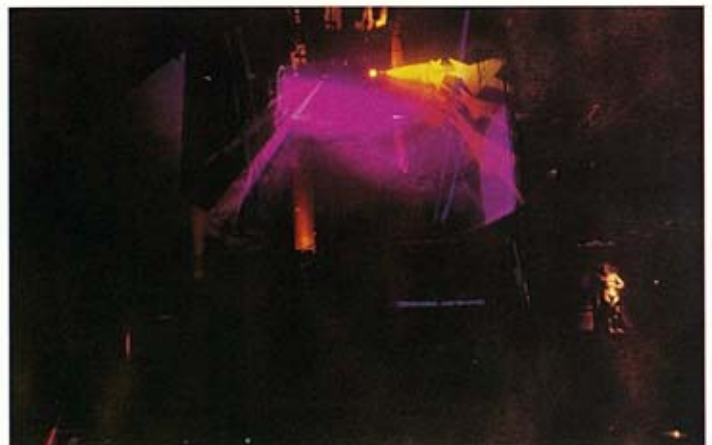
Integrated control is often the ideal, but the time and cost of programming should be borne in mind. The possibilities of Tony Gottelier's rig are endless, but it will take talent and hard work to exploit them.

The third supporting leg of the overall lighting concept is the laser installation which has been very successfully integrated into the whole. The innovation that brings the laser effects into a new dimension, literally, is the

mounting of 6 × 6 metre motorised sharktooth gauze screens to the stage side of the four central rigs. The laser is mounted under the stage proscenium arch, on axis with these four screens, and can project its effects and animated images through them. The laser is a 5.5W coherent 'Purelight' mixed gas capable of producing seven good colours. The controller is the latest version of the 'Prisma' from Laser Grafix. Because of very high speed scanning and blanking the controller can produce several images simultaneously from one scanner set, and the animations I witnessed were quite superb. The use of four screens increases the effect tenfold, with multiple images seemingly in mid-air, visible from anywhere in the venue. The effect really is quite stunning. The Golden Scan can also, of course, use the screens to project their animated gobos upon. In addition to the graphics effects the laser has a full complement of beam actuators on an optical table and a large number of downstream effects, cones, diffraction mirrors etc. I have to say the laser



Le Palace interior.



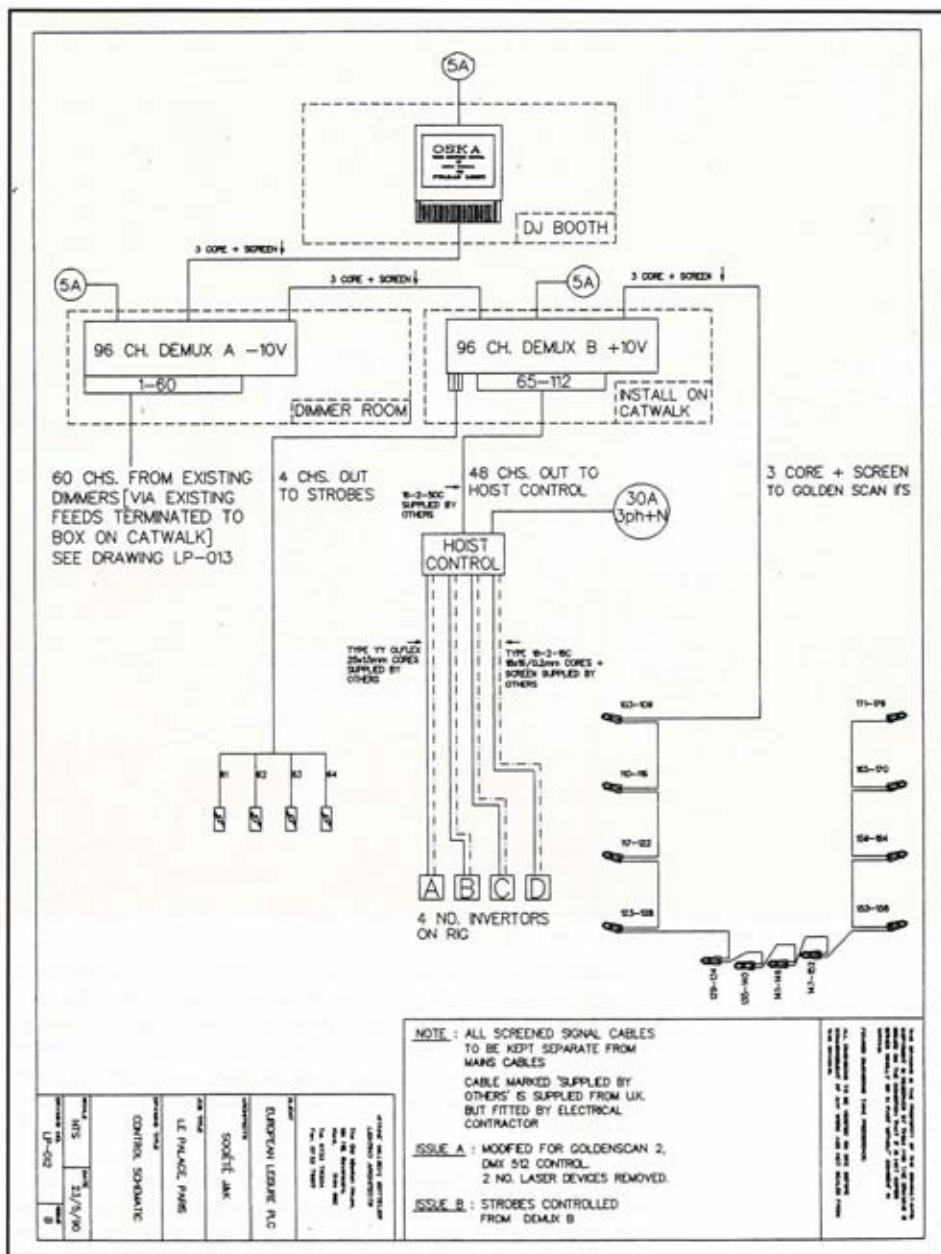
Golden Scans are also used with the gauzes to create floating dreamy images. Note the Oska controller in the foreground, which also cues all rig and screen positions.

installation is one of the finest I have seen and is on a par with the best European and American manufacturers - at less cost. Mark Brown deserves the success he is now surely to achieve for battling through the software development we all know is so difficult. It is fitting that the venue that started the use of entertainment lasers in Europe should have an installation of this quality.

In overall terms the lighting rig is one of the most elegantly abstract and pure schemes I have seen. The neon arrangement is unusual and effective. The turquoise and orange colours from Partyline are positively electric. The scheme makes no real concessions to the interior decor and layout, and this is both its strength and its weakness. I am of the opinion that it is necessary these days to make some sort of connecting architectural/design statement with the actual shape and construction of the lighting rig or rigs. They tend to be large, obvious structures that dominate a room and I think some structural design expression increases the value of the scheme to the client before any lights are placed upon it. The downside of this attitude is the possibility of the design looking dated and old-fashioned very quickly.

Tony Gottelier's rig at Camden Palace still draws the punters into an increasingly seedy downmarket venue and there are two sides to the engineering/decoration approach that mirror the modernist/post-modernist argument in architecture. In this respect we must consider Tony Gottelier as the Norman Foster of the elegantly-engineered solution.

The sound system in the venue consists of 10 ElectroVoice Deltamax DML 1152 full range units and four ElectroVoice Deltamax DML 2181 sub-bass units. I am not a fan of multiple speaker units for high-level discotheque use, nor am I particularly a fan of processor-based systems. They can be very effective and transparent for theatre and orchestral sound reinforcement, but when operated at the edge of their capabilities, as discotheque systems **always** are, they sound very strange and unnatural with compression pumping effects in the bass end and beaming of the most annoying mid/high frequencies as the crossover turnover point slides about. I also think they are not very good value for money. Nothing about the sound at Le Palace was able to change my opinion - 'nuff said.



Overall, the venue is still a delight. Not the same heart-pumping excitement of ten years ago, but then times change and I get older. The combination of laser, Golden Scans and rig is excellent and encompasses several genuine innovations. What's more it shows that our

good friend Tony Gottelier can still cut the mustard, despite his advancing dotage. The club will be a success - especially if European Leisure take an English view and reduce the price of drinks - now £10.00 a shot!

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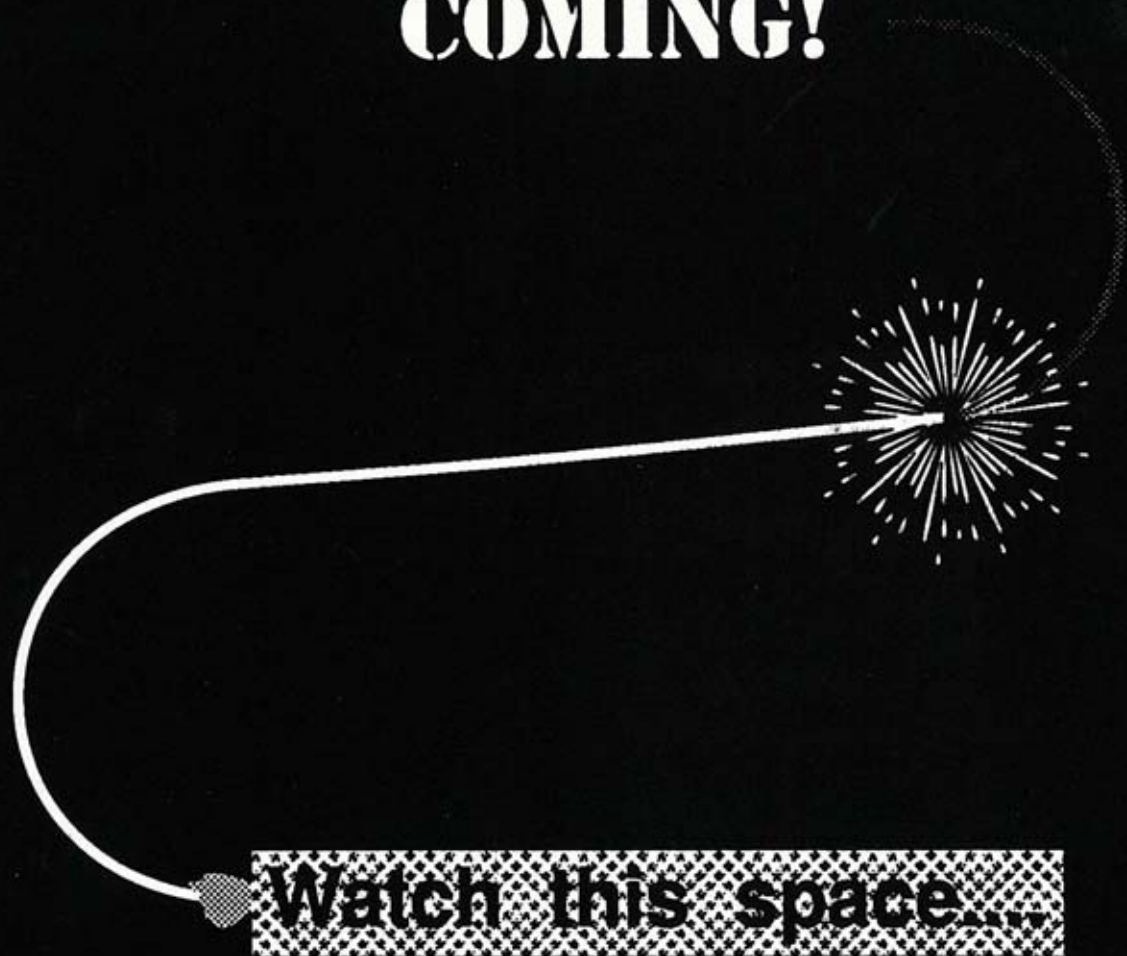
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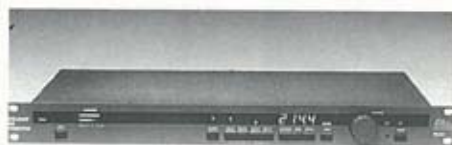
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Ben Duncan highlights new products at the Olympia Show

This year's show, held at the usual time and the usual venue (Olympia 2) heralded some exciting accessories and processor developments. **BSS Audio** launched three powerful and highly innovative processors. For live sound, the star was the TCS-804 dual time corrector which radically advances the business of setting-up signal delays in PA systems — or for satellite broadcasting — and without costing the earth. Delays can be entered in milliseconds, feet, inches or metres, up from 10µs/3.4mm to a maximum of 650ms in stereo or 1.3s in mono. Maximum delay can be doubled by installing (optional) extra memory, while usable dynamic range is typically 105dB, which is somewhat greater than 16 Bit digital audio. In stereo mode, each channel has two outputs, and one can be shifted (and locked) relative to the other. In mono mode, there are four outputs, and several possibilities for arranging relative delay. One of the advanced features is that delay times can be compensated for temperature changes in the auditorium — by dialling up the present temperature on the Liquid Crystal (LC) display. Alternatively, a plug-in temperature probe gives continuous automatic adjustment. BSS's rapport with the real needs of live performance sound engineers goes as far as providing remote control via an ordinary radio mic link, so delays can be trimmed hundreds of yards away amidst the soundfield. Then there's an RS-422 and DIN socket link so TC-804s can be hooked-up for PC and/or MIDI control respectively. The 804's sister, TC-803 is a single channel 'multitap' unit with three 'relative' outputs; otherwise it shares all of the 804's advanced features. DPR-901 is a new class of dynamic processor. It combines parametric equalisation with a compressor/expander to open up new 'sweetening' processes and powerful psychoacoustic effects. Discotheque installers should take a look . . .

Citronic have recently added two smaller, convection-cooled amplifiers, PPX150 and PPX300 to their range. Alongside these, the company showed their new Zone control unit. This 1U 19" rack mounting unit provides four independent mono zones which can be configured as two stereo zones. All signal inputs/outputs are via XLRs and can be selected to be either balanced or unbalanced. Each zone has its own dedicated VCA which can be controlled by either a local level control



BSS Audio's TCS-804 dual time corrector.



The MPM3 mains power monitor from EMO.

inside the unit or by defaulting to a remote potentiometer. Also on display was the Automatic Sound Level control unit offering continuous monitoring and closed loop control of sound levels within specific zones provided by two microphone operated circuit outputs that can interface with the remote level jacks on the Zone control unit. Members of their recently introduced range of signal processors have been touring with Bon Jovi and The Eurythmics, while the Old Vic at Bristol is presently entirely processed and powered by Citronic gear. **EMO Systems** were showing a tool that's long been needed by large scale PA and lighting contractors. Their MPM mains supply monitor gives a bright and highly visible LED readout of volts, amperes and frequency for 1 or 3 phase systems. It comes in a 1U rack-mount enclosure and unlike old fashioned mechanical meters (as well as some poorly designed modern LED readout types), the current and voltage readings are **true rms**, meaning that the distorted and spiky, fast-switching waveforms encountered in lighting and sound are accurately averaged. Currents up to 999 amperes can be monitored — that's 240kW per phase! **Evenlode** were showing **Steinberg's** MIMIX automation software. Although Mimix is primarily used by recording studios, it's increasingly seeing use in theatrical and AV applications. Steinberg's UK installer Dave Newson (of Audio Arcana) has recently completed 'The Weymouth Time Walk', a fully automated 'son et lumière' museum at Weymouth, in conjunction with **The Sound**

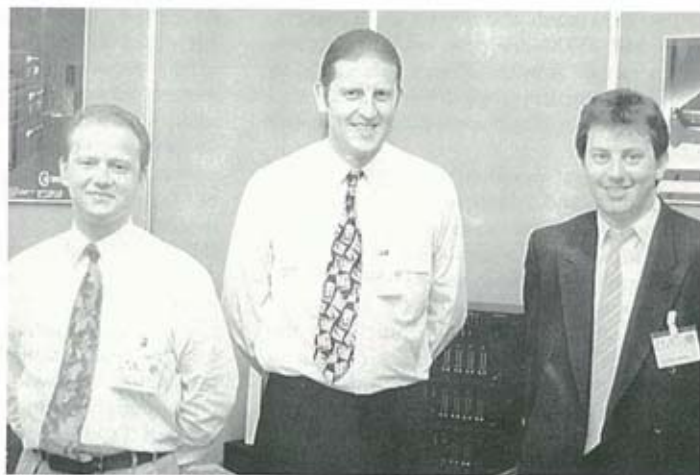
Department.

First Audio were showing a live sound console from Crest, one of the Gamble EX series. Gamble is a new name in the UK, but stateside founder Jim Gamble has been producing sonically refined (aka esoteric), hand-built consoles since 1982. In 1989, Crest bought out the company and with production line assembly, they've been able to reduce prices by at least 30%. The electronic contents are exceptional for a pro-audio product, employing specific components which are known to sound good — even if they're more expensive and steady-state measurements can't reveal a difference. The designers have also worked hard to fit up to 56 stereo channels in the smallest possible space, while including features like a giant patchbay (fingers up to VCAs!), as well as four band true parametric EQ with bandwidth control down to 1/10th of an octave, on every channel. The 8-way stereo matrix will appeal particularly to theatrical sound engineers. Gamble's series EX consoles are already installed in some prominent US theatres, including the world's largest proscenium theatre at Purdue University in Indiana. **HH** were displaying V150L, an amplifier dedicated to installers needing 100 volt line operation. **HW International** were showing Carver Corporation's revamped range of power amplifiers. Since the launch at Frankfurt in March, the PMX plug-in crossover module has become available, enabling the PM-600 or PM-900 models to be fitted with -24dB/octave 'Linkwitz-Riley' high and/or low-pass filters. Carver's matching, stand alone crossover is also now available in the UK from HW. It's an 'industry standard' unit with 2/3/4 band operation, plug-in frequency determining cards, individual limiters, polarity inversion, phase trims and (unusually), four insert points for delay or similar processes. The frequency setting cards can be changed without un-racking. There's some good news on Carver prices, which have been reduced now that HW are selling direct to PA companies and installers. On the **Shure** front, the SM 58 is now available with an optional on/off switch, a simple long awaited modification to rock'n'roll's most favoured mic. Shure's range now includes VP88, a versatile stereo capacitor mic that will be of interest to theatre users.

JBL's newly launched 6300 series of power



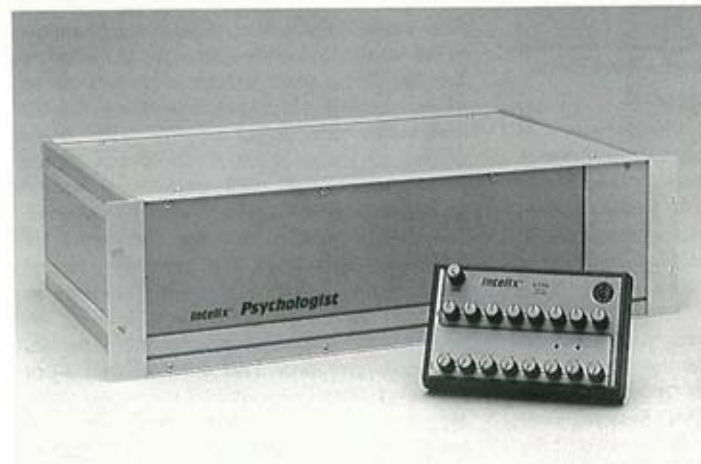
Over the counter technicals on the Harman UK stand.



Paul Ward, Andy Simmons and John Ridley of LMC, who displayed C-Audio, TC Electronics and Beyma products.



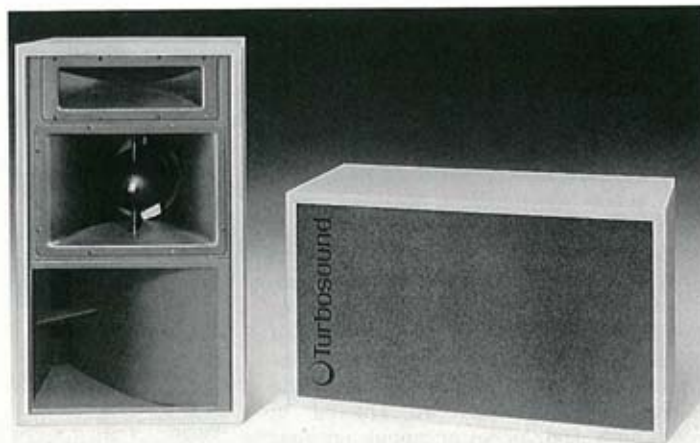
Soundcraft showed the Delta 8 recording console.



Intelix's Studio Psychologist makes individual monitor mixes available to performers down a lightweight digital link.

amplifiers feature Neutrik's new standard Speakon output connectors and an RS-422 connector for remote gain control via VCAs. There's also a new range of 12", 15" and 18" drive-units employing JBL's 'Vented Gap Cooling' to boost power handling to 600 watts. **Klark Teknik** had the latest Midas XL-2 auditorium console on their stand, together with a rack-mounting outboard matrix designed to complement the XL series mixers in fixed installations. **Kelsey Acoustics** had a new line of products from a newly established UK manufacturer, Rocktorch. The range includes a 30 band spectrum analyser, a three output digital delay using 64X oversampling Sigma-Delta Modulation for sonic accuracy, and a six-band notch filter for feedback elimination. **LMC** (London Microphone Centre) were displaying C-Audio's new power amplifier range, TC Electronic's PC-monitored concert EQ system and Beyma loudspeakers. 12XM and 15XM are new additions to the Beyma range. They're 12" and 15", 250 watt dual-concentric full range drivers, each with a 60 watt titanium 'diaphragmed' tweeter up the middle.

Meyer's latest newsletter was on offer on **Autograph's** stand. A large section is devoted to Autograph's success in European sales and installation. There's a reminder to engineers about booking for SIM (Source Independent Measurement) training sessions in London in July, and also a well written article on the importance and complexities of calibrating amplifier voltage gain in processor-driven PA systems. **MTR** were displaying ARX budget processors, made in Australia. EQ-30 is a 30 band graphic claiming constant 'Q', while Multi-Q is a 6 channel parametric EQ with control down to 1/20th of an octave . . .



Turbosound's TMS-5 loudspeaker enclosure has been researched in collaboration with leading nightclub and discotheque installers.



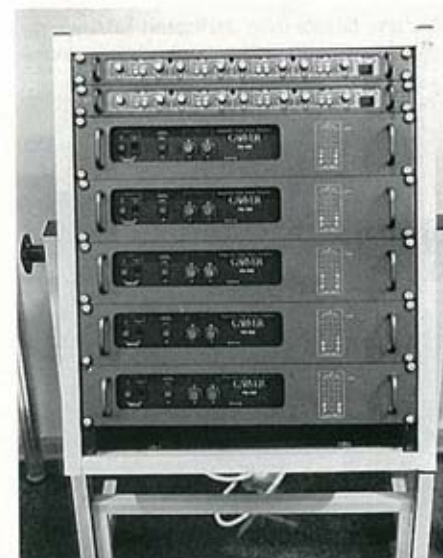
Sandra Cockell of Formula Sound promotes (centre) pushing their range of pro-audio equipment.

sounds ideal for howround suppression. Internal patching means the configuration can be varied between 6X1 band or 1X6 bands and any intermediate combination. The unit even includes 'scribble strips' for identifying each channel.

Soundcraft's new Delta 8 console was seen on a number of stands. **Shuttlesound's** range of ElectroVoice speakers now includes MTS-1, a compact 2-way bi-amped enclosure derived from the MT-4 concert system. It's one of the first to be fitted with Neutrik's new Speakon connectors. The Samson range of 'worryless' wireless systems has been extended with the low cost VLP series and Super TD concert series. Engineers working in the theatre in particular will be interested in Intelix's Autocue. Distributed by Shuttlesound, it clips onto any standard reel-to-reel machine and automatically lines up successive tape cues. Rock'n'roll monitoring engineers will be interested in Intelix's Studio Psychologist, which allows musicians to trim their own monitor mixes. Mini mixing panels with eight rotary knobs are hooked to a central processor by lightweight digital interface cables. Up to 16 performers can be provided for using two fan-out boxes. The system doesn't supersede the monitor man and his console; experience will still be needed to set up a rough mix and override the musicians if their mixes get too loud or out of order!

A third Intelix product has stunning potential for large-scale installations. The MIND (Master Integrated Network Device) is highly confusingly mounted in a rack enclosure marked 'Psychologist', identical to the 'Studio Psychologist'. However, the MIND embraces a completely different universe to the 'Studio Psychologist' just described. Its forte is to allow

a highly flexible matrix of control functions to be constructed and programmed. The 'Psychologist' box is hooked to any PC, into which the 'MIND' software has been loaded. The PC then shows rows and columns, against which stimuli (like the appearance of a tone, or music signals, or the detection of any other relevant event, eg. tape breakage) can be entered, along with actions (like opening or closing switches; resetting timers or alarms; or causing information to be sent or logged, etc). Rows and columns are connected by logical operators, i.e. conditions like if, when, and, or and neither. Overall, Intelix's MIND will open the way to the rapid design, commissioning and easy modification of complex and



Carver's PM-1200 power amplifier on the HW International stand.



Midas XL88 outboard rack-mounting Matrix.

'intelligently' interactive sound, video, lighting and many other previously unconnected systems in large buildings. For a long time, Shuttlesound's expanding range of selected audio goodies have been represented by innumerable loose brochures and data sheets, but at the show it was all bound up in their first consolidated catalogue.

TC Electronic's stand was brimming with state-of-the-art processors. TC-1128 is 28 band graphic with 100 nameable presets with an integral pink noise generator and spectrum

analyser (via an LC display), MIDI and SMPTE time-coding reading, PC interfacing, a security lock, and such high accuracy that when two units with complementary settings are cascaded, TC claim the two will sum to a precisely flat response. The spectrum analyser section will measure the room and automatically set the EQ for a notionally 'flat' response! You can then tweak the setting by ear before saving. A notable innovation for live sound is the amusingly named Feedback Search and Destroy. By pushing the 'track' button, howlrounds are rapidly and automatically sought out and notched out. Up to 99 TC 1128's can be controlled from a PC. The TC 6032 is a powerful master controller. It contains 28 channels with motorised sliders. Any remote graphic EQ's setting can be recalled, its frequency response viewed (on an LC display) and reviewed, then changed (if desired) by manipulating the master

unit's faders.

Turbosound launched the TMS-5, an ultra compact full range 3-way horn loaded loudspeaker. It's principally designed for nightclub installations, where small, unobtrusive flying enclosures are often required to produce high SPL, high clarity sound in locations where there's little physical headroom. Researched in collaboration with leading discotheque installers, the mid and hf sections can be transposed 90° so the dispersion pattern is maintained if the cabinets have to be mounted or flown on their sides. A matching sub-woofer, the TSW-121 is available to add physical slam. The first production run of one hundred TMS-5 enclosures have already been sold - within hours. Turbosound's sister company, Precision Devices have recently released detailed data sheets on their highly regarded bass drive units.



Graphic equaliser from T.C. Electronic.



Hazel Simpson of Neve with Quartz System's Dave Bearman.



Business was brisk on the Allen & Heath stand.



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WORKING WITHIN THE ELECTRONIC WORLD

Tim Frost talks to hire and design company Autograph Sound



The London production of Les Misérables.

Rock 'n' roll PA hirers occasionally cast an envious eye over the lot of the theatre sound hire companies. None of this rigging in the morning for the evening show, and then out again before midnight, half a dozen times a week for them. All the theatre boys have to do, is put the system in once, and sit back and enjoy the profits for a few years.

So I went to see Autograph Sound, the leading theatre sound hire company to find exactly how easy life was for them. With practically every Lloyd Webber show in town, and a load more worldwide under

their belts, they could be considered pretty successful at what they do.

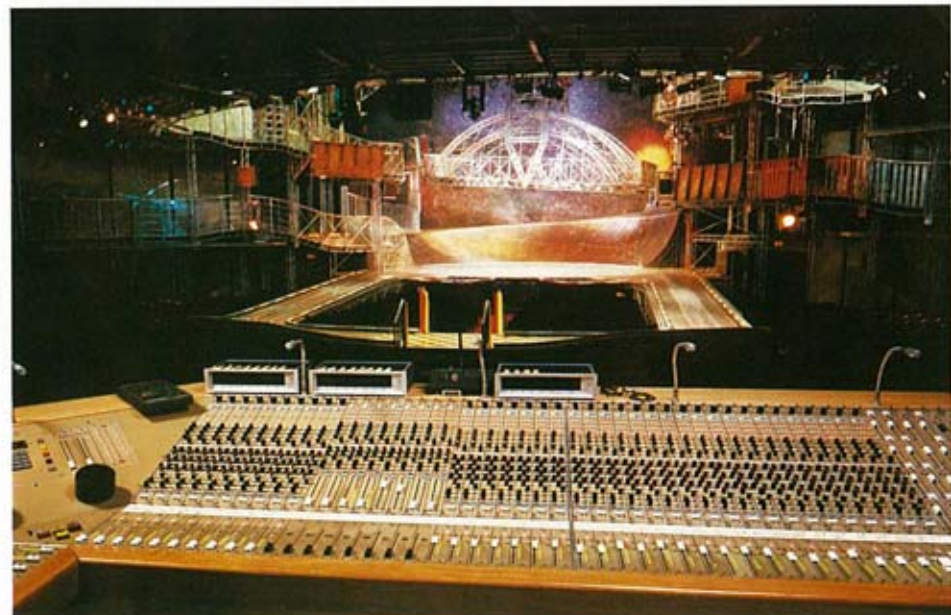
But exactly what do they do? Directors Andrew Bruce and Julian Beech set the record straight. Julian explained: "We perform several roles. In the case of Aspects and Starlight Express we were the equipment supplier. Martin (Levan) is the designer for both and although we had a fair amount of input into Starlight as technical advisers, in Aspects we purely supply the equipment, which we rent and install to the best of our ability.

"The other job we do is design systems; the producer assembles his creative team and some particular producers or directors choose us to design the sound as well as supplying the system. Bruce designed Les Misérables and Miss Saigon, and he also did the Cats tour because Martin Levan wasn't available to do it. So we can offer a complete service — both design and supply."

The sound design and supply process is fraught with potential conflicts, between the needs of the producer, the set designer and even the sound designer. If Autograph 'the supplier' are working with a separate sound designer rather than doing the design work in-house then they need to keep a close eye on the practicality of the proposed system, especially for a long term hire.

"There are technical things that we contribute to the design and these are mainly concerned with keeping the show running over a period of years. We have to look very carefully at our ongoing responsibility to the show, as the equipment may need to last ten years. When we hire equipment to a show we know that the cost of replacing the system will be ours, so we do seek to influence designers to look down the line a few years. If you are writing a cheque for a new desk and you are being asked for one that you really do not think is going to last, then you seek to change it or, ultimately, turn the show down."

There was a time when producers bought their equipment, but in the last decade, and especially as sound systems have become so much more complex and costly, the



Sound control view of Starlight Express.



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The sound-effects studio at Autograph showing the DAR Soundstation.

system are almost always hired in. The reasons are simple commercial ones. Big name rock concerts can now use large stadiums to bring ticket sales to the 100,000+ level per show, but the size of theatres and the number of seats available to a musical's producer has not changed over the past 50 years. And while the potential for ticket sales hasn't varied, the costs have. Everything from salaries to sets have gone up.

The producer is faced with a bill to put on the show. He can't hire the set as it has to be built specifically and it is no use to anyone after the show has come off, and it's the same situation with most of the costumes. To get the show off the ground he has got to raise £2 to £3 million. His income from ticket sales is absolutely predictable, so when he gets to the sound system, if he buys it he will be adding another £1/4 million to his costs. If he hires it, he can reduce his outlay and can forget about maintenance. If anything goes wrong he doesn't have the designer, supplier and mixing engineer all arguing about whose fault it is.

This actually puts Autograph on a somewhat different footing to a simple rock system hired from an existing equipment stock. "What has evolved is that companies like Autograph are a kind of investor in a show," explains Bruce, "we are taking a risk. Like the shows 'angels' (backers) we will put 'x' thousands of pounds of first class equipment into it and we will get a return, except ours is called a hire fee. At some point we will go into profit, sometimes it goes into mega profit, and sometimes we will get all the gear back four weeks later having spent £1/4 million pounds. People forget there have been bums, like 'Cafe Puccini'. The bits we bought specifically for that show have sat here for two years and not been used again. It really is a gamble."

Unlike a rock show, the musical is a notoriously risky venture. In the states if it isn't pre-sold and gets bad reviews, a show can close in a week. Over here it takes a little longer, but not much. There have been many notable examples recently of shows that have dramatically failed with substantial

losses for all concerned — the Bakers Wife and 'King' come immediately to mind.

But even with the risks of some of the shows closing after a few weeks, Autograph have somewhat lengthened the odds working with producers Cameron Macintosh and the most successful musical writer ever Andrew Lloyd Webber. Surely, I asked Andrew Bruce, a ten year run with Cats more than makes up for the occasional bummer? "It is no secret that on a major show it is probably two to three years before we make any money and cover our capital costs, and that would stretch further if we took into account the interest elements. Yes, you are raking it in with Cats in its tenth year, but it has to be said that after ten years the producer is still paying the price he was paying in 1980.

"When we tender for a show, we give the producer an inkling of the kind of money we are investing in equipment, so he has some idea of our commitment. The producer knows you are going into profit at roughly the same time as he is, and then he starts looking for the cost to go down. As the equipment gets older the maintenance costs go up. So the longer a show runs the less interesting it looks. After a long run the equipment has virtually no resale value. It must be questionable that the customised Cadac desk that we use on Starlight Express can be used on anything else. When it comes back to us it will be a write-off, even

though it's only ten years old."

From the hire point of view, there is an optimum run period of about four years, after that the profits start to tail off. Autograph's ideal mix of work would be to have three or four shows that run and go on running, and then two or three more that change after a year. Providing they get the next job at the theatre, the ever increasing sound budgets keep the income on the increase.

There has been a dramatic growth in the importance of sound systems for musicals. A decade ago, the sound budget would have been half the lighting budget at best, now it is the other way around. The absolute flexibility it offers the writers, directors and performers is one reason for the change, another is an increased awareness by the general public of what good sound is about. Sound technology has to stay up to date and producers are trying to do much more with it using bigger desks and more radio mics.

For the big shows Autograph develops new systems, often based around custom-built Cadac desks, to tackle the increasing technical demands. But although the latest designs include computer and MIDI control with additional automated matrixing and moving faders, Julian has to be confident that each new innovation has proved to be reliable before it is let loose on a major show.

"At every opportunity we will try and step forward the technology, but I think the secret of trying something new is that you don't crow about it, you keep quiet because otherwise it signals panic to the producer and director. So we introduce new ideas very quietly and try things in-house to prove it to ourselves first. For example, we've been using NAB cartridges since 1974 first for Dr Who and the Daleks which had 160 effects and we didn't want to have clacking Revoxs. They have been fine but we wanted to get away from the tape noise problem and have now gone to the RSDAT machines which turn a Sony DAT into a broadcast cart machine."

An operational change has been bringing the mixer position into the auditorium. "Producers now accept that it is impossible in these complex musicals for the balancing engineer to mix anything accurately or consistently unless he can truly hear what is going on. The producers have learnt that the balancing engineer is acting on behalf of the



Julian Beech.



Andrew Bruce.

audience and they generally allow a position within the auditorium. There is, of course, a direct financial equation. If you are taking 20 seats out at £14.50, it costs the show over £2000 a week. Over a ten year run that's around a million pounds."

But the biggest challenge of all has been the massive increase in use of radio microphones. In the past, engineers did large musicals using float mics (fixed mics on a stage) now most have decided to opt for the radio mic solution. Autograph have pioneered the use of multiple radio mics and currently Andrew Bruce is using 25 channels of radio mics on Miss Saigon. At that level everything has to be set up absolutely perfectly if he is to avoid losing channels during a show.

"The most successful shows are a result of incredible teamwork with back stage staff. I've seen the back stage mic engineer picking up three or four faults every night — hairspray and actors sweat on the microphones, and aerials broken in quick changes. We used to put the mic on the lapel, but as that became reliable we gave ourselves a whole bunch of new problems by putting the mic on the face, because the end result is so much better."

Sound used to be remote to the performers, something that went on out front, now it has become very personal. Sticking a microphone onto the performer, in his or her hair, makes for a much more intimate relationship between performer and sound engineer. Some paying customers, critics and performers still object to the use of sound systems. The basic argument being

that they weren't needed 20 years ago when performers were **real** performers, and could project into the audience unaided.

In rounding up, Julian Beech commented on this somewhat rose tinted view of the past by quoting the Music Hall performer Chesney Allen. Meeting Allen at a performance of *Underneath the Arches*, a couple of years ago, Brooks asked him what he thought of the sound.

"He thought performers now were very lucky. In the music hall days, the first gag went to the front of house, the second to the left hand side of the dress circle and the third to the right. People who couldn't see the comedian's face accepted that they

wouldn't hear the joke. The show had to be structured so that everyone got some of the jokes.

"Now the audience's expectations are a lot higher and you have the freedom to do what you like in the way of staging and costumes. The producer can have his flights of fancy in the knowledge that all the technical support people will still hear everything.

"It is the same with the composer, you don't have to have just the strings shimmering away under a love song. Now, people like Lloyd Webber could not, and would not, want to work outside of the electronic world."



The interior of Autograph's sound recording offices.



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The Director of Studies will be **Francis Reid**, Lighting Designer, formerly Head of Theatre Design Department at London's Central School of Art and Design.

The course is planned to interest all those who are involved in the provision of lighting for performance. In addition to specialists responsible for lighting design on all forms and sizes of stages, it is hoped that participants will include people concerned with designing and manufacturing lighting equipment, advising on its installation, and educating its users. There are vacancies for 25 participants. Course fee: £880, non-residential; £1,695, residential.

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ARRI

IMPULS

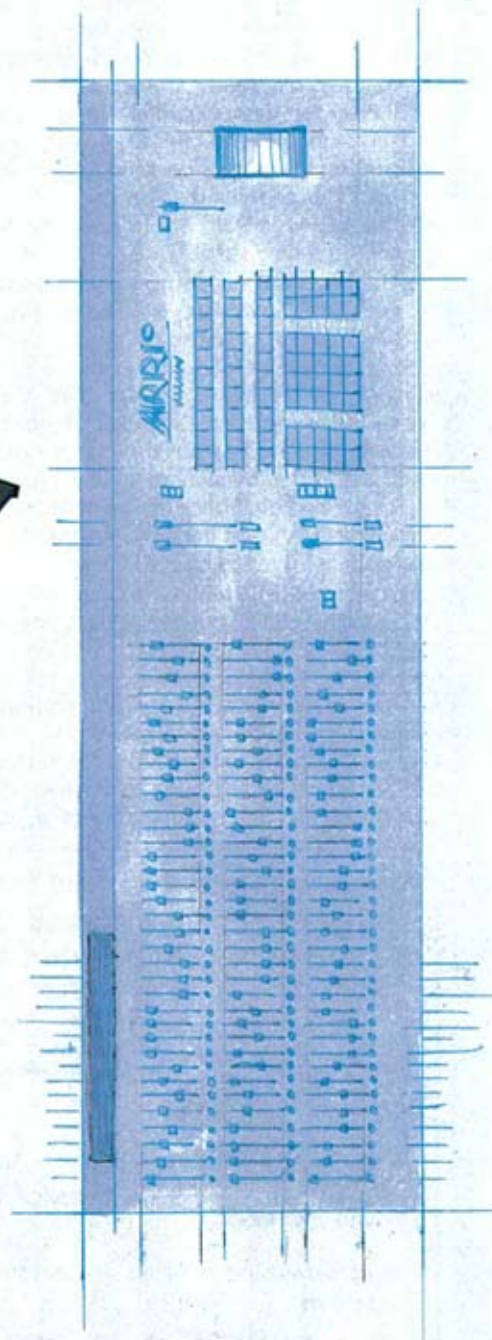


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THANKS FOR THE MEMORIES

Graham Walne undertakes the largest-ever survey of memory systems

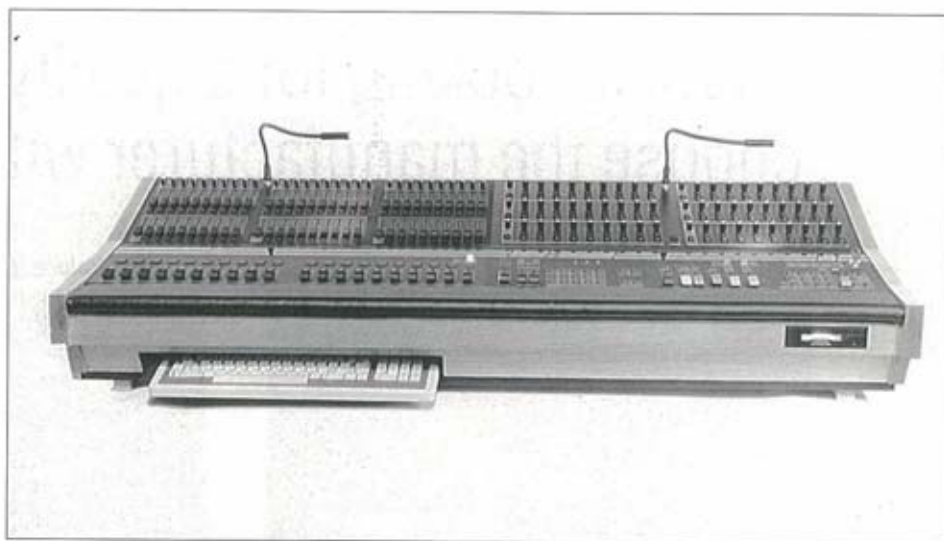
"1980, the year when a stage without a memory control will be a historical curiosity." Those prophetic words, unattributed, were written in the late lamented Rank Strand publication 'Tabs' in 1974 and heralded the significance of the MMS, now a legend among switchboards and one by which many people, including me, still measure all others.

MMS was not the first memory lighting control (and I'm not going to enter the 'Q-File' debate as to which one was), but it was the first that most people encountered. For many people it was the first time there hadn't been an individual lever or push for every dimmer. But for many it was (sadly) the end of playing lighting and the start of programming it. So, 16 years on, where are we now? L+SI decided to take a closer look.

The first result of an overview is an astonishment at the number of different systems available. Any survey cannot cover every system in existence but nevertheless this one still lists 73 separate systems. Is there really a market for all of them? Some manufacturers appear to be competing more with themselves than with anyone else, such is the complexity of their range.

The next astonishment is that despite several generations of controls we still find major shortcomings. In the last two years I have worked memory controls on which the engraved labels are filled out in blue which disappeared when the blue work light came on during the show. I have worked grouping systems which were so complex that it was faster to tap up the circuits individually, and I have been to theatres where the operators couldn't understand the grouping system at all. We need much more training for operators please, and better advice from the system's own VDU. I have seen systems with no information displayed on the desk forcing an operator to work blind as his VDU went down. I have also seen other VDUs turned to the wall because they displayed a confusion of colours and cues. My ideal system has LED/LCD displays on the desk to tell me which channel or memory I am using. I don't always want to look at the screen, it looks too much like Mission Control.

My ideal switchboard also recognises that my fingers and arm muscles will be tired after hours of plotting if the basic pushes are not logically laid out — some systems put the keypad and the @ push on opposite sides of the desk! On my ideal control the main pushes are adjacent and clearly marked. The basic functions should also be obvious. Left alone with the system I should be able to raise a channel without either prior training or a degree in computing. Switchboards should be friendly and logical, I really can't get my



Celco's Panorama 90 Console.

head round asking a system for a snap blackout by keying in 0.1 seconds, when I would prefer to ask it for 0 seconds.

Sometimes modern society kids itself that it is making improvements — those of us with greying hair know different. Whither the remainder-dim push? — a great time saver. Other likes in this department are systems with 'go-to-cue x' and 'go back one cue' pushes. Stupidly I omitted to ask about this latter provision in the survey so bear this in mind when drawing up your own checklist.

I'm not sure about the validity of systems with 'enter' pushes, where you key in all you need and then action it afterwards, especially on those systems where you have to press 'enter' or the function key twice as a double check. Surely we trust the board operators by now? After all, we all make mistakes however many checks there are, and the aim of a system must be to reduce the number of pushes not increase them. However, I would welcome a system that allows me to draft on the screen what I am planning for a chase and then record it or action it via an enter push. I'd also like to see systems where there is an option so that links are not automatically cancelled when the adjacent memories are re-recorded. Some systems also cancel recorded times when memories are corrected, and I am astonished at the number of systems that cannot permit blind recording, or blind adjustment of recorded time — another backward step from early systems.

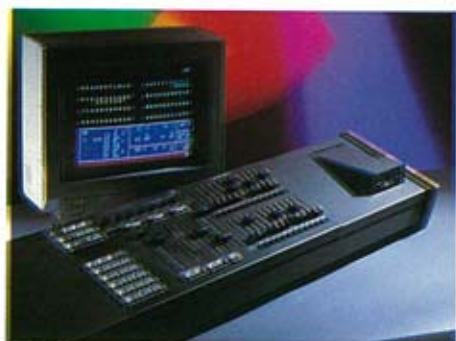
This survey identifies several systems which will offer MIDI or RS232 interface and so permit the system to talk to other devices (and already one system here uses fibre-optic protocol). Indeed interfacing is the next

growth area. The next generation of controls will take account of the growth of remote devices which is leading to a reduction in the size of rigs. Already, new major West End productions, tours and concerts are finding that rigs are reducing as colour scrollers, motorised yokes and mirrors become more popular and reliable. Soon these devices will be joined by LCD gobos and LCD colour mixers.

But how are we to control all this? Do we want to control all this from one console? Richard Pilbrow does, or at least he did in September 1985 when he wrote (in the ALD magazine) of lighting designers operating a stalls control wherein "level adjustment will be accomplished with one or more 'wheels', colour vibration by a colour selection triangle and orientation by compass vernier planisphere." I love this idea, I'm all for designers mixing and adjusting the lighting themselves because I think that the process can be more random than if instructing a remote operator, and thus I think this method produces more 'happy accidents' — the saviour of many a lighting design.

I have to say (in common with most lighting designers) I hate formal plotting sessions. Invariably the set isn't ready, the designer prefers it underlit (OK until the cast arrive) and the ASM who is walking is 18" shorter than most of the cast and wearing totally the wrong colours. Instead I prefer to sketch in basic states and then work over the technical rehearsal. Until Richard Pilbrow's ideal control arrives meanwhile, I need a sympathetic and fast operator and a good intercom — all quite rare.

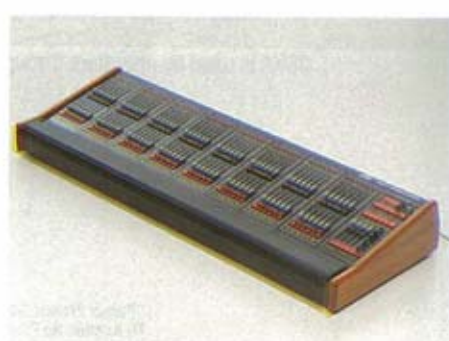
Of course, there have been some



Lightboard M from Strand.



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WINNERS
of DI lighting controller
awards in 1979, 81, 85 and 88.

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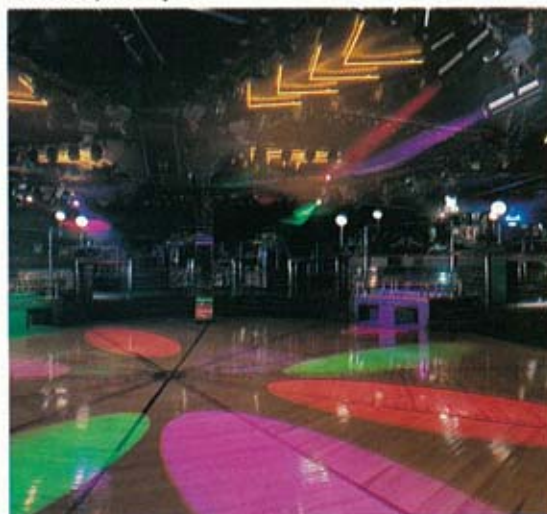
Zhivago's, Darlington



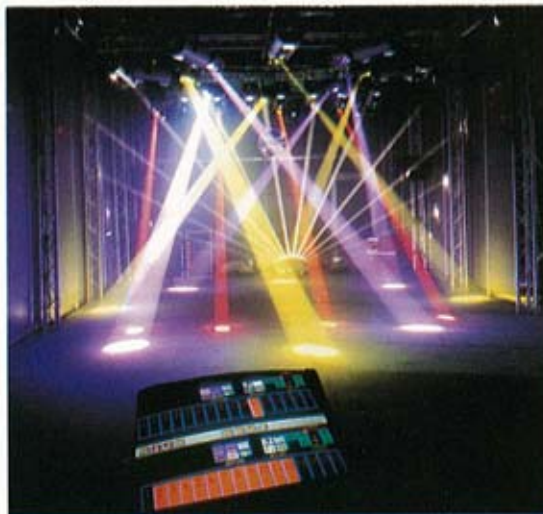
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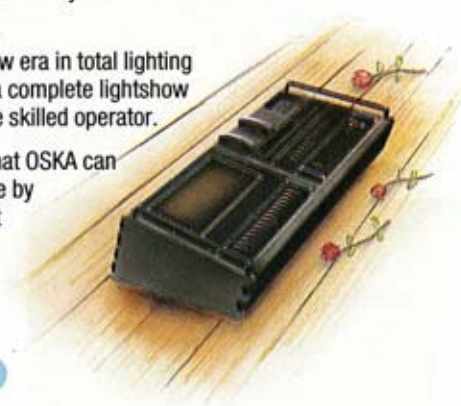
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TABLE I

MANUFACTURER	2 SYSTEM TITLE	3 DATE INTRO	4 MAX NO CHANNELS (dimmers)	5 MAX NO MEMORIES	6 NO OF PLAYBACKS	7 NO OF SUBS
ADB	S20	—	120 (480)	250	1	12
	S25	—	256 (512)	200	1	4
	S28-2	—	256 (512)	200	1	8
	S28-5	—	512 (999)	200	2	12
	S28-10	—	999 (999)	200	2	12
ARRI	Image 60	Jan '89	60 (192)	1000	2	0
	Image	Nov '86	120 (192)	1000	2	0
	Imagine 250	May '87	250 (512)	800	2	2 × 24
	Imagine 500	Sep '88	500 (1024)	800	2	2 × 24
	Impuls	April '90	108 (512)	800	2	2 × 108
ARTISTIC LICENCE	Concept	'89	12 (100)	—	2	8
AVAB	Avab 211	'87	72	150	1	23
	Avab 202 XP	'87	240	800	1	24
	Avab Expert	'89	512	800	25	24
	Avab Viking-2	'89	1000	variable	34	12
AVOLITES	Precept 12	Feb '88	12	12	1	12
	Precept 24	Feb '88	24	96	1	24
	Precept 36	Feb '88	36	144	1	40
	Rolacue 30	Aug '85	30	105 (+305Fx)	1	15
	Rolacue 60	Oct '85	60	155 (+350Fx)	1	20
	QM 500 90	May '84	90	400 (+200Fx)	3	20
	QM 500 1D	Apr '89	100	600	3	20
	QM 500 180	May '86	180	400 (+100Fx)	3	20
CELCO	Celco 30 Major	'88	30	150	10	10
	Celco 30 Plus	'88	30*	40-150	10	10
	Celco 60 Major	'88	60*	300	20	20
	Celco 60 Plus	'88	60*	300	20	20
	Celco Gold	'88	90*	450	30	30
			*linkable to 300+			
	Panorama 60	'90	60	150	10	10
Panorama 90	'90	90	300	20	20	
Panorama 120	'90	120	450	30	30	
DIGITAL LIGHTING DESK	DLD6502 RLM Turbo	Sep '87	180	36	n/a	36
ELECTRONICS DIVERSIFIED	Minstrel	—	48 (512)	36	2	12
	Omega	—	72 (960)	900	3	72
	Troubadour III	—	120 (512)	400	3	24
ELTEC	SC/ST I	Jul '87	24	99	12	0
	SC/ST II	Jul '87	24	99	12	0
	Sceptre I	Nov '86	120	199	2	0
	Sceptre II	Sep '87	120	199	2	0
EUROLIGHT	Split	Mar '85	120	400	6	2
	Micron	Mar '84	144	400	6	2
	Smart	Mar '88	240	120	4	12
	Applause	Oct '88	800	1000	6+>	10
	Applause 286	Oct '88	800	1000	6+>	10
	Ovation 286	Oct '88	800	1000	6+>	40
GREAT AMERICAN MARKET	Access	'88/'89	48/96 (256)	232/104	3	6
	Access pro	'89	96	232	2	24
	Panache	'89	250/1000	960	—	10
JANDS	Instinct	May '89	48/60/72 (200)	888	1	24
	E.S.P.	'88	24/36/48	288	1	12
LEE COLORTRAN	Scenemaster 60 Plus	'90	60	512	2	60
	Prestige 1000 Plus	'90	100	200	4	24
	Prestige 2000 Plus	'90	400	400	4	24
	Prestige 3000 Plus	'90	1000	1536	8	24
	Status 24/48	'90	24/48	99	1	12/24
LIGHTPOWER SHOWTECHNIK	LCD 60/90/120	Feb '89	60/90/120 (240)	600	10	24
	Lightcommander 24/28	Feb '87	24/48	144/288	0	24/48
OXTRON	Light Conductor	'89	512	1000	no limit	3
PANCAN	Pancan Touchstone	'86	24 (96)	99	99	99
PULSAR	Oska	'87	512	256	256	256
SCORPIO CONTROLS	EC64	Jan '89	64*	1000	4	0
	Mulliset	'84	120	200	9	0
	Datalite	'84	800	350	3	10
		*increments of 64 available				
SIGHT & SOUND	Quasar	Jan '89	1000	2000	16	16
STRAND LIGHTING	Action 24/48	'87	24/48	99	1	0
	M24/M24FX	'83	120	199	1	8
	LBM Jr	'89	96/144 (768)	200/140	2	48
	Lightboard M	'87	96/144 (768)	200/140	2	48
	Gemini 2+	'89	360 (384)	variable	2	8
	Impact	'88	350	variable	3	24
	Light Palette 90	'90	4000 (4000)	variable	8	48
	Galaxy 3	'88	999	variable	8	20/24
	ZERO88	Sirius 24	Feb '90	24	398	9
	Sirius 48	May '89	48	398	9	6



The Galaxy 3 from Strand.

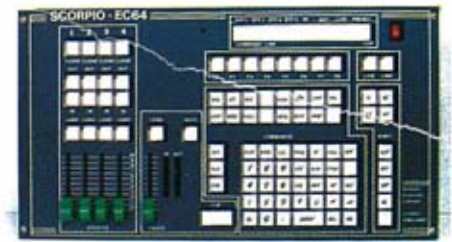
interesting developments already in stalls controls. Consider the graphics tablet or digitiser where the operator touches a digital pen onto his plan to call up circuits, colour changers, cues or groups. So far only Lee and Arri systems can do this and Arri are now working with Modelbox so that lighting plans produced by the Modelbox computer can be used on the Arri digitiser. As the range of adjustments (remote colour mixing, pan and tilt) available to the designer widens, stalls controls will increase, the next L+SI survey on this subject should see some interesting changes.

The Survey

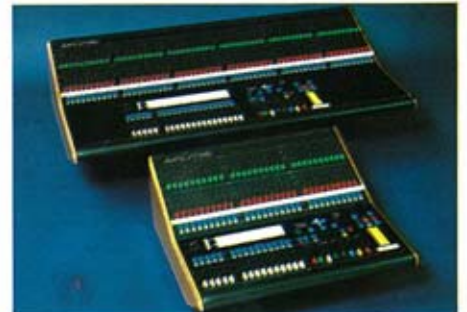
Manufacturers and agents returned a form which contained 38 questions, and here and there they offered additional information

about their products (Macros from Arri, geographic mimics from ADB and dimmer diagnostic feedback from Strand) and as far as possible I have adhered to the actual replies to the questions rather than to my interpretation of them. However, we have not so far received replies from Kleigl, Fly, Advance Lighting Systems, or Siemens but as always we will keep you posted in future editions of L+SI if further information is sent in to us, and of course this applies to any new systems we have missed. Artistic Licence and Electronics Diversified did not return the questionnaires but we have taken what data we can from their brochures. Electronics Diversified's information reveals that theirs appears to be the first system offering fibre-optic protocol.

As far as I can tell this is the largest and



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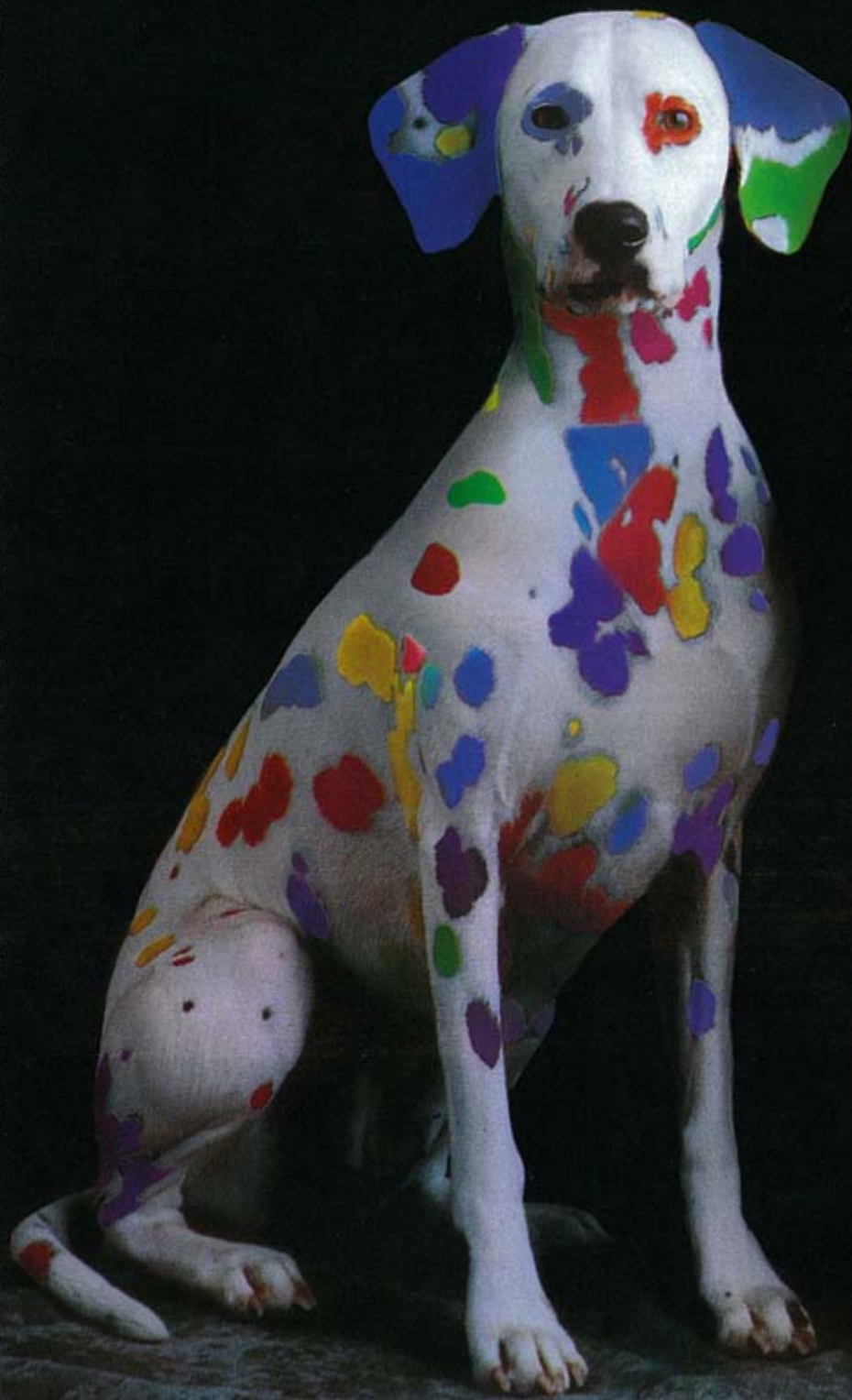
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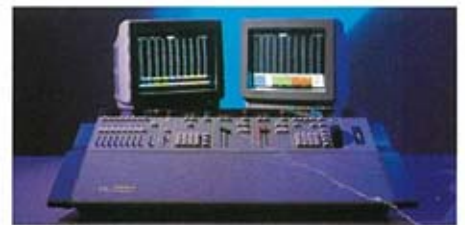
Impuls from Arri.

most comprehensive survey of memory controls ever conducted so I hope it is presented in a useful manner, please let us know what you think because it could become a regular feature if you wish. Please note that this survey did take several months to compile, some manufacturers did indicate what new features were about to be launched, others preferred to be more secretive (about the price also) so it's worth checking with the

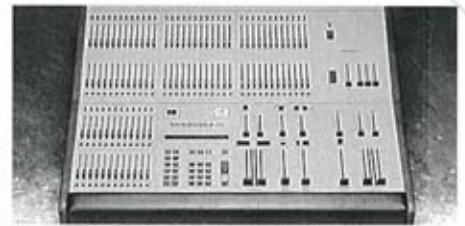
manufacturers for the very latest data.

Table 1 — Capacity

Start looking for your new system here. Keep an eye on the 'date introduced column' (question 3) firstly because a system which has been on the market for a few years is more likely to be upgraded or withdrawn than one just introduced, secondly because new systems can often suffer from teething

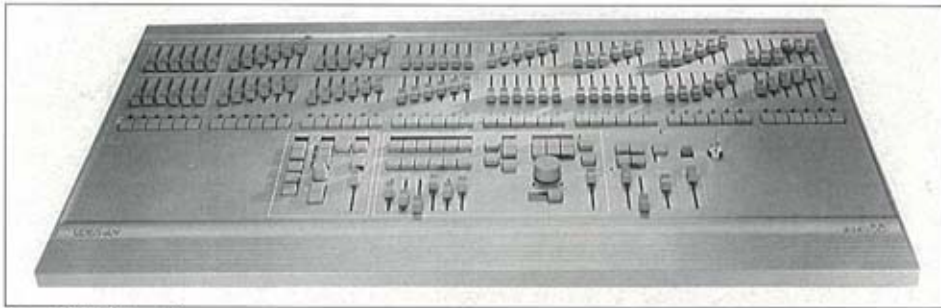


Gemini 2 from Strand.



Electronics Diversified's Troubadour III.

troubles. In terms of the number of channels (question 4) I have taken this to indicate control channels, the number of dimmers accessible is given alongside in brackets if the manufacturer has indicated that this would be different, I suspect however, that many systems here will talk to more dimmers than indicated, especially since many systems have also indicated that they can offer softpatch facilities (see table 3 question 28). The



Zero 88's Sirius 48.



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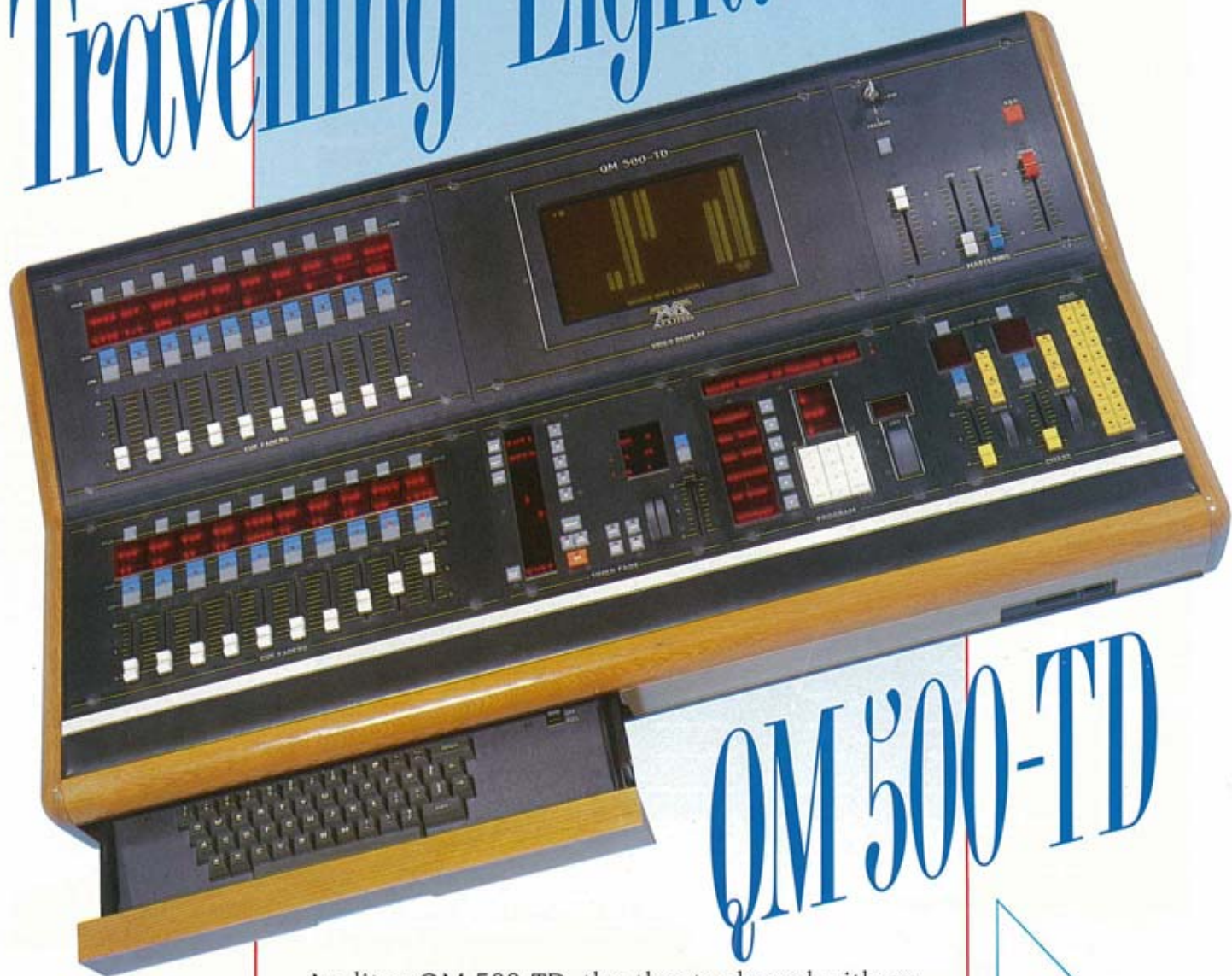
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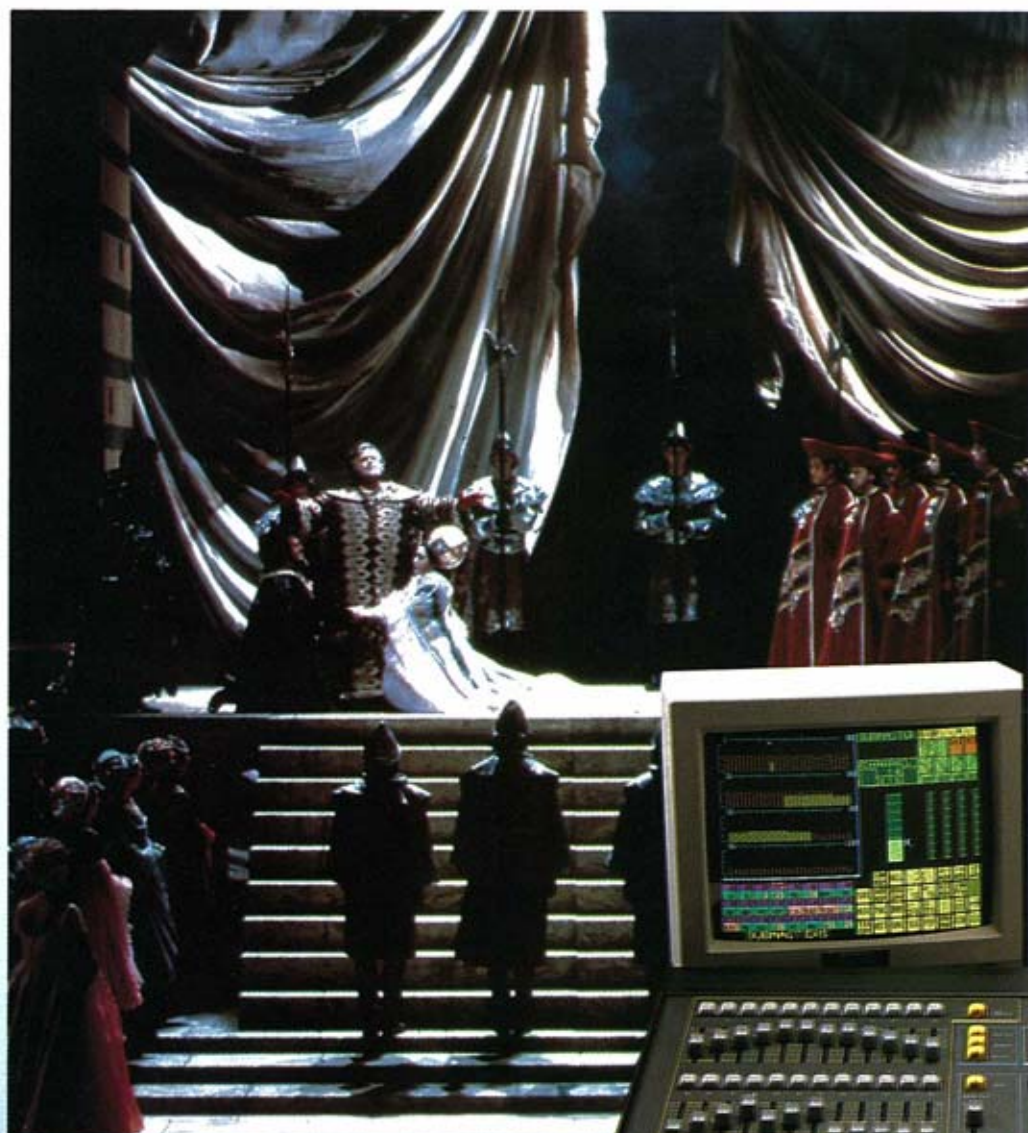
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France
Tel +33/91.85.82.00
Fax +33/91.34.24.70

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D-6052 Möhlheim am
Main
Deutschland
Tel +49/6108/66204
Tx 41899103
Fax +49/6108/66205



The Eurolight Micron X.

submasters (question 7) are taken to be highest takes precedence unless otherwise indicated (see table 3 question 23).

Table 2 – Architecture

This table deals mostly with the key operational factors and as before the actual answers of the individual companies are given below. In the case of channel control (question 9) this answer is taken to refer to what kind of intensity control is provided in addition to the standard keypad. Later questions in table 3 will go into operational matters in more detail (see table 3 questions 19-27). In the case of protocol (question 12) DMX always stands for USITT DMX512. Look out also for those systems currently providing MIDI or RS232 interface – useful to talk to other remote devices; see also table 3, question 38 on this point. See also question 11 about the provision of Riggers Controls which should also be read in conjunction with questions 36 and 37 in table 3 for more specific details of operation.

Table 3 – Variations

This table deals with more detailed variations between the systems listed above. The table should be read in conjunction with the following questions, and here I have been obliged to edit the many complex answers into simple yes/no categories, so my apologies if in the process I have oversimplified the picture. Firstly however, all manufacturers indicated that their systems could be (13) flightcased for touring, (14) fitted with an effects module (chase etc), (15) had memory delete facilities therefore these are not included in the tables. I suspect that some



Avolites QM500 TD.

clarification is needed here. Firstly, I doubt that some manufacturers would be happy to have their larger systems toured, essentially large items are made for permanent installations and touring requires specialisms not every company possesses. Secondly, the effects module. Replies were so diverse or vague as to defy an overview, but every system was listed as being able to undertake effects. Perhaps I should have been more specific asking for details of chase, pulse, flash etc. and maybe we can do this in a later 'effects survey'. I should also have been more specific about question 15; everyone said they had a memory delete but what I meant was a specific push to delete a specific memory. I have used this on the Kleigl systems when in Boston Opera and I like it, especially when in sequence mode and a cue is cut. I know that many systems here do not have this facility in that form, so my apologies for not asking the question correctly.

16. Hire

Many systems can of course be hired from conventional lighting hire companies but the list indicates those manufacturers or agents who are also offering their systems on hire. Lee systems are available via their Manchester branch and Pancan via their agents.

17. Interface with manual desks

This question refers to the ability of the systems to interface with a manual preset

desk in such a way that the memory desk will record the output of the manual. This is useful for people coming to memory for the first time if they do not wish to let go of the manual desk, and in plotting, of course, the manual always acts as a backup anyway (see table 2, question 10 on this). On the Arri Imagine 250/500 the interface is an option.

18. Manual presets

The systems listed have manual presets (usually, but not exclusively) two inbuilt into the memory desk itself and can be operated as manual or manual/memory systems. These are especially useful for one-night concerts, and any ad-hoc work.

19. Enter push

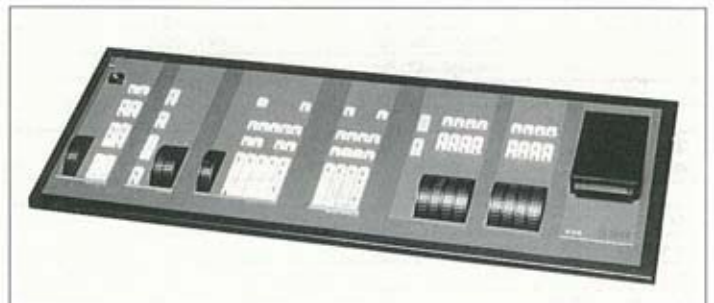
Cockpit drill should be kept to a minimum at all times but some systems, especially those which owe more than a passing resemblance to computers, need an extra 'enter' push before any data can be actioned. I think there might be a case for this in relation to major chase/sequence functions but not on simple accessing channels and levels. The systems indicated (✓) use 'enter' pushes, DLD said "not excessively" and Strand said that some functions in several systems needed the 'enter' push.

20. Deletion of channels

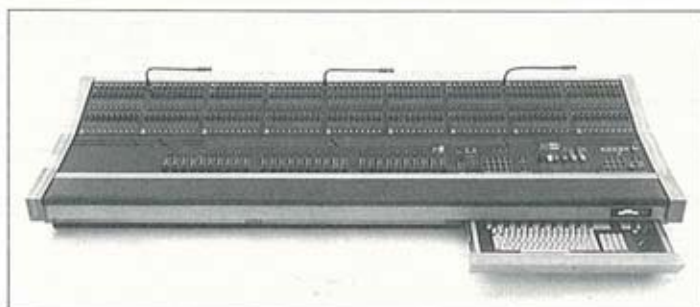
Since theatre and concert work is always fraught with accidents, spontaneous acts and



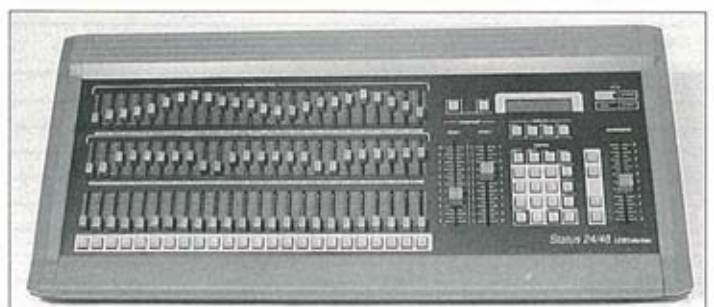
AVAB's 211 console.



S28 from ADB.



The Gold Console from Celco.



Status from Lee Colortran.

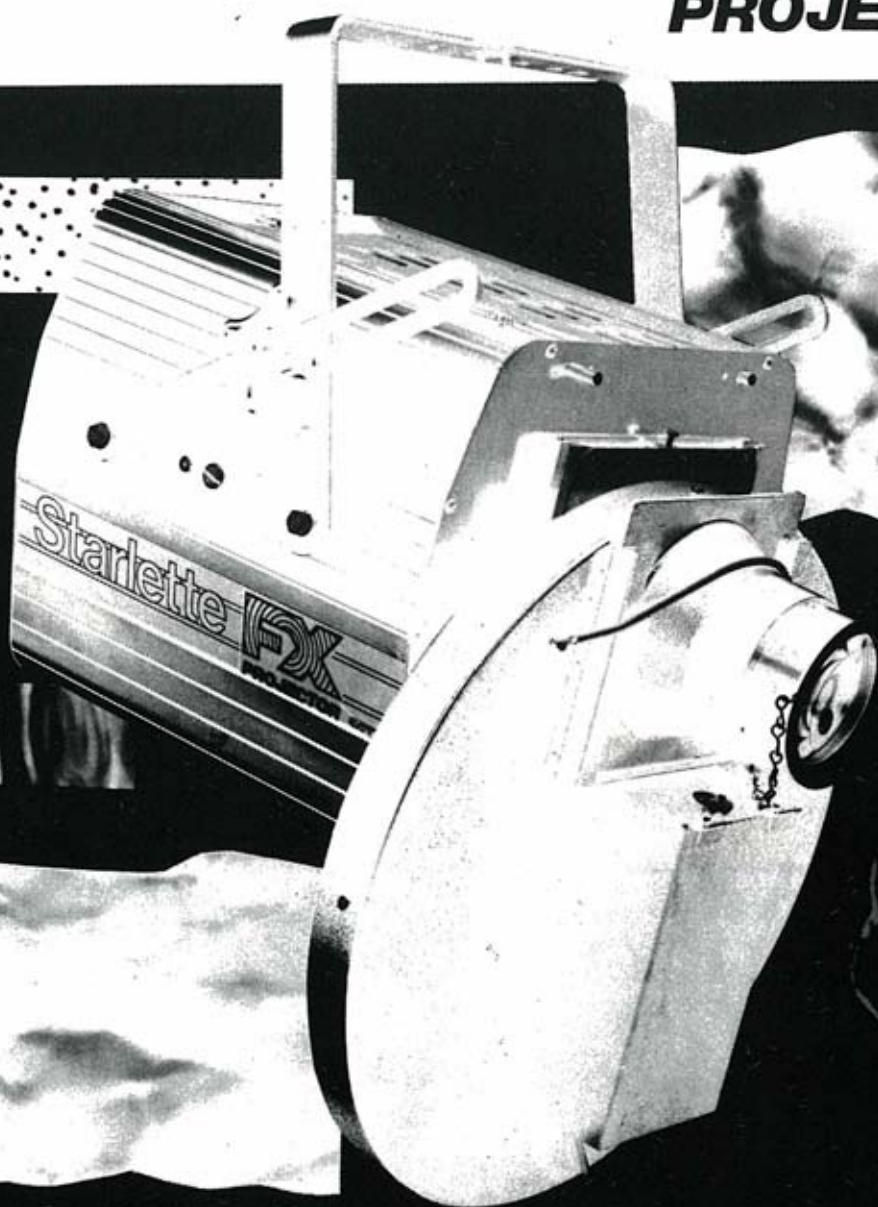
TABLE II

MANUFACTURER	8 SYSTEM TITLE	9 DATA STORE	10 CHANNEL CONTROL	11 BACKUP METHOD	12 RIGGERS	13 PROTOCOL	
ADB	S20	cass	mouse	manual	ir	anal	
	S25	floppy	wheel	full	ir	dmx	
	S28-2	floppy	wheel	full	ir	dmx	
	S28-5	floppy	wheel	full	ir	dmx	
	S28-10	floppy	wheel	full	ir	dmx	
ARRI	Image 60	ram/disk	touchbar	24group	none	dmx	
	Image	ram/disk	touchbar	24group	ir/wired	dmx	
	Imagine 250	ram/disk	wheel	full	ir/wired	dmx/midi/RS232	
	Imagine 500	ram/disk	wheel	full	ir/wired	dmx/midi/RS232	
	Impuls	ram/disk	wheel	24 group	ir/wired	dmx/midi/RS232	
ARTISTIC LICENCE	Concept	-	-	-	-	dmx/midi	
AVAB	Avab 211	cmos/tape	faders	external	ir	own digtl	
	Avab 202 XP	cmos/disk	faders/joystick	external	ir	own digtl	
	Avab Expert	cmos/disk	joystick	full	ir	dmx/midi/Ascii/RS232/own digtl	
	Avab Viking-2	cmos/dual disk	wheels	full	ir	own digtl	
AVOLITES	Precept 12	ram	faders	none	none	anal	
	Precept 24	ram	faders	none	none	anal	
	Precept 36	ram/dalacard	faders	dalacard	none	dmx	
	Rolacue 30	ram/diskette	faders	diskette	none	anal	
	Rolacue 60	ram/diskette	faders	diskette	none	anal	
	QM 500 90	ram/diskette	wheel/fdrs	pin	not yet	anal	
	QM 500 TD	ram/diskette	wheel	ellmc	wired	dmx/sdl/V rec	
	QM 500 180	diskette	wheel/fdrs	pin	not yet	anal	
CELCO	Celco 30 Major	ram/Qcard	fader	tape/man/Q	wired	anal/dmx	
	Celco 30 Plus	ram/Qcard	fader	tape/man/Q	wired	anal/dmx	
	Celco 60 Major	ram/Qcard	fader	tape/man/Q	wired	anal/dmx	
	Celco 60 Plus	ram/Qcard	fader	tape/man/Q	wired	anal/dmx	
	Celco Gold	ram/Qcard	fader	tape/man/Q	wired	anal/dmx	
	Panorama 60	ram/Qcard	rotary	tape/man/Qcard	wired	anal/dmx	
	Panorama 90	ram/Qcard	rotary/fader	tape/man/Qcard	wired	anal/dmx	
	Panorama 120	ram/Qcard	rotary/fader	tape/man/Qcard	wired	anal/dmx	
	DIGITAL LIGHTING DESK	DLD6502 RLM Turbo	disk	fader	none	none	anal/dmx/midi soon
	ELECTRONICS DIVERSIFIED	Minstrel	-	-	-	-	anal/dmx
Omega		-	-	-	-	*amx/cmz	
Troubadour III		-	-	-	-	*amx/dmx/cms *fiberoptic	
ELTEC	SC/ST I	ram	up/dn keypad	man	none	anal + or -	
	SC/ST II	ram	up/dn keypad	man	none	anal + or -	
	Sceptre I	floppy	up/dn keypad	disk/man	wired	anal + or -	
	Sceptre II	floppy	up/dn keypad	disk/man	wired	anal + or -	
EUROLIGHT	Spirit	disk/ram	wheel	manual	ir/wired	amx/dmx	
	Micron	disk/ram	wheel	pin/man/dup	ir/wired	amx/dmx	
	Smart	ram	wheel	man/dup desk	none	amx/dmx	
	Applause	disk/ram	wheel	sep system	ir/wired/radio	amx/dmx/RS232/485	
	Applause 286	disk/ram	wheel	sep system	ir/wired/radio	amx/dmx/RS232/485	
	Ovation 286	disk/ram	wheel	sep system	ir/wired/radio	dmx/RS232/485	
GREAT AMERICAN MARKET	Access	memcard	up/dn/keypad	external/EPROM	none	dmx/amx/analogue	
	Access pro	memcard	up/dn/keypad	external/EPROM	none	dmx/amx/analogue	
	Panache	ram	keypad/wheel	disk	none	dmx	
JANDS	Instinct	cuecard/floppy	fader	cuecard/floppy	none	anal/dmx	
	E.S.P.	ram	fader	none	none	anal/dmx	
LEE COLORTAN	Scenemaster 60 Plus	cmz/floppy	wheel	60 group	wired/wireless	cmz/dmx	
	Prestige 1000 Plus	cmz/floppy	wheel	24 group	wired/wireless	cmz/dmx	
	Prestige 2000 Plus	cmz/floppy	wheel	24 group	wired/wireless	cmz/dmx	
	Prestige 3000 Plus	cmz/floppy	wheel	full	wired/wireless	cmz/dmx	
	Status 24/48	cmz/eprom card	faders	faders	none	cmz/dmx	
LIGHTPOWER SHOWTECHNIK	LCD 60/90/120	sram/disk	fader/wheel	floppy	wired	dmx	
	Lightcommander 24/48	sram	fader	none	none	anal	
OXTRON	Light Conductor	ram	kpd/fader	peripheral	-	RS232/dmx	
PANCAN	Pancan Touchstone	ram	slider only	none	none	own	
PULSAR	Oska	ram/disk	wheel	disk	none	dmx/RS232	
SCORPIO CONTROLS	EC64	ram/disk	-	pin	-	dmx	
	Multiset	ram/disk	fader	self contained	none	line per channel	
	Dalille	ram/disk	wheel	pin/disk/ec64	wired	line per channel	
SIGHT & SOUND	Quasar	hard/floppy	-	man/sep	system radio	high speed parallel bus	
STRAND LIGHTING	Action 24/48	-	faders	faders	none	amx/d54	
	M24/M24FX	tape	wheel	subs	none	d54	
	LBM Jr	disk	faders	subs/full	wired	amx/d54	
	Lightboard M	disk	faders	subs/full	wired	amx/d54	
	Gemini 2+	disk	wheel	decdt pnl	ir/wired	amx/d54	
	Impact	disk	wheel	full	wired	dmx	
	Light Palette 90	disk	wheel	full	wired	amx/dmx	
	Galaxy 3	dual disk	wheel	mem BU/dual	ir/wired	amx/d54	
ZERO88	Sirius 24	eprom/smart card	-	smart card	none	anal	
	Sirius 48	eprom	-	none	none	anal	

Starlette



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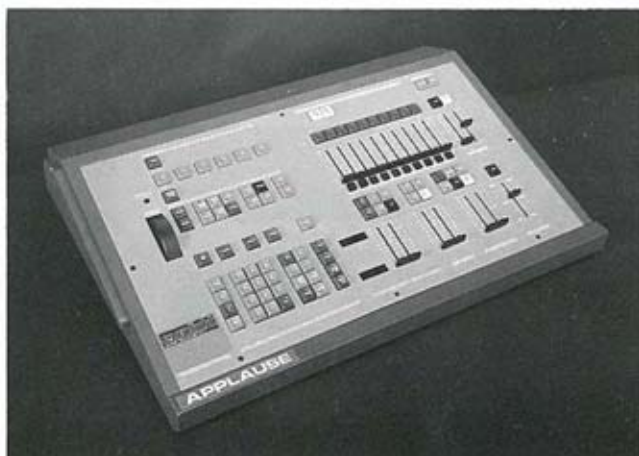
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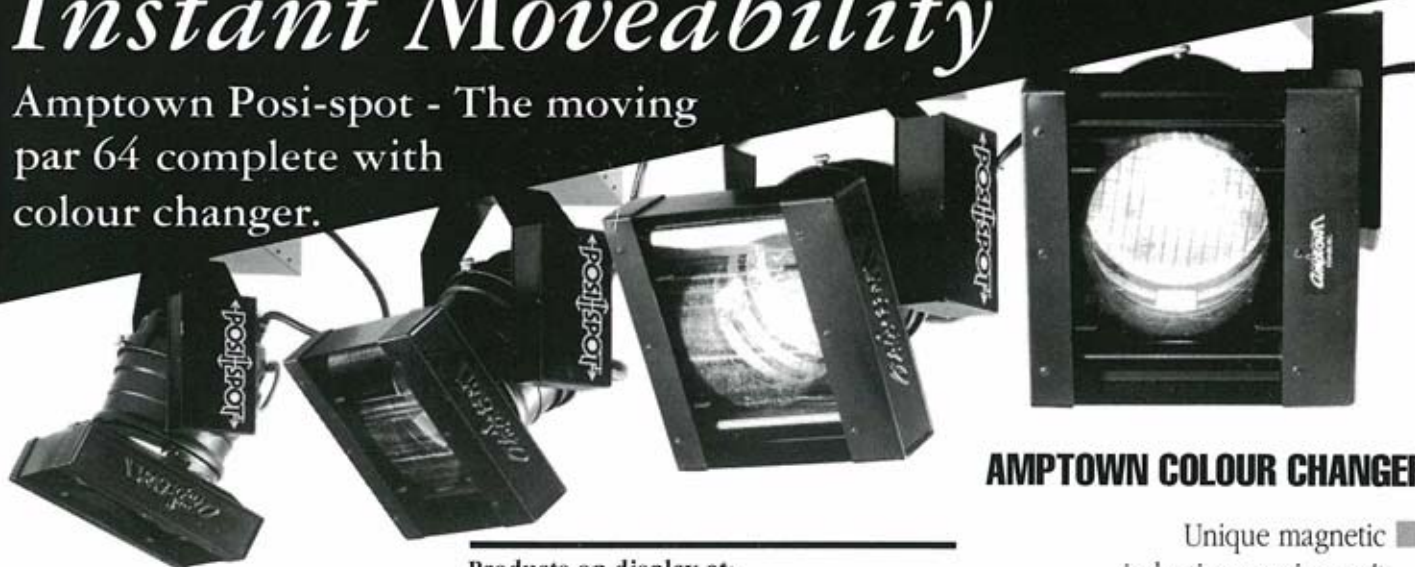
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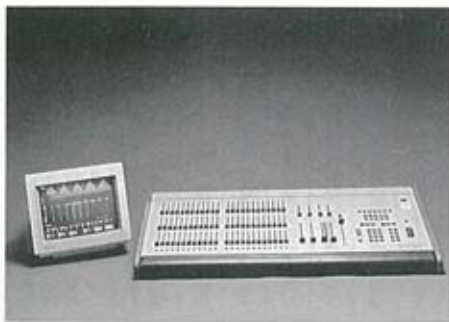
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Electronics Diversified's Omega.

mis-timings, it is very useful to be able to add or subtract a channel from the cues as a temporary measure until the problem is sorted out, the systems indicated (X) do not have an automatic push to achieve this, (note some systems offer this facility through cancelling the softpatch entry for that circuit).

21. Remainder Dim

This facility is an echo from the days of clutch driven dimmers when it was easy to select one channel and fade out all the rest. Early (and too many recent) memory systems could only do this after several buttons had been pushed. The systems indicated (✓) have restored the simple method of achieving this.

22. Movefades

Memory systems are generally all crossfade-based, but the ability to offer a movefade not only saves memory capacity, but also enables some alterations to be more easily made since only the cues introducing and killing the circuit are involved. The system then 'tracks' the circuit through the intervening cues automatically. The systems indicated (✓) can offer both conventional crossfade and movefades.

23. Last takes precedence

Submasters and group masters normally work on the basis that the highest level will take precedence. Individual manufacturers should be consulted on the precise operation of these systems and how they inhibit other circuits or memories. Generally training programmes and manuals are very bad at this, and in my experience too few board operators can adequately use the subs. The systems indicated (✓) offer the ability to read the last fader used irrespective of the level involved (in addition to offering highest takes precedence too). Avab Viking can do this unless in group mode, Pancan Touchstone operates as last only and Strand's Galaxy operates subs highest, groups last.

24. Separate up/down fades

I suspect that more operators use recorded times than are really prepared to admit. The systems indicated (X) will not record the up and down fade as separate times. See also the next question which is related.



The Expert from AVAB.



The Access Pro from Great American Market.

25. Delay times cannot be recorded on the systems indicated (X).

26. Fade profiles

The systems indicated (✓) offer the ability to record and use either a manually performed fade (learn profile) or offer a variety of inbuilt fade curves.

27. Blind recording

The ability to record cues without disturbing a cue already on stage is not possible on the systems indicated (X).

28. Softpatching is not possible on the systems indicated (X).



Image from Arri.

29. Panel displays

Monitors are now notoriously over-complicated and the best desks offer some kind of LED/LCD display of circuit and memory in use, actually positioned adjacent to the relevant pushes on the desk itself. The systems indicated (✓) all have panel displays (in addition to the monitor where used). The AC Jands Instinct has an LCD, and the Pulsar Oska is of course still the only touch sensitive screen.

30. Monitors — Location

The systems indicated have monitors actually built into the fascia of the desk, elsewhere the



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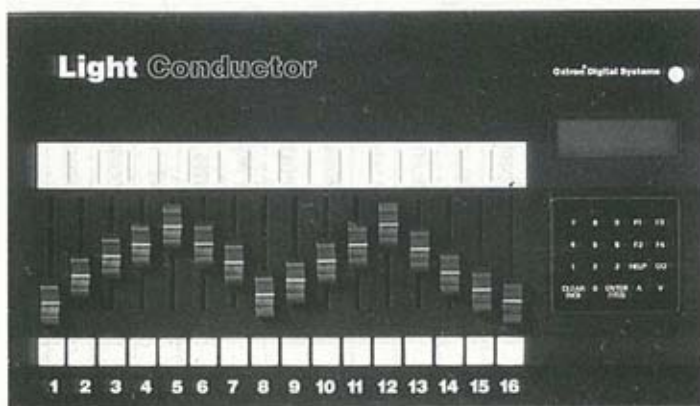
CCT theatre lighting

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TABLE III

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38
		CAN BE HIRED	/FACE WITH MANUALS	HAS MANUAL PRESETS	ENTER NEEDED	CHANNEL DELETE FEATURE	REMAINDER DIM POSSIBLE	MOVE FADES POSSIBLE	LAST PRECEDENCE	UP/DOWN SEPARATE	DELAYS POSSIBLE	FADE PROFILES POSSIBLE	BLIND RECORDING AVAILABLE	SOFTPATCHINGS POSSIBLE	PANEL DISPLAYS	MONITORS INBUILT	MONOCHROME ONLY	PRINTING POSSIBLE	CUE PLOTS WRITTEN	MEMORY USED DISPLAY	HELP MENUS	RIGGER ACCESS MEMORIES	STALLS CONTROLS ETC	REMOTES RECORDABLE
ADB	S20	X	✓	X	X	-	-	✓	X	✓	✓	X	✓	✓	X	X	X	✓	-	✓	✓	✓	X	X
	S25	X	✓	X	X	✓	-	✓	X	✓	✓	✓	✓	✓	X	X	X	✓	-	✓	✓	✓	✓	✓
	S28-2	-	✓	X	X	✓	-	✓	X	✓	✓	✓	✓	✓	X	X	X	✓	-	✓	✓	✓	✓	✓
	S28-5	-	✓	X	X	✓	-	✓	X	✓	✓	✓	✓	✓	X	X	X	✓	-	✓	✓	✓	✓	✓
	S28-10	-	✓	X	X	✓	-	✓	X	✓	✓	✓	✓	✓	X	X	X	✓	-	✓	✓	✓	✓	✓
ARRI	Image 60	X	✓	X	X	✓	✓	✓	-	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X
	Image	✓	✓	X	X	✓	✓	✓	-	✓	✓	X	✓	✓	✓	X	X	✓	✓	✓	✓	✓	✓	X
	Imagine 250	✓	✓	X	X	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	X	X	✓	✓	✓	✓	✓	✓	-
	Imagine 500	✓	✓	X	X	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	X	X	✓	✓	✓	✓	✓	✓	-
	Impuls	✓	✓	✓	X	X	✓	✓	X	X	X	✓	X	X	✓	X	X	X	✓	X	✓	✓	✓	X
AVAB	Avab 211	X	X	✓	X	✓	X	X	X	✓	X	X	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	X	X
	Avab 202 XP	X	✓	X	X	✓	X	X	X	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	✓	X	X	X
	Avab Expert	X	X	X	X	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	X	✓
	Avab Viking-2	X	X	X	X	✓	X	X	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	X	✓
AVOLITES	Precept 12	X	✓	✓	✓	X	✓	X	X	X	X	X	✓	X	✓	-	X	X	X	X	X	X	X	X
	Precept 24	X	✓	✓	✓	X	✓	X	X	X	X	X	✓	X	✓	-	X	X	X	X	X	X	X	X
	Precept 36	X	✓	✓	✓	X	✓	X	X	X	X	X	✓	X	✓	-	X	X	X	X	X	X	X	
	Rolacue 30	✓	✓	✓	X	✓	✓	✓	X	X	X	X	X	X	✓	-	X	X	X	X	X	X	X	X
	Rolacue 60	✓	✓	✓	X	✓	✓	✓	X	X	X	X	X	X	✓	-	X	X	X	X	X	X	X	X
	QM 500 90	✓	✓	✓	X	✓	✓	X	X	X	✓	X	✓	X	✓	X	X	✓	X	X	X	-	X	X
	QM 500 TD	✓	X	X	X	✓	✓	X	X	✓	✓	X	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
	QM 500 180	✓	✓	✓	X	✓	✓	X	X	X	✓	X	✓	X	✓	X	X	✓	X	X	X	X	X	X
CELCO	Celco 30 Major	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	X	X	✓	X	✓	X	✓	✓	X
	Celco 30 Plus	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	X	X	✓	X	✓	X	✓	✓	X
	Celco 60 Major	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	X	X	✓	X	✓	X	✓	✓	X
	Celco 60 Plus	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	X	X	✓	X	✓	X	✓	✓	X
	Celco Gold	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	X	X	✓	X	✓	X	✓	✓	X
	Panorama 60	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	X	X	-	✓	X	X	X	X	✓
	Panorama 90	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	X	-	✓	X	✓	X	X	X	✓
	Panorama 120	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	X	-	✓	X	✓	X	X	X	✓
DIGITAL LIGHTING DESK	DLD 6502 RLM Turbo	✓	X	X	✓	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	✓	X	X	X	X
ELECTRONICS DIVERSIFIED	Minstrel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-
	Omega	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-
	Troubadour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-
ELTEC	Sc/St I	✓	✓	X	X	X	X	X	X	X	X	X	X	X	✓	X	-	X	X	X	X	X	X	X
	Sc/St II	✓	✓	✓	X	X	X	X	X	X	X	X	X	X	✓	X	-	X	X	X	X	X	X	X

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	
		CAN BE HIRED	I/FACE WITH MANUALS	HAS MANUAL PRESETS	ENTER NEEDED	CHANNEL DELETE FEATURE	REMAINDER DIM POSSIBLE	MOVE FADES POSSIBLE	LAST PRECEDENCE	UP/DOWN SEPARATE	DELAYS POSSIBLE	FADE PROFILES POSSIBLE	BLIND RECORDING AVAILABLE	SOFTPATCHINGS POSSIBLE	PANEL DISPLAYS	MONITORS INBUILT	MONOCHROME ONLY	PRINTING POSSIBLE	CUE PLOTS WRITTEN	MEMORY USED DISPLAY	HELP MENUS	RIGGER ACCESS MEMORIES	STALLS CONTROLS ETC	REMOTES RECORDABLE	
	Sceptre I	✓	✓	X	X	✓	✓	✓	✓	X	X	✓	X	X	X	X	✓	✓	✓	✓	✓	✓	X	✓	
	Sceptre II	✓	✓	X	X	✓	✓	✓	✓	X	X	✓	X	X	✓	✓	X	✓	✓	✓	✓	✓	X	✓	
EUROLIGHT	Spirit	X	✓	X	X	✓	X	✓	X	X	✓	✓	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	
	Micron	X	✓	X	X	✓	X	✓	X	✓	✓	X	✓	✓	X	X	✓	✓	✓	✓	X	✓	✓	X	
	Smart	X	✓	✓	X	✓	X	✓	X	✓	✓	X	X	✓	X	X	✓	X	✓	✓	X	X	✓	X	
	Applause	X	✓	✓	X	✓	✓	✓	X	✓	✓	X	✓	✓	X	X	X	✓	✓	✓	✓	✓	✓	✓	
	Applause 286	X	✓	✓	X	✓	✓	✓	X	✓	✓	X	✓	✓	X	X	X	✓	✓	✓	✓	✓	✓	✓	
	Ovation 286	X	✓	✓	X	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	X	X	✓	✓	✓	✓	✓	✓	✓	
GREAT AMERICAN MARKET	Access	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	X	✓	X	X	X	
	Access Pro	✓	✓	✓	X	✓	X	X	X	✓	✓	X	✓	✓	✓	X	✓	X	X	✓	✓	X	X	X	
	Panache	✓	✓	X	✓	✓	X	-	X	✓	✓	✓	✓	✓	X	X	X	✓	X	✓	X	X	X	X	
JANDS	Instinct	✓	✓	✓	✓	✓	✓	X	X	✓	X	X	✓	✓	✓	X	✓	✓	✓	✓	✓	X	X	X	
	E.S.P.	✓	✓	✓	✓	X	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LEE COLORTRAN	Scenemaster 60 Plus	✓	X	✓	✓	✓	X	✓	X	X	X	X	✓	✓	X	X	X	X	✓	X	X	✓	✓	✓	
	Prestige 1000 Plus	✓	X	X	✓	✓	✓	✓	X	✓	X	✓	✓	✓	X	X	X	✓	✓	✓	X	✓	✓	✓	
	Prestige 2000 Plus	✓	X	X	✓	✓	✓	✓	X	✓	X	✓	✓	✓	X	X	X	✓	✓	✓	X	✓	✓	✓	
	Prestige 3000 Plus	✓	X	X	✓	✓	✓	✓	X	✓	X	✓	✓	✓	X	X	X	✓	✓	✓	X	✓	✓	✓	
	Status 24/48	✓	X	✓	✓	X	X	X	X	X	X	X	✓	X	✓	X	-	X	X	X	X	X	-	X	X
LIGHTPOWER SHOWTECHNIK	LCD60/90/120	✓	X	✓	X	✓	X	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	X	✓	✓	X	X	
	Lightcommander 24/48	X	X	✓	X	X	X	✓	X	X	X	X	✓	X	✓	X	-	X	X	X	X	-	X	X	
OXTRON	Light Conductor	X	✓	✓	✓	X	X	✓	X	X	✓	X	✓	✓	✓	X	-	✓	X	X	✓	X	✓	X	
PANCAN	Touchstone	✓	X	✓	X	X	X	✓	X	✓	X	✓	✓	✓	✓	X	X	X	X	X	X	X	X	✓	
PULSAR	Oska	X	✓	X	X	✓	X	✓	X	✓	X	X	✓	✓	✓	✓	X	X	X	✓	✓	X	X	✓	
SCORPIO CONTROLS	EC64	✓	✓	X	X	✓	-	✓	-	✓	✓	X	✓	X	✓	X	X	X	✓	✓	X	-	X	✓	
	Multiset	✓	✓	✓	✓	✓	-	✓	-	✓	✓	X	X	X	✓	X	X	X	X	✓	✓	X	X	X	
	Datalite	X	✓	X	X	✓	-	✓	X	✓	✓	-	✓	✓	✓	X	X	✓	✓	✓	X	✓	✓	✓	
SIGHT & SOUND	Quosar	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	
STRAND LIGHTING	Action 24/48	-	-	✓	X	X	X	X	X	X	X	X	✓	X	✓	X	X	X	X	X	X	X	X	X	
	M24/24Fx	-	✓	X	X	X	X	X	X	✓	X	X	✓	X	✓	X	✓	X	X	X	X	X	X	X	
	LBM Jr	-	✓	X	✓	✓	✓	X	X	✓	✓	X	✓	✓	✓	X	X	✓	✓	X	X	✓	✓	X	
	Lightboard M	-	X	✓	✓	✓	✓	X	X	✓	✓	X	✓	✓	✓	X	X	✓	✓	X	X	✓	✓	X	
	Gemini 2+	-	✓	X	X	✓	X	X	✓	✓	X	X	✓	✓	✓	X	X	✓	✓	X	X	✓	✓	X	
	Impact	-	X	X	✓	✓	✓	X	X	✓	✓	X	✓	✓	X	X	X	✓	X	✓	X	✓	✓	X	
	Light Palette 90	-	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	✓	✓	✓	X	✓	✓	X	
	Galaxy 3	-	✓	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	✓	✓	✓	X	✓	✓	X	
ZERO 88	Sirius 24	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓	✓	X	-	X	X	✓	✓	X	X	X	
	Sirius 48	X	✓	✓	✓	✓	✓	✓	X	✓	X	✓	X	✓	✓	X	-	X	X	✓	✓	X	X	X	



Oxtron Digital Systems' Light Conductor.

indicated cannot do this.

33. Cue plots

The systems indicated (✓) offer the useful facility of displaying the cue list and timings etc on VDU.

34. Memory used/remaining

These days most systems will have more than enough memory capacity, and more is always available via disks. Nevertheless, it is always useful to know how much there is left (especially if writing effects cues). The systems indicated (X) do not offer a display of memory used/available.

35. Help menus

The systems indicated all provide some degree of help. I am deeply suspicious of the length of this list but, again, perhaps I should have been more specific with my questions. To me a 'help-menu' offers guidance on the operation of the system. Many of the systems here monitor the operator's performance but won't tell him how to set up more complex operations such as loading sub-masters. Access is also available in Spanish, French and

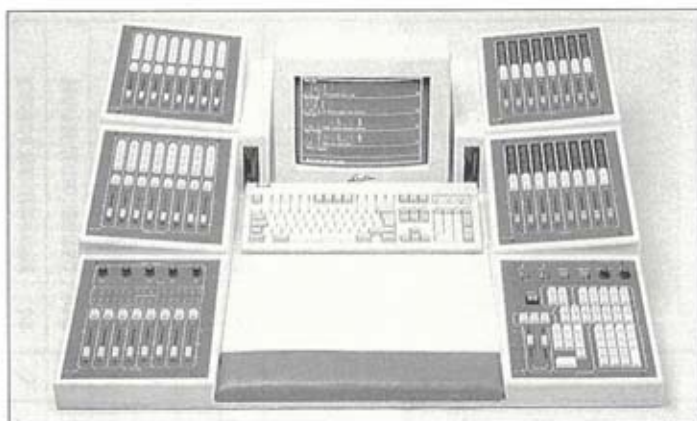
Italian versions; UK manufacturers please note — 1992 draws nearer!

36. Riggers controls

Apart from those indicated here, all the systems listed in table 2, question 11 as providing riggers controls will do so in such a way that memories can be accessed from the control. (Some systems have additional remotes see question 37).

37. Stalls controls, designers desks, graphic tablets

Many systems are now offering these additional peripheral devices, the most interesting of which is the graphic tablet (suffixed G in the table) whereby the lighting designer seated in the stalls can use his own plan or 'cheat-sheet' notes as the data base (via the digital pen) for inputting information into the system. The systems indicated (✓) offer additional peripherals. Since this survey was prepared I have encountered a problem with some stalls/riggers controls whereby they have to be disconnected or disabled in order that the main desk can run chases. Indeed many stalls/riggers controls cannot access



Quasar from Sight and Sound.

chases at all, this is therefore an additional question that prospective purchasers should ask of manufacturers.

38. Remotes

The growth of colour change, projection and pan/tilt devices, all in greater prominence in major tours and West End productions today, places a demand on the lighting control to access more than just dimmers. The systems indicated will not access or record remote devices. Celco systems will talk to, but not record, and DLD say their systems will not record 'yet'. Strand say that whilst only Galaxy will record 'most other systems can be made to interface with almost anything.'

STOP PRESS

Essentially the survey has concentrated on consoles which operate within theatre or performance spaces controlling fixed rather than intelligent lighting. Because this field is so varied, consoles which are mainly designed to control intelligent lighting have not been included, because they would be better served by their own survey which we hope to conduct in a future issue.

Since the survey was conducted, several companies have added to their ranges in recent months. Eurolight have now launched their own graphic tablet, off-line editing system and MIDI interface; Andera have launched a phantom-powered riggers control which will interface with Strand's Galaxy and Gemini and ADB have introduced two versions of the Tenor with 120/240 channels respectively. Cerebrum Lighting have recently been appointed as the distributors for SUNN Lighting's new PLC 3200, a 32 channel multiplex console.



The Jands Instinct lighting control console.

List of Contacts

ADB S.A.
Leuvensesteenweg 585
B-1930
Zaventem
Belgium
Tel: (32) 2 722 1711

Arri (GB) Ltd
1-3 Air Links
Spitfire Way
Heston
Middlesex TW5 9NR
Tel: 081-848 8881

Avab AB
Vastra Hamngatan 1
411 17 Goteborg
Sweden
Tel: (46) 31 179240
(UK distributors:
CCT Theatre Lighting)
Tel: 081-640 3366

Avolites Production Co Ltd
184 Park Avenue
London
NW10 7XL
Tel: 081-965 0290

Celco Ltd
1-3 Bellingham Road
London
SE6 2PN
Tel: 081-698 1027

Digital Lighting Desk Co Ltd
85 Eastbourne Mews
London
W2
Tel: 071-603 0054

Electronics Diversified
1675 NW 216th Avenue
Hillsboro
Oregon 97124
USA
Fax: 503-629 9877

Eltec Drama Lighting Ltd
Unit 2
Cain Valley Trading Estate
Llanfyllin
Powys
SY22 5DD
Tel: (069 184) 8801

Eurolight Ltd
Unit 3
Maple Industrial Estate
Maple Way
Feltham
Middlesex TW13 7AJ
Tel: 081-751 6400

Great American Market
826 N. Cole Avenue
Hollywood
CA 90038
USA
Tel: (213) 461 0200
UK distributors:
AC Lighting —
Tel: (0494) 446000
Furse Theatre Products —
Tel: (0602) 862722

Jands Electronics
578 Princes Highway
St Peters, New South Wales
2044 Australia
Tel: (2) 5163622
(UK distributors: AC Lighting)
Tel: (0494) 446000

Lee Colortran Ltd
Manchester Road
Kearsley
Bolton BL4 8RL
Tel: (0204) 73373

Lightpower Showtechnik
An der Talle 26
D-4790 Paderborn
West Germany
Tel: 010 49 523 14184

Oxtron Digital Systems
Sucklings Yard
Church Street
Ware
Hertfordshire
SG12 9EN
Tel: (0920) 460542

Pancan
83 Gloucester Road
Brighton
East Sussex
BN1 4AP
Tel: (0273) 672043

Pulsar Light of Cambridge Ltd
Henley Road
Cambridge
CB1 3EA
Tel: (0223) 66798

Scorpio Controls Ltd
Unit 5
Johnson's Industrial Estate
Johnson's Way, Silverdale Road
Hayes
Middlesex UB2 3BA
Fax: 081-569 2790

Sight & Sound (UK) Ltd
Unit 3
Berchills Trading Estate
Emery Road
Bristolton
Bristol BS4 5PF
Tel: (0272) 723768

Strand Lighting Ltd
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Off Syon Lane
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- B. The Toronto Sky-Dome Opening**
- C. The French Bicentennial Celebration – Paris**

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FESTIVAL SOUND

Ben Duncan explores the technology used at this year's Glastonbury Festival

This year's 20th Anniversary Glastonbury Festival is the 12th to be held at Worthy Farm, which comprises a stone farm house and 440 acres of pasture land in a valley behind the village of Pilton, four miles from the twin towns of Glastonbury and Street in Somerset. The farmer Michael Eavis has substantial support from the established members of the local community in staging the Festival. Worthy Farm has been farmed by his ancestors for 400 years and the land quickly heals after the festival-goers have departed. This year's official attendance figures were 72,000, including festival workers and suppliers. Around 10,000 (or 1 in 7) were children getting in free, coupled to 60,000 adults who'd paid £39 a head for three days of camping and a chance to see some of the 1,000+ acts staged around the site. A substantial donation is made to CND, an arrangement that's gone on ever since the nuclear disarmament movement began to swell in the early '80s. Smaller donations are also made to local organisations, e.g. village halls and Scouts.

System Outfront

The PA system was supplied by Britannia Row Productions. As Europe's biggest PA rental company, they're privileged to stock two completely different and contrasting speaker systems - stocked in such abundance that they were able to supply the Festival while running eight other tours! Their US-made MSI system and their TMS-3 based Turbosound rig were covered in last year's report on the Pink Floyd tour (L+SI August '89). This year, Turbosound's new generation UHQ or 'flashlight' enclosures were being tested for the first time. Turbosound's TMS-3 is today the most used 'one-box' PA enclosure in the world, with more than twice as many in use than the nearest competing product. The TMS-3 was first used at Glastonbury shortly after it was launched, in 1982. TMS-3 arrays have been supplied, first by Turbosound Rentals, then Samuelsons, and more recently by Britannia Row, for every subsequent festival.

The PA's front-end comprised Brit Row's standard equipment, much of it state-of-the-art, BSS Audio's stage splitter units interfaced the FOH, monitoring, TV and radio feeds,



Busy sampling the sound at the front of the mix position are Trevor Dixon and Turbosound's Tony Andrews.

resulting in a total lack of buzzes and noise throughout the event. Outfront, the main console was a Ramsa S840 (reviewed in Feb '89 L+SI). I asked Turbosound's John Newsham, who was assisting with the mixing and engineering and who hadn't used the Ramsa before, about his experiences.

"All the engineers we were working with appreciated its clean sound. It's a very transparent desk, remarkably free from crosstalk. The only crosstalk we encountered was very minor, on the PFL buss. But I've yet to find any desk which doesn't have crosstalk on the PFL! Besides, it was no problem during the show. The desk was straightforward to use; everything falls to hand except the pan control. A couple of engineers confused it with the gain control, which is red; the pan pots on a lot of mixers are coloured red. The consequences of panning to the right while remaining in the middle would have been frightening - considering the large amount of microphone gain that's available. Besides, the pan position is transposed on this desk, at the top where the microphone gain control normally is! Also, each of the sends has an on-off switch. That's a nice feature. It means you can preset FX, then bring them in swiftly. The buttons rely on shadowing so you cannot tell whether they are in or out. Even an illum-

nated switch wouldn't have been clear in the bright sun. So people forgot about the switch and would suddenly begin to rack their brains after realising the effect hadn't come in on cue! There were loads of outputs. The matrix outputs were used to send a mono mix to the BBC Radio mobile, and a completely separate stereo mix to the BBC TV truck. Then we were routing tapes to the stage for bands who had intro tapes, or who wanted to hear a specific tape just before their set. There were plenty of spare outputs left; we used the 'Studio' outs for recordings on cassette and R-DAT."

Effects were mixed by an elderly Yamaha M512 sub-mixer. The FX rack contained an assortment of 'industry standard' processors, namely Yamaha SPX 90 and 900 and Rev-7; dbx 160x compressors; AMS and Lexicon 224X reverbs; and Roland SDE-3000 slap echo. BSS DPR-402 compressor/de-esser/limiters were normally assigned to bass guitar and vocal channels with extras assigned as necessary. The snare, tom and kick-drum mics were gated with Drawmer 201s. A further three DPRs and 201s were on standby ready to be patched to vocals or wherever the need arose.

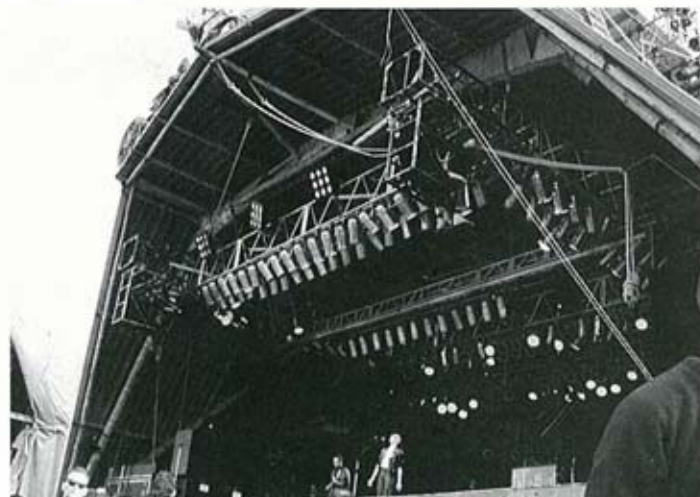
Amplification

Twin crossovers, one feeding each stage wing, were BSS Audio's 'industry standard' FDS-360. Using the 'breakout' facility, a buffered full-range signal was derived after the low and high-end protection filters, and routed to BSS Audio's new TCS-804 dual time corrector which permits nested delays in stereo. The four (2 in stereo) time delayed outputs were then re-introduced via the FDS-360s breakout, to feed the HF + Mid-High and Low-Mid filter chains, which were delayed both with regard to each other and the sub-bass feed, which being the one that's lagging most, wasn't delayed at all.

Amplification in each stage wing comprised just nine of BSS Audio's EPC-780, an advanced, powerful and very compact touring power amplifier launched last year. Each of the EPC-780s two channels has 2 ohm capability without compromising sonic quality, enabling four boxes to be driven per channel in a given frequency range. In spite



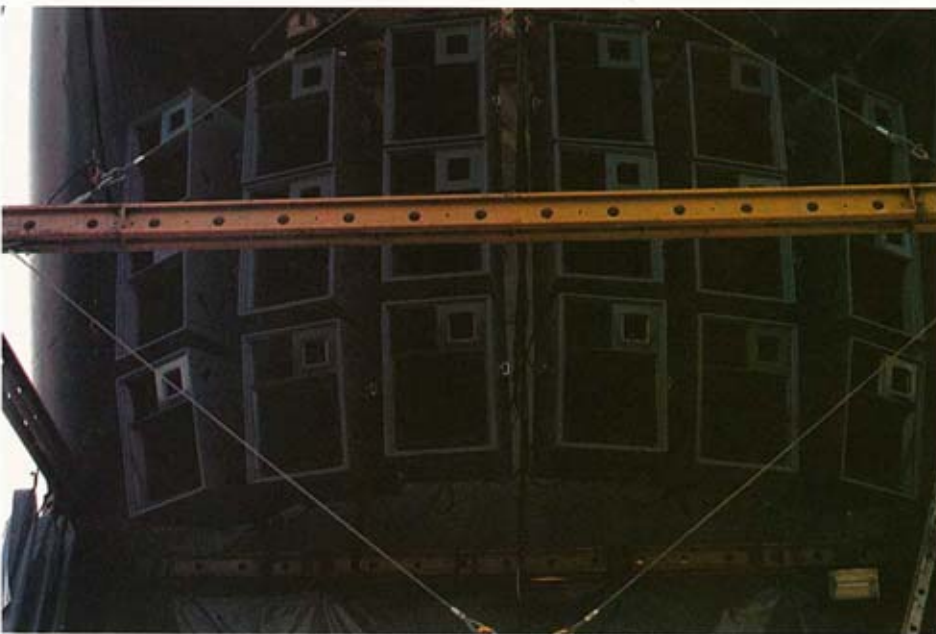
The view encapsulates a fraction of the festival site. Looking down into the valley, the main pyramidal main stage is visible to the right of the hedgerow situated halfway up the left side. Immediately to the right is the red tarpaulin covering the mix position. Glastonbury Tor, a local and sacred landmark capped by a derelict church, can be seen poking up on the horizon immediately above.



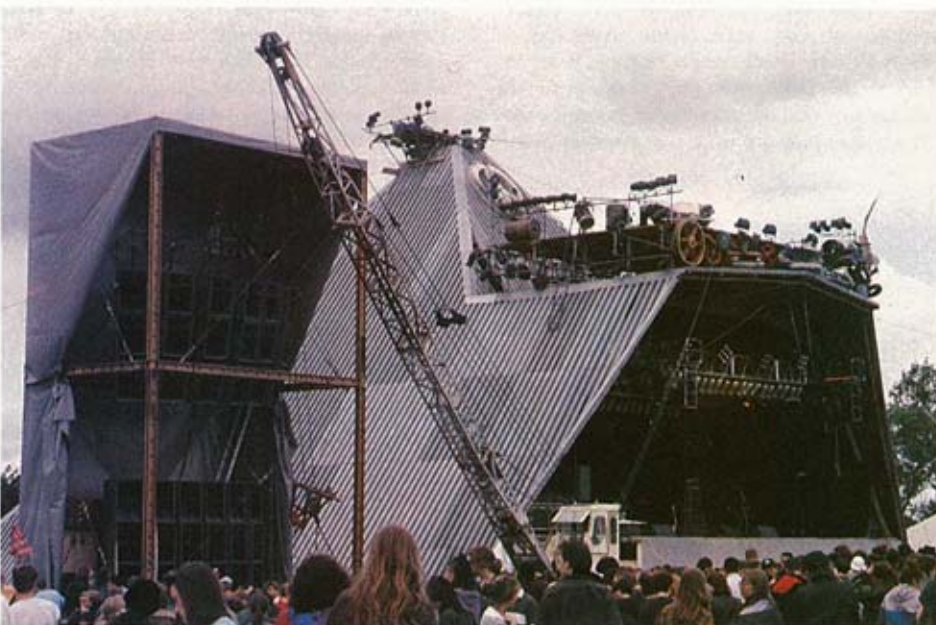
Front of stage. The monitor console can be seen stage right.



Standing over the Ramsa console while the set is being changed, Steve Ludlum of Britannia Row hesitates over a button, John Newsham of Turbosound thinks deeply while Trevor Dixon from Mendip Council relaxes from making notes.



Turbosound's new UHQ enclosure 'High-Packs' were flown in a semi-spherical array.



The pyramidal stage with one of the PA wings on the left. A curved barrier kept the crowd back from the stage. The top of the pyramid is rigged for *Archaos*, a daring French circus troupe. The badly parked crane was part of their act, which took place at night.

of the way that the SPL in the auditorium limited, peak levels were still reaching 108dB SPL, so it was amazing to see that the drive was at least 20dB below full output on every single amplifier's peak-indicating bar meter. BSS Audio's AR-204 line balancing units were appended to each of the crossover outputs, so the multicore returns to the stage wings were fully balanced. The residual noise level at the speakers was so low that amidst the 65dB-ish ambient background noise of 20,000 campers, half a dozen generators and the backstage traffic, it wasn't possible to know whether all the drivers were working when they were checked by Turbosound's Toby Hunt on the opening morning, at least without driving the system with pink noise!

Spherical Rigging

The UHQ array comprised two kinds of box. The 'high pack' contained three long-throw devices: a single Turbo-loaded low-mid horn, a smaller Turbo-loaded Mid-HF horn, and an HF 'waveguide' horn. Sub-bass was provided by an enclosure, which is similar to the established TSW-121, except it's slightly smaller to match the high-pack and can be flown if needed. At the festival, 18 of the sub-bass cabinets were arrayed six wide by three high on the tower's lower tier, about 3'/1m above the soil.

The high-packs were flown in the semi-spherical 'point source' array that's featured in Turbosound's indoor installations over the past six years. Outdoor hemispheric flying was employed for the first time ever in 1988 at the Roskilde Festival in Denmark, with TMS-3s, and subsequently it featured at last year's Glastonbury Festival. John Newsham recounts that the engineers were impressed at the complete flexibility of adjustment: "You can get it high and point it down — which obviously helps with all the outdoor acoustic problems of wind, temperature layers and spill". At this year's Festival, the high-packs were arrayed in three tiers of six. The upper tier was angled down some 10°, while the two subsequent tiers were each angled down slightly more.

The BSS Audio TCS-804 was used to align the speakers. The HF + High Mid were delayed a few hundred μ s (millionths of a second) to the Low-Mid. This grouping was then delayed by a few tens of milliseconds to synchronise with the sub-bass enclosures. The delays for the HF/Hi- mid to Low mid were perfected in Turbosound's R&D department, as they're invariant and independent of how enclosures are arrayed. As the distance to the sub-bass enclosures was an unknown quantity until the PA had been rigged, the master delay to the 'high-pack' was fine tuned on the site.

Acoustic Factors

The main stage is set in a valley five miles from Glastonbury Tor, a notable landmark. In common with every other part of the British Isles that's close to the Atlantic seaboard, Somerset has some of the most volatile weather in Europe. Midsummer is no exception, and virtually every year has seen tumultuous downpours or sullen haze dramatically alternating with hot sunshine. When it's hazy, gusty breezes frequently build up and sweep down the valley as the day wears on, mixing air of different temperatures and breaking up the music's coherence.

Whether you believe in pyramid 'energies' or not, there's no disputing that the silvery, pyramidal stage at Glastonbury has some

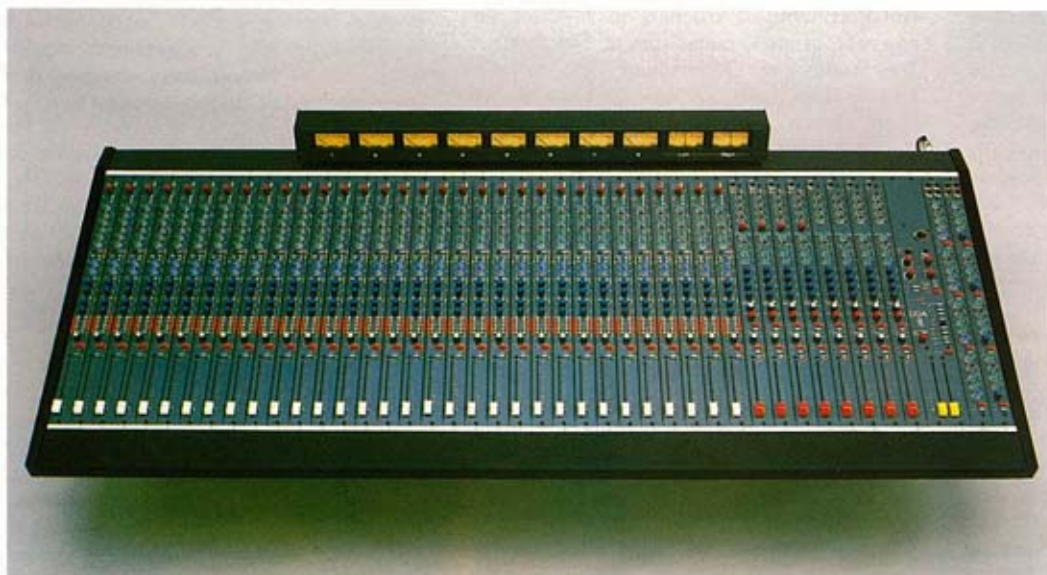
Any console with this much flexibility deserves a closer look

Q

THE Q SERIES

Examine the new Q Series sound reinforcement console from DDA and it's easy to see how it combines greatly expanded mixing flexibility with simple, logical operation.

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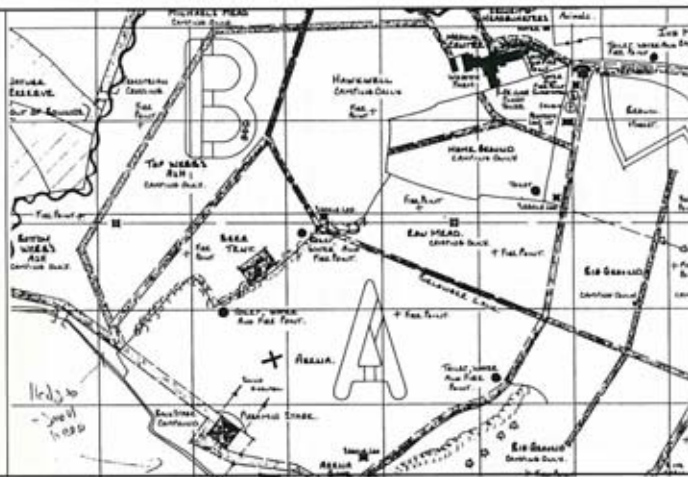
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DDA
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1990 GLASTONBURY FESTIVAL

Layout of Area:
The Cross indicates
the mix position



interesting and valuable acoustic properties, as well as providing a platform for amazing laser shows. Because the metal cladding isn't covered inside, the mid/high frequency reverberant field is especially strong. Second, because there are no parallel sides, and because the cladding's surface is heavily castellated, the reverberation is highly diffuse. Third, because reflecting surfaces are always more than 15'/5m away from the performers, direct sound is unimpaired. The nett result is that a rich, yet detailed ambient soundfield is built into the mix; it's rather like miking up in a 'live end/dead end' studio control room. The stage doesn't rotate. This is probably wise, considering it's used to store hundreds of festival fixtures like chairs and mats (and as play-area by the Eavis family children!) ten months of the year. Instead, successive bands' drumkits and keyboards are prepared on rolling risers which can be swiftly manoeuvred into position before 'plugging-up'.

At last year's festival, Mendip council applied a restriction on the SPL coming from the main stage for the first time. The 'noise' suffered by the village of Pilton and surrounding countryside was monitored at Benleigh House, 800 yards (700m) from the main stage. It belongs to Michael Eavis' (the farmer's) brother and is conveniently sited at the top of the valley, just inside the village of Pilton and almost on axis to the main stage. A maximum LEQ of 60dB was set at this position, integrated over 15 minutes. The 'LEQ' suffix indicates that the level is integrated (i.e. successively averaged) over a period, so occasional and/or short-term peak SPLs can be 10 or 15dB higher. The effective limit at the mix position was determined at 96dBLEQ with a 100dB ceiling allowed for short periods. In the event, the SPL restriction was broken 17 times during the three day event. A lot of the breaches were regarded as insignificant by the council, while all the serious breaches occurred during one band's set. John Newsham recounts "It wasn't bad for 36 hours of music. The limit wasn't broken accidentally, but because one of the bands' engineers wouldn't comply; he just wouldn't back the faders off". It all contributed to the £14,000 fine levied by the Council on the festival organisers in 1989 for a variety of breaches of their licensing conditions.

This year 'active monitoring' was employed, so the sound engineers had prior warning that they were approaching the 60dB limit at Benleigh House. The SPL limit was set at 93dBLEQ at the mixing console, over an integration period of one minute. This was just an advisory limit for the purposes of meeting the statutory 60dB limit at Benleigh. I

asked John Newsham how the tricky problem of bands' engineers not complying was tackled. "Using the UHQ system was like driving an Audi Quattro in a 30mph limit. So a DPR-402 compressor/limiter/de-esser was connected across the mixer's main L+R insert points, and finely tuned to give a little overall compression and peak limiting. It assisted in keeping within the SPL limits set by the council as well as avoiding the political embarrassment of reaching in front of an engineer to take command of the faders." The series of Turbosound PA systems employed in successive festivals have always been entirely horn loaded - hence highly directional even at bass frequencies. Which means the music escaping the site has been principally confined to within 30° on axis to the main stage.

While bands were playing, SPLs at Benleigh House were automatically logged with a Metrosound DB604 precision SPL analyser. At the mix position, both Britannia Row's engineers and the Council's environmental health officers were equipped with handheld Bruel & Kjaer model 2221 meters which compute and store LEQ readings. This was arranged intentionally, so the sound engineers could see what was going on for themselves with their own equipment, while having a common basis of comparison, so there'd be no disagreements. Regular comparisons also revealed early on, that the batteries in Britannia Row's meter were nearly flat! As weather conditions (notably winds coupled with temperature inversions) could cause the SPL at the far site to deviate independently of the LEQ at the mix position, the two monitoring 'stations' were actively linked by radio phones so adjustments could be made, with Trevor Dixon, the 'man from the council' working alongside to advise the sound engineers. Up at Benleigh House, at the top of the site, sound escaping from the main stage was concentrated towards the low frequencies, so the 'A' weighted reading (which progressively rejects bass frequencies) was presumably reacting as much to the predominant bass as well as to the low-mid content. The monitoring at this point had to be carried out with discretion because of its proximity to site maintenance traffic, notably JCB excavators, farm tractors and HGVs, not to mention the police helicopters' landing pad! To be fair, the council officers made notes and discarded the affected 15 minute segments whenever the recorded SPL was clearly originating from sources unconnected with the main stage.

Sound Assessment

The UHQ system had a smoothness of cover-

age that I had never previously experienced. Quality was uniform throughout the crowd. At 30° off-axis to the last horn on the tower, the SPL fell off extremely rapidly, dropping nearly -10dB with one pace, but without tonal aberration. At the 1983 festival, an Ambiosonic decoder was installed to provide enhanced stereo. This year, and in spite of the gusty winds, the stereo image approached a top-flight domestic hi-fi system. Standing in the middle, 50 yards (45m) from the stage, it was undoubtedly bigger and stronger than the image produced hitherto by any ordinary PA system, and appears to be a product of the UHQ's tightly controlled dispersion and lack of mutual interaction between the individual sources, particularly in the mid and high frequencies. The enhanced fidelity of the electronics chain, notably the Ramsa console and BSS processing and amplification must also have contributed.

The Aftermath

I asked John Newsham to sum up the occasion. Were the SPL limits broken? "The council guys were pleased at our co-operation. We broke the levels on a couple of occasions, but only briefly. We generally had far fewer complaints than ever before - even though we were running louder at the mix position than last year. On occasions, we had to drop a few dB. At other times, especially when the air temperatures changed or the wind dropped or shifted direction to face the stage, we were allowed to increase the levels with the council's consent. The highest LEQ was 101dB during The Cure's set. As long as the noise limit isn't too stringent, it actually has beneficial effects on the sound. It means an engineer can't just push up all the faders to get out of trouble. It keeps the 'dynamics base' of the music happening, preserving the dynamic range of the system."

How was the new speaker system? "The UHQ boxes are much more like the 'Festival System'[*]. Like any other one-box system, the TMS-3s clarity suffered in the windy conditions we get every year at Worthy Farm, when a fairly high number are arrayed to get high SPL. This year I was hearing some difficult instruments - like piano - with unrivalled clarity for the first time. And bass guitar had uniform realism all the way up the scale. I could even hear the round-wound strings!"

What about the winds? "Although they were stronger than average, I was surprised if affected the sound as much as it did. On the other hand, the sonic effect was different. The 'break-up' had none of the wind 'phasing' or 'flanging' the sound, it seemed the complete image was shifting and jumping - possibly because the cabinets were swinging in the breeze. The minimum number of components helped."

Tony Andrews adds "The UHQ system was intended to maximise the soude level in the crowd while controlling the spill. It's purpose made for this kind of situation. Because we've been successful, our R&D department have been given the chance to break radical new ground. The 'Flashlight' is the synthesis of all the work over the past eight years. We've pushed up the compression drive to 8kHz, out of the critical mid-band. The 6 1/2" driver alone has taken us 18 months to develop and refine." The last word goes to engineer Chris Lindop, who equipped immediately after mixing The Cure's set "Where can I get one?"

*An early Turbosound system used at the Glastonbury Festival from 1978 up to 1982.

MARTIN AND LAMBA

David Neale charts a Danish-British venture

Martin Professional is a Danish-based company which started as the manufacturer of smoke machines. A lot of water has passed under the bridge since then, and more recently the company has moved into intelligent lighting. On the face of it nothing really extraordinary in that. But when you think that a relatively small smoke machine company as was, can now boast of being among the top ten discotheque companies in the world, then you have to sit up and take notice.

To plot the short, but remarkable, history I talked to Martin's founder Peter Johansen. The first thing he was keen to point out was their close working relationship with UK distributors Lamba PLC.

As with many business tales, and this one is no exception, it started with a chance meeting between Martin's Peter Johansen and Lamba's Frank Irish, who takes up the story: "We met at the Siel show in Paris in 1988. Shortly after that we signed a contract with Martin to distribute their smoke machines." At that time Lamba had also taken on the UK distribution of Stanton Cartridges and were looking to exhibit at the Light and Sound Show that year. This was Martin's first real presence in the UK market, and with Lamba behind them, their products were immediately available to a wide cross section of the discotheque market.

Ian Kirby's joining of Lamba in early 1989 coincided with the Danish company's development of the Roboscan. With a great deal of interaction between the two companies having taken place by the time that the Roboscan was ready to be launched on an



Peter Johansen, founder of Martin Professional.

unsuspecting world. Ian Kirby knew the product and, more importantly, its potential in the market place. It's fair to say that at the Plasa Light and Sound Show in '89, the Roboscan didn't in fact set the world alight. Ian Kirby however had already started his long-term plan which was to establish a number of select pro-dealers to handle Martin products throughout the UK and Ireland.

The next stop for the product was the Lighting Dimensions show in Nashville. This is where the Roboscan really took off. As well as US industry people checking out the product, European

interest was strong, and to complete the global introduction of the Roboscan Martin made the trip to SIB/Magis in Rimini. It was no surprise to all those who were closely involved with its continued development that it held its own amongst the home-grown Italian products.

Peter Johansen insists that one of the main reasons for Martin's success was and is 'word of mouth'. People were talking about the product, and more to the point, buying it.

The duality of Martin's rise on the world stage — they now export to 43 countries and have representation in 36 of them — is mirrored by Lamba's move to centre stage in the UK. Frank Irish put forward his reasons: "We are different to most companies in the discotheque industry — we are a professional distribution company." He feels that if a company were to approach the industry with a view to launching a product, they could not do better than to follow the Lamba example. Once the '89 Light and Sound Show was over, Ian Kirby began the task of setting up a network of pro-dealers.

Did Lamba have to take on any new dealers to handle the Roboscan? "When we were setting up we only took on one new dealer," explained Ian Kirby, "the rest were already well known to us." This is central to the Lamba/Martin philosophy. Anyone taking a dealership must also take the complete range of Martin products, and be able to offer a full back-up service. Quite a tall order, but Martin were prepared to back their pro-dealers all the way. To help them Lamba designed and still operate a finance package to make the money pill less bitter.

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Finn Kallestrupp of Martin (left) demonstrates a Roboscan with Ian Kirby of Lamba looking on.



Several Plasa members are included in the Seminar line-up.

Once they had the Roboscans out in the field it meant that potential customers could view it in action locally. An attractive price package was put together to bring in the clubowners. For under a thousand pounds a club could have four Roboscans and a controller. This, as part of an overall lighting scheme, has proved to be a good selling point.

While all this activity has been taking place, Martin in Denmark have not been idle. Peter Johansen again: "At Martin we keep our manufacturing and development operations separate (in fact they are over a hundred miles apart) this means if they, the manufacturing side, have a problem they have to sort it out themselves. This leaves our team of technical engineers time to devote to developing new software."

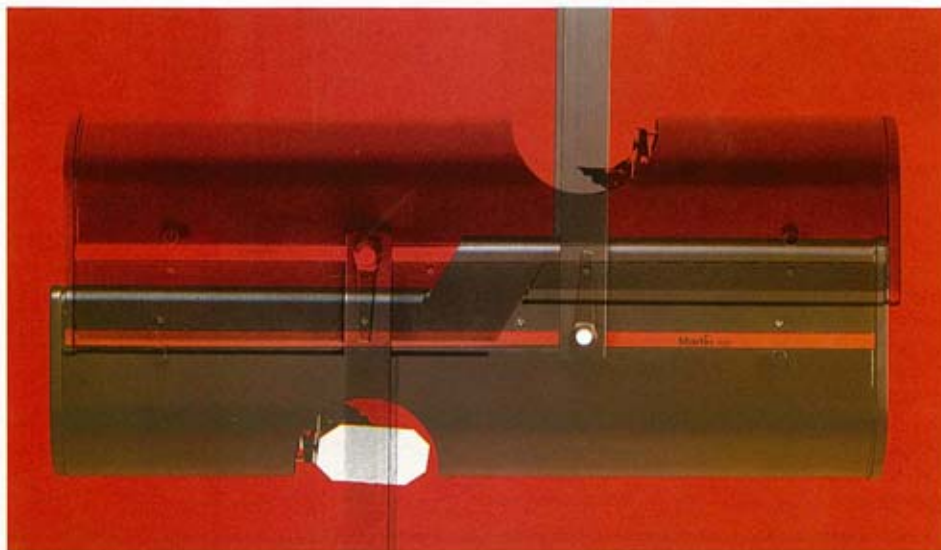
When feedback concerning one of their products is received from distributors, Johansen claims that the company's response mechanism is immediate. Clearly, this type of development process ensures that benefits are continually being passed on to the end user.

What of the future? Well at this time of year, most manufacturers are in a state of Purdah, and you are unlikely to get much out of them concerning new lines for the autumn round of trade fairs.

Much to my surprise Peter Johansen told me that Martin are planning to launch two additions to the Roboscan range shortly. More than that, he wouldn't say.

As to the present crop of products Martin and Lamba have just held their first seminar. This was headed by Martin's chief engineer Finn Kallestrupp. They are planning a second seminar prior to the Light and Sound Show in September.

Martin have now taken their place in the first division of lighting manufacturers. When I asked



Martin's 1005 Roboscan.

Peter Johansen to give me an estimate of how many Roboscans were on the market he quickly consulted his computer, and came back with a figure. "Since December last year we have sold 2733" — not bad for a one-time smoke machine manufacturer.

MARTIN/LAMBA SEMINAR

Martin Professional and Lamba PLC recently hosted the first in a series of seminars for pro-dealer engineers. The reasoning behind it was to bring together engineers (many who represent retailers) not only to talk about the products they develop, but just as important, to give the dealers an opportunity to meet and exchange ideas. Ian Kirby: "On the manufacturing side of the industry most of the people know each

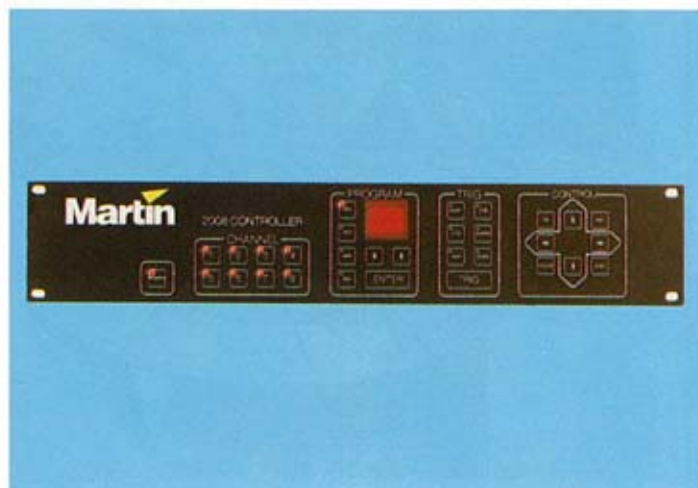
other, and meet regularly at exhibitions. However, the retailers often operate within a vacuum, not knowing their opposite number. By bringing them together we feel it may help to promote understanding and co-operation." At the end of the seminar all those who attended were presented with a certificate and a Martin engineer service case.

Companies attending the first seminar: BSL Rentals • Bradford Sound and Light • Link Electronics • Northern Lights • Orange Pro Audio • Squire Sound and Light • Starlight Design • Venuetech • Cooks Sound and Light • Hereford Disco Centre • Technique Systems • Newcastle Sound and Light • Aucustux

Martin Professional were represented by chief engineer Finn Kallestrupp.



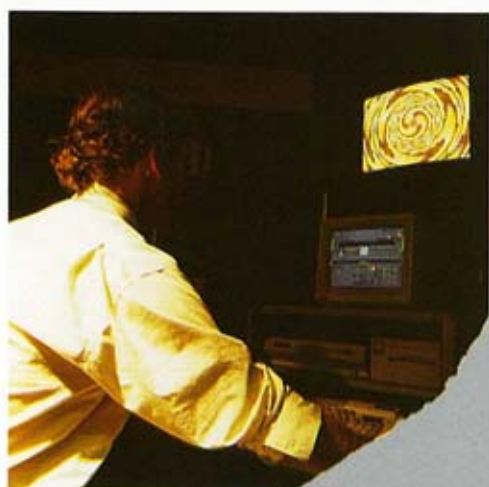
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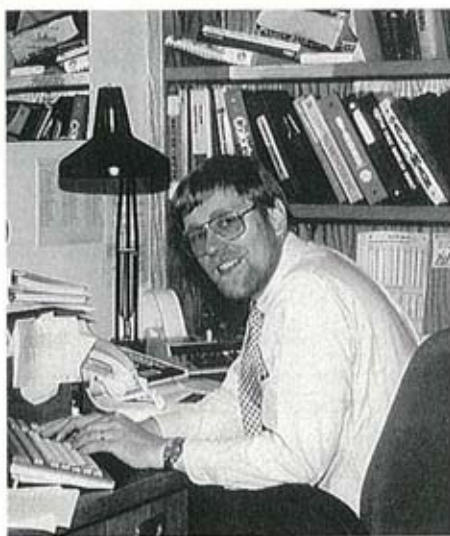


SHOW SEMINARS ON THE GRAND SCALE

John Offord sells you the idea
of sitting in on the PLASA Show Seminars

Big names and big shows are a feature of the seminars planned for this year's Light and Sound Show at Olympia 2 in London (September 9-12). And to back up the presentations, PLASA's organisers have booked the purpose-built conference facilities at the venue to ensure bigger seating capacities and better facilities.

On each of the seminar days (Monday 10th and Tuesday 11th) there will be two main seminars and one late afternoon 'Platform Performance'. First off, 'DMX and All That' will be chaired by Tony Gottelier, and a string of specialist speakers will include Steve Terry of Production Arts in New York who is past chairman of the USITT DMX512 committee; David Bertenshaw of Strand Lighting; Simon Temple of Live Wire and the redoubtable Francis Reid. If you want to keep abreast of the latest action and thinking on control systems and their integration, then you won't get a better chance, with input from the men



Steve Terry from Production Arts New York will be taking part in 'DMX And All That'.

who are developing systems at the sharp end.

On Monday afternoon, Hardware House's Tim Foster will lead a discussion on 'Radio Microphones in Practice' and will have Julian Beech of Autograph Sound (42nd Street, Hello Dolly, Guys and Dolls etc), together with Tony Oates of Shuttlesound and Tim Frost to cover the legal side.

Tuesday morning will see the creative brains behind the Rolling Stones tours getting together under the banner of 'Stones on the Road'. Patrick Woodroffe (lighting), Mark Fisher and Jonathan Park (set designers), and Ben Lefevre (sound) will be joined by Brian Croft of Samuelsons to present a 'behind the scenes' story on how the most recent Rolling Stones world tour grew from the drawing board up. This session is a 'must' for all aspiring lighting and sound designers, and of course everyone else.

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Cerebrum Lighting's John Lethbridge chairs the seminar on Mega Leisure projects.



Platform Performances: Francis Reid (left) and Ken Dibble.



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DSM-200

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QUALIFICATIONS: Twin M-162 2in. exit compression drivers, one titanium Ti-11in. compression driver. A controlled and wide 90°x40° horn. Astonishing efficiency, 111dB at 1 watt/1 metre, with low distortion, <0.3%. Built-in crossover, full HF unit protection. 200Hz-18kHz.

EXPERIENCE: High quality, high intensity music reproduction, ceiling mounted, in conjunction with Cerwin-Vega bass cabinets in medium to large venues. Popular choice for vocal reproduction and side-fill monitoring.

SALARY REQUIRED: A one-off payment of £800.00 employs the ultimate high intensity mid/high cabinet!



D-32C

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QUALIFICATIONS: Twin ER124 12in. cone drivers in short exponential horn, one JMH-1 1in. compression driver in a controlled 60°x40° horn, one H-25 tweeter. High efficiency, 106dB 1watt/1metre, 150Hz-16kHz. Full protection. Built-in crossovers with full auto-protection on HF components. Trapezoidal cabinet shape.

EXPERIENCE: High quality, high intensity music reproduction and sound reinforcement in conjunction with Cerwin-Vega bass cabinets. Arrayability, long throw capability and controlled midrange dispersion has allowed use in the largest acoustically-hostile environment. Popular choice for vocal reproduction and side-fill monitoring.

SALARY REQUIRED: A one-off payment of £580.00 employs the ultimate long-throw mid/high cabinet.



B-36A

Compact Folded Bass Horn

QUALIFICATIONS: Single 188EB 18in. driver with 3in. voice coil, handling 300W. High output. 103dB 1watt/1metre, extended response down to 40Hz. Compact dimensions, 915mm x 610mm x 622mm. Integral wheels.

EXPERIENCE: Popular in arrays of two or four, in conjunction with Cerwin-Vega mid/high cabinets, for touring sound reinforcement or discotheque and any installation where "trouser-flapping" low bass in a compact enclosure is required.

SALARY REQUIRED: A one-off payment of £466.00 employs the ultimate compact bass horn!



B-119

Compact Direct Radiating Bass Cabinet

QUALIFICATIONS: Single 188EB 18in. driver with 3in. voice coil, handling 300W, in a direct radiating vented enclosure. High output, 101dB 1watt/1metre, 40Hz-2kHz. Compact dimensions, 915mm x 610mm x 405mm.

EXPERIENCE: A versatile performer and a popular addition to any sound system where smooth, uncoloured bass extension is required — arrayed in multiples for discotheque installations or singly for bass guitar and keyboard reproduction.

SALARY REQUIRED: A one-off payment of £365.00 employs the ultimate versatile direct bass radiator!



Pro Range - CVX 153

Compact Full-range Cabinet

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Light Works' new daylight projection system will be used throughout the Seminar programme and play a lead role in the Sunday New Product presentations.

undoubtedly be by theme parks and leisure presentations of one description or another. What kind of effects will they be endeavouring to create, and what kind of sound and lighting control equipment will they require? Cerebrum Lighting's managing director John Lethbridge will head a list of international experts including R. Barry Kemper, show producer for the Landmark Entertainment Group of Los Angeles; Eric Weston vice-president of special projects for EuroDisney-

land; Derek Gilbert of Reading-based Glantre Engineering; and Phil Pyke, Madame Tussaud's audio visual manager.

Starting in our 5pm Platform Performance sessions will be Francis Reid (Monday) and Ken Dibble (Tuesday). These events will be free to delegates booking all four main seminars. Francis Reid intends to set the cat amongst the pigeons by asking if lighting has a future, or will it alternatively become a victim of its own technology. "Can the art keep up with the science or will creativity vanish in a terminal frenzy of flash, flicker, rotate and chase?" On the subject of noise control, consultant Ken Dibble of the Sound Practice will keep you up to date on the new legislation and its effect to date.

There's more. On Sunday (9th) at 12 noon a 'Basic Mixing Course' will be organised in conjunction with Jocks magazine to give budding DJs the chance to learn the basics of mixing. There will be no charge for admission, but those wishing to attend will have to obtain a ticket from the Jocks stand at the show, on a 'first-come, first-served' basis. In the event of it being over-subscribed, it is hoped that a shortened re-run will be organised at about 1.30pm.

Finally, for anyone and everyone, a special 'New Product Review' presentation will run twice on Sunday afternoon (3pm and 5pm). Taking no longer than 25 minutes, we will be



Shuttlesound's Tony Oates will make a live appearance in 'Radio Microphones in Practice'.

making use of Light Works' new daylight projection system to present a quick line-up and basic information on all new products at the show.

Having whet your appetite you should now register without delay. A booking form and detailed programme is included in this issue and you will see that charges have been reduced from 1989 and fall within everyone's reach. With 150 seats available, book now to be sure of a place.



Stones on the Road: Samuelsons' Brian Croft will present the story behind the technical behind the Stones on the road with Patrick Woodroffe (lighting), Benji LeFevre (sound) and Mark Fisher and Jonathan Park (set design).

Photo: Mark Fisher



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BOOKS

Drottningholms Slottsteater Scenmaskineriet

(Drottningholm Court Theatre: the Stage Machinery)

by Gustaf Kull

This book is the biggest I've ever handled (by page size) and I feel bound to present its size in feet rather than inches. To be precise it's 1' 6" deep and 2' 1" wide, and isn't really a book at all, but a spiral bound collection of drawings that defy adequate description.

Billed as "the most interesting book in theatre technical history ever printed" the idea for the book was first formulated in 1974 when artist Gustaf Kull started measuring the whole of the Drottningholm Court Theatre right down to the last nail. The result was shown at the PQ-87 in Prague in 1987 to great acclaim, and until now reproductions were only obtainable for 'quite a lot of money' as the press release notes put it!

But now you are lucky! All the drawings can be viewed within one comprehensive collection for no less than £125.00 in the UK — unless of course you are a member of an OSITAT-

related organisation such as the ABTT when you can score with a 30% discount.

In all there are 16 plans and 12 perspective drawings, magnificently printed on high quality paper. Too good and too tricky to colour in, they are super for framing!

And finally, to give you an idea of how detailed the drawings are, here are a couple of symbol descriptions from the six page list appended: 'mounted block with sandbag counterweight', 'post with handspike for turning wing batten'. To further entice you to part with your money, a specimen page is reproduced below.

To order, firstly have an extension added to your letterbox, and secondly write to Bjärträ Teatertechniska, Box 2023, S-87102, Härnösand, Sweden.

John Offord

Sound Effects: Radio, TV and Film

by Robert L. Mott

Published by Focal Press.

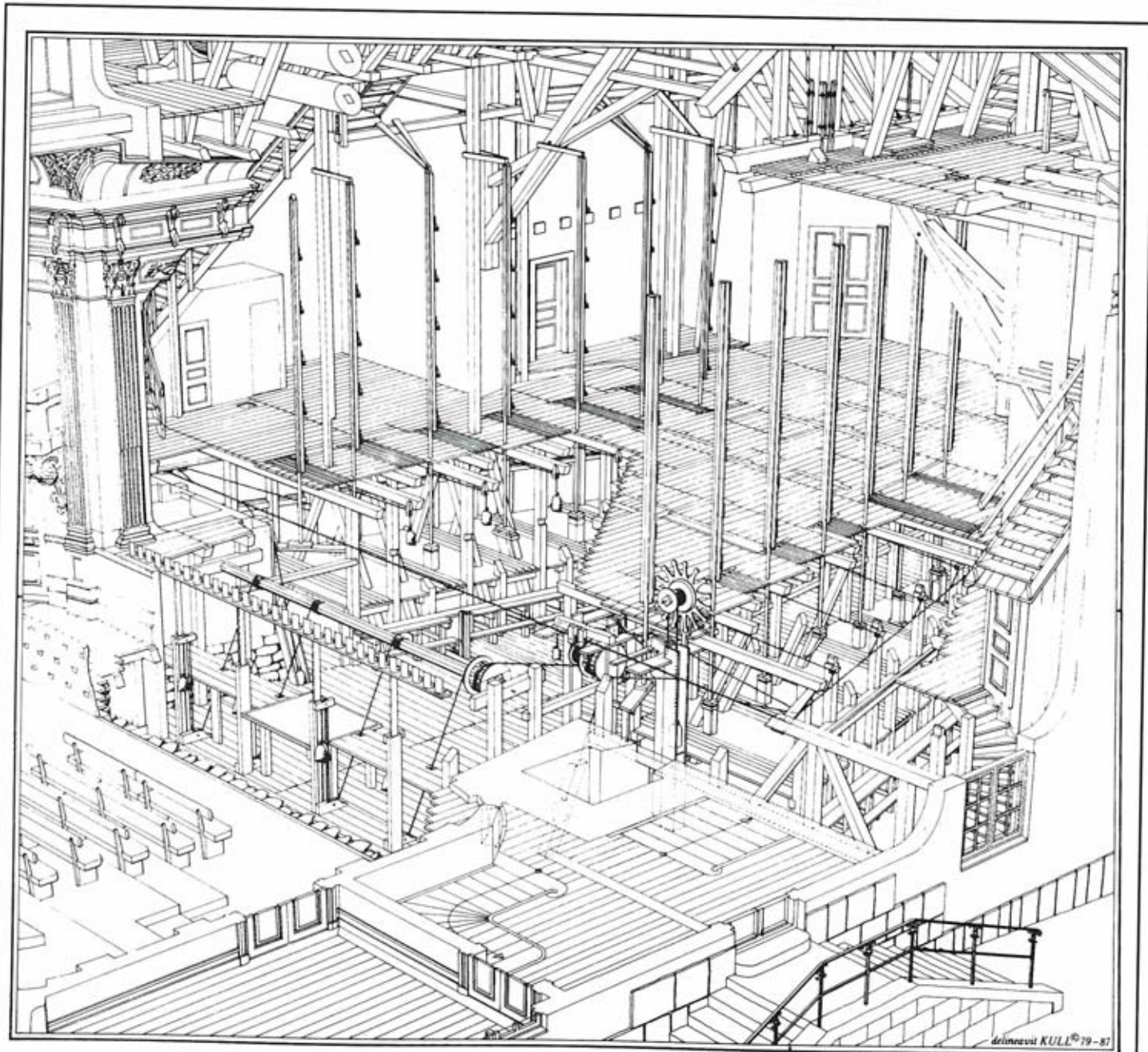
ISBN: 0 240 80029 X

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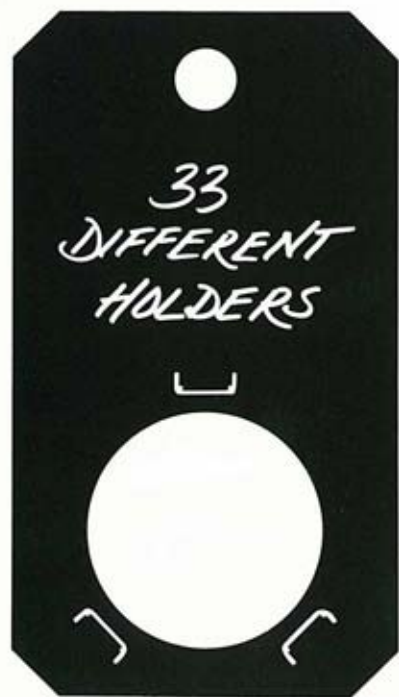
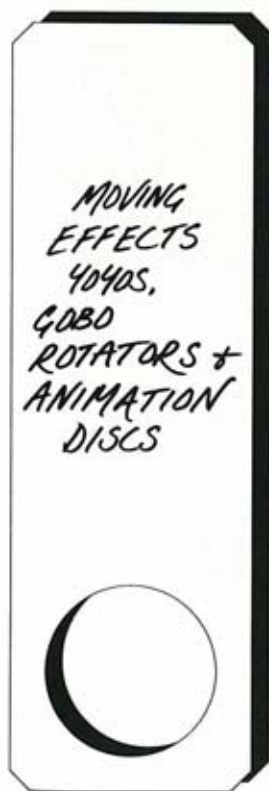
As the title suggests this is one of the most comprehensive books to be written on sound effects. It is broad in scope, and covers the history of sound effects, dating back to the days of live radio. It also focuses on the make-up of sound, its various categories, the equipment needed in a television studio, post-production facilities, film effects, and studio sound effects. The book comes right up to date with an exploration of today's hi-tech applications.

It is aimed at two distinctly different types of reader. On the one hand, it should prove an invaluable reference source for students preparing themselves for a career in the media, on the other for professionals who want to expand their area of knowledge.

The author, Robert L. Mott, has been involved for over 40 years in every facet of sound effects including advertising, theatre, film and the recording industry. His extensive experience has enabled him to present both the theory and practical applications of the craft in an interesting and straightforward way, giving the reader information on the role sound plays as well as how to create effects from scratch.



A typical page from 'Drottningholm Court Theatre: the Stage Machinery' by Gustaf Kull.



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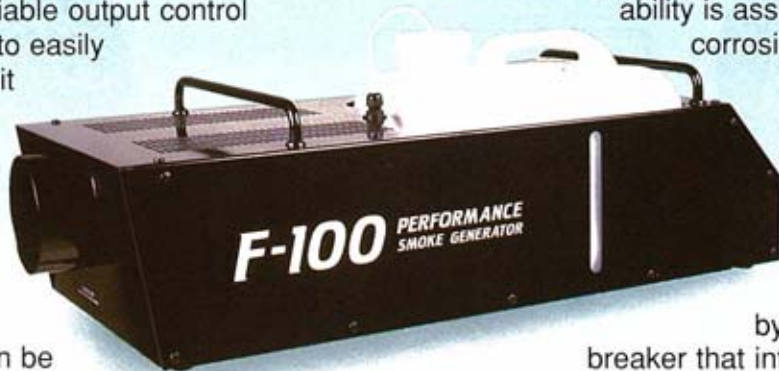


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BARN DANCING

Alison Hunt heads for Penzance and The Barn nightclub

In the early seventies when disco mania abounded, Goodhew were one of the companies that were spearheading the move towards professionalising the leisure industry. By the middle of the decade, they owned numerous nightclubs up and down the country. To such clubs as Thursdays and Millionaires, they added a Penzance club, The Barn.

When Goodhew sold out to Whitbread in 1981, John Goodhew, together with Orion, kept The Barn as part of their operation. Since that time, the club and its adjacent Star Bar have never had a complete change of image just for the sake of it. However, recent events have changed all that. In October last year an arsonist gained access to the roof, drilled a hole and poured petrol through, causing a fire which gutted the building and, in the process, forced Orion's hand somewhat.

Once the debris had been cleared, the company were keen to get the club up and running as quickly as possible, but without making radical changes to a formula that had obviously worked for them in the past, as manager Neville Brown explained. "We've kept as much as we possibly can, with the original venue names having been retained, and the interior layout the same. In the re-design we were determined not to

lose the old atmosphere. Anyone who's been here has always commented on the uniqueness of the club."

To some this might appear to have been a golden opportunity missed, but Orion were adamant that they wouldn't fall into the trap of change for its own sake. The only area that's been completely re-thought is the Star Bar, where, Neville Brown admits, there was room for improvement.

To give their ideas shape, Orion called upon the services of Dick Carrier. He, together with his team at Light and Sound Distribution, designed and supplied the lighting outfit. Phil Soltys of Newquay-based PSD Electronics was approached to carry out the installation. "No job is without its difficulties," Soltys told me, "but the Barn was relatively straightforward. We were originally looking to spend 14 days down here with a full crew. In the end we actually put in a very small crew and spread the workload over a period of four weeks, which made it easier to avoid working on top of the other tradesmen."

The unusually low ceiling height has meant that neither venue features a lighting rig. In the Star Bar, focus has been given to the lighting through the inclusion of a star-shaped fitting fabricated by PSD, which comprises pin spots, together with four

Kremesa Dichrolights, strobes, lines of chasing neon, and a centrally-mounted mirror-driven Alien from ProgramSistem.

The Star Bar sound system is bi-amped and utilises HH speakers driven by ICE DPA amplification. The dancefloor is small by comparison with other venues, and though its main role will be to complement the larger discotheque, the interior designers - Trevor Stone Associates - have attempted, and indeed succeeded, to lend it a distinct and separate identity.

The lighting system in The Barn consists of 64 pinspots and 32 parcans housing raylight reflectors, which combine with chasing lines of pink and blue neon triangles for the multi-channel sequencing effects. Additional effects include Arcline and six of Laser Systems' waggling mirror unit, the Colour Sweep, together with Fal's version of the popular flower projector, the Florette.

Lighting control is exclusively Light Processor apart from the Laser Systems' Mentor used to control the Colour Sweeps, and the Mode controller for the Arcline. The Light Processor control system demonstrates its versatility by providing a custom software package in the form of a programme 6 controller which runs alongside a programme 4 controller.



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As in the Star Bar, a Formula Sound PM80 mixer and ICE DPA amps drive a two-way active HH speaker system with no less than eight mid-high cabinets and just four bass cabinets.

Also installed is the "DJs nightmare?" - the limiter. A Citronic SL100 sound level controller assists compliance with the recent noise levels at work regulations and automatically cuts back the volume if it exceeds set levels.

No self-respecting nightclub would be without a video monitor system these days, and the Barn is no exception. Six monitors are positioned around the venue and linked to a screen writer, with image mixing by a Citronic VM 340.

An abundance of mirrors, the glitzy cocktail bar and the 'biggest mirror ball in the world' are all thrown in for effect. Close your eyes and you could believe yourself to be in any disco in the world, but when you open them again the granite pillars and not too ritzy decor hint of small town provincialism and generate an impression of club, rather than clubland.

Whilst The Barn may not be a modern day Phoenix rising from the ashes, the fire has at least revitalised the old haunt without trading its familiarity for big corporation glitz, and Orion's £675,000 investment should pay dividends. With an increased legal capacity of nearly

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What else would one put in the Star Bar but a star-shaped fitting.

750 (when both venues are operational)
The Barn should prove quite adept at luring away customers from its nearest rivals in Redruth and Camborne.

Equipment List

The Barn

2 × Technics 1200
1 × Formula Sound PM80 mixer
4 × JBL control 5 speakers
8 × HH FR 210 mid/top speakers
4 × HH BR 215 bass bins
1 × Citronic SPX 451 crossover
1 × Citronic SL100 limiter
4 × ICE DPA 900 amplifiers
63 × pinspots

32 × neon triangles
24 × 300W raylights
14 × Arclines
6 × Colour Sweeps
6 × Starflash strobes
2 × Fal Florettes
1 × Mentor (for Colour Sweeps)
1 × Light Processor Commander
1 × Light Processor system sensor
1 × Light Processor CD12 dimming interface
1 × Light Processor programme 8
6 × Light Processor wall packs

Star Bar

2 × Technics 1200
1 × PM80 mixer
4 × HH FR 210 mid/top speakers



Effects lighting in The Barn comprises Raylights, Colour Sweeps and Fal's Florettes.

2 × HH 215 bass bins
1 × Citronic SPX 451 limiter
1 × Citronic SL100 limiter
3 × ICE DPA 900 amplifiers
1 × Alien
48 × pinspots
12 × neons
4 × 300W Raylights
4 × Dichrolights
1 × Light Processor programme 8
1 × Light Processor programme 4
1 × Light Processor CD12 dimming interface
3 × Light Processor rack packs
6 × 21" video monitors
2 × Hi-Fi VHS players
1 × Video screenwriter
1 × Citronic VM 340 video mixer



The Barn: Laser Systems' Colour Sweeps can be clearly seen in the centre with neon chasing effects above.

THE ABTT TRADE SHOW 1990

An event at the crossroads. Graham Walne

One of the problems of reviewing any trade show is the difficulty of adequately covering every stand in the time. No such difficulty greeted my colleagues and I this year because the number of exhibitors had been dramatically reduced and they barely occupied half the space of last year's event.

But modern life is constantly forcing us to be pre-occupied with quantity at the expense of quality, and almost every exhibitor told me that whilst the number of visitors was disappointing, they had nevertheless enjoyed having more time to talk to those who had attended. Equipment had been leisurely demonstrated hopefully with profitable results.

This year's show was marked by some notable absences, Strand, CCT, Arri and Triple E come immediately to mind, but it should also be noted for new faces, surely an encouraging sign for the show which is supposed to be in its death throes. So let's start with the newcomers.

The Lamp Company claims to be "the UK's brightest supplier of replacement lamps". Across the aisle was **RB Lighting**, another wholesaler of all types of lamps and

consumables (they also make one of the best lighting stencils). **Andera** are specialists in real-time software design, but it was their imported range of Bytcraft products which caught my eye, especially their 'Sage' dimmer standards convertor which allows direct conversion of analogue multiplex to DMX512; SMX is also planned. Since we seem to be incapable of agreeing on a standard protocol 'Sage' and its competitors should sell well.

Nearby, the same company's 'Felix' riggers control was also of interest because it is phantom-powered and works to Strand's Galaxy or Gemini desks, although the company also supplies some interesting digital dimmers of their own. **10 out of 10** is a new name and one which tends to stick in the mind, although their range of production and presentation services had better be good if the clients are not to make up their own versions. Their client list to date is impressive, as is their aim — 'industry standards at the cheapest prices'. Their letter head contains some very capable names as does that of **Hangar Services**. This company has over 1 million cubic feet of scenery storage and still more space for pre-erection of scenery, cloth

painting or video shoots. They have also entered the increasingly competitive world of flexible rostra and theirs does look good, especially for the modular perimeter which increases the possibilities of interconnection and fascias. These units can now be seen on tour with Hull Truck Theatre Company and at the new West Yorkshire Playhouse. **Flamecheck** produces a non-toxic and non-corrosive liquid which can be sprayed onto all types of material, and the company performed regular spectacular demonstrations by directing a blowtorch onto a treated tissue held in the hand. Thank goodness the bar was nearby.

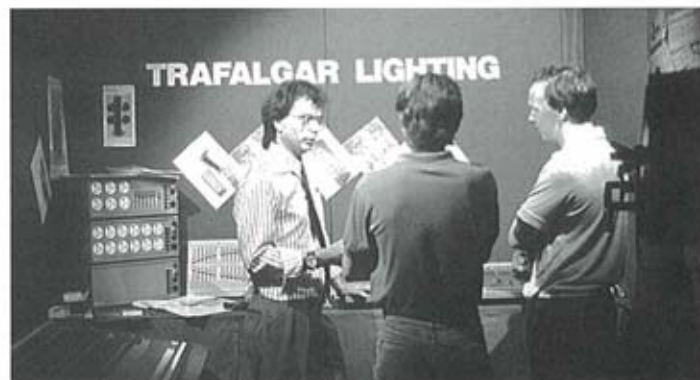
This year, the noises and the flashes did not have it all their own way. **Harlequin**, who won the best stand of the show award, dominated the entrance to one hall with a simple flat floor from their new 'Activity' range which can replace wooden sprung floors (it has just done so at the Royal Ballet School). This is not portable, but the internally sprung 'Allegro' is, and it also seems to be going down well — no pun intended. Regulars **N&I Costello** showed a variation on their usual curtains, a mix of the diffraction with a selection from the rest



Northern Light showed a wide range of equipment including Allen & Heath in foreground.



On the Donmar stand Peter Ed of Arri GB (left) shows ABTT vice-chairman Bill Graham the Impuls.



Alan Paulus of Trafalgar Lighting (left) shows a Zero 88 line-up



Lamps, CCT luminaires and other goodies on the RB Lighting stand.



Ark Light's Joanne Taylor goes camera conscious.



Canford Audio showed a selection from its 4500-strong pro-audio list.



Mike Goldberg of M&M Lighting with Spencer Brooks of Marquee Audio against the biggest-ever Rainbow scroller.

of the range thus producing a lower cost, but still an exciting effect. Nearby, **Peter Evans Studios** had constructed an attractive patio out of some of their scenic products and launched both a new catalogue and also a new moulding material which equates timber but can bend as required. **Rosco** demonstrated a new screen material which now comes in 2.4m widths in white, twin-white and grey, and also some new off-Broadway paint aimed at the non-professional market.

The quality of enquiries was especially noted by **P L Parsons** whose stand of 'Steeldeck' was one of the largest at the show, with a pyramid of the product also the highest. Other well known names showing in this category included **Varia Textile**, **A S Green** and **Flint Hire & Supply** with their now annual packed house of goodies, a phrase which also aptly describes **Cara Lancaster's Book Bazaar**.

Continuing with this non-electrical theme for a moment, it was noted that the more leisurely atmosphere provided the organisation stands with more time to talk to potential and existing members, and in this category come the **ABTT**, **ALD**, **SMA**, the **AETTI** and of course **PLASA**. I wonder next year if they should all share one large stand.

The show has come in for much criticism over the years (some of it from me) but unlike many other shows it has managed to control the background level emitted from the sound stands. To some extent this is because the show is more about control and accessories than loudspeakers. Sadly some sound companies suffered from other shows held recently and so time rather dragged for them, notably **Elliot Bros** who introduced a new 1U rack-mounted outstation and what must be the world's smallest cue light outstation. **Canford Audio** took enquiries for their new



Pulsar's Derrick Saunders goes into his Super-Scan speak with Mushroom Lighting's Paul Butler (right).

catalogue and a newcomer, at least to me, **Plasmec** showed an interesting range of '360 Systems' crosspoint switchers, remote controls and digital attenuators in addition to the full range of M&M audio and video jackfields.

Farras, 'the sweeter sound company' demonstrated their usual range of Apogee loudspeakers and another valuable product is their Metro-Audio rack mounting 8 way cue light system. Seriously worth noting is their range of the underrated 'Yamaha' desks, notably the PM1200/1800 for which the company are sole UK suppliers. One of the strongest competitors to the Yamaha range must surely be Soundcraft. The successor to the '200B', the 'Delta' was on display on both **The Sound Department** and **Marquee Audio** stands. The Sound Department also launched the RS220 compact 3 way horn loaded system and attracted attention with the modified 'Steinberg minimix'. Marquee also launched the DDA Q series. On the **Northern Light** stand (more of which later) **Allen & Heath's** mixers have also made great strides in the UK performance field recently and Richard Harris was on hand to spread more good news.

And so to lighting where the lack of the biggies seemed to have enabled the rest to compete more fairly, certainly **Trafalgar Lighting** were pleased with the response to the launch of Zero 88's new control desks, where the 2 preset 12 way is very well priced at £199. The same company also distributed 'notes for the care of electricians' - "if looked after properly they will give you hours of fun and amusement, performing miracles with bits of wire and a roll of gaffer tape". **RAT** were another company that I had time to chat to and hidden among the usual forest of stands was a new model designed for the City of Birmingham Symphony Orchestra with a



Lee Filters ready for custom: sales director Ralph Young (right) with Paul Topliss.

centre stem, essential where the stands are shared - RAT now also make a pencil ledge for all their units.

Busy stands were **Primarc** and **Donmar**, the latter launching the latest Arri 'Impuls' control. The stand was so busy that I never got close enough to see the desk but the leaflet informs that Impuls has 108 faders each of which can act as a manual or submaster with timer and bump button. Arri's usual range MIDI, Macros and Graphic tablet can be used. Another graphic tablet, launched at the show, was sadly hidden away at the back of the **Eurolight** stand along with the new MIDI interface and new off-line editor. Eurolight's silent DMX/analogue colour scroller was also launched at the ABTT. Eurolight have just acquired Green Ginger and Lytemode so they will be worth watching.

Scorpio Controls demonstrated all their range, notably the EC64 which is now in full production and the return of the 'Multiset' for a trial run. **Avolites** robust 500TD range was proving its flexibility by utilising different disks for theatre or concert working. The disks convert the simpler grouping systems of rock to the more complex cueing structures needed for theatre, although the desk can easily alternate from one to the other during the show.

Quickies:- look out for 84 new gobos from **DHA** and an improved lighting programme from **Modelbox**. This one lists the equipment and calculates the beam angles as well, and it will be available for Autocad owners soon. **D C Lighting** showed new open and sealed dichroic mirror lamps in addition to an interesting range of high volt Par 64 lamps. **Lee** have at least returned the colour book to its usual numerical order (although you can have it in chromatic order if you prefer). The company have also launched



Pulsar's Andy Graves (seated at the Oska controller) with Celco's Colin Whittaker.



Eurolight's Ovation control system with graphic tablet.



Steve Smith (right) and Robin Dibble of The Sound Department launched the Community RS220 loudspeaker system.



Avolites' Steve Warren (left) demos their QM500TD which now includes electronic back-up and rigger's remote.



Teatro's Mike Lowe (left) receives the Product of the Year Award from ABTT vice-chairman Bill Graham.



The always excellent stand of DHA Lighting.



Farrah Sound had Yamaha, Metro and Apogee equipment.



Bruno Wayne of Harman visits the PLASA stand with Chris Sogno on duty.



Scorpio Controls had their full range on view.



White Light show the capabilities of Modelbox with latest software additions.



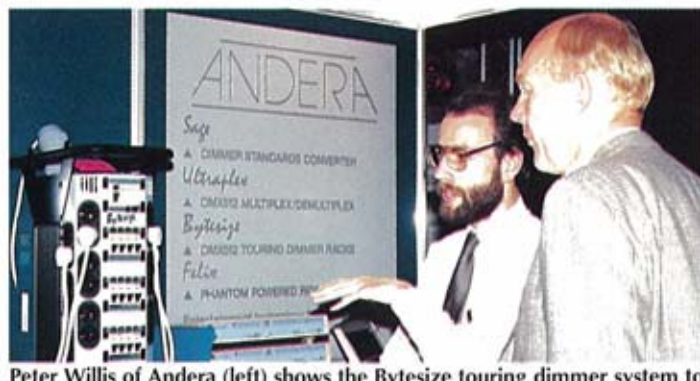
Eurolight's John Coe with Lytemode, Green Ginger et al.



The regular bright lights from the Lighting Technology Group.



Plasmech's 360 Systems crosspoint switcher (top).



Peter Willis of Andera (left) shows the Bytesize touring dimmer system to Ian Napier of Paradigm Technical Services.

(re-launched?) half-sheets of 50, 8 and 40 for a trial period.

The best product award went to the 'Talento' follow spot from **Teatro**. As an ex-Palladium Stemar operator I approach all modern follow spots with in-built scepticism, but the Talento does have a good mechanical dimmer and should prove very popular with small to medium venues.

The unit uses interchangeable objective lenses and a 1200W MSR lamp. Teatro would certainly get my award for drawing attention to new products, all such were clearly labelled on their stand instead of being buried away.

Northern Light are doing all right; they take things seriously and have made a good living out of providing professional solutions to gaps in other's ranges. Notable this year was the launch of the 19 pin 'Socapex compatible' connector with a longer barrel for easier handling and a new 'sock' to protect the cable. The company are also rightly proud of the latest developments to their 'System 2000' working light control which can now be programmed as required.

My own best product award would probably have gone to **Celco** who were exhibiting on the **Pulsar** stand. Celco launched the 'Panorama 90', a range of hybrid desks in which 'highest takes precedence' controls work side by side with 'latest takes precedence' controls.

These latter are designed especially to facilitate the operation of moving lights and scrollers. These desks are the simplest I have yet seen as far as programming is concerned and the mix with a more usual desk extends the flexibility beyond the range of most intelligent system controls. Panorama was being put through its paces by talking to the 'SuperScan' from Pulsar/Clay Paky. This exciting unit now builds on the popular 'Golden Scan' by adding colour mixing, prism effects and dimming.

So to sum it all up, it was smaller but friendlier, and with more new product than was immediately apparent. Next year the Riverside venue is not available but the ABTT needs the income from the show in order to survive. Once again, I therefore find myself not envying organiser Roger Fox's decisions. As one manufacturer said at a seminar on the ABTT's future - "the ABTT show is about theatre, not disco. It's not a smaller PLASA Light and Sound Show, but rather a different beastie."

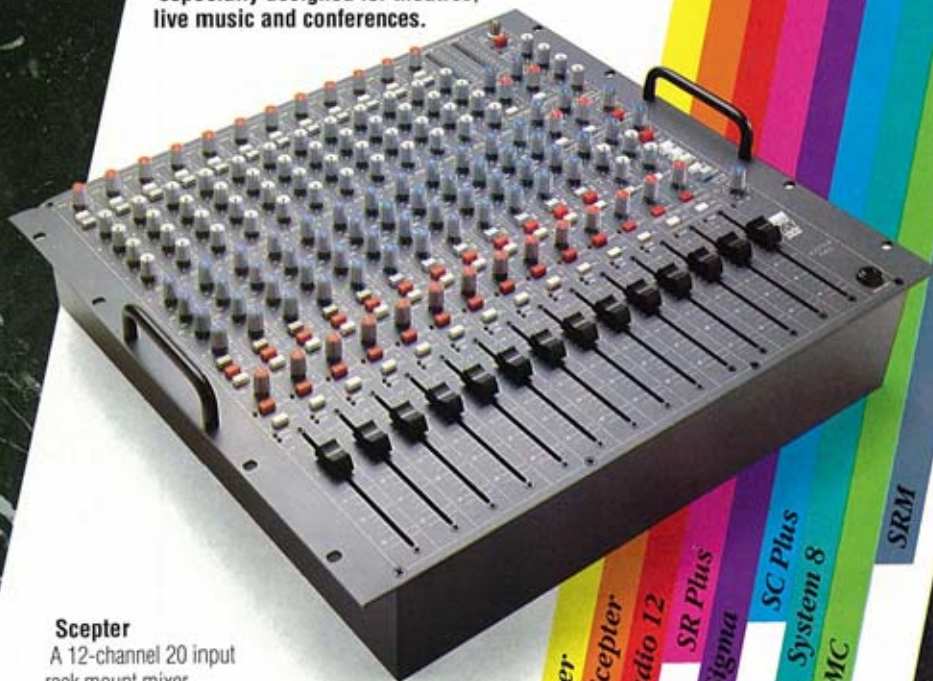
I think this year's show puts the event, and the ABTT, at the very crossroads of its existence.



Celco sales director Colin Whittaker (right) shows the new Panorama control system.

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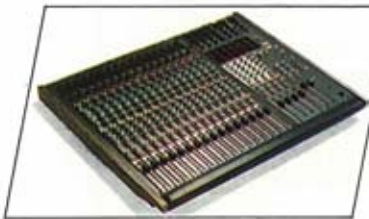
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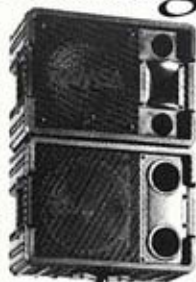
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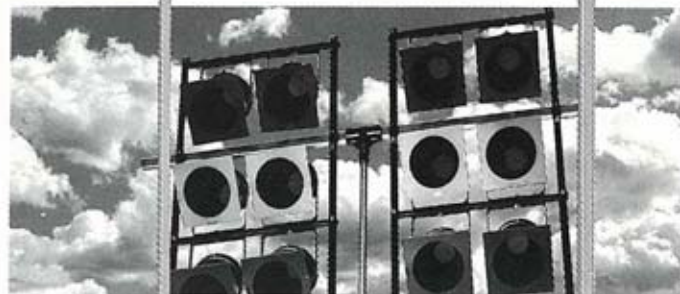
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PLASA News

PLASA Seminar Success at the Great Western



Top table: PLASA vice-chairman Tony Kingsley (left) with executive committee member Paul Adams and PLASA chairman Kevin Hopcroft.



Chris Sogno (left) and Annabel Williams of PLASA with standards officer George Thompson (second from left) and Ken Dibble of The Sound Practice.



Dave Fisher of Shuttlesound (left) and Paul Hinky of LMC Audio-Systems (centre) with PLASA standards sub-committee chairman Tony Akers of Citronic.



Left to right: Simon Spragg and David Wale of Orange Discotheque Centre with Sean Martin of Harman and Bob Hall of Anytronic.

Over 30 PLASA members got together at the Great Western Hotel in Swindon on June 19th to discuss pricing policies and other pertinent matters. Speakers Mike Gerrish, Ken Dibble and chairman Paul Adams led a lively debate and many interesting points were raised. After lunch the sound members, led by PLASA vice chairman Tony

Kingsley, considered how their sub-committee could best support them, and covered such topics as noise control, building acoustics and appropriate sound systems. The meeting was very successful, and plans are already being made for a second seminar to be held in October with more to follow.

Triple Standards

PLASA members recently received a copy of the USITT DMX512 revision which covers digital data transmission for dimmers and controllers, together with the latest issue of Standards News prepared by the Association's standards officer, George Thompson. Along with these was a copy of Standards: Code of Practice for Lighting Rigs prepared for PLASA by member company Kenneth Burr Associates.

European Representation

PLASA is to be represented by Ken Dibble of The Sound Practice on the European Committee EEL/32, which covers all aspects of audio and visual technology.

Show What's New

There will be a 'new product' AV review at the PLASA Light and Sound Show. Exhibitors can get more details from their show manual which they should have received by now.

Exhibition Diary

PRO AUDIO ASIA 90

July 11-13, 1990.

Hong Kong Convention Centre

Enquiries: Business and Industrial Trade Fairs Ltd,
28/F Harbour Centre, 25 Harbour Road,
Wanchai, Hong Kong
Telephone: 5-756333

PLASA LIGHT & SOUND SHOW

September 9-12, 1990.

Olympia 2, London.

Enquiries: David Street, 3D Services,
12 Brentford Business Centre,
Commerce Road, Middlesex TW8 8LG.
Telephone: 081-569 9742.

PHOTOKINA

October 3-9, 1990.

Cologne, West Germany.

UK Representative: Tony Pitman,
12/13 Suffolk Street, London SW1Y 4HG.
Telephone: 081-930 7251.

DISCOTEC/HOGATEC 90

November 5-9, 1990.

Messe Dusseldorf, Dusseldorf.

Enquiries: Dusseldorfer Messgesellschaft
GmbH, NOWEA.
Postfach 32 02 03 D-4000 Dusseldorf 30,
West Germany.
Telephone: 0211 45 60 01.

LIGHTING DIMENSIONS INTERNATIONAL

November 17-19, 1990.

Orlando, Florida.

Enquiries: Pat Mackay or Jackie Tien,
Lighting Dimensions, 135 Fifth Avenue,
New York, NY 10010, USA.
Telephone: (212) 677 5997.

For details of advertising
in Lighting + Sound
International
ring Alison Hunt
on (0323) 642639

EQUIPMENT *News*

New 24 Track Saber

Exhibited for the first time at the APRS, the latest version of Saber offers a full feature 24 track patchbay with 24 track metering and monitoring, with facilities to patch stereo channels and more external effects; there now being capacity for 36 tie-lines for external patching via multipins. 24 track versions of Saber are available in 28, 36 and 44 input versions, and patchbay versions with 28 and 36 inputs, with a choice of LED, bargraph or VU metering. The new extra large frame size means that potential 16 track users can choose up to 40 inputs with patchbay and 48 inputs without patchbay, with 16 track metering and monitoring. User-choice of note-on-off or controller codes is one advantage of the Saber's MIDI software.

For further details contact Allen & Heath in Brighton on (0273) 23346.

Tannoy-Audix in Orbit



Tannoy-Audix is leading the way in voice fire with the introduction of a new system — the Orbit. The new de-centralised system is already creating a lot of interest with major savings on cost and space as well as increased power.

The Orbit runs on one data highway cable, which cuts expensive cabling costs. It works through the use of multi-slave units giving it in excess of 12,000 wts RMS of audio power. The system can be easily expanded upon by adding new slave units or the entire group configuration can be altered by simple re-programming, rather than time consuming reconstructing of centralised systems.

The Orbit control is a small unit which can be wall or desk mounted, with a handset for announcements and an alpha numeric display which gives prompts during use. The conventional public address facility of the Orbit will be automatically overridden by priority signals. In the event of a fire, each slave unit can put out its own message for floor by floor evacuation. The system can hold up to four and a half hours of recorded speech incorporating a dictionary of phrases for message assembly.

The system meets the requirements of BS5839, the British Standard for Fire Protection and Alarm Systems. It is user pass-code protected and only the user can override the system. Any faults are reported on the alpha numeric display and print-out at the central control. Each slave unit can report disconnection from central by using bi-directional communications on the data highway cable. The Orbit will still work with a

short or open circuit in the cable and is fully battery monitored. For more information contact Tannoy-Audix in Saffron Walden on (0799) 40888.

Fibre Optic Audio System



New from Lester Laboratories is the DAS 2000 fibre-optic transmission, distribution and routing system.

A multi-channel audio input is coded into 18 bit digital signals of mastering quality and transmitted on lightweight, high capacity fibre-optic cable over 10 to 20 times the distance of conventional systems.

Flexibility is the keynote of the system. The DAS 2000 can be reconfigured to handle 16 to 64 channels by the simple addition of 8 channel expansion boards and 8 (or optionally 16) return lines are available. Module interchange makes servicing simplicity itself. Self diagnostics include initialised start-up and systems check.

Installations are remarkably simplified with the DAS 2000 by using lightweight fibre-optic cable. Reduced installation times with considerable saving in weight, size and cost are possible and diverse routes may be set up to secure the signal path using extra optical outputs.

The DAS 2000 offers enhanced distribution capability and fully automated patching, splitting and routing. A programmable SOFT PATCH controller also allows the operator to remotely manipulate sound input levels, phantom power and channel distribution as required. Integral point-to-multipoint distribution allows any set up of outputs to co-exist with direct point-to-point transmission.

Up to three output mainframes can be driven together by the system's input mainframe, while maintaining each mainframe's programmed patch configuration. Sources can be interfaced directly with line inputs on a console or analogue/digital multi-track recorders, bypassing console electronics. The SOFT PATCH controller holds over 100 configurations in a non-volatile memory and offers instant push-button recall and reconfiguration if required.

For further information, contact Plasmec Systems in Farnham on (0252) 721236.

US/UK Alliance

US-based company Intelix has announced its affiliation with Shuttlesound Limited who will act as their UK distributor. The company will handle all three of Intelix's current products.

Shuttlesound are now able to offer the Mind Control System, a completely customised intelligent environmental control (integration of audio, lighting, video, AV, HVAC, computer systems) with one turnkey operation. They will also distribute the Studio Psychologist to recording studios and live touring shows. The product, which was developed to fulfil the need for better integration between musician and monitor mixer will be made available to the UK market.

The Autocue is another product which creates good co-ordination between the two companies. Shuttlesound's tie into the theatrical and broadcast markets with their already extensive product range is intended to develop further with the Intelix Autocue. It remotely cues any reel to reel tape to the start of the next cue rather than to the end of the last, effectively making an audio engineer's life both easier and more productive.

Shuttlesound will be hosting a seminar on the application of the Intelix range on Monday October 1st, 1990 in London. For further details, please contact Sharon or Liz on 081-871 0966.

Designer from TOA

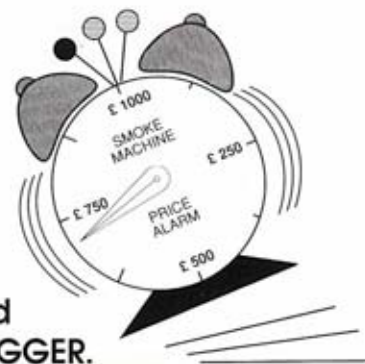


A range of designer speakers manufactured by TOA Electronics Limited for environments where decor is as important as sound quality, has been introduced into the UK. With its futuristic triangular shape, the 45 watt F-10 and the rectangular 30 watt F-5 speakers ideally complement TOA's industry leading BA-400 background music system.

The launch of these products follows the earlier introduction into the UK of the F-300 15 watt three way speaker and the 120 watt full range F-150 bass reflex system. The BA-400 can be operated as a traditional background music system or can be adapted as a modular unit within a foreground music system. Available with either a 30 or 60 watt amplifier, it can also operate with low or high impedance speakers. The unit has an automatic gain control function which can raise or lower sound volume to a pre-set level. Although available with either two or four cassette decks it is possible to remove any one cassette without interrupting continuous play. Further details are available from TOA in Brentwood on (0277) 233882.

THE PRICE OF SOME SMOKE MACHINES CAN BE ALARMING . . .

OF COURSE
... UNLESS IT'S A JEM!



Think JEM machines are expensive? Think again!! OK, so we do make one costing nearly £5,000, but we also make one costing just £217.00 + VAT (including 2 litres of perfumed fog liquid – free!). That's right, under £250! It's called the FOGGER. So next time someone says JEM's expensive, think again! It's a false alarm. Take a look at our new FOGGER for example . . .



Pump up the volume . . .

OK, so it's just a pump. But the fact is that JEM's pump out-performs all others. We searched far and wide for the best. And got it.

The next time the pressure's on to perform, press the button and remember our pump! And if the pressure's on other makes of pumps to perform, well, frankly, we're not concerned. Because JEM will blow them away everytime!

Short back and sides, please . . .

While some companies still rely on kettle-grade thermostats to control their machines, JEM took a laser to their platinum sensor and gave it a trim.

Our laser-trimmed platinum film heat sensor is no gimmick. It's a laboratory-grade precision sensor that gives our machines an unmatched degree of control. It's the same sensor that is used to monitor critical temperatures in the nuclear industry. That's just one more reason why JEM machines perform so consistently – everytime.

Don't buy a kettle thermostat, buy a JEM!

You can't knock our block off . . .

"You'd be amazed what us blocks have to put up with! First they heat us up to hundreds of degrees, then they suddenly pump cold fluid through us. Some blocks just crack up at the thought."

JEM's blocks are unique. They can deliver without cracking up under pressure. No wet smoke, no wimpy output. The fact is, we spent a lot of time researching block technology and we got it right. When you buy a JEM, you're sharing in the secret of our success – even though it may be hidden from view . . .

We could write volumes . . .

. . . about our smoke machines. However, we think you'll agree our specifications look impressive enough just as they are:—

- ◆ Rapid heating time
- ◆ The usual 5 Year JEM guarantee
- ◆ Industrial-grade components
- ◆ Free 2 litre perfumed fog fluid!
- ◆ Compact size
- ◆ Inexpensive price tag
- ◆ High output
- ◆ Remote control
- ◆ Variable flow control and Oh, yes . . .
- ◆ British made!!

JEM SMOKE MACHINE COMPANY LTD

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First from Italy

The VH 170 from dB Technologies is the first Italian wireless microphone system and one of the few wireless designs to be approved in the United Kingdom by the Department of Trade and Industry. The system includes a microphone transmitter, a diversity switching receiver, adjustable squelch control and VU metering. Recommended for both live and broadcast applications, the system is offered in two different formats: the hand-held VH 170 M and the lavalier lapel type VH 170 L. Both have an operating distance of up to 400 metres.

For further information contact Trevor Cash International in Barnet on 081-449 5566.

More K from Celestion



Celestion has added five new models to its 'K' Series musical instrument and general purpose sound reinforcement loudspeakers. These are the 5" 30 watt K5-30, the 8" 50 watt K8-50, the 10" 70 watt K10-70, the 12" 100 watt K12-100TC.

All of the cost-effective 'K' Series chassis have a cloth cone surround for enhanced bass response. For further information contact Celestion in Ipswich on (0473) 723131.

Cadac's Motorised Faders

Clive Green & Co, manufacturer of the world class Cadac theatre consoles, launched an innovative motorised fader package at the 1990 APRS exhibition. Driven by a MIDI sequencer, the package is available in banks of eight faders and provides economical automated control of theatre sound effects. Based on a rotary motor design with excellent current efficiency, the system features individual fader mode switches for maximum flexibility and operator feedback.

Also unveiled by the company was the latest Cadac software release for the successful 'E' type console. Featuring colour graphics, the software is capable of controlling programmable routing, channel muting, VCA grouping, MIDI programme changes, events controllers and up to 128 motorised faders.

Two major contracts were also announced at the show — for the supply of 56 input 'E' type for the Australian production of Phantom of the Opera, and a specially designed desk for the English National Opera. The console, costing in the region of £104,000 features the latest Cadac software and a 520-point patch bay.

For further information, contact Clive Green & Co in Luton on (0582) 404202.

Recall System

Artemis Technology Limited has developed a complete recall system (patent pending) for use in mixing consoles and effects units. Aimed at original electronic equipment manufacturers,

this system, in the form of a custom-designed microchip provides for 24 potentiometers, 32 switches, four eight bit digital I/O ports and one eight character name per chip. Up to 198 chips may be connected together, all of which can be stored on a low cost memory card. Also included on chip is the facility to provide VCA automation.

It is envisaged that, as mixing console manufacturers design this chip into their consoles, an expansion port will be added to the console to facilitate the system extending to effects units.

The system has a microcomputer interface for connection to an external PC, and it is planned to provide the consumer with an optional operating system for recall and automation. For further information, please contact Artemis in London on 071-792 9556.

SUNNY Side Up

Cerebrum Lighting Ltd have recently been appointed as the exclusive European Trade Distributor for SUNN Lighting equipment, by Fender Musical Instrument Corp of California.

SUNN specialise in lighting control systems primarily aimed at touring performers and clubs combining a wealth of features at a budget price.

Their top of the range board, the PLC 3200, has 32 channels of manual faders, with four sub-masters, 102 scene memory, fully programmable chase, and three digital multiplex output modes (SUNNPLEX, AMX 192 and DMX 512). In addition it has a 'soft patch' assignable to 128 dimmers, external sync facilities to audio or MIDI, two remote control footswitches and a host of software facilities usually only associated with top-of-the-market control systems. The PLC 816e is a 16-channel board with many similar features and both units can be utilised with any 0-10 volt dimmer system, by the addition of SUNN's DE-PLEX 216 0-10 volt 16-channel interface. For further information contact Cerebrum in London on 081-949 3649.

Pro-Mix from Carlsbro



In unveiling the Pro-Mix range of unpowered modular mixing consoles, Carlsbro has sought to produce a series of mixing consoles offering the kind of benefits often associated with more expensive designs. The three options on offer, aimed primarily at live work, home recording studios, AV users and small theatre and club installations, are a 16/2 console plus a pair of 19" rack mounting 8/2 and 12/2 units. Each channel features phantom powering, 3 band EQ with parametric mid control, high and low frequency shelving buttons, EQ cut facilities, four auxiliary lines, monitor control, and solo in place button plus mute control. Flight cases are available as an optional extra.

For further information, contact Carlsbro Electronics in Kirkby in Ashfield on (0623) 753902.

Multi-Purpose Projection Speaker from PEL



High performance and versatility are the outstanding features of the new RB3041 projection speaker from Planned Equipment.

Maximum output of the RB3041 is 40W, with tapings at 14W and 25W. Sensitivity can be set as required at either soft, mid or bright; SPL values are respectively 95.5, 98.5 and 102 dBa (1W at 1m). The speaker can therefore be adjusted for optimum sound quality. Highly directional (dispersion angle 90°) and with a bandwidth of 100 to 20,000Hz, the RB3041 is robustly constructed to give a long life in demanding environments. Complete details are available from Planned Equipment Ltd in Middlesex on 081-841 6251.

Super TD Wireless Mic

Samson Technologies has replaced its Concert TD with the newer Super TD wireless microphone system.

Super TD utilises active FM antenna exclusive to Samson, in order to boost transmission range by up to 25% in overcrowded RF environments. The Super TD receiver offers twice the sensitivity of the older Concert TD, and also includes a dual power supply to provide four times the headroom, prior to audible clipping. A new glass PCB eliminates intercircuit leakage for superior performance at higher frequencies, while internal decoupling minimises the RF entering the audio signal path and reduces residual noise. Super TD is supplied with 14 compatible frequencies and offered as a belt-pack transmitter or hand-held systems with a wide choice of dynamic and condenser microphone capsules.

For further information contact Shuttlesound in London on 081-871 0966.

Compact Transformer

J. M. Clarke of Leicester has introduced a new 50VA low voltage lighting transformer that is only half the conventional size for this rating, offering an extremely high temperature capacity at an economical price. Measuring only 65mm x 50mm x 35mm, the transformer's compact size and inherent reliability make it ideal for use with luminaires. It is particularly well suited to high temperature applications, as it is constructed from 200°C dual coated wire wound on an asbestos bobbin and incorporates class H insulation materials. A thermal fuse rated at 188°C is fitted as standard. For further information contact the Leicester-based company on (0533) 833321.

Prestige Plus



Lee Colortran International has introduced the Prestige 'Plus' range of lighting control memory desks, offering the familiar characteristics of the Prestige series but with additional features to increase system performance and reliability. All Prestige 'Plus' consoles are equipped with a new highly-integrated 12 megahertz CPU which significantly improves processing speed.

The flagship console, the Prestige 3000 'Plus' now controls up to 1536 dimmers on up to 1000 channels, and up to 400 cues and groups can be recorded. The control capabilities of both the Prestige 2000 and Prestige 1000 have also been upgraded. The 2000 is now able to control up to 400 dimmers on up to 400 channels, recording 300 cues or groups, and the 1000 controls 200 dimmers on 100 channels and offers the option of standard back up. The new SceneMaster 60 'Plus' is also available with standard back-up and up to 60 submasters can be programmed with back-up data.

Other notable features include the improved playback of special effects on submasters; selective deletion of cues, patch, effects, groups and submaster data to facilitate quick changeover of production information and better utilisation of library disks; and the availability of optional remote video.

All consoles fully support DMX-512 dimmer protocol. All Prestige 'Plus' consoles are available with various control capabilities to suit individual customer requirements. Further information is available from Lee Colortran in Bolton on (0204) 73373.

Carlsbro Delta Series

Recommended for live performance or club installation, the new look Delta Series of PA cabinets from Carlsbro comprises of four separate units. All incorporate a full metal grille, metal corner pieces, and angled fronts encased in heavy duty nylon.

Rated at 300 watts and available in both 4 or 8 ohm versions, the D115 unit utilises a 15" driver and a pair of bi-radial horns. The D208 combines a pair of 8" speakers with a high frequency tweeter to deliver 200 watts, while the D158 features a 15" driver, an 8" speaker, a bi-radial horn and a bullet tweeter that together deliver 300 watts. All three are available in 4 and 8 ohm versions. The D300X rated at 4 ohms, is a 15" 300 watt bass bin.

All enclosures are powered by Beyma, all offer durability in terms of road worthiness, and are recommended for use with Carlsbro's new Pro-Mix consoles, SX600i power amplifier and PMX and DX stereo powered mixers.

Furman Power Amplifier

The SP-20 is a compact, half rack 20 watt per channel stereo power amplifier. It may be switched for normal stereo, dual-channel mono, or bridged 40 watt mono operation as needed. It includes a stereo Input Level control, Signal Present and Overload LEDs for each channel. It also features a headphone output with its own volume control and speaker mute switch, and if desired the SP-20 can be used as a multi-station headphone amp by connecting a chain of HR-2 Headphone Remote Stations.

The unit is manufactured in accordance with the HR mechanical specification, allowing it to be mounted side by side with half rack units. The SP-20 offers low .01% THD at full rated output at 1KHz, and .05% THD from 20Hz to 20KHz. It is fully protected against thermal overload, and can withstand a short-circuit on any or all outputs for an indefinite time without damage. It is available with optional XLR balanced inputs as model SP-20B. An optional rack-mounting kit, model HRKIT-2 is also

available. For further information contact Shuttlesound in London on 081-871 0966.

PEL's New Column



After a long and intensive period of research and development, sound specialists Planned Equipment Ltd have just announced the versatile new RC1100 column speaker, the latest addition to the Bouyer range of quality equipment.

Housed in an attractively-finished wooden cabinet and ideal for use in churches, meeting rooms and school halls, the remarkable RC1100 comprises four speakers plus tweeter. Voice and music reproduction is such that it can be used equally well for a school disco in the evening and the headmaster's formal speech the next morning.

Bandwidth of the RC1100 is an impressive 75 to 20,000Hz with a power capacity of 100W at 8 ohms. Sensitivity (1W at 1m) is 98.5 dBA and dimensions (mm) are 370W x 300D x 1000H. The unit can be supplied with or without line transformer. Complete details are available from Planned Equipment Ltd in Middlesex on 081-841 6251.

Vulcan Series to Take Off

Nottinghamshire-based NJD Electronics have announced the launch of their Vulcan twin deck console which they claim provides comprehensive facilities for both the mobile disc jockey or nightclub DJ.

A new ergonomically-designed console, consisting of two belt driven transcription VS6000 turntables, each fitted with sophisticated d.c. servo controls, the Vulcan monitors record speeds, ensuring playing speed accuracy. Each turntable is controlled via a righthand cluster of rotary and fader controls, enabling record speeds, forward and reverse record directions and auto cue to be easily changed. 80 millimetre sliders allow additional cue and cross fading facilities.

NJD's managing director Kevin Hopcroft told L+SI: "We have designed this console specifically for disc jockeys who require additional facilities for a wide range of venues."

Extensive mixing and equalisation controls, combined with a unique voice over compressor, which automatically dips the music to pre-set levels during microphone use, and allows the DJ to maintain full control of the entire sound system. Powerful sound quality is provided in either a stereo or mono mode by two highly responsive Mosfet 200 watt RMS amplifiers, each incorporating comprehensive loudspeaker open and short circuit protection.



Tape, compact disc, cartridge or jingle players are easily interfaced with the console, with inputs controlled by a combination of rotary and slider controls. Two high impedance

microphone inputs are provided through quarter inch jack sockets.

For further information contact NJD in Sandiacre on (0602) 394122.

A little piece of Magic

Lee Filters have introduced Colour Magic - a starter pack to introduce you to the versatile and colourful world of Lee's filter products.

The Colour Magic pack contains twelve sheets of high grade lighting filter, a cutter, and the formulae for creating more than 50 other colours. It's a palette of tones for the lighting professional.

Whether you want to bring a blush to the heroine's cheeks, or a glow to sunset, or a wintry light to the castle ramparts - if it can be done with colour, it can be done with Lee Colour Magic.

Priced at just £7.50, Colour Magic is an ideal introduction to the Lee range and all its versatility.

And once Colour Magic has proved the performance of the Lee system, our pocket sized swatchbook will provide the key which will unlock the wider horizons of our work in colours and effects.



Lee CT's are right on target - every time

The Lee range of colour temperature filters is unrivalled in terms of accuracy and repeatable performance.

Lee Colour Temperature Blues and Colour Temperature Oranges are made using the first principles of colour physics, ensuring that each filter

delivers a performance which is spectrally correct - and that means the right colour temperature, and an accurate colour, every time.

You've heard it all before from manufacturers, haven't you? Team of professionals blah, blah, blah. . . . dedicated to one ideal, blah, blah, blah. . . . all highly skilled blah, blah, blah. . . . so for a change, we thought you'd like to see the Lee Filters team. They're having another great season.

We don't need to tell you we're the best

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ON TOUR

Catriona Forcer

The demand for Roy Bennett's creativity has reached a high with four of this year's largest tours having been designed by him. The shows of Janet Jackson, Sinéad O'Connor, Depeche Mode and Prince have all had the Bennett touch, which always seems to result in successful and innovative lighting. He talked to me about the Prince show (quote: "Not one of my best."), working with Jane Spiers on the Depeche Mode tour, and his ideas for INXS who he'll be designing for in the autumn.

The last time I spoke to Steve Hall he was working with Alexander O'Neal. Now he is working on an 18 month tour with Suzanne Vega, a performer he has worked with many times before, and his enthusiasm shows in the excellent results.

Prince Wembley Arena LD: Roy Bennett

Roy Bennett spent most of last year on the road with The Cure. Between the finish of the tour in October, and January of this year, he has been working with Janet Jackson, Sinéad O'Connor, Depeche Mode, Prince and a Spanish band called El Ultimo de la Fila. Since then Roy's schedule has been unbelievably hectic beginning with designing the lights for the club scenes in Prince's forthcoming movie 'Graffiti Bridge'. He then went straight out with Janet Jackson for three weeks, flew to England to get the Sinéad O'Connor tour underway and returned to America to start the Prince rehearsals. As soon as those rehearsals were finished he dashed off to Spain to do El Ultimo de la Fila before going to Australia to discuss his designs for INXS' autumn tour. Immediately after that he flew to Florida for the Depeche Mode rehearsals and then the Prince 'Nude' tour!

"This is a very different Prince show in a lot of ways," he told me. "It's very stripped down and not as elaborate as it usually is. There are no hydraulics etc., in fact, there are no theatrics at all — just a straightforward show. I consider it to be a bigger version of what we did on the Parade tour; it's got Vari-Lites this time and a much bigger system, but it's still a basic show. The way that Prince is performing and the way the music is arranged is very simple. I'm having a hard time with it because it's not the type of show he usually puts together. Outdoor performances were added to the schedule late in the day and the show is not designed for that — the budget doesn't allow me to actually add anything more. We're running on a very small one this time — a big budget for some people, but very small for Prince.

"I can't really say it's the money that's making life difficult as I can work within any budget. It's very complicated — it's the parameters of things that are within the organisation now. Prince is trying to make some money on this tour. It's still a good show though. I don't want to make it sound like it's terrible — it's not, far from it. It isn't up to the standards I'd like it to be, but a lot of people enjoy it and that's the main thing.

"The original intention was to make it a Bat



Above and below: scenes from Prince's recent 'Nude' tour with lighting design by Roy Bennett.



Tour and I had lots of ideas. Prince decided against it because of the over hype of the movie. It was so commercialised that he didn't want anything to do with it after a while, and he opted for a simple show.

"The main body of the rig comprises three pods which look like church windows. They house Molefays and Par 64s all with colour changers. The Molefays have ACLs and all the Pars have Raylights. Each pod has an 8ft diameter circular church window cut out of plywood and there is a 5k above each one. My original intention for these windows was a lot different. I was actually going to use the MegaMags that were used on the Stones tour. They finished using them before the end of the States tour but had a contractual arrangement with LSD preventing them from renting them out until the end of the tour.

"I was going to paint textures on the MegaMag gels to create a stained glass window effect. In each one there would be 24 Par 36s with no gels on them, and six Par 64s. In addition would be Molefays containing ACLs and fluorescent tubes. The result would be hard light and soft light out of the same lamp. The glow from the fluorescent would light up the textures of the MegaMag. It would have made more of a scene than an actual lighting piece. Since all that fell through I couldn't use it, but

I'll use it somewhere else."

The Prince tour finishes in Japan on September 10th and Roy Bennett will be staying with it until the end. Immediately afterwards he will go to Queensland, Australia to do a series of small shows with INXS. He will then return to England with them for rehearsals at Bray studios before the start of their European tour. He insists that he is definitely going to go for a very 'arty' look. He will be using London artist Simon Taylor, who is known for his design of Soul II Soul's new album, to work on the set with him. It will be a combination of geometrical and architectural structures with ethnic style textures and paintings within it.

Roy Bennett was keen to talk about his designs for Depeche Mode who are currently on tour. Jane Spiers is at the lighting control. A couple of years ago she retired to her native New Zealand to start a family — so what happened? "When Depeche finished their album, and were ready to go out on tour, she changed her mind and got the bug back again," Bennett explained. "I was asked by Andy Franks to design the show and when I presented them with my ideas, they loved them. I brought Jane in as I knew she wanted to do it, and I think she's a brilliant designer. It looked like a great chance to do something fun. She was really receptive to it. I told her

one night that I was really nervous about working with her because she's one of the few people I actually respect in the industry. I wanted to make sure that she was all right, had everything she needed and that she was happy with what was going on. We did two weeks rehearsals in Florida and it was great. I had so much fun working with her, and it was very relaxed."

Susanne Vega Dominion Theatre, London LD: Steve Hall

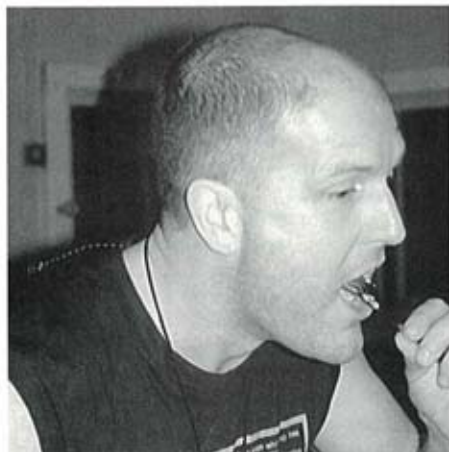
"The Suzanne Vega show tonight is very different to the Alexander O'Neal show or anything else I've done recently. His show, although it had ballads, was very one-paced and it was hard to get away from it looking the same all the time, despite having many colours and Vari*Lite's swinging from all directions.

"I like bands such as New Model Army, who I'd love to work with because their music is very dynamic, and it's not all thrash, thrash, thrash. Most of the bands which I'm into are considered to be musician's bands although I can't play a thing myself. What they all have is light and shade so that you can really do something with the lights.

"My designs for Suzanne Vega's show were limited because of the projection which we're trying to get across as much as possible. I've also got to light the set without taking the focus away from Suzanne. I've attempted to kill two birds with one stone by doing various things i.e. there are no front house follow spots, instead just a few are hung on the end of the front truss, which is flown forward of the stage so that you don't get wash off the floor from front spots going up onto the screens and interfering with the projection. As a result the lighting is that much brighter which means I can use darker, moodier colours in the spots and still pull Suzanne out of the general scene.

"Most of the Par washes are dark, rich, saturated colours but there are also a lot of Leko specials and various other 'pastel' effects which suit her music. I'm using some colour changers partly for lighting the screens that are built into the set, and partly for floor specials. Until the last couple of days they've been really well behaved, but now all hell has broken loose. I think that I've sorted it out. We've been on the road now for two months and things have started to go out of trim a little bit; I expect the gel scrolls are wearing out. The trouble with being in one venue for six nights is that you get lulled into a false sense of security, but there is still quite a lot to be done.

"The set is basically meant to be a corner of a room, except it looks more like you're on the outside than the inside. It's asymmetrical and



Steve Hall.

there is perspective built into it. There are two big screens, one on either side, and then smaller screens in arches. The arches are lit by Pars with Geljets and the big screens are lit by 4-cell groundrows. Thus I have the option of lighting one side or the other, top or bottom or both. The projection is via a Pani.

"The original design had roller blinds where the large screens are now, but I felt that would be very limiting because the budget would only allow for two roller blinds at the side, so you could only have that many images and they'd have to be painted. The projection gives me more scope in lighting terms and also more scope in image terms. We can now put images anywhere we like, at any time. I think that this will be something that will develop over the course of the world tour. I believe that it works and I'm glad that they went for projection because, even when the screen is just lit with colour, it definitely adds something to the show.

"When Suzanne does her solo spot we can make it really intimate with it just going black. She moves around the set a lot more than she used to which gives me a little more scope for specials. There are a lot of bits and pieces dotted around the stage, some of which get featured, some of which don't — it's important to keep the audience guessing, like dice and dominoes!

"I'm using an Avo 60way Rollacue because I need real level memory to control the Geljets accurately and I don't want to take the larger QM around the world. I'd much rather have something I can sit down at and reach both ends of without moving. It has behaved very well and I much prefer being able to scrawl my own messages above the matrix faders as I'm not a big fan of red LEDs. The main advantage over the Celco boards, in my opinion, is that if all hell breaks loose and the processor says 'see you, bye' and locks up, then at least you've still got the pre-sets to work with. This happened to me on the last Vega tour with a QM and I ended up doing the whole show on the three pre-sets.

"On the Celco board everything is digitised and it features multi-processed control so if it goes wrong there's not a lot you can do about it. There are times when I wish the Celco ability to knock the odd channel out without having to phone down to the dimmers was featured on this board. When I've got the projectors on remote control, I have no indication of whether we've had a successful change or not. The dimmer man has the interface boxes right next to him and they indicate this, so every time I change I have to tell him that I'm going to, and then he has to tell me if it has taken place.

"The projectors, while they are not exactly up-to-date technology, have been very reliable. The only problem I've had is that Pani, for some reason, have seen fit to make the dimmer shutters from very thin glass and I managed to break one somewhere in Europe. But superglue is a wonderful thing and I've put it back in and it's held up well. Occasionally a slide sticks but it's always for a good reason such as a screw having come out of one of the slide mounts and jammed the channel. The main problem is that everything is so laid back and slow. In the chat between numbers I'll change slides and then if there are a couple of numbers without projection I sometimes find it hard to remember if I've changed or not.

"The tour started with one week's rehearsal in early April at Brixton Academy but Suzanne was doing so much press that she wasn't available until late afternoon. It was only on the last day of rehearsals that I actually got a set list so I could start programming. Until I knew what projection was in what number, I couldn't programme any lights, as it would serve no purpose to do something bright if there was to be projection. The dress rehearsal involved trying things out on

pre-sets, storing what I liked, trying something else if I didn't like it, and ending up out of sync by one number every five numbers. Most of the programming has been done throughout the tour.

"We did three weeks in Europe covering a lot of miles and a wide variety of venues. There were the usual drawbacks such as not being able to load in until 2pm. In fact, we did one of those and managed to get the set and lights ready for doors at 7pm which amazed me because we had lost five hours on the day.

"At a show in Vienna one of the trucks didn't arrive so we had to use house lights. There was a light on stage but it wasn't what I would call a show. It took me back to the first tour which I did with Suzanne in 1985. It was a European club tour with the occasional concert hall and the lighting relied on what was in the club, or a pick up rig for the day. With a minimal rig you really had to work it hard to get anything out of it. At the time it seemed enough but now going back from full production to nothing, it seems very bare. But nobody came and asked for their money back, so they must have enjoyed it.

"I've tried not to let the lighting dominate the music especially as some of it is 'intimate'. With this set it would be easy to overshadow the music if you lit it too much. Because we need a 35ft deep stage for the projection we've been struggling a bit, and there has had to be compromise. The worst case was at Cambridge Corn Exchange where we were working to 22ft. In America the venues will be good-sized theatres, and we are doing quite a few gigs in Canada which tend to be in Performing Arts Centres with stages like football pitches. Working with union crews the set should go up that little bit quicker because those guys are more used to doing that sort of thing. We won't have the language problems we had in places like Italy, and although it means I'll miss the World Cup, I'm looking forward to it."

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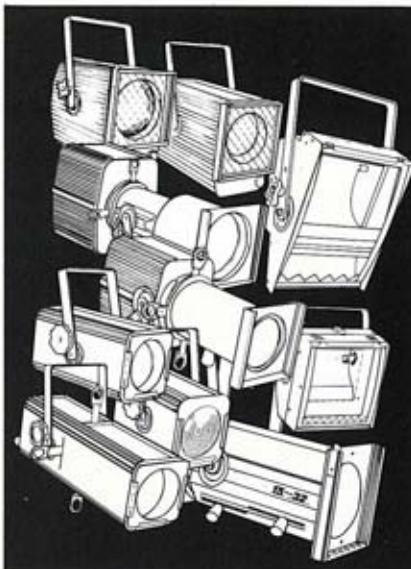
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VIEWPOINT

Freddy Lloyd says Go East Young Man!

Berlin's recent ShowTech Exhibition was for me one of the highlights of the past 10 years.

I lived and worked in Berlin during the cold days of the 60's, and well remember the feeling of isolation and paranoia that pervaded the city. People from the Eastern Bloc, whenever you saw one, were viewed with something akin to a visitor from Mars, and treated with as much suspicion.

Last November and December we all saw the television pictures showing the destruction of 'Die Mauer' (the Berlin Wall), but the full realisation of what difference it has made came home to me at ShowTech. The opportunities that are presenting themselves for those who have the foresight, or guts to go for them, are enormous.

I helped man the stand of our German distributor, and it would be no exaggeration, well perhaps just a little one, to say that every second customer was from the Eastern Bloc. Imagine the scenario: you are running a successful distribution company with customers all over the British Isles and a full order book. Then suddenly, overnight, a whole new country of 16 million people speaking the same language, using the same money (eventually) and what is more exciting, crying out for product, springs up out of the sea. It's a salesman's dream!! Our German distributor now has a file of new contacts and every time I try to phone him, he's over in the East somewhere.

So what is all this rather lengthy preamble about? What relevance does this have to the PLASA manufacturing members? Strikes used to be described as the British disease, but I believe our parochial insular mentality is a far greater problem.

A couple of weeks ago Franko Neumetzler who until fairly recently was the Chairman of the VDDA — the German equivalent of PLASA — telephoned me with a cri de cour: why were PLASA manufacturing members ignoring the Dusseldorf Discotec Exhibition in November? Didn't they realise the opportunities opening up, and that the Fair authorities were bussing in x number of people from the East, and that the Eastern Bloc had its own version of the EEC and East Germany was a quick, easy and cheap conduit to trade in East Europe?

In general terms, excluding the USSR, Eastern Europe consists of seven separate countries

containing some 136 million people who have been starved of all the things we take for granted for 40 years.

THE WALLS ARE COMING DOWN, and I don't mean just the Berlin one. Only this week cross border regulations on the continent have been reduced to even less of a minimum than before. 1992 and a combined Europe is just around the corner. Are we Brits ready for it? Will we ever be ready for it? We find excuses NOT to join the EMS, and having eventually been dragged to the altar, are in the process of building a tunnel after how many years of procrastination, and now we can't build a high speed rail link!

Without doubt there are a number of companies within our industry who make efforts to capitalise on what is universally recognised as the best product in the world, but we few of the "travelling circus" can't do it for the rest of the industry. I find it difficult if not impossible to understand the insularity of the average Brit. I met a Dutchman on a beach in Spain a couple of weeks ago, and he spoke French, German, English and of course Dutch. This was just an ordinary guy, not some high flying whizz kid. To speak at least one other language is the norm on the continent of Europe, and we all know that the average foreign visitor to our exhibitions will have at least enough English to make reasonable conversation.

At the Light and Sound Show this year take a good look at the Italian presence in the form of APIAD. Notwithstanding the assistance they get from the Italian Government which I believe is quite substantial (D.T.I. please note), at most of the major exhibitions APIAD is there in force, promoting Italy Ltd., and that's what I would like to see more of from PLASA members.

"There are too many exhibitions in the year, we can't afford to do all of them." This is of course true, as most of the travelling circus would confirm. So I would like to contentiously offer the idea, not altogether a new one, that perhaps the major exhibitors of the world should come together and pressurise organisers in order that we have only ONE major International exhibition a year, and that it be a movable feast: one year in Germany the next in Italy and the next in the UK. It can be done, manufacturers do have the clout when they stick to their guns. The major manufacturers should then rely on the distributor for that territory to

earn his privilege of sole distribution and display efficiently. View it from the standpoint of say Mr Itohachi from Tokyo (if there is such a person I apologise). It's impossible for him to attend the four or five European exhibitions, so which one does he choose? Or does he go to the USA? Think about it.

There was an exhibition in Moscow last year, but a) it was too long, and b) it was too expensive. Perhaps PLASA and APIAD as the two major manufacturing organisations of Europe, together with the VDDA should organise a major exhibition in the Eastern Bloc somewhere, and attract companies from ALL the Comicon countries? We have the resources; could we get the support from members and/or DTI?

Perhaps I've posed too many questions and offered too few answers, but the EEC is not going to go away — THE WALLS ARE COMING DOWN and the rest of Europe is going to cash in on it. Come on chaps — get off your bums, it's a big world out there. Someone's gonna make a killing, and I'd rather it was us!



Freddy Lloyd is sales director of Zero 88 Lighting Ltd: He was born a long time ago and used to claim to be the oldest in the business until Derrick Saunders of Pulsar, in a drunken moment in Toronto, revealed his date of birth!

A lifetime in showbusiness from performer through artist agent/manager and record producer. Married with German wife Monika and three cats and has a problem when England play Germany at Football.

Favourite song: 'Rock 'n' Roll I gave you all the Best Years of my Life'.

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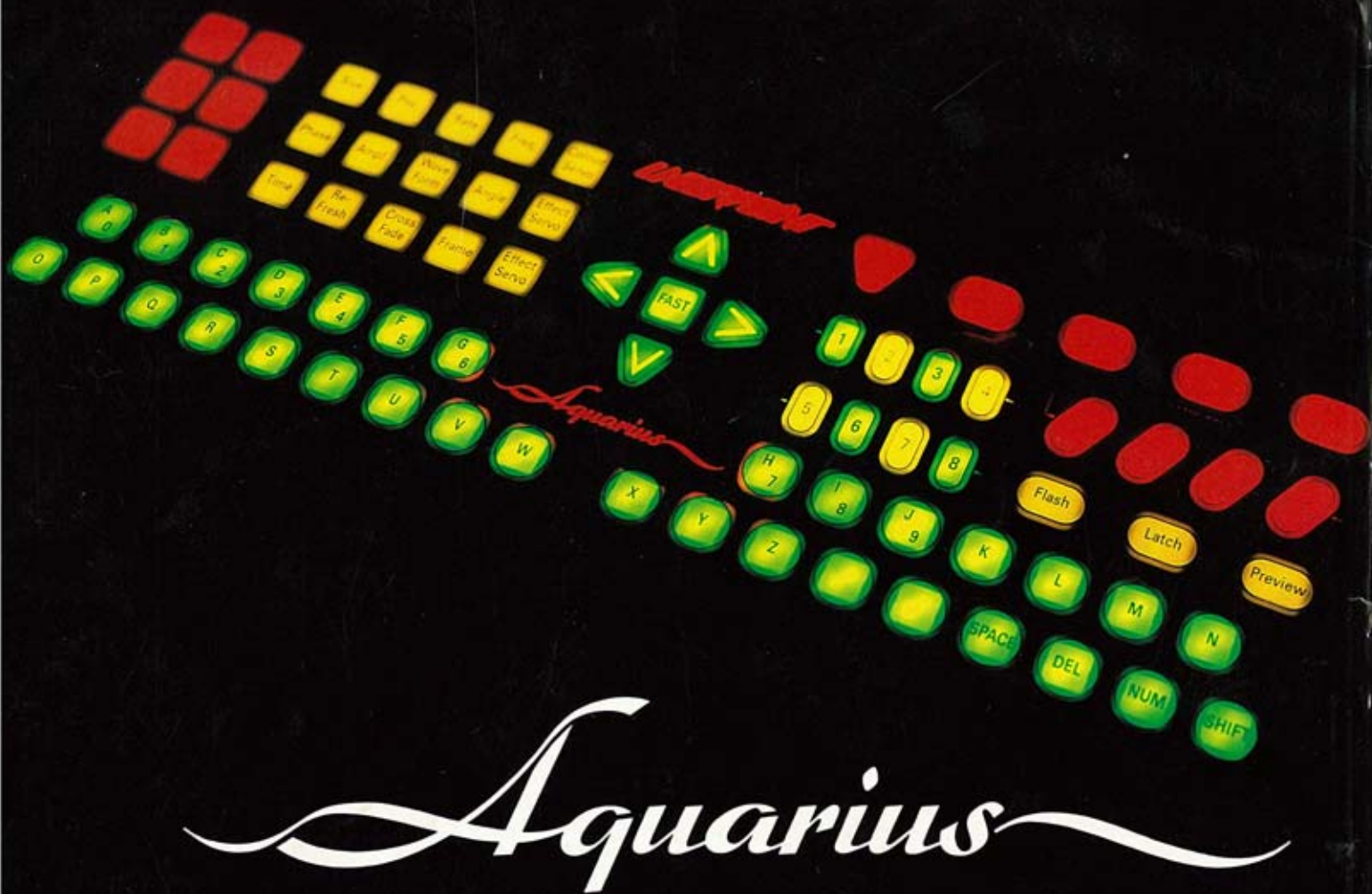
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