

LIGHTING+SOUND *International*



THE CLOTHES SHOW LIVE AT THE NEC, BIRMINGHAM

- NEC Reveal: Tony Gottelier peels back the layers on The Clothes Show Live
- Musical Notes: Piaf, Cabaret and The Iron Man reviewed
- Lampo joins L+SI's Italian Collection
- Technical story of the Tower Bridge Exhibit
- Graham Walne at Stratford East's refurbished Theatre Royal
- Ken Dibble nominates his best in sound for 93

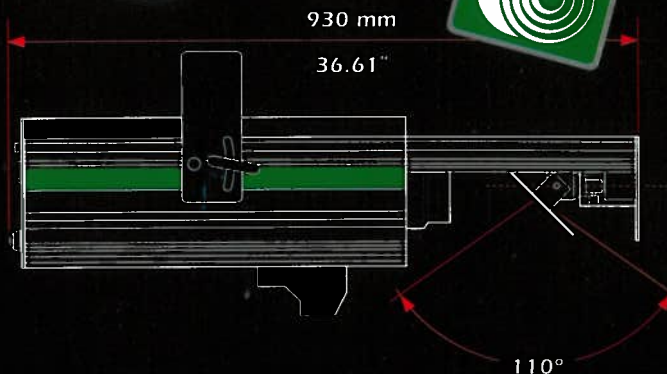
JANUARY 1994

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samurai light



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- multicolour effect
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- black-out
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- fading between projectors
- motorized iris diaphragm
- beam movement on X and Y axis' achieved by micro-stepper motors
- DMX 512 input via 3 pin cannon (8 channels)
- 0/+10V input via 8 pin locking-din (6 channels)
- dip-switches for address number projector
- self-test and signal reception indicator incorporated
- digital signal for lamp on/off function including disable option
- safety device for voltage disconnection during lamp replacement
- can be operated in any position
- forced ventilation
- protection cover for deflecting mirror
- protection range IP20
- high quality optical condenser
- fixed focus 155 mm (2 high definition optical lenses with anti-reflective coating)

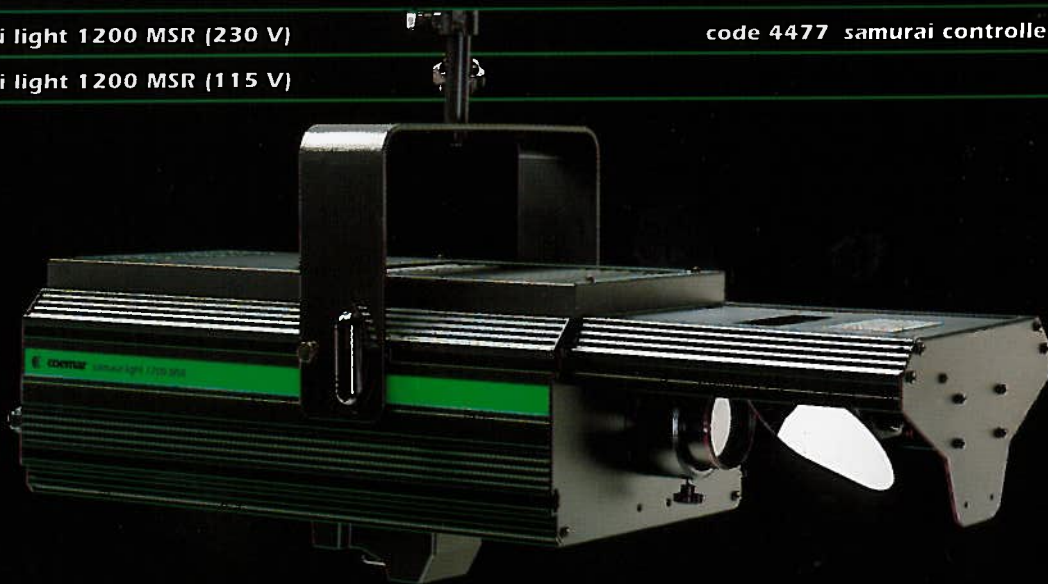


- beam angles: 6.8° - 9.5° - 12° available with the supplied lenses
- external millimetric lamp focusing
- typical throw distance: 4-30 mt
- weight: 23 kg/50.6 Lbs
- external ballast available single and for 19" rack use (4 Samurai light 1200 MSR)
- ballast weight: 15,5 kg/34, 1 Lbs (230V) - 29.5 Kg/ 64.9 Lbs (115V)
- G 22 ceramic lamp holder
- long life Philips 1200 MSR lamp (750 h), high efficiency and luminous flux
- power requirement 9 A at 230V, 17 A at 115V
- cable in compliance with the safety norms IEC 331, IEC 332 3C, CEI 20 35 2 core 1,5ø+earth
- mains 115/230V +/-10% 50/60 HZ (on application)

code 9202 samurai light 1200 MSR (230 V)

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LIGHTING+ SOUND *International*

JANUARY 1994

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LIGHTING+SOUND *International News*

The Charge of the (Moving) Light Brigade



The Pan Command system set-up on the stage of the Old Vic in London.

With the increasing use of moving lights in a wider range of productions, two major new inter-industry initiatives have been launched.

Getting in first to scoop the 'generic' name, the London-based White Light Group have announced the formation of **The Moving Light Company**. White Light told L+SI that they had spent a considerable amount of time looking at options available in what they defined as the 'user purchasable' moving light market, and as a result went for the ProSpot from PanCommand in California to add to its already extensive stock list that includes Clay Paky Superscans and GoldenScans, Martin Roboscans, Amptown Posispots and DHA Digital Light Curtains.



Bryan Raven (left) and Simon Fraser (right) pictured at the Old Vic with Jim Gordon of Pan Command.

Set up as a division of White Light, The Moving Light Company gave a series of demonstrations of the PanCommand units at London's Old Vic early this month to invited lighting designers, production electricians and production managers. Aiding and abetting their introduction into the UK and European hire scene were general manager Bryan Raven and The Moving Light Company project manager Simon Fraser.

The ProSpot system has already been extensively used in the USA where New York and Orlando based Vanco currently have 80 units in their hire stock with another 120 on order. The units have been used successfully on a wide variety of events including television, trade shows

and concerts in the States, reported White Light.

Meanwhile, a short distance across London, a new partnership company, **Robomick London**, has been set up by Martin Professional of Denmark and Supermick Lights. This joint organisation will be providing supported packages of moving lights for tours, concerts and events.

Martin's Peter Johansen told L+SI that his company will be providing the stock, initially 50 of their touring-grade Roboscan Pro 1220s, whilst Supermick will pitch in with the practical support and organise the work. "We recognise that the level of organisation and specialist skills required to provide wet-support packages for live performances is not within our level of expertise," said Johansen. "It is our job as manufacturer to provide the most reliable product possible in the first place, which we believe we have achieved with the 1220, and leave the rest to the specialists. We anticipate the rental stock at Robomick to exceed 100 units in the near future."

Supermick's Peter Clarke told L+SI that they were pleased with the performance of the Pro 1220s on two major autumn tours and in both cases those involved were delighted with the product. "This gave us the confidence to take the idea forward," he said. The company is currently streamlining its Holland Park warehouse to take the new stock and the first major tour announced that will use a full 1220 system will be Elvis Costello and the Attractions which starts on 4th May in Portland, Oregon.

Celco Inc Change for 94

Group One Limited is the new title for Celco Inc. of Farmingdale, New York State. "As from January 1st, Group One Ltd merged into Celco Inc and began operations as one company for the distribution of premium quality lighting and audio product lines," president Jack Kelly told L+SI. Evidently the change has been made to more accurately define the company's objectives as a distributor of a wide variety of products.

Kelly said that the prime reason for the merger was to streamline internal administration. He remains as principal shareholder and president with Vincent Finnegan, Norman Wright and Chris Fichera retaining the balance of the shareholdings. Finnegan and Wright remain as vice-presidents of the lighting division whilst Fichera continues in his capacity as vice-president of the audio division.

L+SI WOULD LIKE TO WISH ALL ITS READERS A VERY HAPPY NEW YEAR

Revealing Cyberfactor

Just as L+SI was closing for press, Lightfactor Sales held an open day at their Greenford showroom to give people the opportunity to get a close-up preview of High End System's new Cyberlight.

Due to commence deliveries in the spring, the examples shown were still in pre-production form, nevertheless visitors were impressed with the range of new facilities which will be provided by the new 1200W moving light: colour mixing, three levels of correction, zoom with two field angles from spot to wash, diffusion for fresnel type soft-edged looks, frost, remote focus, indexable rotating gobos, self-coloured gobos, plus the more usual features of such a luminaire. Built for the road, Cyberlight is, apparently, smaller and lighter than its direct competitors and is expected to make an immediate impact on the touring market. A retail price of £6,800 is forecast for the UK.

The new Status Que moving-light desk, also due for release in the spring, was demonstrated by High End's Tim Grivas and Larry Cotten, Lightwave Research's engineer responsible for the

development of the board. Also on hand from the Austin, Texas-based manufacturers was European accounts representative John McDowell, soon to set up home in Holland, whilst from Lightfactor, Mick Hannaford and Dick Carrier were the hosts. More information, plus pictures of the many industry people who dropped in for the view, in our February issue.

Biggest PLASA Ever

As readers will note from an announcement on page 20, the 1994 PLASA Show will easily be the biggest yet. Due to the huge demand for space, the Association, in conjunction with Philbeach Events, are currently completing arrangements to increase floor space by up to 25 per cent.

James Brooks-Ward of organisers Philbeach Events also emphasised that with demand running high, and with no less than 90 per cent of all space either contracted or reserved (including the new area), it is vital that companies considering exhibiting at the 1994 Show contact Philbeach on 071-370 8179 urgently.

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SIB/CONCERT WORLD : Italy : 27-30 March

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Travel packages, telephone Catherine at PST (0323) 410500.

WORLD LIGHTING FAIR : Japan : 16-18 June

PRO AUDIO & LIGHT ASIA : Singapore : 6-8 July

ENTECH : Australia : 6-8 October

LDI : USA : 18-20 November

Travel and stand grants available. Group freight agents and travel packages for both visitors and exhibitors usually arranged. Please contact Anna Pillow at the PLASA office on tel (0323) 410335 for details; non-members welcome.

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What about the control system?

Golden Scan "3" uses 6 control channels and is designed to operate with all industry standard protocols: DMX 512, 0-10 V analog and PMX (Pulsar's RS 232/423 protocol), so you can be confident that your lighting



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Proper Comedy



An all-star line-up at the new Comedy Store.

An old family friend, an exciting new venue for the Comedy Store and a vast knowledge of the lighting and sound industry launched a new company and a great evening of live entertainment in London.

A chance meeting and re-acquaintance with Don Ward, owner of the unique 'Store' then in Leicester Square, led to Daryl Vaughan co-ordinating the sourcing and installation of sound and lighting equipment at the new venue near Leicester Square.

Working from a design brief supplied by the client and calling on the expertise of Glantré Engineering's Matthew Tonks for the installation work, the new Comedy Store opened to rave reviews on the 16th December. A gala week of shows followed, featuring such performers as Jo Brand, Julian Clary, Jack Dee, Eddie Izzard, Josie Lawrence, Mike McShane, Paul Merton, Tony Slattery and Arthur Smith amongst many others.

Daryl Vaughan told L+S: "Whilst my endeavours of late have been in the sales representation of Syncrolite and Wybron in the UK and Europe, we have been increasingly asked if we could provide clients with other items of equipment in addition to automated lighting or colour changers. For this reason, and as we found that the phrase 'proper this or proper that' kept recurring in discussion, we decided to name our company Proper Lighting & Sound."

Knight at the Races

Earls Court 2 was the venue, motor racing the event. For the first time ever the exhibition complex played host to a Hot Rods and Superstocks meeting (pictured below). The awkward task of lighting the large oval track became the headache of Phil Knight of Knight International whose past experience in providing the lighting for radio roadshows and exhibitions stood him in good stead for the Grand Prix challenge.



Of paramount importance was the safety of the drivers, and Knight's first consideration was to create a high and even level of brightness. Added to this was the problem of sheer scale; the track measured no less than 120m x 85m and clearly was going to require an awful lot of light. The task was not made easier by the lack of rigging points at EC2. To combat all these problems, Knight employed LSD 8-Lites and Molemags arranged across the two sets of trussing positioned at either end of the track. Control and dimming was provided by Avolites.

People News

Trantec Systems has appointed **Ian Collins** as their latest sales consultant, whilst Tannoy has appointed **Alan Lochhead** as professional products sales executive.

Irish Fashion Show



Lighting Dimensions (WL) has designed the lighting and provided the complete lighting rig for the Head 2 Toe live fashion show in Dublin. Ireland's equivalent to The Clothes Show, Head 2 Toe is a spectacular televised event which celebrates international fashion. As well as an exhibition of the latest fashion and beauty products, the focal point of the event is a series of eight upbeat fashion catwalk shows.

Bernard Griffin, the projects manager at Lighting Dimensions (WL), designed the lighting to complement the dramatic combination of high fashion, entertainment, music and dance. He is well known for his innovation in fashion show lighting with over 15 years' experience of lighting top names such as Paul Costelloe, Bruce Oldfield, Laura Ashley and John Rocha.

The dramatic Head 2 Toe theme was achieved using a variety of colour change units and eight Golden Scan 3s to provide different looks and textures. Floodlights were set at ground level to cast shadows on the backdrop, whilst high power strobes were used within the set for dynamic shadow projection and movement.



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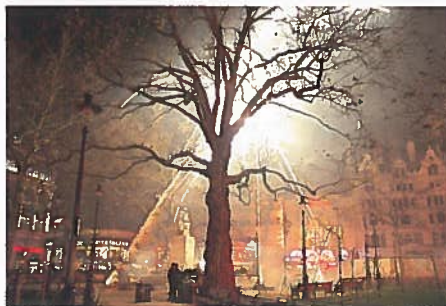
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Aladdin Launch for Le Maitre



Le Maitre Fireworks Ltd recently performed at the launch of the hit Disney film, 'Aladdin' in the heart of London theatre and cinema land, Leicester Square. It was the first time that fireworks have been set off in the gardens of Leicester Square. Le Maitre Fireworks supremo Wilf Scott told L+SI: "We fired all three sides of the square and also in the centre. By doing it this way, we were able to produce an all round effect, giving an identical show from each viewing position. It was a wiring nightmare; we used no less than three kilometres of cable for the production!"

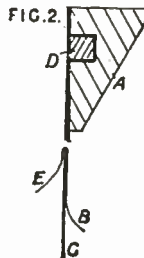
A HUNDRED YEARS AGO THIS MONTH

BRITISH THEATRICAL PATENTS 1801-1900

37. Challis, J.

Jan. 1.

Advertising; displaying.— Show bills, pictures, &c. B are mounted on canvas &c. C, which is then stretched or strained over a frame A, being secured thereto by filets D or otherwise. Over the canvas is secured a backing E.



No 37 Jan 1st 1894: James Challis

No 1433 Jan 23rd 1894: William F King

Advertising for theatrical performances is as old as theatre itself. Illustrated here are two examples published in January 1894. James Challis was listed as the commercial traveller whilst William Falconer King of 'Prince Regent Street, Leith, North Britain' was an engineer, working at the Rosebank Iron Works in Edinburgh. It is interesting to note that the owner of the Iron Works, Andrew Betts Brown, produced the first hydraulically-operated stage patent (No.3593 of 1875) which was installed into the West End Theatre in Edinburgh in 1875.

The two patents pictured here simply serve to illustrate how easy it was to patent a very simple device using little or no technology derived from first principles. It is uncertain whether these patents were actually ever used by any theatres, though it would be fascinating to discover one.

1433. January 23, 1894. Advertising. KING, W. F., Prince Regent Street, Leith, North Britain.

EMPIRE

Electric incandescent lamps are so grouped that by switching the current to certain lamps a succession of words may be formed. The arrangement in the Figure is adapted to produce the words "Empire" and "Palace."

The above extract comes from *British Theatrical Patents 1901-1900* by Dr. Terence Rees and Dr. David Wilmore, and will be published in late '94 or early '95. There are also plans in preparation to bring out a companion volume 1901-2000 for the millennium and research has already started! The authors would be interested to hear from readers who have come across any patents in their own field of work, whether from the nineteenth or twentieth centuries. Anyone wishing to contact the authors or register for advance information about the forthcoming publication should write to: Theatresearch, The Lodge, Braisty Woods, Summerbridge, North Yorkshire HG3 4DN.

Cirrus Lowsmoke



The Effects Company have introduced the Cirrus Lowsmoke (pictured above) - a new method of producing low lying smoke. The Cirrus removes the need for freezing tunnels or heavy converted refrigeration units. It consists of a small sophisticated 'box of tricks' that attaches to any 'Supersmoke' machine, and with the aid of a CO² cylinder, produces an effect that is virtually indistinguishable from traditional dry-ice. It is linked electronically to the main smoke machine and operates 'in tandem' via a standard smoke machine controller, therefore timer operation is also possible. CO² usage is very economical - even a small 6.35kg cylinder will give 9.5 minutes of continuous low smoke. The whole system can be ducted and operated by 0-10v controllers/lighting desks. For details call The Effects Company on (0342) 718399.

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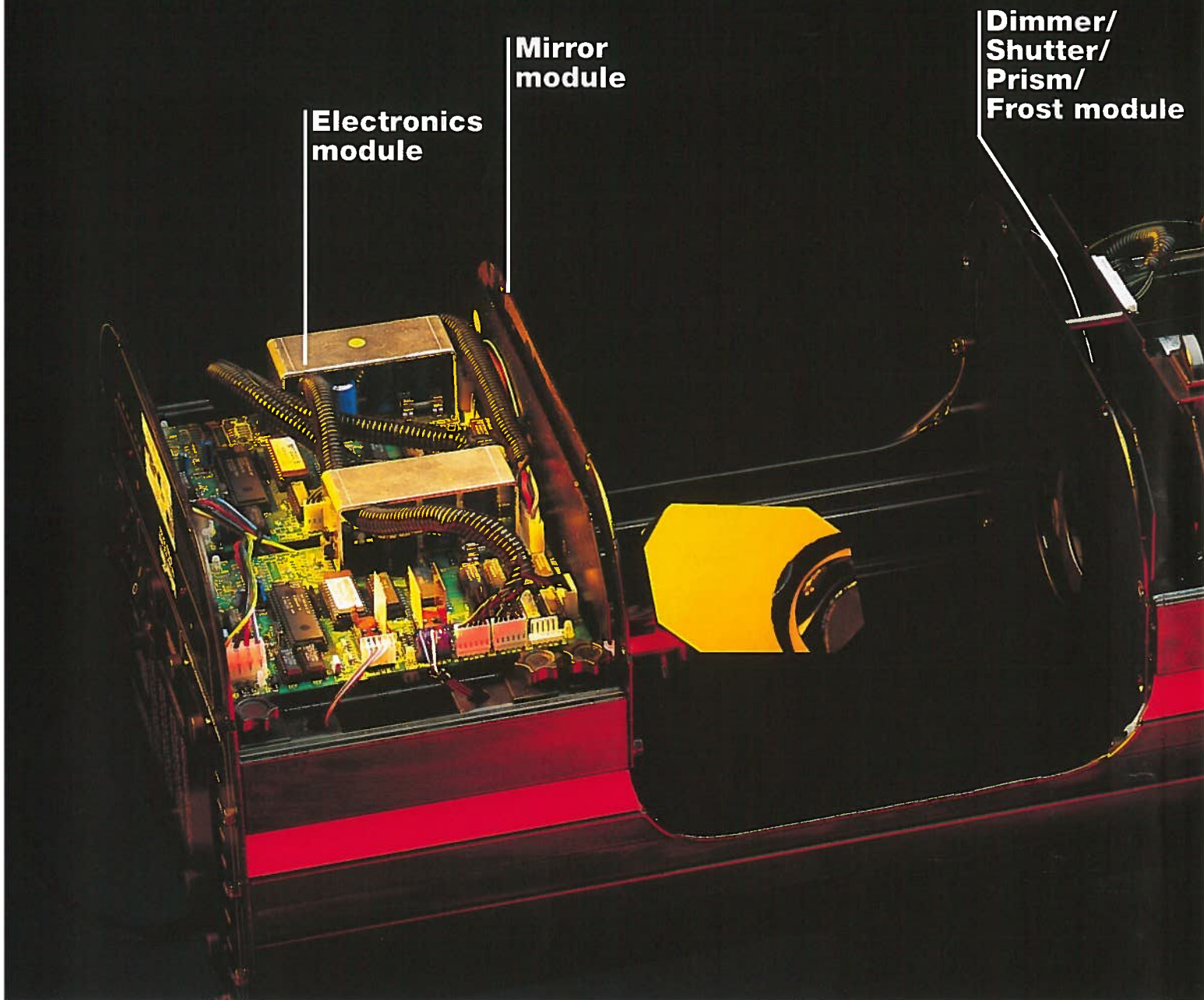
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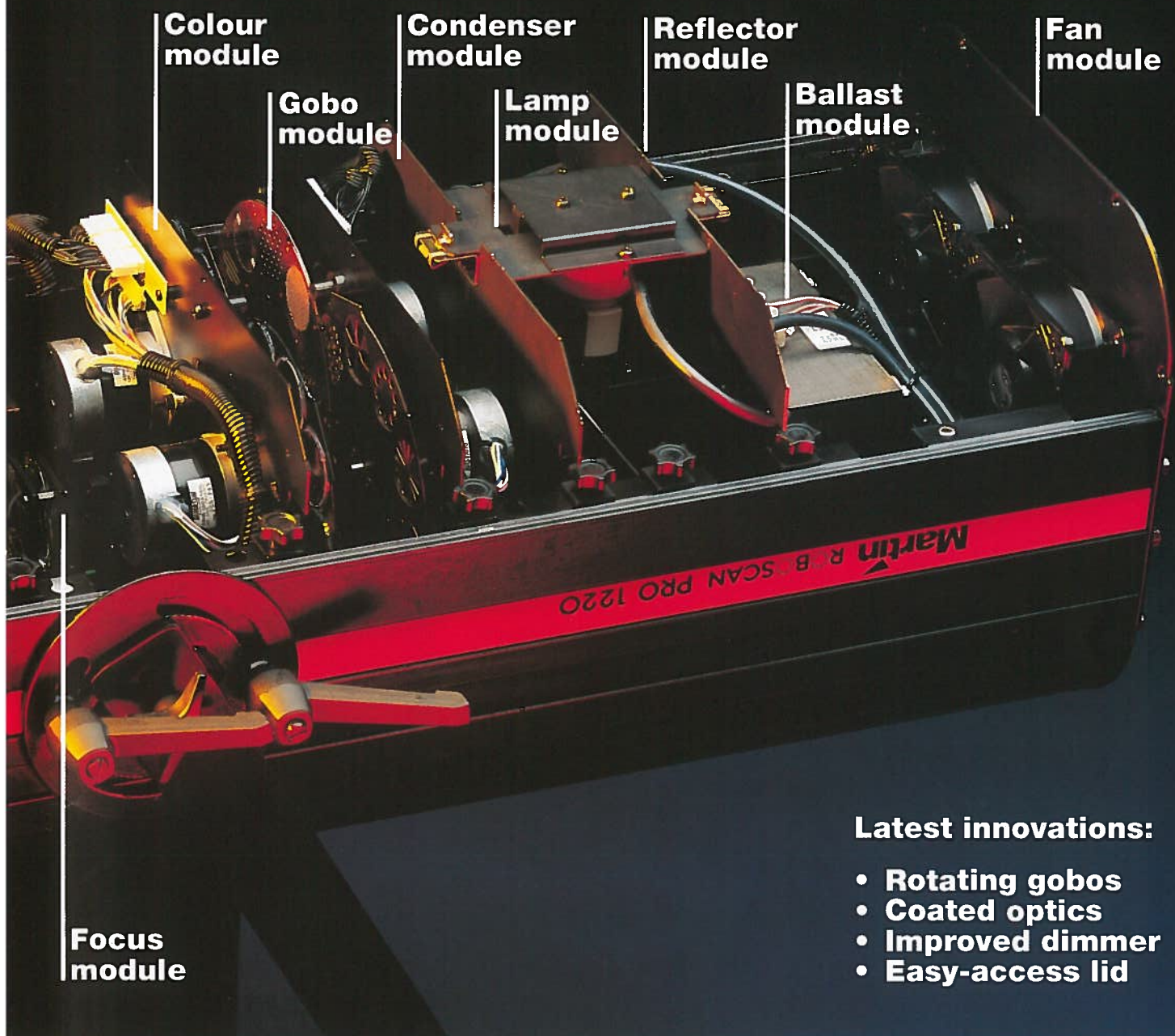
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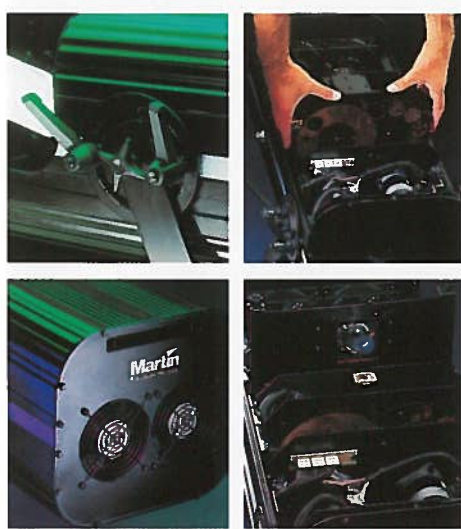
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3D Storm's New Dimension for Sound Stage

Although stereo sound was hailed as the greatest since sliced bread when it hit homes in the sixties, it has long been recognised that for theatrical applications, a multiple speaker system is more effective.

For example, cinema has always employed a centre channel to ensure that dialogue appeared to come from the screen, regardless of the listener's position. Stage productions, on the other hand have often favoured complex multi-channel set-ups to allow for spatial placement of sound effects.

Now London specialist Wembley Loudspeaker is offering a sound processing system which enables both the creation of a stable soundfield across wide listening areas and precisely controlled dynamic movement of individual sounds within the field.

All this is promised from a four-channel replay system, which does not even require the computer controller or audio enhancement circuitry used during recording. In other words, there are no specialist electronics required on-site.

The system is called 3D Storm. Paul MacCallum, head of Wembley Loudspeaker, admits that it is early days yet but the potential applications are enormous.

"You could use it in a disco if you wanted an amazing sound. If you link it to the lighting controller, the sound will move in synchronisation. You can also use it for product launches and special effects in a number of situations," he enthused. "There are some remarkable possibilities if you record through it: you can use it anywhere in the signal chain. If you employ it on an operatic production, you can use the system to mimic the physical movements of the singer on stage, within the soundfield."

In order to understand how 3D Storm actually works, it's necessary to know that there are two constituent parts to a full system, both of which are often used in their own right. One part is the US-manufactured base spatial enhancer, which is distributed by Wembley Loudspeaker as a stand-alone unit. The other part is the UK-developed 3D Storm software and hardware controller, which is made by Sound Dynamics. This has an on-screen display and is used to define the position of a sound and the rate of its movement within the 3D field.

Part of the system software is a library of moves, which can be loaded to create a series of controlled moves. These can be synchronised to an internal Beats Per Minute clock and also stopped and started using a 'tape deck' facility. New moves can be added and old ones deleted or edited at any time. At the moment 3D Storm works on an Atari computer, although a PC version is due for launch soon. The system as it stands can read MIDI, allowing it to be easily synchronised to sequenced music. Sound Dynamics' director Tim Corkerton told L+S: "I developed the 3D component independently from the Base system. I always liked the idea of a four speaker set-up. I subsequently got involved with the Base system using it as an enhancer to add spaciousness to the whole thing."

Having established what the system comprises, it is time to turn to the delicate question of the underlying technology. Corkerton is reluctant to say more than "it is not just panning. I don't want to say too much about the process, other than it is digitally controlled analogue circuitry."

The limitation of the conventional pan control is that it effects only amplitude; that is the relative volume level of one speaker relative to another. It has been known for some time that the human brain determines the position of a sound through



Tim Corkerton pictured with the 3D Storm System on the stand of Wembley Loudspeaker at last year's PLASA Light & Sound Show.

a different method: minute differences in time taken for the sound to arrive at the left and right ears.

So powerful is this principal of 'first arrival' that it over-rides clues provided by amplitude. In other words, if the sound from the left speaker is delayed by a few milliseconds, the listener will be convinced that the sound is coming from the right speaker, even if the left speaker is significantly louder.

This has led to a number of proprietary 'psycho-acoustic enhancers'. Having heard the Base system, I can confirm that it creates a broader and more defined stereo image than normal, but it also has another interesting trick. Programmes in the centre of the mix - typically vocals - can be 'brought forward' or 'sent back' in the mix. Again, this is not simply a question of volume levels: it really does sound as if the singer were nearer to, or further away from the listener.

When Base is coupled to the four channel controller of 3D Storm, the user has a very powerful sound manipulation tool. Corkerton feels the system lends itself to music production. "The ideal way to use it is to start at the recording process, perhaps with one stereo track and other tracks which can be processed in the soundfield. You could for instance have voices moving in a circle and hi-hats zig-zagging across the room.

"I've used it on a couple of raves. I think the rave market could be very big, especially when the system is coupled with the lighting." One of 3D Storm's first applications in the UK could hardly be further from the pounding pulse of the rave scene. It was used at the august Victoria & Albert Museum for an exhibition called Sport and Glory. Five giant video screens were employed to present a panoramic view of events including Olympic games and car racing, while 3D Storm placed visitors in the centre of the sonic action. "Visually, things were happening all over the place and we helped the sound to match it," said Corkerton. "The beauty of it is that you can make a four track tape and play it back without the processor. This is something we can do for the customer, although they could do it themselves if they wanted to."

Corkerton says that Sound Dynamics is expanding the capabilities of the system and has already achieved "behind the head" surround in headphones. Now the company is working on achieving similar effects for systems with only two speakers. The full system as it stands is available from Wembley Loudspeaker for a purchase price of £10,000, which includes installation and two day's training.

Simon Croft

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Outdoor Laser Spectaculars

An increase in the staging of outdoor spectaculars, and in particular the use of lasers, has highlighted the need for a publication giving advice on how to run these events. The Institution of Lighting Engineer's publication 'Code of Practice for the Use of Lasers and Other Decorative Lighting in Public Places' due out this month, provides both ideas and guidance to anyone called on to arrange an event that includes the use of lasers and other outdoor decorative lighting.

It covers the arrangement, co-ordination, design, installation, operation, maintenance and subsequent removal of the equipment. It is a fundamental guide to the application of good engineering judgement and common sense and sets out the principles of the approach to be followed, highlighting considerations to be taken into account when organizing displays or shows for entertainment. Various forms of outdoor display are listed, from delineation of buildings and high powered projector systems to simple festoons. Details are given of some of the principal festivals of different religions, e.g. dates, main symbols and many special colours associated with the event, to assist in arranging appropriate illuminated displays.

The Code of Practice deals with planning and event management and includes details on licensing and insurance, involvement of public utilities, traffic and crowd control, implementation of a safety policy and other considerations such as potential aviation problems, laser safety, security and communication. Information is provided about lasers, their function, classification and general application. Festive and other specialized forms of lighting are also detailed. All aspects of installation are discussed, including electrical and mechanical considerations, scaffolding, testing, inspection and maintenance. Although the requirements for electrical safety in the areas covered by this Code are set out in the Institution of Lighting Engineers' 'Code of Practice for Electrical Safety in Public Lighting Operations', there are a number of aspects relating particularly to lasers and their associated equipment that may be unfamiliar.

Other factors associated with large events of this kind are also referred to: namely smoke, pyrotechnics and noise control. Finally, statutory and other requirements are outlined and the whole document makes particular reference to the new HSE document, HSG(95), on the safe use of lasers. The Code of Practice also draws attention to the need for appropriate levels of training.

Copies of the publication can be ordered from: Institution of Lighting Engineers, Lennox House, 9 Lawford Road, Rugby CV21 2DZ. Tel: (0788) 576492 Fax: (0788) 540145.

Wembley Go East

Wembley Loudspeaker Co have announced further penetration for their product into the Far Eastern market with the appointment of their Chinese distributor, Trinity Engineering based in Hong Kong. Trinity are already established as distributors of European product in the Far East, currently holding the distribution deal for Martin Professional.

Trinity have already placed a substantial first order with Wembley Loudspeaker for 200 of the popular MC 2 Maxi Cube compact speakers, and the first consignment of 50 is already on its way. Built with a heavy duty 8" coaxial unit, the Maxi Cube was originally designed for applications requiring a high quality of background music, including all leisure installations, pubs, clubs, winebars and restaurants etc. However, the Chinese intend to put it to a slightly different use - all 200 units of the initial order are destined to find homes in the private karaoke rooms of affluent Chinese business men in order to entertain distinguished guests! To have a private karaoke facility in the comforts of one's own home is currently considered to be the highest form of entertainment with which to impress one's guests. In keeping with the trend, Wembley Loudspeaker have modified the original UK design of the Maxi Cube, substituting lozenge-shaped cloth grilles for the round metal grilles and using a slightly different speaker inside with higher sensitivity levels to produce a brighter sound that is specifically designed for vocal applications.

Continuing to build on the success of the Chinese sale, Wembley have also reported a confirmed order from Vestax Japan for two units of all Wembley Loudspeaker product with the intention of promoting it into large discotheque installations, a market into which Vestax have been looking to promote quality British loudspeaker product for some time. Paul MacCallum, director of Wembley Loudspeaker, announced himself to be delighted with the recent sales. "Any sale is something to be proud of, naturally, but these sales to China and Japan are particularly pleasing, as it gives us a foothold in what is potentially an extremely lucrative market. Together with the regular orders from Inova, our established distributor in Singapore, these developments are a tremendous boost for business and gain valuable exposure for our product."

Export Award for Tannoy

Tannoy has been presented with yet another award for export achievement. The latest accolade is the Lanarkshire Business Award for Export which was presented to managing director Alex Munro by Viscount Whitelaw recently. In a further development, Tannoy has been named as one of 20 'Demonstrator Companies' by the Scottish Office Industry Department. The new scheme provides the opportunity for directors and senior managers of Scottish companies to see best management practice in a working situation through a programme of half-day visits. Each of the companies involved is from a different sector including engineering, manufacturing, service and food industries. Allan Stewart MP launched the scheme at Tannoy in Coatbridge during early November.

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For the '94 show, over 75% of the available stand space has already been allocated to renowned international manufacturers. The Italian Group organised by the Italian Institute for Foreign Trade (ICE) in cooperation with the Association of Italian Discotheque and Theatre Equipment Manufacturers (APIAD) and the UK delegation organised by Professional Lighting and Sound Association (PLASA) along with the British government will again support the '94 event. Many manufacturers of famous brand names will be participating in the large national pavilions.

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DHA give it Special Treatment



The DHA team (from left to right) Steve Larkins, Mel Vicente, Emma Lane and Vicky Farrall.

DHA take great pride in their custom gobo service, providing customers with 'specials' requirements within a matter of days. Their graphics department have been producing top quality gobos for over a decade and it is this experience, combined with a comprehensive knowledge of the product, which produces such rapid results. All that is needed is an artwork reference - they can work from photocopies or even faxes - the rest is left to the graphics department who will produce camera-ready artwork and a photographic etching tool used to produce the actual gobo. The design is copied onto stainless steel, before the metal is passed through an etch bath. Other metals can be used including brass and copper, which also lend themselves to high quality reproduction of fine detail. High grade, hard-rolled stainless steel is the preferred metal for ordinary single image gobos due to its very high temperature tolerance. To save weight, aluminium is sometimes used for the larger animation discs where its low melting point and poorer image definition are less important.

The same process is also employed to produce DHA Tadpoles and the non-standard shapes required by many of the moving lights currently on the market. Outside of the lighting environment, DHA have also used the same method to produce work for various artists, sculptors and jewellers, and to create theatre and architectural models, stencils and even business cards. The gobo tool and any spare gobos are kept on file at DHA so that any subsequent copies can be acquired quickly and for the price of the gobos alone - no further tooling charge is incurred.

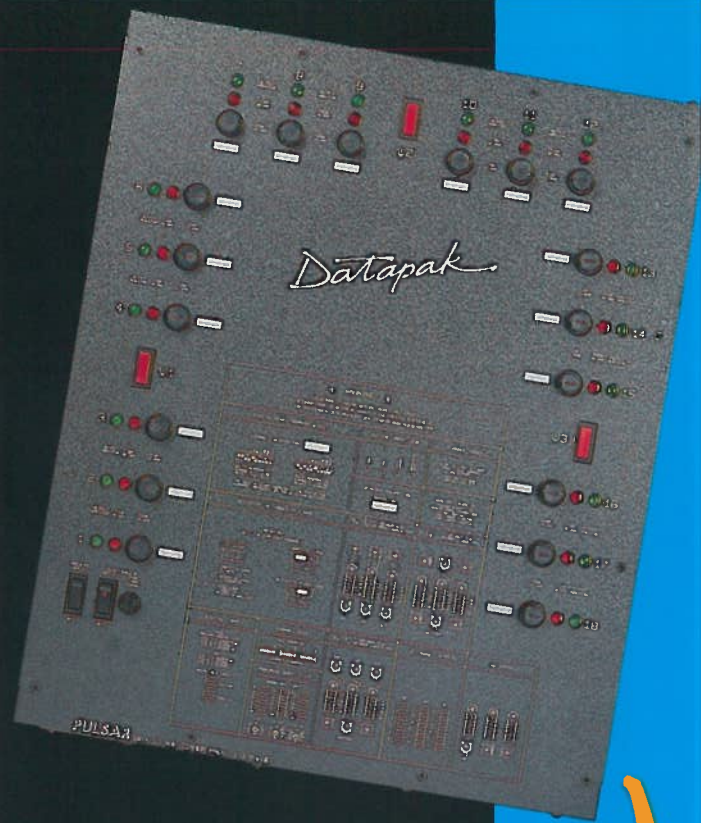
As manufacturers of gobos and slides, DHA have a sound understanding of the problems associated with design reproduction for both simple and highly complex images. A number of specialised requirements can be taken into consideration, if need be, such as single or double plane distortion correction. DHA ensure the quality of the resulting gobo image by offering customers advice about the suitability of their artwork for etching, and modifying it as required. Any 'tagging' or 'meshing' of the designs to make them practicable is dealt with by the graphics team who have extensive experience in this field. Glass gobos are the ultimate answer for really intricate designs and for facsimile reproduction of logos etc. These can be turned around in-house within 24 hours of receiving good artwork.

Speed is of the essence when producing gobos since they are often the small, vital component of a production or trade show most frequently forgotten until the last moment, and it is this element of urgency which makes DHA's service valuable. DHA produce stock, library and custom gobos of extreme detail giving high quality images when projected. Advice on costs, methods, and designs can be obtained from the graphics department and the work can be put into operation on the same day, providing the artwork is faxed through early enough. DHA's knowledge of the product and experience means high quality results are produced in a minimum of time. All the customer needs to do is hand in the artwork and leave it all to the team at DHA.

'Show Boat' Revives in Toronto

The latest revival of the enduring musical 'Show Boat' has recently taken place in Metropolitan Toronto, under the direction of Harold Prince, at the brand new North York Performing Arts Center. The show opened on 17th October last year at the complex's 1600 seat Main Stage Theatre, complete with entirely new staging.

On the sound front, the show features a 74 input Cadac J-Type mixing console, as specified by sound designer Martin Levan. A massive complement of radiomics are used on-stage - 45 in total - representing one of the most complex shows currently in performance. The J-Type, supplied by the Winnipeg-based sound hire company Westsun, is specified with a 14 x 28 routing matrix, complete with five programmable routing modules and 14 VCA masters. The show is scheduled for an indefinite run at The Main Stage Theatre, with future plans including a Broadway production. Despite some local controversy over the revival, 'Show Boat' has received critical acclaim for its generally "grittier, hard-edged" presentation of the 65-year old original. The lighting design by Richard Pilbrow will be featured in a later issue.



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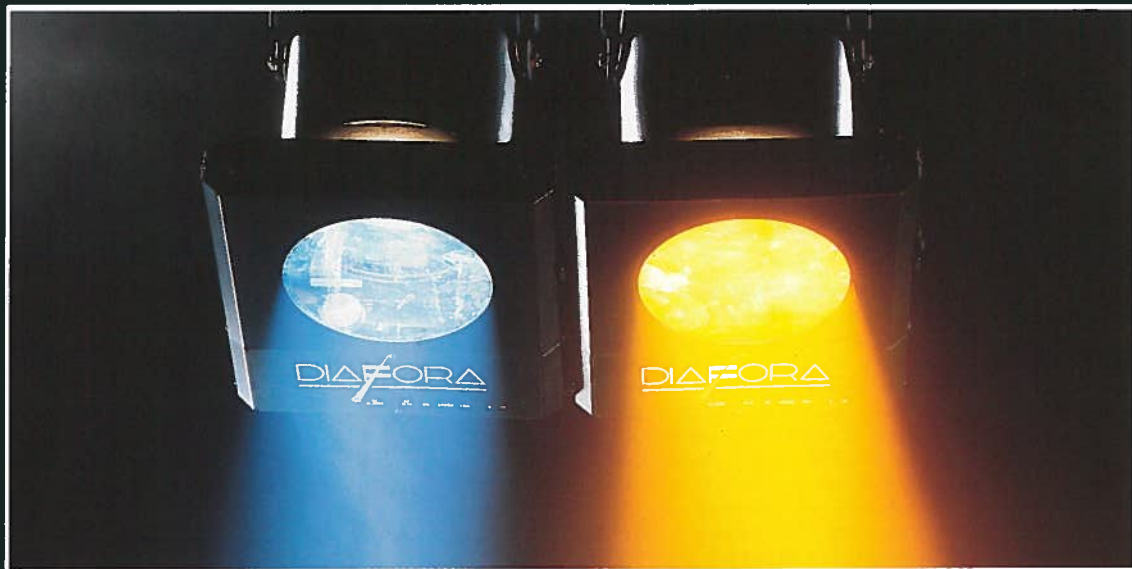
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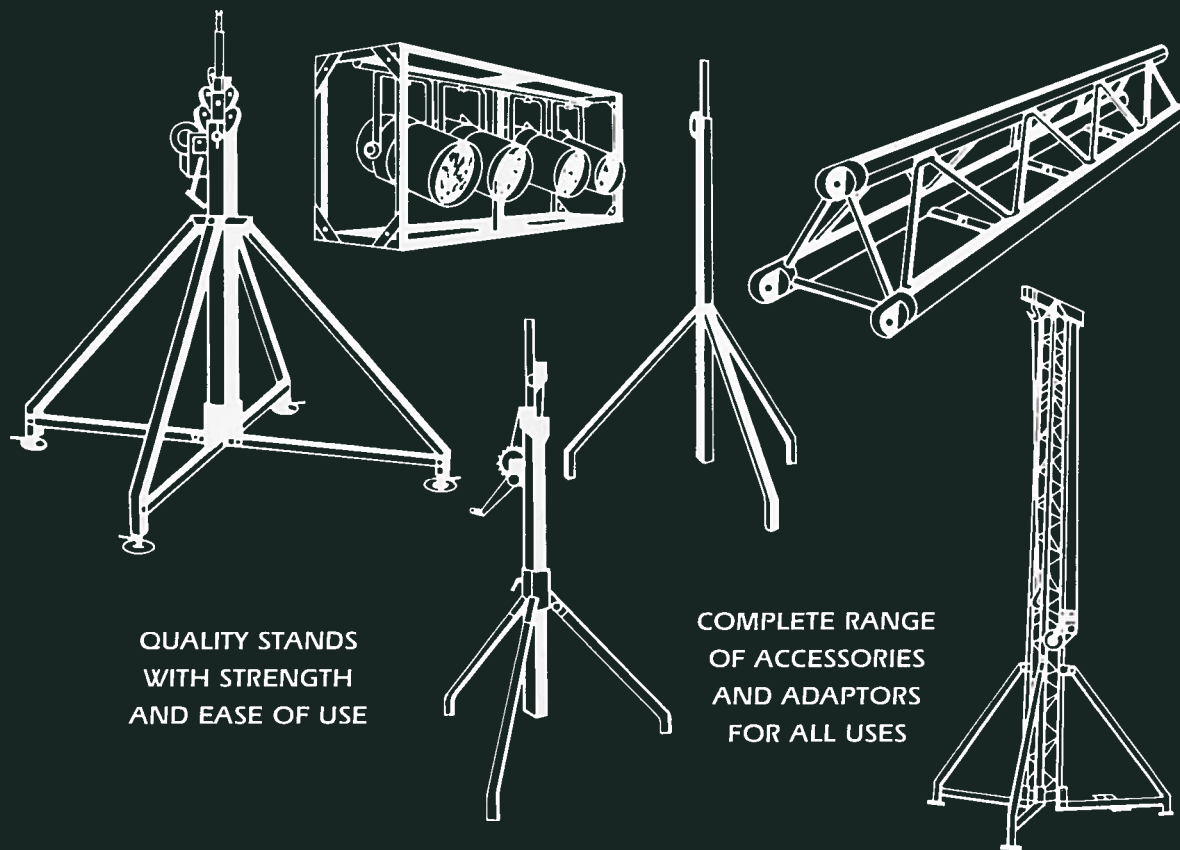
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Helvar Electrosonic Reorganisation

The Helvar Electrosonic Group of companies has announced that it will be strengthening its UK lighting operation. The current UK lighting division sales force of Electrosonic Ltd will merge with the existing Helvar Ltd organisation. The company will retain the trading name of Helvar Ltd but will be able to boast an increased product portfolio consisting of ballasts and dimming control systems.

As part of this reorganisation Helvar Ltd will have offices at both Brentford in Middlesex and Dartford in Kent. The existing Helvar warehouse and office at Brentford will continue the sale and distribution of ballasts and Helvar brand control products while the Dartford office will be for the sale and engineering of Electrosonic brand dimmers and lighting control systems.

The current managing director of Helvar Ltd, Michael Stott, will become head of Helvar Electrosonic Group Lighting Control products for the world and will work from the Electrosonic Hawley Mill HQ. He will be replaced as managing director by David Danby who has been with Electrosonic for 12 years, and who is currently the head of their lighting division. The company will retain its existing sales and distribution network and increase its customer support operation.

Technical Talk

A programme of workshops and seminars in technical and management theatre skills for 1994 at various locations throughout England and Wales has been announced by Arts Unlimited, a new Leicestershire-based organisation.

Lighting, sound, make-up, box office and health and safety are some of the subjects offered on these one-day courses, each of which accepts up to 25 applicants. The sessions are led by experienced tutors, and wherever practicable there is plenty of opportunity for hands-on participation.

While most of the courses are targeted at the education sector and the amateur theatre community, some subjects would also be of interest to professionals.

The workshop on Health and Safety will include the topical subject of portable appliance testing (PAT), while the seminar on Box Office and FOH Management will cover computerised ticketing.

Full details are obtainable from Arts Unlimited, telephone 0530 262272.

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Going Live with Soundcraft

Soundcraft has announced a new 'Going Live' course covering the skills of live sound engineering. The next course will be held at the University of Manchester over the weekend of April 22-24.

Different parts of the course will cater for beginners, for those who already have a basic knowledge, either practical or academic, of sound engineering, and for those who already know how to set up and operate a console and PA system. The course will be structured as a two day event over Saturday and Sunday, with an optional pre-course session for beginners on the Friday. This will provide a basic introduction to signal path, console layout and system components for first-time students.

As always, the instructors will include top professionals from the world of live sound - previous courses have featured engineers whose touring credits include Eurythmics, David Byrne, Mike Oldfield, Shakespear's Sister, Saxon, and Jeff Beck - with a brief to cover everything from set up and sound check through to equipment operation and live performance. Saturday night provides an opportunity for students to be both audience and engineer, as they set up and mix a band live on stage.

For full details of ticket prices and course times, apply to Katrina Davies at Soundcraft Electronics, in Potters Bar, telephone (0707) 665000.

White Light's Vanishing Trick

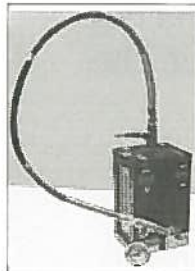
White Light has supplied lighting for the Invisible Man UK tour which completes its run in February. The London-based lighting sales and hire company was originally commissioned to supply lighting for the launch of the play at the Theatre Royal Stratford East and then went on to hire lighting for the whole tour.

The set-up for the Invisible Man is extremely complex because of the now famous illusions used throughout the play. White Light worked closely with Rory Dempster who designed the Theatre Royal lighting rig, and then Gerry Jenkinson who completed the tour lighting design. The lighting set included 32 Minnette Profiles, 24 Coda Floods, 18 Prelude 16/30s, two Patt 743s, 28 Sil 30s and four Cadenza EPs with VSFX 90.



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PLASA

ANNOUNCEMENT



Earls Court 2 London, 11-14th September, 1994

EASILY THE BIGGEST EVER!

Due to a huge interest in demand, the Executive Committee of the Professional Lighting & Sound Association, in conjunction with show organisers Philbeach Events Ltd, are currently completing arrangements to increase the available show space by 23 per cent.

However, with demand continuing to run high, and with no less than 90 per cent of all available space either contracted or reserved (including the new area), it is vital that those companies considering exhibiting at the 1994 PLASA Light & Sound Show contact the organisers NOW to avoid disappointment.

Telephone Nicola Rowland or James Brooks-Ward
on 071-370 8179
or fax on 071-370 8143

Europe on Course

The ABTT and AETTI have joined forces to promote a new conference entitled 'Which way do you push the Joystick - is it safe?' It will look into the practicality of establishing some generally agreed common applications or protocols for equipment in use across the European Community. With the increasing internationalisation of both equipment and crews, the organisations feel that it will be efficient and safer if there are clear understandings of how equipment is to be controlled or applied.

The speakers include Chris Lievaart of OISTAT, Olle Soderberg of Nobel Elektronik Sweden, Bill Graham of the ICC and George Thompson, standards officer of PLASA. The delegates will then join one of two seminar groups. The first will be chaired by David Edelstein of Triple E and will cover stage machinery and mechanical components, the second, to be chaired by Glantre's Vic Dobbs, will concentrate on lighting and sound control. The findings of each seminar group will be brought back to the main conference for general discussion. The conference takes place during the ABTT Trade Show in London on Thursday 21st April and the fee of £95.00 (£75.00 for ABTT Members) includes all seminar sessions, morning coffee, lunch, afternoon tea and pre-registration to the show.

For further details, contact the ABTT in London, telephone 071-328 6174.

New Frequencies

ASP Frequency Management has informed L+S that there are an additional eight frequencies now available for use with radio mics in the UK at a fee of £100 per year, per frequency. These are ML20:856.175, ML21:856.575, ML22: 857.625, ML23:857.950, ML24:858.200, ML25:858.650, ML26:861.200 and ML27: 861.550. Further details are available from ASP on (0296) 770458.

Great Start for 94

Following a frantic end to 93, Flying Pig Systems and A C Lighting are kicking off the New Year in style by announcing their first Wholehog sale into Germany. They first took the Hog to Germany last June and although it caused quite a stir, nobody seemed to have the money to spare. However, Kolin-based Showtech seem to be bucking the local trend and have just taken delivery of their first Wholehog lighting control system.

Stage Two PA at Portsmouth FC

Portsmouth Football Club, currently riding high in the First Division, have recently installed a completely new public address system for their ground at Fratton Park. The contract was won by Stage Two Ltd, of Watford, who have already completed a number of similar installations.

The system provides for separate amplification facilities for internal and external areas of the ground. In addition, a pitch cluster has been installed to give full sound coverage over the playing area in the event of an emergency. The room in which the amplification equipment is housed measures only 2m square and special care was required for the design of the signal processing equipment, which had to work with the small amount of available space whilst also providing sufficient access for servicing.

The equipment incorporates the award-winning Sabine anti-feedback device and brand new amplifiers, made in England for Eagle. All the signal processing is fully battery operated in the event of a power failure. The status of the loudspeaker wiring is continuously monitored by a line surveillance unit. The principal stand loudspeakers are Atlas CJ-46 with PD-30TX drivers and in other areas TOA loudspeakers have been installed.

London Docklands Extravaganza

The London Docklands was recently brought to life by 'Rocket around the Dock' a multi-media extravaganza held at Port East, Canary Wharf which featured laser video projection, lasers and water screens along with live music and a funfair.

The shows, provided by Laser Creations International (in conjunction with the London Docklands Development Corporation) and fed by three kilometres of power cable, startled the audience by commencing with the austere thumping of a heartbeat. This was followed by a display of Laser Video Projection onto a 12 metre high water screen. Laser Creations' Laser Video Projector, fed by two 30 watt argon lasers, stunned the audience with images appearing from the docks and 10 metre high doves flying above the water towards them. The LVP, capable of producing video images of up to 150 feet wide, was projecting onto a 20 metre wide water screen.

Further displays of multi-colour graphics generated by the LVP were coupled with slide images from three slide projectors, fuelling the water screen displays.

As the show progressed, laser effects from two 320 watt argons, periodically displayed with the water screen, continued to dance to the music, attracting crowds amounting to 50,000 over the two evenings. Perhaps what really caught their eye, however, was a 60ft high bottle of Bell's whiskey projected onto the front of a building!

Blackheath Set-Up

Blackheath Loudspeaker Technology is a new company that specialises in quality professional sound systems. It has recently installed Canon-based systems at the London venues of The Fire Station and Classic Diners of America. The company can be reached on 081-853 5447.

HOW LOW CAN YOU GO?

The Effects Company proudly present the Cirrus lowsmoke – a compact unit, compatible with all Supersmoke machines which is easily operated using CO₂ cylinders. You no longer require bulky refrigeration or freezing plants to produce smoke which stays low almost indefinitely and is virtually indistinguishable from dry ice.

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- ★ Produces absolutely dry low smoke.
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- ★ Uses readily available liquid CO₂.
- ★ Ducting adaptor also available.

This truly innovative product runs for 9½ minutes from a single 6.35 kg CO₂ cylinder and a full 48 minutes from a 34 kg cylinder. The best news of all is the price – only £1,100 complete – from The Effects Company distributors.



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10k Missing in Lagos

London audio specialist Music Lab was presented with a tall order recently when asked to configure a 10kW sound reinforcement rig for a product promotion tour of Nigeria. Not only did all the equipment have to be ready for shipping within two weeks, the system also required custom-built mains distribution and a complete set of flight cases.

In addition, it was essential that the speaker enclosures were resistant to adverse weather conditions as the units were likely to face high humidity and even the occasional downpour.

For UK clients Total Image, Music Lab specified ten pairs of Bose 802s, four Bose 302 Acoustimass and a full JBL monitoring rig. Power was provided by 10 HH VX-1200 amplifiers and a Soundcraft SR32 added the mix. A full complement of microphones was specified, along with outboard equipment including Yamaha SPX-900 multi-effects, Roland SDD-3000 delay line and Rane equalisers.

Five Star provided the cases, but the mains system was far too complicated to buy off the shelf. A major complication to the system was that power was to be provided by generators supplied by Nigerian contractors. It was therefore impossible to guarantee the stability of the supply and so a complete condition, stabilising and distribution system was designed and built by Music Lab's Steve Selfe and a team of wiremen. The mains system included custom distribution panels with trip systems and isolated outputs for clean feeds to the audio equipment.

Although the equipment was delivered on schedule and performed satisfactorily, the story does not have a happy ending. Due to the recent military unrest in the country, the Total Image promotions team were obliged to depart at short notice, leaving the entire sound system behind!

Selecon in Sweden



The new Gothenburg Opera House has chosen Selecon fresnels as part of their extensive luminaire inventory. The Opera House will be using the Selecon Arena high performance 2.5kW fresnel (pictured above) which uses a 250mm (10 inch) lens and Selecon fresnel 1200 which uses a 175mm (7 inch) lens.

World Lighting Fair

The World Lighting Fair will again be held in Tokyo. The show brings together exhibitors from the lighting industry and will be held at the Makuhari Messe, the largest convention centre in Japan. The show is organised by the Zenshokyo and supported by the Ministry of International Trade and Industry. The number of exhibitors is expected to far exceed that of the previous show. The World Lighting Fair will run from the 16th - 18th June and further details are available from the organisers in Tokyo on (3) 3706 5687.

Aviators Taxi to Runway

Celco are starting the New Year on a very positive note by announcing that they have (at last) finished developing the firmware for the Aviator range of lighting consoles. These are now ready for use in the rock n' roll arena.

"Field trials have been performed on Aviator R360s in Belgium, Denmark, France, Germany, Japan, Spain the UK and the United States", reported Celco's sales manager Colin Whittaker, "and Aviators are now ready for demonstration in all of these countries. We are now committed to volume production and will be able to deliver within a few weeks of an order being received."

Meanwhile sales of the Gold and other 88 range products surged towards the end of 1993 with the majority destined for rental companies in Europe, Japan and the Far East. Highlights among the many products shipped so far include a Gold for installation in Bally's Casino, Las Vegas, a Gold to a rental company in Germany and a complete 60 Major SE and 30 Major SE ensemble to a rental company in Japan. Demand for Navigators has also increased following the LDI exhibition where the new Personality Cards for Clay Paky Superscans, Golden Scan 2s and High End Intellabeams were shown. All Personality Cards are now supplied with MIDI Show Control software and Celco will be launching a new addition to the range very soon.

Open All Hours

White Light North is responding to an increase in business from amateur theatre groups by opening on Saturdays. The extra day's opening is designed to help people who have other commitments during the working week. The sales and hire facilities are open to all customers and will be available from 10am to 12.30pm every Saturday.

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For more information, please contact:
ETR Lighting, CH-6388 Grafenort, Switzerland, Tel. XX41/41/65 25 07. Fax 65 25 13

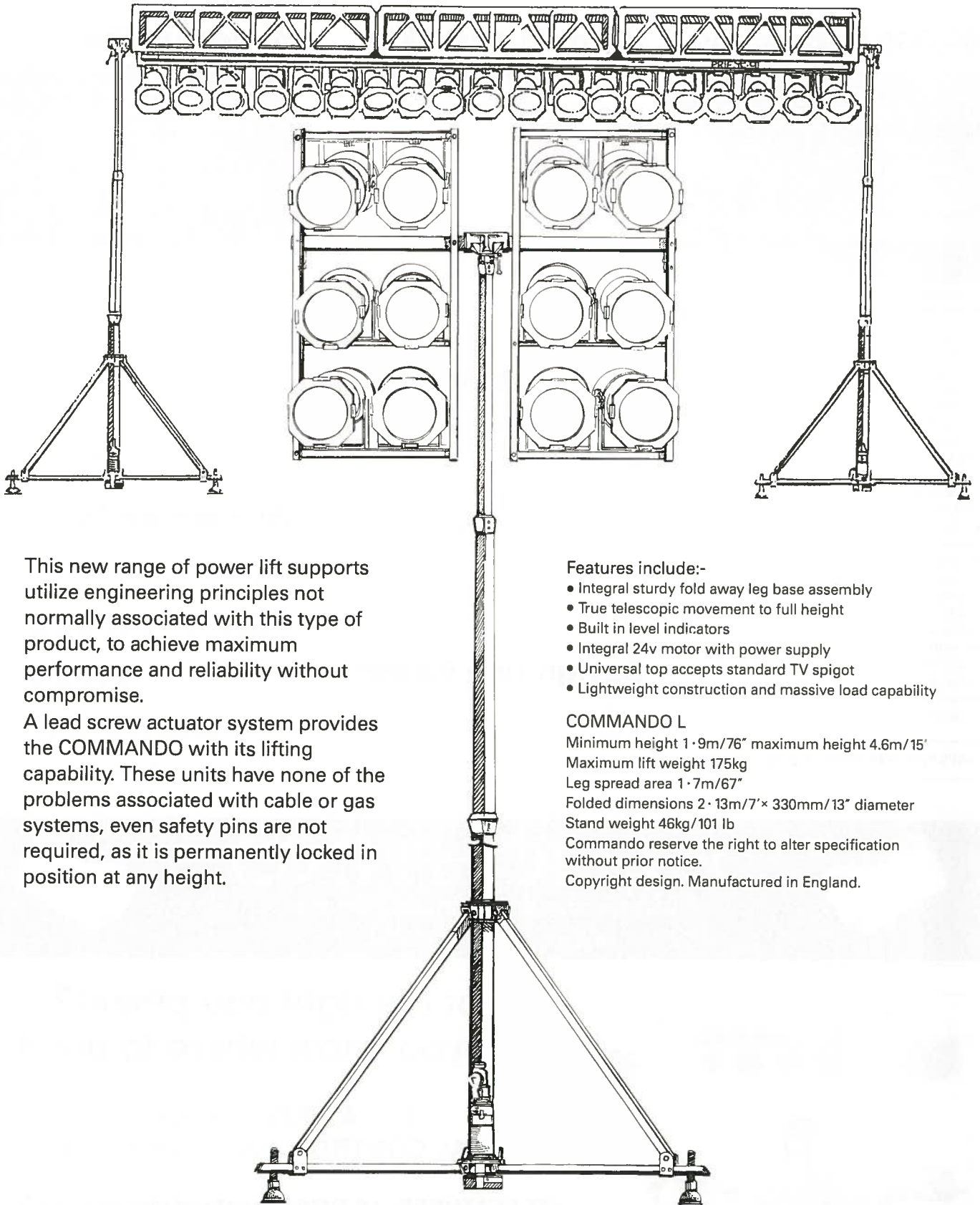
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This new range of power lift supports utilize engineering principles not normally associated with this type of product, to achieve maximum performance and reliability without compromise.

A lead screw actuator system provides the COMMANDO with its lifting capability. These units have none of the problems associated with cable or gas systems, even safety pins are not required, as it is permanently locked in position at any height.

Features include:-

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- Built in level indicators
- Integral 24v motor with power supply
- Universal top accepts standard TV spigot
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COMMANDO L

Minimum height 1.9m/76" maximum height 4.6m/15'
 Maximum lift weight 175kg
 Leg spread area 1.7m/67"
 Folded dimensions 2.13m/7' x 330mm/13" diameter
 Stand weight 46kg/101 lb
 Commando reserve the right to alter specification without prior notice.
 Copyright design. Manufactured in England.

COMMANDO

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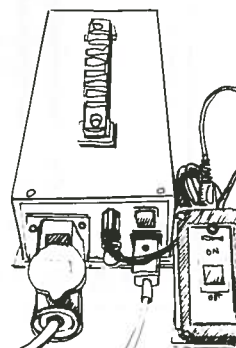


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100,000 Roboscans



The assembled workforce of Martin Professional with the 100,000th Roboscan.

One lighting manufacturer who can look forward to a prosperous New Year is Martin Professional of Denmark. During the month of December the champagne corks were popping at their Friedrikshaven factory as the 100,000th Roboscan rolled off the production line.

Although much of the production at the factory, located near the old fishing port in Northern Denmark, is fully automated, and despite the fact that Martin Professional have been in the premises for less than two years, Peter Johansen is already drawing up ambitious plans for even bigger premises for occupation later in 1994. "We look forward to launching a raft of new products this year, and you can expect a number of new marketing initiatives," Johansen told L+SI. "We certainly will not be standing still in 1994".

The first of these initiatives was announced this week with a link-up with Supermick Lighting in the UK to provide touring packages for Martin's top-end products (see separate story this issue). Johansen also plans to launch his company onto the Danish Stock Exchange in the near future.

L+SI'S FAX FOR NEWS IS (0323) 646905

Harman and AKG Merge Distribution

In order to strengthen the distribution of AKG, Harman will be transferring several AKG group brands to their Borehamwood site.

The distribution of AKG microphones and headphones, dbx signal processors and Orban broadcast products will be distributed directly by Harman from Borehamwood. The announcement confirms Harman Audio as the UK's largest professional audio distributor with a portfolio encompassing JBL, AKG, dbx, Orban, Allen & Heath, UREI, C-Audio, Steinberg, Art and Rivera. There will be no change to the existing distribution of EdgeTech Group products, which include Turbosound sound reinforcement, Quedsted monitoring and BSS signal processing products.

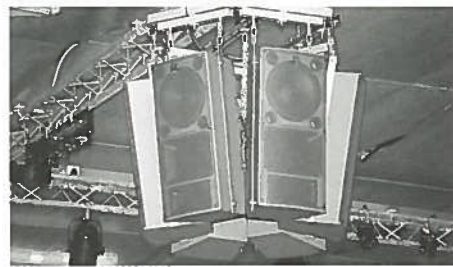
Vestax Crimewatch

Vestax have reported a number of products stolen from their Haslemere premises. Among the items taken were a PMC-41 DJ mixer, PMC-40 DJ mixer, PMC-09 DJ mixer, PMC-10MkII DJ mixer, PMC-005 DJ mixer, CD-33 dual CD player, CD-11 dual CD player, SL-1200 turntable and a Beat-1 beat counter. Vestax hold serial numbers for most items. Power supplies were not taken. The PMC-41 is one of only two in the country and is a 100V model for the USA. The CD-11 is in short supply and unlikely to be offered 'second-hand' or at reduced price. If you are offered any of these items, or asked about power supplies, please contact Vestax on (0428) 653117.

Design Line Flower

Design Line Lighting are now offering Space Flower searchlights for hire throughout the UK. The effect has 36 beams of light which can be seen up to six miles away. The beams scan through the sky whilst rotating and pulsing in and out.

Avitec on Ice



Avitec have recently completed an installation at The Ryde Arena on the Isle of Wight. The company were called on to install a new sound system for the Arena's ice skating rink and cafe bar. The system brings together a Cloud mixer, Technics turntable, Trantec microphones, a Cloud compressor limiter, Ramsa amplification, Citronic graphic eqs and a central cluster of Martin Audio EM105 3-way cabinets which were specially waterproofed by Martin. As the rink has an insulated ceiling which acts as a bass trap Avitec opted to fly the cabinets upside down to achieve better coverage for the venue.

Avo Steam On

Avolites are continuing their aggressive attack on the lighting market. Foxwoods Casino in Connecticut, USA have just installed the first Diamond II to be built with the second console already destined for Ceasars Palace in Las Vegas. Avolites' European agents are successfully taking orders too. The theatre Casino Zue in Zurich has just ordered a Diamond II from Delux in Spain, CYP are supplying a complete turnkey package to Spanish Television and closer to home Howard Eaton Lighting have specified the FD dimmer racks for the European tour of Cats. With only a whisker to spare Avolites delivered 288 4K channels in just under a week from the time of ordering.



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Viewing is strictly by appointment. Cleared funds on collection.

White Light Seminar Dates for 1994

White Light has confirmed the dates of its stage lighting seminars for the first half of 1994. Places at the in-house events will be available on the following dates:

February 28th, 1994
March 28th, 1994
April 16th, 1994
May 21st, 1994
June 18th, 1994
July 23rd, 1994
August 20th, 1994

The educational seminars entitled 'Stage Lighting - a wider focus' are suitable for anyone who already has a basic knowledge of lighting techniques. Each of the seminars will be held at White Light's Fulham demonstration site at a cost of £30 per delegate, and will cover lighting design in detail, as well as gobos, projection, pyrotechnics and other more specialised areas of stage lighting.

White Light is also currently taking bookings for seminars for those with a very limited knowledge of lighting. The 'Introduction to Basic Stage Lighting' seminars can be held at any company's premises and include demonstrations of different types of lanterns, hands-on activity sessions to familiarise delegates with each item and in-depth discussions on basic design needs. If you would like to attend the seminars or require further information, contact David Howe at White Light on 071-731 3291.

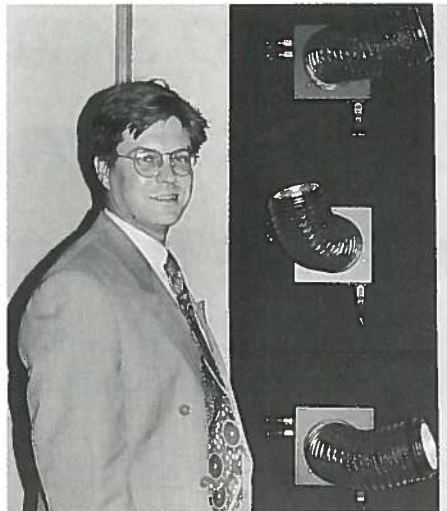
Gobo Open House

Anyone who's interested in making their own gobos, or wants to know more about controlling intelligent lighting, should pencil Saturday 5th February into their diary. M & M Camelont has organised an open day to tell you everything you ever wanted to know, but were afraid to ask, about the M & M Gobomaker and the MA range of lighting control desks. The open day takes place at M & M Camelont, Unit 2, Cameron House, 12 Castlehaven Road, London NW1 between 11am and 4pm. Please contact Mike Goldberg if you wish to attend - by telephone on 071-284 2504 or by fax on 071-284 2503.

Samson Audio UK

Samson Technologies Corporation, famous for their wireless microphones, are stepping up their operations in Europe by opening an office in London and launching a new range of audio products. The European activities will be headed up by Peter Jostins, formerly design consultant and sales manager for Soundtracs PLC, and now first-stop for technical support on 071-498 4861.

Legging It



Garry Nellson with the Caterpillar on the Lighting Technology stand at the LDI exhibition in Orlando.

Lighting Technology Group's 'Caterpillar' made its first appearance at LDI and although the unit was in prototype form it generated enormous interest from all sectors of the lighting industry with numerous suggestions on its application (mostly rude). The interest the 'Caterpillar' generated persuaded Lighting Technology they should go into full production and it will be launched in Europe at the SIB exhibition in Rimini.

The production model will be in a modified form and should be available in different UV reactive colours. The product will be available through selected companies world-wide.

The Case Plant

The Case Plant is a new company formed by Martin White who has over nine years experience in the case/cabinet making industry.

Offering much more than just a flight case building service, The Case Plant have a huge pool of knowledge and resources, plus the expertise to work in a wide variety of materials, including plastics, metals, and multifarious fabrics as well as traditional ply/aluminium finish flight cases.

Already, The Case Plant have built cases for many clients in the entertainment industry and some of the more left field projects include casing a compressor that had to function in the case, whilst not being audible to the outside world. Broadcast, AV and computer equipment are frequently catered for and any custom project - however diverse - is accepted with enthusiasm.

The Case Plant are located at Park Royal in London and can be contacted on 081-965 6758.

Nexo for Ribas Music Hall

Nexo's Greek distributor Alpha Sound, based in Athens, has recently completed the first phase of a comprehensive sound installation at the new Ribas Music Hall.

Imposingly sited on the coastal road overlooking the Aegean Sea, close to the Athenian port of Piraeus, this purpose-built complex offers two separate performance areas for music, the larger of which is an outdoor amphitheatre with covered stage area.

This first phase of the development, with a seating capacity of 5,000, was opened last summer. The second performance area, an indoor venue which will have a capacity of 2,000 is due to open for the summer season next year. The entire venue is dedicated to the performance of Greek music and dance, and aims primarily to attract the large tourist market.

The sound installation in the outdoor arena includes 20 Nexo PC1000 systems complemented at low frequencies by four LS2000 sub bass units. The latest monitoring system is provided by 16 of Nexo's PS10 units, featuring extended bass response, with the addition of four LS500 minimal dimension subs. Other equipment installed in the venue includes two Midas XL340 consoles for use front-of-house and on monitors, and a comprehensive complement of effects including the Lexicon 480L, Yamaha RV1 and EMO EQ. The system is powered by Carver amplifiers.

Alpha Sound's hire department has also been busy over the 1993 season, providing sound for two foremost Greek artistes, George Dalaras and Haris Alexiou among others. George Dalaras played stadiums throughout Greece, Cyprus, Turkey and Israel. Alpha Sound also provided the 70,000kW Nexo system for the Atakoy Festival in Istanbul, Turkey.

Milestone Year for Deith Leisure

1994 is the twentieth anniversary of Deith Leisure Ltd and the company will be undertaking various promotions and activities to celebrate. From a humble beginning in small premises in Wandsworth, Deith Leisure has grown to a 42 million turnover organisation.

Operations have grown from one small outlet to a large head office complex at New Malden, a vast spare parts organisation known as Philip Shefras Spares, four branches in the UK, four in Hungary, Bulgaria, Czech Republic and Poland, a subsidiary in France known as Premier Loisir France and a 30,000 square feet factory at Wimbledon opened in late 1993.

ANCIENT LIGHTS

SERVICE ENGINEER REQUIRED

Ancient Lights is a theatrical supplier based in Cambridge, supplying lighting and sound equipment to professional and amateur markets. Applicants for the position must have a comprehensive knowledge of electronics but experience of the theatre is not necessary. The successful candidate will be confident in dealing with customers and using initiative in solving their problems.

The service dept is called upon to repair equipment that can range from domestic CD players to complex computerised lighting boards. Ancient Lights will provide specific product training where necessary, which may involve residential training courses. Ancient Lights would consider a continuing program of education for relevant qualifications.

Based in Cambridge the job will involve both bench work and site visits to see clients across the country. A driving licence is therefore required, and the work will involve calls out of normal office hours.

Please apply in writing to Mr A Blaxill, Ancient Lights, The Old Maltings, Ditton Walk, Cambridge CB5 8QD.

Deadline for applications is Friday 4th February 1994.



Wilkes Iris Diaphragm Co Ltd

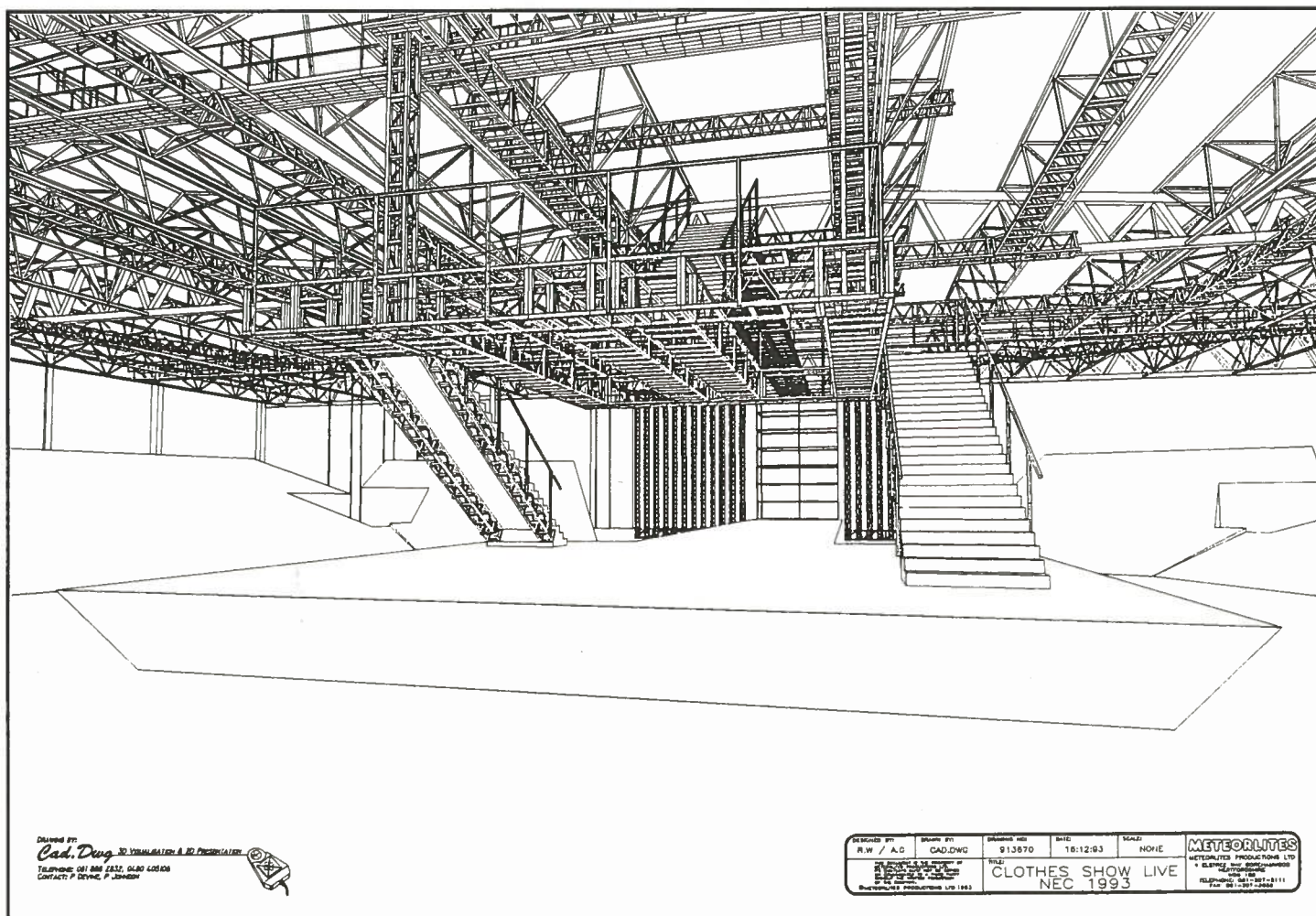
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Bexhill-on-Sea, Sussex, England
Telephone: (0424) 217630
Fax: (0424) 215406

Wilkes know a thing or two about iris diaphragms - they have been manufacturing them for over a century. In recent years they have carried that wealth of expertise into the Theatre and TV markets, and now supply some of the industry's leading companies.

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HOGGING THE CATWALK

Tony Gottelier goes first footing at The Clothes Show



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CONTACT: P. DEVINE, P. JOHNSON

DESIGNED BY	913870	DATE	18.12.93	SCALE	NONE	METEORLITES
R.W. / A.C.	CAD.DWG					METEORLITES PRODUCTIONS LTD
CLOTHES SHOW LIVE						TELEPHONE: 081-888-2222
NEC 1993						FAX: 081-888-2222

One of the CAD drawings used by Meteorlites for the presentation of The Clothes Show Live at the NEC in Birmingham.

Traditionally, fashion parades have not been an opportunity for the lighting designer to show his mettle, except in terms of the skill required in keeping a high and even level of light on the platform and possibly calling followspot cues. Let's face it, normally it's a whitewash. The concept of the fashion show as a performance, where the clothes and the models are all just part of a wider entertainment concept, is something relatively new and presumably anathema to the catwalks of Paris or Milan. (Though Jean-Paul Gaultier, Antony Price and Vivienne Westwood might disagree). So, such a show, when it comes along, is quite a liberating experience for the lighting designer. Such a show is the Clothes Show Live.

Based very much on the 'larger than life personality' of Jeff Banks, the Oliver Twist of the fashion world, the Clothes Show is a phenomenon. Growing out of the BBC television programme, it has spawned its own monthly magazine and an annual fashion market where the punters can actually buy things off the stalls. It is this market-show, now at the NEC in Birmingham each December, which has created the 'Live' catwalk performance which runs concurrently throughout.

The whole performance, which is produced by Roger Castles for the BBC at Pebble Mill and sponsored by Lloyds Bank, lasts about 20 minutes and runs back-to-back throughout, with just time between shows to change audiences. Content is reminiscent of a cross between a rock concert and traditional pantomime. The first performance is traditionally recorded for broadcast as 'The

Clothes Show Live' in the programme's familiar Sunday night slot. For TV lighting director Stan Snape, who has lit the 'Clothes' fashion show for the past two years, it must be a bit like suddenly finding that you are designing the lighting for the Winter Olympics, though on a slightly smaller scale. "It's always a joy to be able to do something theatrical," Stan told me. The mandatory 'in your

face' sound package was conceived and supplied by The Music Company.

In fact, Snape brought in some heavyweight help both in terms of men and machines to ensure a spectacular result. He got his equipment through Ronan Willson's Meteorlites, who designed the truss and in turn brought in Paul Devine, better known for his work with Iron Maiden, to design



The big hat parade which was accompanied by subtle colour blends on the stage side trussing features.



Saturated colours as the lift descends.

the moving elements; 64 Intellabeams were co-opted as the main lighting hoofers, plus 30 Pan Command ColorFaders - all of which necessitated two Wholehogs, with the second being used for the Faders, but otherwise operating virtually as a traditional desk. Virtuoso moving light designer Richard Knight flew back from his stint on the LA version of Sunset Boulevard to take charge of the programming and to drive one of the Wholehogs.

Within the hall the massive catwalk thrust out from stage-side wings which, at the start of the show, carried kabuki drops emblazoned with the prancing horse symbolic of the sponsor. Later they were to reveal vertical rows of polished trusses to form a light enhancing backdrop for the subtle effects of the banks of ColorFaders at the foot. Pallas 1k top-cycs were lined above, while two Thomas Par 36 DWE 4-lights lurked in the wings for back lighting. Over the catwalks, cross rows of

Par Cans were matched at either end with 700HX I-beams. The same combination was mirrored around the huge square perimeter truss, which hangs above the arena seating, and also supported the PA system.

At the down-stage end of the walk, a second performance area was created, again with a perimeter truss. If you thought this was solely for the models to do their twirls, you would be wrong. For, using the concealed, overhead house walkway as a people feed, a descending platform was installed with two folding stairways lowering down to the structure below. This was the piece that owed its existence to the Ronan Willson/ Paul Devine combined design effort. Throw in a bunch of concealed ASLs under the stair-treads, the odd pinch of a ColorFader or four, plus ten each of Thomas 8-lights and Birdie battens; add a good dollop of smoke - stir, and simmer - and you have

the recipe for the essential collective intake of breath, as the next arrival on the planet touches down.

There were other moments like this, not least when the Lightning Strike, my first public view of the 70kW (yes 70kW) beast in a performance situation, hit the spot that other stroboscopic devices cannot reach. Known by the crew as FBL, for reasons which are far beyond my linguistic abilities to explain, this was a last minute addition of Stan's. Indeed, so last minute that he never got around to providing the extra 200 Amp supply said to be necessary at the point of discharge! Never mind, it did a cracking good job, no hum, and there was really no call for a spectacular burn out as well. John Coppen and David Morphy of Cirro Lite, who sell this US-manufactured killer-light here, must have a hot-selling item on their hands. No Rock Show will be complete



The Village People number, I-beams count down the walk.



Up-front, the Village People set.

without one in future.

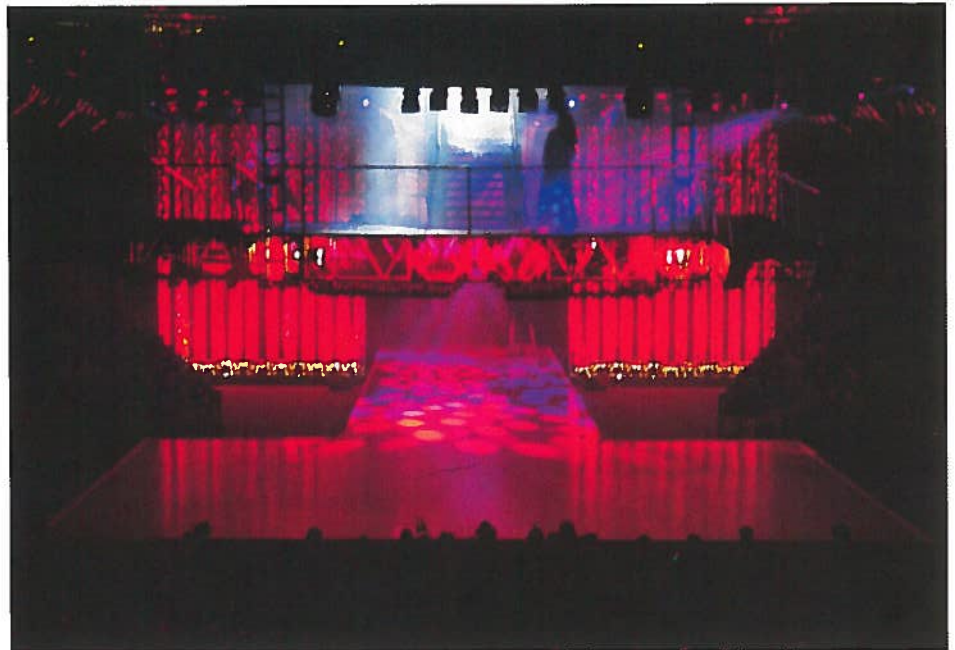
Such moments as these were countered by several marked by the sheer beauty of the lighting in its dutiful pose of showing-off the clothes, literally, 'in the best light'. Of these, I have marked out Snape's background lighting for the side-stage flats, where he used the ColorFaders in combination with the zigzagged truss angles to magical effect and Knight's breathtaking I-beam treatment for a white look. In this scene, white gobos shuffled and shifted in gusts on the surface of the walk, in a sparkling, crystalline symbiosis evocative of winter.

Now to the inevitable question - why two Hogs? Snape told me that in the previous year they had tackled the show with one Wholehog and various conventional desks. "You couldn't move up here for desks, it was really an impossible situation," he said. Apparently, Richard Knight had gone to PLASA that year with the specific idea of evaluating the new moving light desk, having previously been committed to Vari*Lite's Artisan. "It was love at first touch!" said Richard. As Snape watched what Knight was able to achieve with the new board, he realised that it would handle conventional lights and scrollers just as well, and save on plotting time and space to boot. "In a way, this year's show belongs to the Wholehog," said Stan modestly. This last December they had the ColorFaders instead of scrollers, but the control problems were, if anything, more complicated. So Stan had all the conventionals and the ColorFaders on Hog One, and Richard the 64 I-beams on the other. And the looks came slick and fast despite the limited set-up time which inhibited the use of the 'Go' button.

At the end of the day, despite the 6000 channels on offer, it is clearly not desirable, in the typical time available for programming prior to such events, to use such a board as 'virtual' show controller, and there are many potential advantages of running two such boards side-by-side. Which must make Hog distributors AC Lighting feel very happy indeed, to say nothing of the piggies themselves! The dimmer racks were Avolites.

In any event, the three shows I saw ran without a hitch and were received with much enthusiasm by the young, predominately female audience. The only problem arose when the 'house' failed to turn off the arenas at the beginning of the performance attended by the sponsors and their guests, which left Roger Castles incandescent.

The music was an eclectic mixture, as you would expect, and the BBC's Mark Botfield and assistant Richard Meredith had done a splendid



After the kabuki drop.



Stage-side feature, and sponsors emblem.



ScreenCo's Jumbotron video screen in the main exhibition hall.



The descending platform awash with smoke.

job of recording and mixing the numbers on an Akai DD1000 for playback via six Denon CDRs. The desk was a Klark Teknik XL3. The PA system, provided by The Music Company, was all d&b Audiotechnik over the audience -F2s, B1s and 602s which TMC had calculated would deliver 110dB to all seating positions, while maintaining as far as possible a stereo image and 'hi-fi' quality. I can report that they were totally successful, despite the small size of the cabinets, indeed so successful with the SPL were they, that Stan Snape and his crew quickly called for ear protectors, even at the very back of the hall where they were perched!

Stage and catwalk monitoring were flown Turbosound TSE111s with two d&b floor wedges.

While the fashion show was in progress, ScreenCo's Jumbotron video screen transmitted footage from the catwalk, recorded by their camera crew into the main exhibition hall to give those visitors a flavour of the action. Sponsored by Citroen, a wide variety of other promotional material, information graphics and local footage were also transmitted. ScreenCo's Dave Crump had this comment: "This show highlighted the limited load-in access often found at indoor venues. Our new modular screens can offer such events high brightness screens with module-by-module flexibility of installation to solve such problems."

I had no time to walk around the merchandise stalls in this adjacent hall, though I had heard that LSD's Icons were doing their stuff on Vivienne Westwood's stand, and no doubt others from the industry had also benefited from this highly successful event. As you can tell the whole show went down a bundle with the public, so now the challenge will be what to do next year. "What comes after 64 Intellabeams?" Richard Knight asked wistfully on our way out.



Lighting designer Stan Snape with the Wholehog.

Lighting Crew:

Lighting designer-Stan Snape
Automated lighting-Richard Knight
Assistants-Paul Cook, Ian Lomaz
Hoist operator-Tony Simpson
Gaff-Andrew Stacey
Dimmer support-Dimmie Hinds
Lampies-Gareth Crockford, Simon Cooper
Carpenter-Bob Marden

Lighting Equipment

10 30-lamp MR16 battens
12 Pallas 4x1k top cysc
10 Thomas Par 36 DWE 8-light kit



The hog pen - Richard Knight with Stan Snape beyond.

2 Thomas Par 36 DWE 4-light kit
16 Par 64, long nose
22 Par 64, floor cans
60 6-lamp Par 64 bars
6 9x15 2k Cadenza
1 Quartzcolor 4k HMI Sirio
1 Lightning Strike
2 Wholehog desks
1 Avolites 72-way ELCB dimmer system
2 Avolites 48-way dimmer systems
2 Rosco Smoke machine
1 JEM Heavy Fog machine
2 Craxoil cracked oil machine
1 8-way Clearcom system

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		Flat	294,000cd	318,500cd
Arena Zoomspot 2000 Medium -14°	Peak	492,450cd	509,600cd	
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Photograph of Sonny Stitt and Coleman Hawkins by Terry Cryer



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MUSICALS ON A SMALLER SCALE

Robert Halliday looks at the current West End versions of Piaf and Cabaret

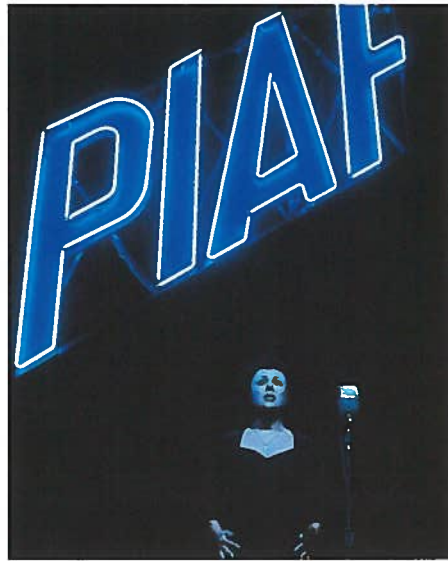
The run up to Christmas saw a flurry of activity in London's West End. The traditional British pantomime, whilst still filling almost every other theatre in the country, failed to be part of the London scene once again. Instead, there appeared a straight play - justified by its star cast, a children's show, and two new musicals, Piaf at the Piccadilly Theatre, and Cabaret at the Donmar Warehouse.

Both of these musicals are slightly unusual by West End standards - neither makes any attempt to be a huge blockbuster with the biggest effects, loudest band or the most complex lighting and sound. Instead, they have been carefully designed to allow their performers to perform, supporting them when required, but giving them the space to get on with things at other times. These similar objectives are, however, realised in vastly different ways.

Piaf is the more conventional of the two shows. Pam Gem's musical play charts the life of French singer Edith Piaf, following her rise from the streets of Paris to international fame, through a huge number of affairs, alcoholism, drug abuse and on to her eventual death. Originally produced by the Royal Shakespeare Company in the late 1970s - by coincidence at the Donmar Warehouse, currently home to Cabaret - the current production approaches the show as a musical play, rather than the play-with-music view that other productions have taken. But then with Elaine Paige playing the diminutive chanteuse, what other approach would be appropriate?

The Bill Kenwright/Peter Hall production re-united Hall with many of his long-term associates, notably set designer John Gunter, lighting designer David Hersey and sound designer Paul Arditti. They all faced the challenge not just of producing a West End show, but rather of mounting the show in a regional theatre (the Thorndike in Leatherhead) that could then tour the country for eight weeks before finally moving into its London home. In practice, one design did not fulfil all of these aims.

John Gunter's full set comprises a steep Steeldeck rake, with a wood-planked central acting area downstage surrounded by a black floor. Gauze walls either side and upstage, and a gauze roof, all covered with abstract newsprint about Piaf's life, serve to enclose the action. Doors in the walls, and three walkways either side leading to those doors, provide entrances, exits and spaces for characters to lurk in the Parisian street scenes. Two trucks cross the stage, one



Elaine Paige as Piaf at the Piccadilly.

carrying a piano and the other a drum kit, while a third moves up- and down-stage carrying a bed or settee as required. In the gap between each walkway as well as upstage, flying pieces representing Paris, New York, a hospital/asylum and the South of France can be dropped in behind the walls to set the location for each scene. The result is a show which, while not appearing complex at first glance, led to some long nights for production carpenters Colin Small and Jerry Hough diverting first the Thorndike's, then the Piccadilly's, flying system to fit the flying pieces into the space required.

It's also a show that presented lighting designer David Hersey with a fair share of challenges, the first being simply to find lighting positions that could get light into the acting area. The solution reached was to use a specially built 'A' shaped truss which would follow the line of the gauze walls, and sit between the walls and the roof. Three heavily-loaded ladders each side followed, to provide light onto the walls, onto the flying pieces and through the doors. A bar flown high in the grid provided toplight onto the roof, and two upstage bars gave light through the Paris windows at the back of the set.

A conventional number one spot bar gave Hersey light onto the downstage acting area. The rig was composed largely of Strand equipment,

principally a mixture of Cantata 18/32s and 26/44s and Cantata PCs, along with around 20 Par cans. To make the limited rig as versatile as possible, 44 Lightpaint colour scrollers were added, including two on the front-of-house R&V Beamlight followspots, which were worked very hard throughout the show.

A third, conventional spotlight wasn't worked so hard, but gave the correct feel to the club scenes. Effects came via two animation disks front-of-house, used to create the ripples of water at night, and two vari-speed gobo rotators used in a sequence as Piaf overdoses. Finally, just to show that he doesn't just use technology for the sake of it, Hersey included some vintage S-battens and Patt 23s! The rig ran from 96-ways of dimming, a mixture of flight-cased Green Ginger and Act 6 racks, with everything controlled by an Arri Imagine 250. All of the show's lighting equipment was supplied by Playlight.

By the end of the Leatherhead production period, Hersey had managed to gain control over the acting area, the lighting clearly supporting the mood of the show by setting the location and time while still providing a great deal of atmosphere. The use of colour, in particular, helped to differentiate between the many clubs and concerts that the show features.

On tour, even greater demands were placed on the lighting, since the practicalities of a show moving weekly and opening on a Monday night meant that spending three days diverting a theatre's flying system to make the show work (and then putting it all back to normal afterwards!) was not possible. The flying pieces were therefore largely cut, leaving just the Paris window flats, while the set's roof also vanished, taking the grid bar with it. Hersey and his assistant Jenny Kagan changed the make-up of the ladders, replacing the PCs which side-lit the flying pieces with Cantata profiles to do gobo work on the gauze walls. While visually not as successful as the full set, the touring version did still define the location of scenes while being a great deal more comfortable to tour, and versatile enough to fit into venues as diverse as the tiny Richmond Theatre and cavernous Birmingham Hippodrome.

The rest of the rig remained largely unchanged for the tour, with the truss and ladders being toured pre-rigged and fed from multicore tripes to speed up get-ins and get-outs, although some problems were encountered with the scrollers which didn't take terribly well to a life on the open road. The



relatively small front-of-house rig meant that no problems were encountered with using local FOH rigs, though Kagan's Monday nights were always spent busily introducing the local followspot operators to the huge number of characters in the show!

Even for the London show the rig didn't grow that much; the ladders returned to their original configuration, a few more scrollers appeared, principally to allow colour dissolves on the upstage wall, and the grid bar returned, this time armed with Silhouette 15s rather than 2k fresnels. Elsewhere, some of the Cantatas were swapped for Silhouettes (all equipped with DHA Tadpoles in place of the Cantatas rotating gate!), primarily because Hersey preferred their optical performance with some of the gobos.

The main addition was a line of three six-lamp Digital Light Curtains on the downstage cross-piece of the truss. These are perhaps the most underworked DLCs yet, the Macintosh that controls them only having around ten cues. Yet where they do appear, they enhance the look of the show, and their limited usage shows once again how Hersey now treats them as standard lighting tools rather than expensive toys that have to be used as often as possible to justify their existence.

Paul Arditti's sound design underwent one less re-design than Hersey's lighting plan, remaining largely unchanged between Leatherhead and the tour. In producing his sound rig, Arditti faced a number of challenges - giving a clean, clear natural sound for the songs while differentiating between those sung in clubs and those sung to reflect Piaf's thoughts and emotions; mixing a band who appeared on-stage for the club scenes and off-stage for the rest of the songs; providing foldback so that Elaine Paige and the band could hear themselves and each other; and creating the sound effects the show demanded, setting the scene in clubs or a boxing ring or re-enacting aeroplane and car crashes.

His first move was to split the task into two, with separate front-of-house and foldback mixing desks and operators. On stage, number two sound operator Nicole de Souza mixed foldback through a 12-channel Soundcraft 200 desk feeding Apogee monitor speakers at the front of the stage and hidden behind the side walls. She also dealt with paging cables on-and-off stage to the piano truck, drum truck and period thirties and fifties microphones used in the club scenes (which, though practical, were often only used as back-up to the Sennheiser radio microphones worn by Ms Paige).

Out front, Mark Cohen ran the show from a 36-channel Cadac B-type desk, feeding a Meyer rig consisting of UPAs, UPMs and two USW-1 sub-bases FOH and two UPAs upstage for sound effects. Local systems for providing under-circle delays were tapped wherever possible, since no time was available for rigging up such a system from venue to venue. Overall, the system could be described as a fairly standard Autograph system - not surprising, given that Autograph supplied the sound rig - though quite an upmarket system for the scale of the show.

The Cadac fully justified itself, however, giving a very clear sound - a standard system being made to sound very good indeed by the care taken in setting it up by the operators, designer and production sound engineers Matt McKenzie for the first half of the tour and John Owens for the remainder.

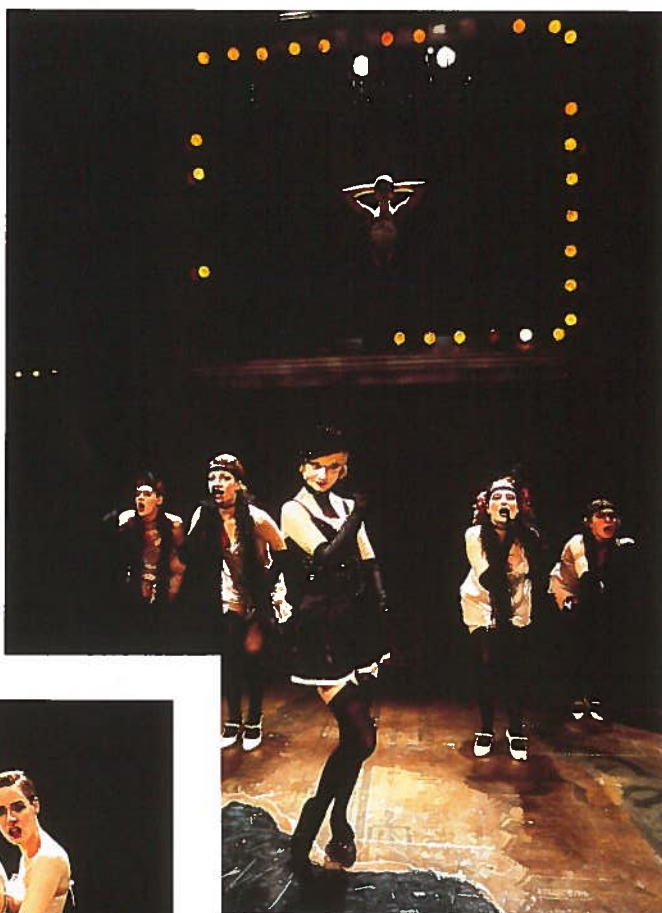
The sound-effect replay system used was also one that is now becoming quite standard, although the cost involved means that it is not yet available to all. Effects were replayed from an Akai S1000 sampler, controlled by an Apple Macintosh running the Vision Midi sequencer (which also handled the reprogramming of the various Midi



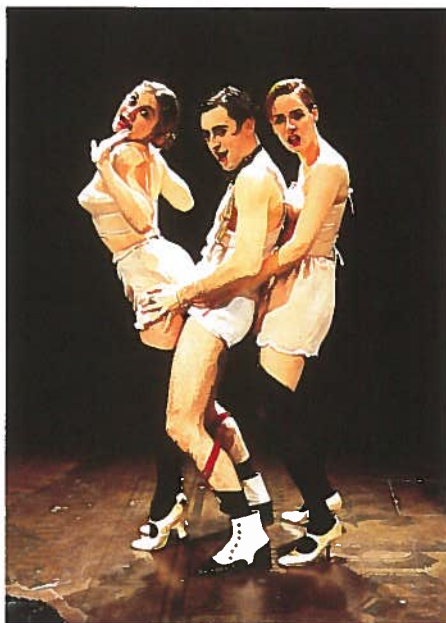
David Hersey.



Paul Pyant.



Above and left, Cabaret vamps it up at the Donmar Warehouse.



effects processors). The Akai samples and programmes were changed in the interval, being loaded from a SyQuest removable hard drive which also ensured that the data was safely backed up.

For the West End, the basic principle of the sound system remained unchanged, but the details were altered both to ensure the best possible sound for the 1,100-seat, three-level Piccadilly theatre, and to cope with changes in orchestration which added an extra keyboard player and an off-stage band room in an attempt to give a bigger sound to the show. The foldback desk became a 32-8-2 DDA S-Series monitor mixer, and front-of-house the Cadac grew by 12 channels.

A large FOH speaker rig was installed, with two sets of JBL Control 1 delays providing fill to the rear of the stalls, one set to the circle, a group providing centre-fill to the front of the stalls, and Meyers just about everywhere! Nestled on the pros booms at stalls level were two UPAs and a UPM per side, sitting above one USW-1 sub-base per side. At circle level, a further two UPAs per side were tucked below the beamlights, with a further USW per side hiding in the boxes.

And to complete the rig, and provide centre fill to the upper circle, a further two UPAs were clustered together suspended from the overhead lighting grid. Vari-Curve equalisers were added to

give the necessary control over so many speakers, and careful tweaking of the EQ and setting of the delays has ensured that the show has retained its clean, precise sound, although it is a sound that has now grown into that of a high-quality musical rather than a boosted play. But the audiences, who've come to see and hear their favourite West End singer have no complaints about that, and a clutch of good reviews and a series of standing ovations from capacity audiences have set the show on its way to a lengthy run.

If Piaf has grown from an intimate play at the 250-seater Donmar Warehouse to a West End blockbuster in a conventional theatre, Cabaret has made exactly the opposite journey. Its London premiere, way back in 1967, was at the Palace, and it reappeared a few years ago at the Strand. Now it is at the Donmar Warehouse, at the end of that theatre's first full year since its refurbishment and re-opening as central London's only privately funded producing theatre. That year has given the theatre's crew time to grow accustomed to the building, and to remedy any omissions from its specification.

The main addition has been a cleat-rail and miniature flying system, used for a number of small items in Cabaret. It is to the credit of everyone involved in the refurbishment that most of the rest of the technical installation has proved a success (even down to the carpeted walkways in the grid!) and also a credit to the crew that the theatre still feels new, despite the workload it has handled in that time. Cabaret concludes a year that has been greeted with constant critical acclaim, and follows on from the Donmar's production of Stephen Sondheim's 'Assassins', which was a sell out last Christmas.

The Warehouse's intimate and versatile interior has given director Sam Mendes and designer Sue Blane the chance to do something that would be almost inconceivable in a big West End theatre - they have literally transformed the auditorium into the Kit Kat Klub of the show, replacing the lower seating with a series of club-like tables and chairs

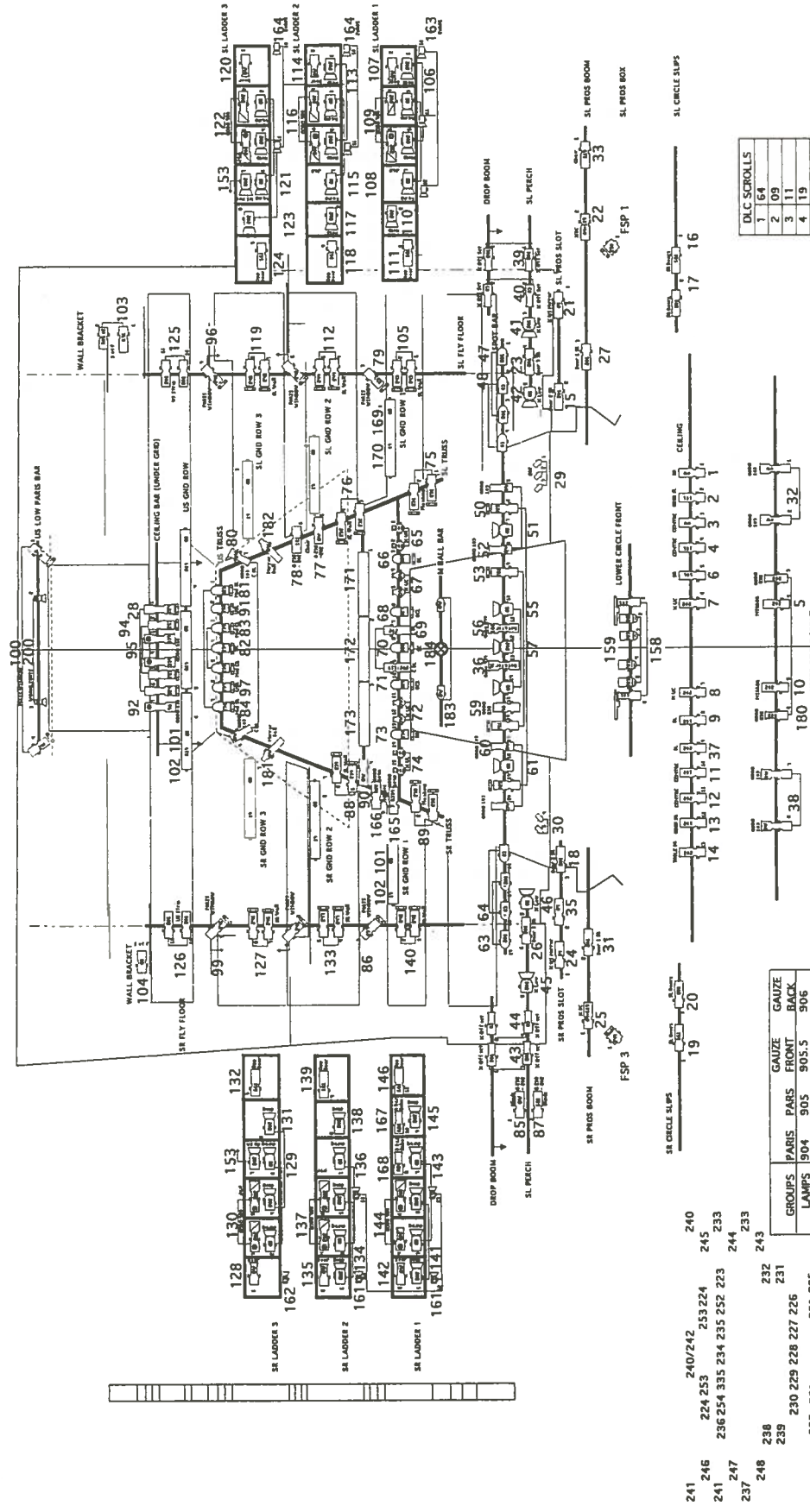
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[Symbol]	2K COLOR ARC	1
[Symbol]	ANIMATION DLG TRM	2
[Symbol]	MIRROR BALL	1

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piaf
Lighting By DAVID HERSEY
Designer: JOHN GUNTER
Director: PETER HALL
Producer: BILL KENWRIGHT
Venue: PICCADILLY THEATRE

SCALE: 1:48 DWG No.: FINAL
DATE: 24/11/93 REV: 13/12/93
DRAWN BY: DKH/JK



DLG SCROLLS

1	64
2	09
3	11
4	19
5	03
6	87
7	96
8	71
9	3202
10	3204
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12	76
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14	49
15	357
16	344
17	26
18	22
19	90
20	79

PARIS	PAR	GAUZE	GAUZE
FRONT	BACK	FRONT	BACK
233	222	222	243
237	226	225	244
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	234		249
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	236		253
	232		

GROUPS	PARIS	PARIS	GAUZE	GAUZE
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19	3202	R03	R03	2
29	R64	356	R03	R43
39	R68	R67	R55	R55
48	305	R71	R71	R71
58	R04	R68	R68	R68
68	R53	R85	R85	R85
79	R54	R26	R26	R26
89	R09	R23	R23	R23
FF	00	R90	R90	R90

MIRROR	PIAF	JOSEPHINE	CLUNY STARS	SL NEW YORK LIGHT BOXES	SR NEW YORK LIGHT BOXES	LUS NEW YORK LIGHT BOXES	SPOT BAR ROTATOR	PROS BRIDGE ROTATOR	ANIMATION DISCS
147	148	149	150	151	156	157	155	175	177
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facing into a small, central club stage. They've even had the auditorium licensed, so that the audience can enjoy a bottle of wine as they watch the show! The rest of the design has a bridge across the theatre's back wall, which houses the versatile band (most of whom combine acting and dancing roles with playing an instrument); a large mirror frame at the centre of the bridge from which the Emcee looks down on the action below, two spiral staircases where the seedy club members loiter, having a constant presence even in the non-club scenes, and a series of doors across the back of the stage. The rest of the detailing and atmosphere comes from Blane's precisely-tattered costume designs.

It is all supported, of course, by the lighting design of Paul Pyant. Rounding off a busy year - as Cabaret opened, Pyant's designs could also be seen on 'Carousel' at the Shaftesbury, and the National's revival of 'The Wind in the Willows', amongst others - his design allows the action to swing from boarding house to train to club without missing a beat. And all that accomplished with a rig which, by musical standards, is tiny. Indeed, if Piaf is a play aspiring to be a musical, this Cabaret attempts to treat the musical as straight drama. Partially, of course, the limitations are imposed by the Donmar's production budget - it seats only 250, and receives no public money. Pyant's early ideas involving Vari*Lite VL5s were therefore quickly rejected on cost grounds.

The final rig uses the house stock - Patt 743s held over from before the theatre was refitted, Cantatas and Preludes purchased afterwards - supplemented by some Patt 264s lent by the National Theatre, four Rainbow scrollers and a small amount of extra gear supplied by White Light. The Rainbows are supplemented by a few colour wheels - added after the scroller budget ran out, according to the Donmar's chief electrician

Jonathan Richardson and deputy Stuart Crane. The rig is run from the theatre's 108-way Arri dimmer installation, and controlled from their Arri Imagine 2 desk.

In performance, Pyant's lighting moves smoothly from scene to scene, largely reserving colour for the Club scenes and lighting the rest in cooler tones. A number of simple devices are used to great effect, though - an overhead fan, toplit, casts a moving shadow to suggest a moving train; naked bulbs are flown in to represent different rooms; the lamps on the audience's tables are lit when they become part of the action at the club, and a giant mirrorball is put to dazzling use in a couple of scenes. In line with the tiny number of colour changers, there is just one followspot, a vintage Strand unit, again kept busy and used to great effect throughout the show.

The relative simplicity of the lighting rig is also reflected in the sound design, entrusted to John A. Leonard, who filled the same role on last year's production of Assassins (and also, coincidentally, on the original Piaf). Despite the theatre's tiny size, a sound system was needed both to provide a degree of control over the band, to replay sound effects, and to boost the voices of the principals; the roles of Sally Bowles and the Emcee being filled by actors rather than singers.

The budget yet again limited what was possible, but the two principals were given radio-microphones to back up the many directional mics covering the stage. These were taken through the theatre's own 24-channel Soundcraft Venue desk and out through a main rig of Apogeos, with a Yamaha-based system providing under-balcony fill. The additional equipment was supplied by Farrahs, maintaining the link established when they equipped the theatre after its refurbishment.

The sound is mixed by operator Fergus O'Hare,

using what he calls a mixture of inspired guesswork and memories of Leonard's suggestions and advice during the technicals, since positioned on the theatre's technical gallery he receives a very different sound to the audience. The system supplements the live sound, rather than replacing it, since even on the technical gallery it is possible to hear the singers live over the band. O'Hare also operates the shows effects, replayed on this occasion from an Akai S1100 sampler triggered by a simple Midi keyboard, though the Warehouse team will often have a CD of the effects made once a show has settled down.

The overall result is a show that works, to the extent where its almost impossible to imagine Cabaret ever working in a bigger, more conventional theatre. The intimacy of the theatre, especially with the stalls club seating and the clear, live sound, forces you into the action and makes you pay attention to its message.

More importantly, at the time of writing, both Piaf and Cabaret are selling out, clearly showing that there is room in the West End for productions that fall outside the mega-musical style, provided they are of a high quality, and as well presented as they can be.

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EXPORT ENQUIRIES WELCOME

THE ITALIAN COLLECTION

A series of L+SI fact sheets giving information about leading Italian manufacturers of entertainment lighting and their products. Previous issues have covered FLY, FAL, Coemar, Clay Paky and Griven. Successive editions will provide similar facts on La Novalite and TAS.

Lampo srl

Directors: Carlo Pezzini and Guido Beladelli, ably represented by Lorena Boccola, international sales manager.

Background: Based in the same region (Castel Goffredo) as several of the other companies we have written about in this series, Proiettori Lampo was established in 1983. In ten years it has grown from small beginnings to a company of 50 employees producing three distinct lines of professional lighting equipment and luminaires - 'Prestigio', its TUV-approved theatre lighting range from 150W profiles to 2500W followspots; 'Disco' which includes a wide range of effects from automated mirror projectors to more simple sound animated units, and 'Tiny' which, as the name implies, is a range of effects for small spaces. Lampo take pride in boasting that such names as Astro, Krypton, Derby and Little Star, which are synonymous with this company's discotheque products, have been much emulated by others.

Company philosophy: Every Lampo unit should meet the criteria of 'performance and warranty combined with practicality and reliability'. Lighting effect products are designed to be 'stylish, user-friendly and astonishing'. All units are provided with a warranty certificate. Two well illustrated and informative catalogues are available.

Selected product: Columbus is a small automated scanning projector which provides a choice of eight colours and eight gobos, plus strobing shutter and remote blackout. Two versions are available, the non-dimmable 400MSR and the halogen 650W AL. Stepper motor technology is used to achieve the mirror movements and a high light output is claimed for the lens system. Control is via DMX512, or analogue or the Lampo AS32 controller.

Recent releases: Domingo is Lampo's new centre-piece based on the HMI575 discharge lamp. Using the shared technology across their range of driven products, Domingo offers eight animated beams, controlled in pairs by moving



The faces behind the names at Lampo: Lorena Boccola, Carlo Dario Pezzini and Guido Beladelli.

mirrors which can also deflect the beams onto eight rotating faceted domes. Six dichroic colours are provided and the unit can operate remotely or from internal, music-triggered programmes. The compact Low Smoke Machine cleverly delivers clouds of low fog without the use of any refrigeration, but rather from the combination of two proprietary chemicals.

Other products: Lighting effects: Sintensi is a range of automated scanning projectors, all units offering eight colours, eight gobos and strobing shutter. The Sintensi uses the HMI575 lamp, as does the Supersintensi which also offers a variable iris and mechanically adjustable head position to optimize the tilt excursion. The Sintensi 1200 offers the power of the HMI1200 lamp, adjustable head and interchangeable gobos.

Contatto is an MSR400 automated scanning projector offering four colours, four gobos and blackout. **Olimpo** combines the 575HMI projector with a driven, faceted, concave mirror to generate multi-coloured, moving pinbeams of light in a laser-like emulation. **Tornado** combines an MSR400, or 250SN projector with a music driven segmented mirror, plus eight colours and gobo patterns and strobing shutter.

Rebel produces a sound-activated cone of spinning beams of light which expands and contracts. Two other models with different mirror/beam configurations are available.

Supercondor is essentially a double ended scanning projector - a single HMI575 light source and two scanning heads with eight colours, eight gobos and remote strobing shutter. **Astral 2** is a twin output system based on the HMI575 lamp with two segmented scanning mirrors, having eight colours, eight gobos and a strobing shutter. **Moving Light** is a totem pole-style centre-piece which hangs from the ceiling in three or four tiers. Using either of the optional lamps as a source, 250SN or 36v 400W halogen, the light travels up and down the tube throwing out coloured beams from around the edges of the stacked discs.

Daisy is the more traditional centre-piece with a collar of tipping mirrors surrounding a single light source. Two models are available, 400W TH or 250SN tin Halide. **Fruillo**, using a central lamp, (there is a choice of three types) generates four beams deflected off rotating octagonally-faceted mirrors, for a simple centre-piece.

Krypton and **Astro** are UFO type devices, driven in gyrosopic movements and generating flat or collimated beams from around the perimeter of their 'astral' bodies. A choice of seven models across the two marques is available.

Crazy Ray is the dark star effect, from a single 250SN lamp within a black perforated rotating globe. **Corallo** is a 36v, 400W multi-coloured starburst beam which is music-activated. There are two models of **Superbig**, one based on the MSR400 and the other on the 250SN, both deflect a beam off and around a reflective eight faceted collar, with eight colours and gobos and a strobing shutter.

The eponymous **Colour Changer** offers eight dichroic colours, splits and strobing remote shutter, available with halogen 650/1000 AL, or MSR400 lamp. **Flipper** adds eight gobos to the configuration and offers either the 250SN or MSR400 lamp. **Mig** is a twin light source, central rotating mirror prism device which generates numerous dynamic coloured beams of light. A model is available in white only; both use 24v 250W TH lamp.

Apollo is the first of the Lampo fixtures with that familiar crocodile smile. Numerous coloured beams are generated, swapping around to music stimulus. Three different lamp versions are available. **Little Star** Coloured flat beams rotate to the beat; **Little Star 2** also turns horizontally. **Kalima, Unico, Frisby, Derby and Mambo** are all fan-lights, with different configurations of moving beams and a choice of different light sources. **ET** is another type of fan-light using the 500W R75 linear flood lamp as the source, and which come in multiples of two, four, six and eight lenses. **Steady Cone and Music Cone** use the 800W Roundlux lamp to generate fans of cone shaped beams; in the 'music' version they expand and contract.

Tiny versions of Apollo, Derby, Corallo, Music Cone and Steady Cone are also available, and all



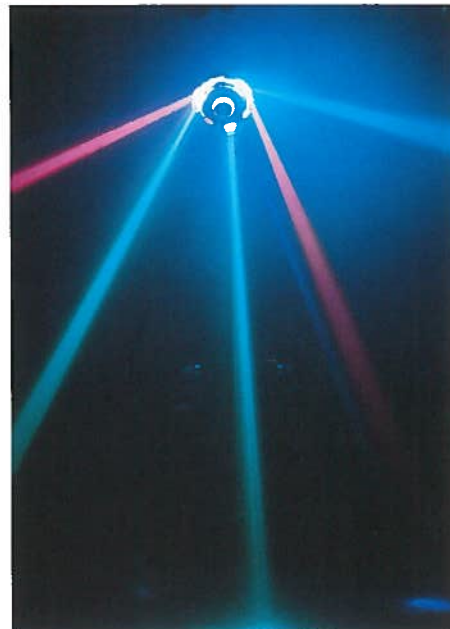
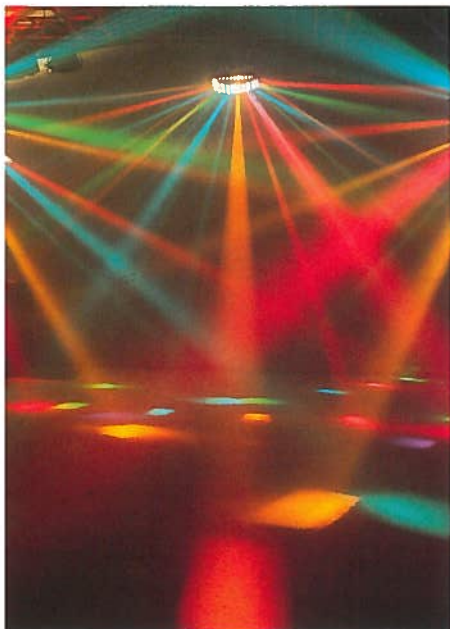
Lampo's new centre-piece, Domingo.



The Columbus effect in action.



The new Low Smoke Machine.



Two from Lamo: The Mini Derby Turbo (top, centre) and at work (left) and the Daisy centre-piece (bottom, centre) and in action (far right).

are based on lamps tungsten halogen lamps of 200W or less.

Spotlights: **Prestigio** is Lamo's range of dedicated theatre luminaires, which now boasts TUV approval. **Proiettori** is a range of 11 fresnel and PC spots with a wide choice of field angle, and lamps from 300W up to 2000W.

Replay is a line of modular, linear floods from 500W to 1250W. **Sagomatori** gives a choice of 13 profile spots with some with fixed field angles and some with variable, but all with shutters. Sources are from 300W to 2000W, and iris and gobo attachments are available. **Siguipersona** are seven followspots based on a range of lamps,

including four MSRs from 400W up to 2.5k and a 575W HMI, all with zoom focus. Colour changer, colour wheel, mechanical dimmer, gobo holder, iris diaphragm and a choice of stands are all available.

Other items: **Rotanti** - Lamo still sell a range of helicopters, harvesters and sputniks, so for anyone who wants to do an eighties revival, this is the source. **Strobo** is a range of six strobes from the minuscule Ministrobo to the extremely large Strobo 6000.

Lanterns: Lamo also have a range of utility lanterns designed, it would seem, principally for club use. These range from Par cans to footlights,

from UV strips to a basic followspot with Par 36, 56, 12v 20W Minilights and three fresnels in between. SFX are represented by two standard smoke machines, a bubble generator and a snow machine.

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BOOK REVIEW

ABTT Code of Practice - Flying

Code of Practice for the Theatre Industry
Part 2: Chapter 1: Flying - £10.00

I've forgotten what the gestation period for an elephant is, but it must be much less than that for the 'Flying Code'. I have a note in my files dated October 1980 where I say "If I can be of assistance I will be happy to get involved". I did get involved, and 13 years later had the satisfaction (and considerable relief) of seeing the ABTT - Code of Practice: Flying - published.

Work had been done earlier on a Draft Code of Practice for Flying and Stage Machinery, but the format was considered inappropriate and the content too wide-ranging. However, it did form a loose basis for the current document, so the work done was not entirely wasted. Another document to which reference was made for practical advice was the ABTT Short Course on Practical Flying. So, a start had been made, but where to go from there?

The ABTT Safety Committee asked me to co-ordinate the Flying Code preparation and initially this meant establishing the general format and finding suitable (and willing) people to give advice on specific aspects. Some of the specialists helped considerably by writing draft sections which were subsequently collated, typed and edited into a cohesive whole. When no one else was available I was forced to write my own text and then have my colleagues read, correct or criticise what I had written. A large number of contributors, including flymen, production managers, stage managers, safety officers, manufacturers and consultants gave the benefit of their knowledge and experience and to all of them I would say a heart-felt thank you.

The Code is divided into five sections and describes the characteristics of flying, rigging and suspension equipment and lays down recommendations which represent good practice. It covers not only the suspension of inanimate objects but also 'Personnel Flying' or 'Flying Ballet'.

The first section contains definitions ranging from 'backdrop' to 'wire rope' via 'fleet angle' and 'safety factor'. This is followed by one describing the equipment which is used for flying including ropes, accessories, winches, counterweight systems, powered systems and the various combinations of these items. A description of each of the items is given, together with loading, design and application criteria.

A third section describes the use of flying equipment, and covers how the various equipment is rigged, how to avoid overloading it and identifying possible misuse. The fourth section is devoted to operating principles. This deals with such basics as the use of properly trained staff, safety rules, rope knots and working procedures. Finally, advice is given on the maintenance of such equipment, and includes

suggested inspection periods for mechanical and electrical items and the visual and physical checks which should be carried out.

It is accepted that the Code as currently published may have some shortcomings. However, the Safety Committee were anxious that it should be published, warts and all, to ensure that reasonable guidance is available to theatre practitioners, especially with the present legislation and emphasis on health and safety at work. The Committee would be delighted to receive constructive criticism of the Code in the expectation that an updated version could be published in the future.

An interesting development of the publication is that it is being used as a basic reference by the BSI sub-committee presently responsible for preparing a 'Draft British Standard Code of Practice for lifting equipment for performance, broadcast and similar applications'. As the title suggests, this BS will address the specification and safe use of overhead lifting equipment not only in the theatre but in all entertainment venues. A wider audience may therefore benefit indirectly from all the hard work put into the ABTT Code.

Ray Carter

Guide to Health Safety & Welfare at Pop Concerts and Similar Events

Health & Safety Commission/Home
Office/Scottish Office - HMSO - £10.00

Written in the same open style as the Home Office/Scottish Office 'Guide to Fire Precautions' (the 'Yellow Book') this guide - hereafter the 'Purple Book' - makes no pretence to being definitive. Those with long experience in the industry who casually dip into it may consider it purely statements of the obvious, but read from cover to cover with the professional brain in neutral its value as a single point of reference emerges. It's important to read the introduction where words like 'must' (meaning a legal requirement), 'should' (meaning a strong recommendation) and 'can' (indicating good or established practice) are carefully defined. There are also key paragraphs on intent, applications and scope. Compulsory reading for enforcers, this bit.

Although by the list of credits it appears to have been compiled by government officials and the emergency services, a great deal of time was spent seeking the views of operators and promoters using both fixed and temporary venues to ensure that it improved knowledge and understanding and was not yet another set of irksome restrictions. It is well laid out and tries to follow the logical event planning process. If it has a weakness, it is in the range of events it has to try and cover - major outdoor festivals to small local 'raves'. The addition of the words 'large-scale', 'major' and 'minor' in a few more places might help. The

introduction clearly states that the guide doesn't apply to events in established discos and clubs, but there are common safety rules.

There is some repetition, but this ensures that when looking up a particular issue all the relevant information is in a single section. Indexes are notoriously fallible and jumping around a document too much promotes misinterpretation. A glossary might be helpful: an address list of government offices and statutory bodies (such as is included for disabled persons' organisations) even more so, as there are numerous other documents referred to. A comprehensive list of these and their publishers as another appendix would also be useful.

Certain sections - such as those on erecting temporary structures and the duties of stewards - are very detailed and clearly written with some expertise. Others are more vague - such as the safety of moving 'flown' equipment - and perhaps need some expansion. Part of the aim of the guide is to help those using special venues on a one-off occasion who will be lost in areas like that. Stories abound of really good events falling at the first hurdle, as charity committees and bemused officials with no real understanding of the issues struggled to cope with the plethora of legislation and irrelevant 'guidance'. There are still areas where more detail is needed to avoid the blanket application of inappropriate regulations.

A great leap forward is a reasonably clear interpretation of the Noise at Work Regulations as applicable to both staff and audiences. Coupled with an appendix on acoustical terms, this will bring some relief to those harassed by EHO's equipment only with peak-level meters. It does however mean that organisers/venue managers need to know accurately what the readings are throughout each event and be prepared to enforce the limits. Taking the Event Equivalent Continuous Sound (Event LAeq) from doors to clear hall isn't on - it's from start of first to end of last act but at least any intervals are included. A recent set of readings we took on a notoriously loud and famous band showed them performing well within the limits. The support were well over the limits and generated no response. Quality beats quantity, any day.

The second edition will need to flesh out some of the areas relating to unusual circumstances - such as the use of venues not designed for public assembly - with a few guiding principles. Because this guide necessarily addresses such a wide range of events, there also needs to be a strengthening of the point that, for example, rules specifically written for mass outdoor events don't apply in established indoor venues which have been running for years with excellent safety records. One seminar on the 'Purple Book' has already been treated to an example EHO blinkered vision and dogmatism with parts of the guide being quoted totally out of context to prove a wholly fallacious argument. Let's hope we don't see too much more of it. Examples to the editor of L+SI please, as they occur!

Bill Graham

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THE FALL AND RISE OF TOWER BRIDGE

Ruth Rossington visits a new London exhibition

Much as I applaud the role of museums, I am both their biggest fan and their biggest critic. I seemed to remember spending my formative years drudging around such tiresome displays as the smallest fragments of what was once a Roman slipper perched behind some faded bits of card that declared its date, possible material and probable owner. So it's with open arms that I always welcome any attempt to enliven the proceedings - hence my enthusiastic uptake of an invitation to visit the new Tower Bridge Exhibit.

Its official opening last October precedes the Bridge's Centenary this year and follows two years of intensive design and construction. The designers, Bowes Darby/Conceptor, were keen to dispose of the 'museum image' so they opted for a number of 'individual' shows which would draw on a combination of audio-visual, videos, mechanical effects, animatronics and voice-overs. The range of different technologies involved presented a high tech problem: it wasn't appropriate to pull in individual contractors, so to advance the design to the next stage, Conceptor approached Kent company Quest, fast building themselves a reputation for highly specialised effects, to act as technical directors. In fact, the company produced part of the synchronised video projection and audio effects that featured in Guinness's Taste Sensation touring roadshow (see L+SI, July 1993). Headed up by Bob Gorton, Quest quickly assembled around it a team of specialists to deal with the specifics of lighting, sound and audio-visuals.

Being a Grade 1 listed building and with English Heritage breathing down everyone's necks, there was no possibility of doing anything meaningful to, or on, the structure of the Bridge itself. The only areas left for manoeuvre, therefore, were within the set works of the exhibition itself. But before the specialists could get to work, Quest had to tackle the problem of power, or more accurately the lack of it. To provide a basis on which to build the show they had to tap into a nearby sub-station and then install a distribution system. This done, the real work could then begin.

The exhibition is ranged on the first, second and third floors of the north and south towers of the Bridge. Visitors enter at a lower level and are taken to the first floor by lift, the metaphorical start of a journey back in time.

Installed in the lift is a clever little device, designed by Quest, that acts like a traffic light system informing the operator when the first exhibit is ready for visitors. These units are installed at every stage of the operation so that the guide for each area can feed information to the operator in the previous area and so, in a little 3" x 3" piece of kit, we have the whole key to the smooth flow of people through the exhibit. Actually, it underlines an important principle in the 'Sheep' game, especially as people tend to have a herding instinct. (I've followed the pack many times, so I know what I'm talking about.) Disney, of course, are past masters at coaxing the maximum amount of people through a show or ride in the minimum amount of time with no overlap, and whilst out in Orlando recently we had first-hand experience of just how slickly these things can be organised.

However, at Universal Studios, a little over-anxiousness has crept in, and in their desire to shuttle people through the 'Back to the Future' ride as quickly as possible, they've forgotten that you don't particularly want to see the bloke coming out of the shuttle you are about to enter drenched in sweat and looking very pale. Enough



Bob Gorton of Quest on the south bank of the Thames, with Tower Bridge behind.

said. Not that anything at Tower Bridge would cause such a reaction anyway, but the fact remains. The visitor is guided through a series of tableaux that recreate the history of the Bridge and in which there's some clever use of projection, excellent animatronics and a very nice Pepper's Ghost. One area that is particularly well done is the one-third reconstruction of the counterweight system that balances one of the bridge's two bascules. This lowers from the ceiling in true Indiana Jones style causing that split second of uneasiness which leads you to question whether the damn thing will actually stop. Thankfully, technology is there to lend a hand.

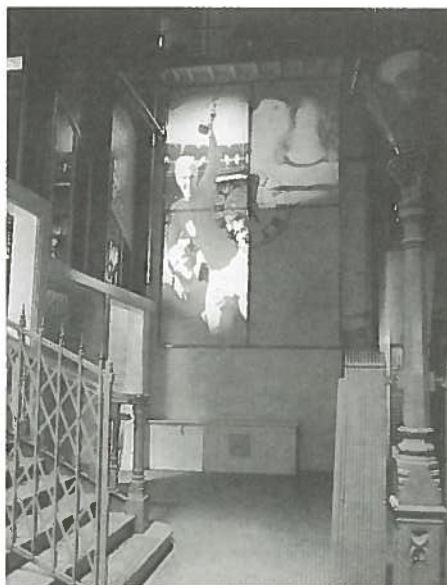
The individual shows are fed by an Electrosonic Show Control System which co-ordinates the running and synchronisation of the various areas and relies on solid state sound stores, video players, laserdisc players and lighting interface units to perform its task. Built into the system is a show progress panel designed by Quest so that the technician can monitor the audio-visual signals

anywhere in the exhibit. There are also foreign language and hard of hearing facilities. The animatronic figures that appear throughout work with compressed air and are controlled by EBU standard timecode on laserdisc.

The lighting is relatively simple. Installed by independent lighting consultants Equation Lighting Design, who worked closely with Bowes Darby/Conceptor and The Visual Connection, it consists mainly of Thomas Par 56 lanterns using narrow, medium and wide beam lamps, Thomas 300W cyclights and Strand Quartet 500W profiles with a few traditional fittings also in the mix. All these had to be clamped into position as English Heritage would not give permission for a permanent installation. The lighting is controlled from a wall-mounted dimmer system which is, in turn, controlled from the main show control system to achieve the synchronisation with other effects.

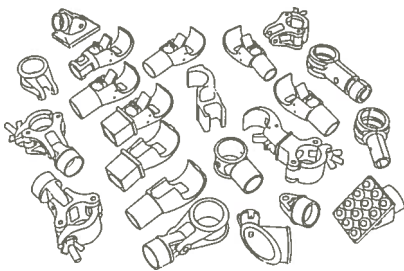
On the sound front things were a little more complex and it's no wonder that David Collison of Adventure Projects admitted that his heart sank to his breeches when he first stepped out of the lift onto the second floor of the north tower. The reason? Well, before him was a vast 14 metre high space with concrete floor and ceiling, large windows on one side and two massive steel staircases on the other running up the entire tower to link all levels. The acoustics, understandably, proved a major problem. Here, constructed on a grand scale, was your man's worst nightmare. The task of designing six sound systems for such terrible conditions was daunting enough, but they also had to run simultaneously; and not only was there an open stairwell to contend with, but the walls opposite the floors came to an abrupt end some 12 inches or so from the stonework of the great gothic windows - there was absolutely no seal between the floors.

To verify what he already knew and to pinpoint the frequency bands to be dealt with, Collison called for the assistance of acoustic consultants Sandy Brown Associates. One of the partners, Neil Spring, carried out tests which showed speech articulation was only acceptable up to two metres. However, the excessive resonances were mainly in the mid frequencies, so at least there was no



The second floor of the north tower, where the journey back in time begins.

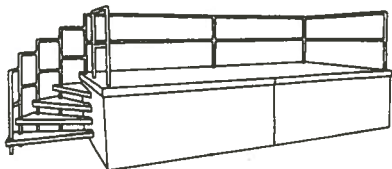
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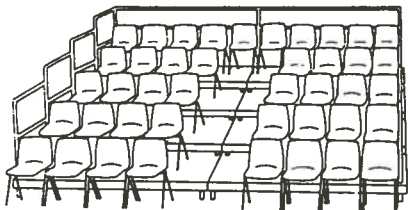
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The grand finale: Tower Bridge comes to life on the Victorian stage.

need to address the bass end which is always more difficult to tame.

Consequently, not an opportunity was missed during the 18 months or so of planning meetings to wave the acoustic banner. The conversations went something like this:

"We are going to black out the windows in this space with some special stick-on film."

"Hey chaps, wouldn't it be a super effect to have black curtains which actually drop on cue? Very theatrical, and they could be made of heavy velour."

"On this floor we are installing a large screen for the audio-visual."

"Could I make a suggestion? Why not use a perforated cinema screen and we could back the whole thing with acres of acoustic wedge."

"In this area, we shall be hanging some large flags from the ceiling."

"I have an idea."

"Oh no"

"No seriously. Why not make them in two pieces, then we could sandwich some glass-fibre blanket between them?"

Perhaps the designers didn't really believe that dear Mr Collison's suggestions were all necessary, but they acted on the majority of them: the combination of building in absorption wherever possible, plus the choice and positioning of loudspeakers, produced the high level of audibility eventually achieved.

The loudspeakers specified had, by necessity, very directional properties or were sited in close proximity to the audience. To aid clarity on two floors digital time delay was employed. This technique was very successful on the third floor of the north tower where two animatronic figures 21 metres apart and some seven metres above floor level talk to each other. The main sound comes from directional loudspeakers hidden beside the figures and the delayed sound, without which the speech is unintelligible, emanates from a row of miniature speakers suspended above the audience viewing area.

The music and effects created by David Mitcham for the six shows call for the replay of some 30 sound tracks in all. In order to

synchronise the various combinations of lighting, projectors, animatronics and mechanical effects, laser disc players were used for most of the tracks with some sequences originating from triggered digital sound stores.

The finale to the whole experience takes place in the engine room, and is a short walk from the south tower (unfortunately, a point at which some visitors 'leak' from the system and disappear into the distance unsure where to take a left). Those lucky enough to make it pass by a range of displays including the original steam engines, complete with animatronic stoker. I was invited to get close to this one and the actual features are remarkable, though I wasn't keen on the twitching hand which kept making a grab for my skirt. To digress for a moment, the animatronics do require special comment. Manufactured by The Sally Corporation of America, well-known for their lifelike robotic creations, they have a fluid movement and Quest were so impressed with them that as a result of the Tower Bridge project, they now act as UK and European distributors for the company.

For the final part of the exhibition, the audience enters a miniature Victorian-style theatre for a short show, a kind of automated Pollocks theatre, culminating in the opening ceremony of Tower Bridge. Here again, the main soundtracks originate from laser disc players with some triggered sound stores.

In all, the new installation at Tower Bridge includes 54 power amplifier channels, 45 graphic equaliser channels, two digital delay units and 68 assorted loudspeakers ranging from Altec 9812-8F monitors, Electro-Voice TL606DX subwoofers, and Electro-Voice 80A small monitors, down to the miniature OWI 503 monitors. Sound for the exhibition originates from 14 video laser disc players and 18 digital sound stores. This does not include the laser disc players and associated equipment used for the hard of hearing and four-language simultaneous translation systems in each area.

The exhibition works very well. It's not a high-tech whizz bang wallop affair, but more a gentle passage through history where the technology is put to subtle use and the end result is one of understatement rather than overkill.

THE STRATFORD FACTOR

Graham Walne looks at the refurbished Theatre Royal

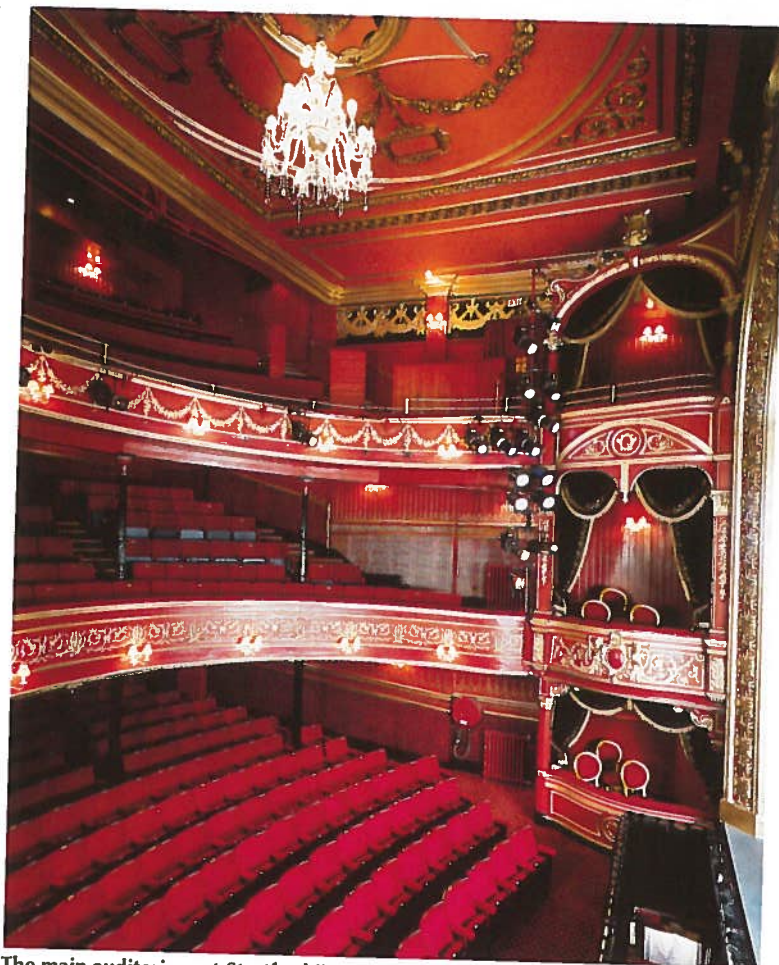
The world of marketing is full of stories about alterations, often fatal, to the brand name and presentation of an already successful product. This must have been a consideration for the Board and advisers of the Theatre Royal Stratford East when they approved the latest and most considerable phase of the famous theatre's refurbishment.

It was built by J. G. Buckle, a noted theatre architect, and subsequently opened in 1884. It was somewhat criticised at the time for its 'ugly' exterior, which it had acquired from a workshop - the previous user of the site. However, in 1902 the ubiquitous Frank Matcham 'attended to the furnishings, lighting, exit doors and paintwork, but left the structure much as he found it.'¹ After Matcham it was called 'one of the handsomest and cosiest of suburban theatres' and that description still holds true today.

Its fortunes were typical of many theatres: some successes, some failures and a fire. In 1953 however, Joan Littlewood and manager Gerry Raffles (after whom the neighbouring square is named) put Stratford East on the theatrical map for ever with their 'Theatre Workshop', an experimental theatre group which founded in 1945. Littlewood's style, whilst in some eyes owing something to Brecht and Stanislavsky, was nevertheless unique in England, and the Theatre Workshop gave many of our now-established writers and actors a very special start. For example, young designer John Bury was able to experiment with materials new to the stage such as real grass, brick and concrete, unheard of in the 1950s, and later to make contributions to many of his sets for the RSC and the National Theatre.

Stratford East has given us some memorable productions: under Joan Littlewood 'A Taste of Honey' and 'Oh What a Lovely War' first saw the light of day. More recently under artistic director Philip Hedley 'Five Guys Named Moe' originated there, together with 'Steaming', 'The Invisible Man' and many other productions which have transferred to the West End. Philip Hedley clarifies: "Going up West is not the main aim of our theatre. Our central aim is to serve the local community, to draw from its natural concerns and talents and reflect them back from the stage. Forty per cent of our local population is Afro-Asian and this fact contributes greatly to the variety and vitality of our work." The theatre bar is used like a local pub and key events in the area are the Sunday Variety Nights.

Current policy continues the Joan Littlewood tradition with eight new productions each year: productions which are not revivals, but the work of new writers or new works by established writers such as Mike Leigh whose production of 'It's a Great Big Shame' was running during my visit. Ken Bennett-Hunter, the theatre's administrative director told me: "If Joan came back she wouldn't recognise the place. The world is harder now and



The main auditorium at Stratford East - now fully refurbished .

we've had to evolve from her style, but what we're doing has the same roots as her work, and above all what matters here is how we treat the audience (even the bar bell is a handbell carried through the bar by the stage manager in preference to an impersonal electric system). It's a sort of code, a universal feeling that we'll go the extra mile.

"We've put all the royalties from 'Moe' back on the stage, not into more administration, and it shows. We give many people their first job and support their development so that people really feel they belong here. For example, every chief electrician from the past 15 years (bar one) is still connected with the theatre and has been involved in the productions over the last two months. It's a family, and that's the Stratford factor!"

These views were echoed by the current chief electrician Ed Clarke and his deputy Adriana Craig who showed me around. Ed confirmed: "Philip won't sit back on his laurels. Despite the hard times, he hasn't ever opted for simple sets and small casts - he will always take a risk and it's exciting to work in a theatre like that." I asked Ed about the refurbishment and how much the crew had been able to help. "We only had seven weeks and because the production staff were involved with the next show ('It's a Great Big Shame') there was a limit to what we could do, so outside contractors were used. The seats, carpet and boxes were all changed but because no-one knew what we would uncover as we worked, it was literally a case of making some of it up as we went. For example, we found some original Matcham stencilling on the walls of the stalls and it was decided that we should copy this and reproduce it elsewhere. Similarly, with the cabling, I wanted a good separation naturally, but the eventual route

(over the roof) was a bit different to the route I had originally planned; there just wasn't room. Stephen Watson, the lighting design consultant, advised that we keep the luminaires black so that we could move them about freely from backstage to FOH despite having gone to so much trouble with the FOH decor. The FOH balcony rail is painted gold and the new FOH booms are internally wired by White Light, so we have addressed the question of the intrusion to some extent. We felt that with eight shows per year, we needed to keep the flexibility."

A new control room at the rear of the upper circle replaces the older box positions which have been restored to the public. The boxes have been recreated in their original style, and, because of juggling elsewhere, the new control room has not been created at the expense of seats. Other structural changes include a new dimmer room converted from the old boiler room; in turn, this has enabled the old dimmer room to become the amp room. The orchestra pit has been rebuilt and, with the aid of Steeldeck sections, fulfils the role of pit, stalls floor or apron stage.

Like most theatres, space is at a premium in Stratford and the next phase of refurbishment will cover the provision of improved dressing

rooms and offices, but moreover the theatre's physical relationship with its neighbourhood, which has been somewhat damaged by the 1960's developments in Stratford which removed the bustle of the town centre from the theatre's precincts. Much work has been put into these plans by the architects and supported by the City Challenge project award to Newham, the supportive local authority. One aspect not involved in the plans is the flying system, currently hemp. Ed Clarke showed me why. "The stage was extended some years ago into an old shop at the back of the theatre and it is very deep. The shop roof and the theatre roof are not the same height so we would really have to rebuild the whole tower to properly install a counterweight system and it would also have to be double purchase. Nevertheless, you'll see some of the best hemp flying here! We do have a powered winch for rigging, the number one bar and house tabs are on counterweight, and, of course, we rig temporary sets as well."

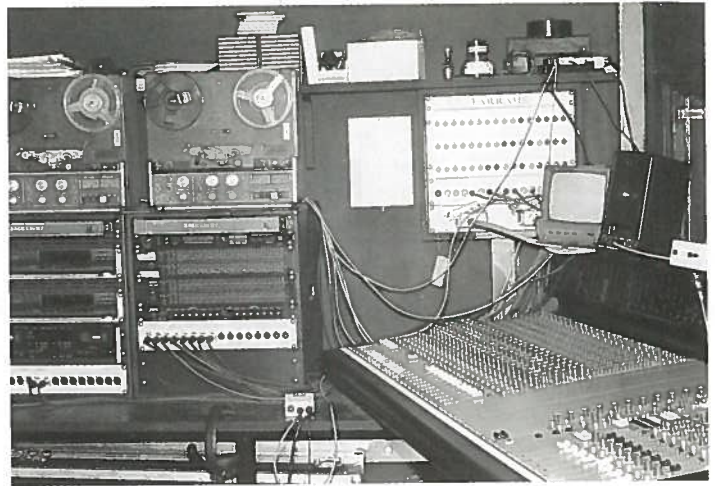
The main component of the refurbishment technically, was a new lighting and sound distribution system. The latter is best described in Ed's own words: "everything patches everywhere". More specifically the tie lines run between control room, orchestra pit, stage left, stage right, amp room and rear stalls. Pride of place in the control room is taken up by a new Hill Audio 24/8 desk, a valuable asset since almost every show uses live musicians in addition to the 10-piece band at the core of the Sunday Variety shows. The new patching system and its new equipment are also designed to reduce the sound hire bills.

For lighting, 280 outlets are distributed around the building and are patched in the dimmer room

¹ from 'Frank Matcham Theatre Architect' edited by Brian Walker, published by Blackstaff Press.



Ed Clarke with the Hill Concept desk behind and, nearest camera, the Arri Mark II Impuls installed earlier.

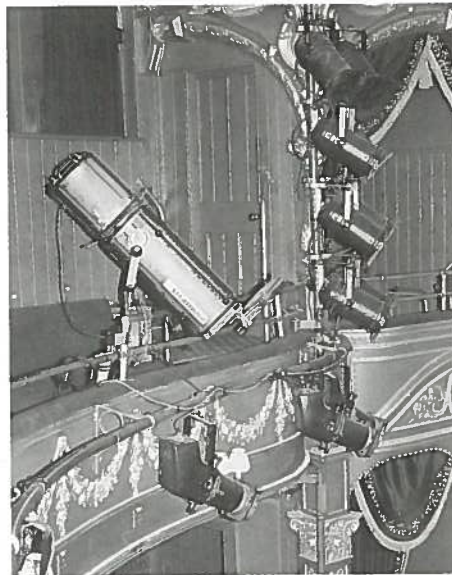


The sound control in close-up.

through a quick connector block adjustment behind a locked panel. Most outlets are twin 15 amp but there are 20 5k circuits including two FOH which are useful on the many occasions when the theatre is used for filming. An excellent feature is the Lectriflex outlets in the fly floor boxes, in addition to the 15 amp, so that multicores can be plugged directly in and the floor kept tidier and therefore safer. I noticed that the lantern stock contained some more mature equipment and Ed explained that a total re-stock had not been affordable: "264s and 743s are OK if you know what you're doing and here there is an ideal throw for them, provided you don't use them for backlight!"

The prompt desk and sound installation was carried out by Paul Farrah Limited. I was interested to see that the cueing was still carried out by light and headset and not by some of the more recent programmable cueing systems, although it does have the amber acknowledge light in addition to the usual red and green. Ed Clarke explained: "We chose a simple system because everyone knows how cue lights work and we are so busy here. A nice feature is the headset mic which also serves the paging circuit so the SM doesn't have to keep swapping from one to the other." The desk was built to the theatre's specifications and includes a combination clock and stopwatch which is supported by a battery in the event of mains failure. "I spent a day going round the building with our consultant Dennis Charles and Dick Smith of electrical contractors RWS," Ed added. "Dick knows every inch of this building which saved us so much time, and I've got nearly everything I asked for!"

It seemed that after so long in what had been described as a 'shabby' theatre and with the usual primitive, albeit effective, facilities, the staff were a little bemused to find themselves in such a well equipped and attractive theatre. Ken



Part of the front-of-house lighting set-up.

Bennett-Hunter summed it up: "It's been restored within an inch of its life, but that's nothing the panto won't cure!"

New installation and equipment details

Lighting

New dimmers
124 ways Strand LD90 digital
Wiring
284 circuits inc 20 @ 5kW
new intake
new independent power to stage
new house lights
working lights patched to 12 switchlines

Sound

New Amps
3x C-Audio RA-3000

3 x C-Audio RA-2000
2 x Yamaha D1030
6 x Martin EM75
4 x AKG LSM 50
2 x Community Bass Bins
Control Room
Hill Concept 24,8,2 desk with 8x8 matrix
Yamaha MS20S monitors
2 x Technics SL PG 340A CD players
1 x Denon DRW-760 cassette
Yamaha W2031A graphic equaliser
Yamaha GC2020 B11 2 channel comp/limiter
Wiring
48 mic lines to stage, auditorium, control areas
50 speakers lines to positions everywhere
20 x 75 ohm video lines from/to TOA dis amp
Comms wiring to all areas and 20-way Q lights
Miscellaneous
Panasonic CCTV camera (colour)
2 x colour monitors
new prompt desk by Farrahs includes 20-ways
Q light and headset system, clock/stopwatch,
3 zone paging from mic and headset mic.

Credits

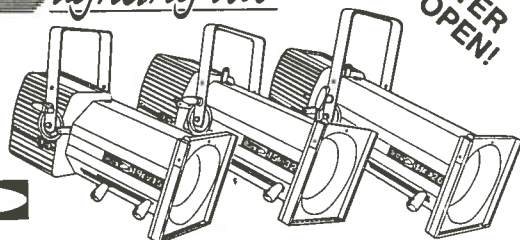
Architects: Levitt Bernstein Associates
Quantity Surveyors: Bucknall Austin Plc
Design Consultant: Jenny Tiramani
Technical Theatre Consultant: Dennis Charles
Associate Lighting Designer: Stephen Watson
Main Contractor: T G Baker
Electrical Installation: RWS Electrics
Lighting: White Light (Electrics) UK
Sound: Paul Farrah Limited
Drapes: Mick Tomlin
Carpets: Tyndale Ltd
Seats: Kirwin & Simpson
Stencilling: Emily Baylis and Dorian Millman

The contract value was £250,000 and was possible through assistance from the Stratford Development Partnership, the Theatres Restoration Fund, JP Morgan, The Manifold Trust, and the patrons who have 'named' a seat.

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ON TOUR AND PRODUCTION NEWS



Meatloaf: like a 'Bat out of Hell' on stage at Sheffield Arena.

Meatloaf Sheffield Arena LD: Bill Sheldon SD: Carl Gagnon

Big lights, big sound, bit show, big man. When Meatloaf first appeared on stage at the Hammersmith Odeon, as it was known back in the late seventies, his arrival was described in the music press thus: "Meatloaf lumbered onto stage, bellowing like a beached whale". Well he may have lost a lot of weight since then, but that bellow has now become a full throated roar brought on by the unbridled gusto of a man who is seeing his career rejuvenated after a fallow period of some 13 years. It's a rejuvenation that's well deserved, for throughout the intervening years he never reduced the vigour of his performance, nor his total dedication to the faithful who stuck with him. For those who think it's just a well-hyped album with a few good songs, I can give no heartier recommendation than to exhort you to queue up now for tickets to see him when the tour returns in the spring.

Both Carl Gagnon (sound engineer) and Bill Sheldon (lighting designer) have been with Meat for the past three years and both chanced upon their jobs in much the same way. The then sound engineer and lighting designer were, at slightly different times, both obliged to commit to long term projects with other acts. Carl and Bill were working on Meat's production as crew men, they were available, and quite capable of filling their predecessors' shoes.

For both of them the move has been fortuitous; over the past three years they've alternated between college and small theatre shows in the USA playing to between 1,000 and 3,000 people with frequent forays over to Europe in the summer to play to festival audiences ten to twenty times bigger. The fact that Meat is now confidently able to embark upon an arena tour and consequently able to give each man his head to provide a show equal to these venues, has been a well deserved reward for their faith and application in the past.

When asked by the British press what the big album sales meant to him Meat replied: "More lights" - but of course there is more PA too, and with his current pre-Christmas tourette having sold out months ago, plans are already afoot to increase the scale of the production in the New Year. In truth, it's already a very, very good show, but Meat feels it incumbent upon himself to reward his loyal fans with as much of a spectacular as he can - and this is right and proper for he is first and foremost not a rock star, but a showman.

Concert Sound are providing the EAW PA system. Carl Gagnon works exclusively for Scorpio Sound Systems of Massachusetts, another EAW PA stockist, when he's home in the US and likes the continuity of equipment. He sees no reason to alter his preference at the moment. The PA consists of: 50 x KF850, 6 x KF1000 long throw cabinets, 20 x SB850 and 4 x F400 in-fill cabinets; the main system is powered by BGW GTA amps with the sub-bass driven by the new Swedish Lab Gruppen 2000, a Mosfet amp weighing only 25lbs yet giving 2kW plus of power. Carl mixes front of house on the now ubiquitous Yamaha PM4000, configured 44 mono into 12 stereo, and is supported on-stage by monitor man George Wehrlein who uses a Midas Pro40M. Mick Anderson of Concert Sound reports this desk was custom-built for the company and is configured 40 into 20. The sound is loud, and big too. I can only liken it to a Phil Spector record, full and rich. The PA is punchy and, from the beginning of the show, the sensation is of restrained power.

By the time the encores have been reached (two hours into an almost three hour show including a short intermission) there's still some headroom left to whip the already ecstatic fans into a final frenzy. This is thoughtful use of PA and not a crutch for Meatloaf to lean his performance upon; it is Meat who leads the tune, Carl merely reflects the atmosphere already created, skilfully holding back the reins when it would be all too easy to crank up to overdrive then sit back and watch the show.

In much the same vein Bill Sheldon takes his role very seriously. The lighting, like the sound, has to follow the contours of Meat's peaks and troughs whilst slowly intensifying the visual

sensation to a climax. The lighting system, supplied by Neg Earth Lights, is big but not overpowering and consists of four cross stage trusses: the front is a straight 48 feet, made up of silver Thomas pre-rig fully loaded with Pars (as are all other truss sections); the second truss is 'M'-shaped in the vertical plain, but compressed in the horizontal, so it more recognisably resembles the front profile of a gliding seagull; the third truss is again straight with a section cranked downwards at each end, and the fourth and final truss is a simple inverted 'V'. To the back of stage is an elaborate drapes truss that supports a variety of back drops on tab tracks as well as a fibre optic curtain lit by eight Color Pros. Dotted about the rig are eight Mole Lights for audience light, a further 10 beneath the risers and four, fitted with Rainbow scrollers, to light the back drops. The rig also sports 28 of the increasingly popular Golden Scan 3s (supplied by SpotCo); 16 are scattered about the trusses, the remaining 12 in an arc across the rear of the risers, with two positioned either side at the front of stage.

Bill has loaded all the truss pars with #1 very narrow bulbs, with the exception of the front truss which has #5 mediums; with 40 of the 52 lamp bars in the rig configured thus, the use of the narrow beam lamps gives an enormous variety of options for interplay between them and the Golden Scan 3s. This was especially marked by Bill's choice of colours - smoky pink against yellow and violet against deep amber were just two of the combinations that were particularly striking. In fact, the colours like the smoky pink that came from the Golden Scan 3s were particularly well chosen. The show is run from a combination of Celco 90 and a Light Co-ordinator. Tom Lesh from Neg Earth coached Bill on this latter console and says it's easy to pick up having learnt it himself in half a day.

The back drops consisted of an assortment of Meatloaf album covers, a white cyc, and the previously mentioned fibre optic curtain which when unlit is black. With such a variety to choose from Bill had many strong contrasts to play his lights against and, it must be said, exploited all of them equally; it was especially nice to see small fans rippling the cyc which was lit in red and amber, giving a very effective flame effect to back the song 'Out of the frying pan, into the fire'.

The show had an epic quality to it. Meat, in the words of Bill Sheldon, "gives 1,000 percent every night". In truth maybe three hours is a bit long, but you'd be hard pushed to find anyone at Sheffield Arena who'd agree with that sentiment. After all, it's not self indulgence that makes it long, but exhaustion.





A relatively small amount of lighting produced a surprising depth for OMD.

OMD
Sheffield Arena
LD: Steve Hall
SD: Stuart Kerrison

With Gary Numan in support, an evening with *Orchestral Manoeuvres in the Dark* held all the promise of synthesizer overkill. Wooden musicians virtually static behind great banks of keyboards are not, on their own, a fun night out. This gloomy prospect was not improved by the announcement earlier in the day that Frank Zappa had passed away and was then further reinforced by the arena being draped off, reducing its size by almost half.

But surprisingly, in little over an hour, somewhere between six and seven thousand people duly filled the arena floor and most of the available seats. What was even more surprising was how, almost single-handedly, Andy McKlusky (the only original member of OMD) was able to lift this gloom by a Herculean effort of will and some manic terpsichory. Covering the whole gamut of the band's musical history and drawing a fair sprinkling from their latest album *Mr McKlusky*, by his energy and enthusiasm of delivery, was able to bring almost the whole audience to their feet for most of the 100 minutes of the set - no mean feat on what was a grey and chilly evening in what is, after all, just another barn. Undoubtedly, he was the focus of attention, ably supported by the rest of the band, but it would also be fair to say that both Stuart Kerrison (sound engineer) and Steve Hall (lighting designer) showed equal commitment and application.

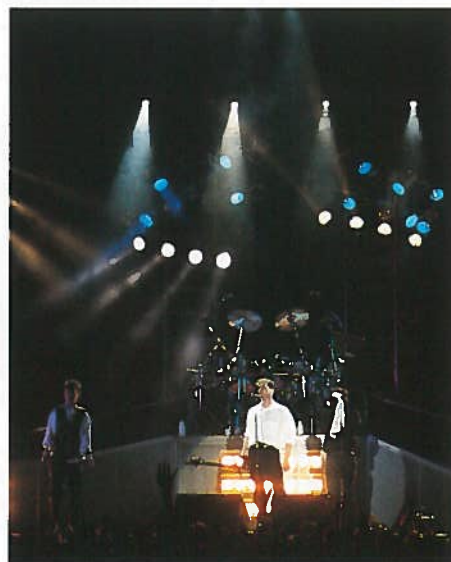
The sound system, 22 Meyer MSL3s per side, all flown with 10 sub-bass stacked either side at floor level, was supplied by Audio Lease. The potential of the latter component for stomach churning rumbings was great, but with enviable self control Stuart used this potential to maximum effect only once, right at the curtain raiser, to add to the excitement. Having said that the bottom end was for the most part thick throughout the night, but never overwhelming, in fact, the sound was curious for being rich in the three quite distinct bands - bass, middle and top but this was perhaps more due to the drums being the only acoustical instrument used, the reliance being upon keyboards as expected. Actually that's not strictly true: Andy McKlusky on several occasions resorted to playing bass guitar, and it was the livelier (rougher?) sound produced by this instrument that emphasized how well defined the remainder of the sound proved to be.

As for Mr McKlusky's voice; between numbers

when he regularly indulged in badinage with the audience, it could sound quite thin and reedy (perhaps due in some part to the fact that he was knackered from all that dancing) but his singing by contrast was full of gusto and in the mix laid quite neatly on top of the music. A lone vocalist backed by two keyboard players can so easily be a snowflake in a blizzard, pretty in its own right, but one amidst millions. Not on this occasion, however, and no doubt thanks to the efforts of Stuart Kerrison.

Lighting designer Steve Hall was similarly committed to his task. On this particular night he was contending with a slew of additional lighting equipment (supplied by Super Mick Lights, as was all the existing lighting rig) and had taken advantage of the previous day's early load-in by devoting the whole of show day to updating his desk programmes.

Although in essence the same show throughout the tour, Steve had been obliged to chop and change his rig: in Germany (the band's most profitable market outside the UK) the group played in 3,000 seater plus halls, in France and Scandinavia in venues sub this capacity, and now, back on home territory in full arenas. The stage was defined by six vertical pre-rig trusses positioned to the sides and rear. The four trusses equally spaced across the back stood 18 feet tall and supported a variety of asymmetrically hung lamp bars containing a mixture of Par64s, ACLs and Raylites; to each side of the stage, the remaining two vertical trusses were slightly lower at 16 feet and had three six-lamp bars of Pars on each, hung vertically.



Above these was a 'V' shaped truss comprising two 24 feet arms flown at about 26 feet trim supporting eight, six lamp bars (all number #1 bulbs), four overhung ACL bars and four Lycian 400HTI truss spots - two above and two underhung. Considering a total of only 152 lamps and little trussing was used, the overall effect was of surprising scale.

Atop the vertical trusses and hung from the 'V' above were an additional 12 Martin 1220 Roboscans; despite the chops and changes of the rig Steve had been using these moving mirror lamps for the entire tour and was very pleased with them. "They've been brilliant, I've had no real problems with them apart from one sticky iris. Although they run from their own dedicated software on a 486SX PC they are triggered from the Celco 60-way I'm using via a special box that Martin built for me. Mark Ravenhill and Jens-Peder Andersen from Martin have been really supportive, not only with the box but with little things like enlarging the lamp flight-cases so we didn't have to unbolt the mounting clamps each night."

Steve works from a basic six colour palette for the conventional lighting, as was seen earlier in the year with his design for Suzanne Vega: "I've found six colours that work well for me - what's the point in finding new colours for every tour just for the sake of it? Obviously, I change the odd one here and there when the occasion demands, but basically I can get a lot out of these colours because I know them well and can exploit them fully."


It was certainly true for this show (for it in no way resembled Suzanne Vega in its execution). Steve worked hard at creating distinctly differing looks, illuminating the vertical trusses from within with Pars fitted with Colormags, the silver truss and Par cans contrasting strongly with the prevailing stage wash. He also made most effective use of a 60 feet cyclorama to the rear of the stage which was masked by black drapes on a tab track and exposed for approximately 60 per cent of the show.

Illuminating the trusses against both black and white backgrounds gave remarkably juxtaposed looks; it was also especially effective when he used plain white light on the cyc at a low fade which gave an ambient backlight to the performers, casting them in an almost natural light.

This was a good show and an excellent example of how a potentially so-so show can be lifted by the efforts of a few. Most praise must, of course, go to Andy McKlusky, but it would be fair to say that the production, both sound and lighting, did much to make it more than just the sum of its parts.

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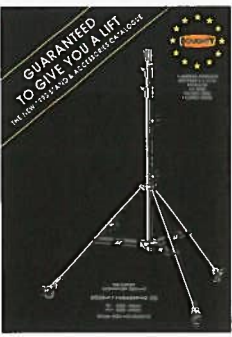
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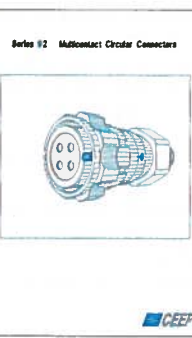
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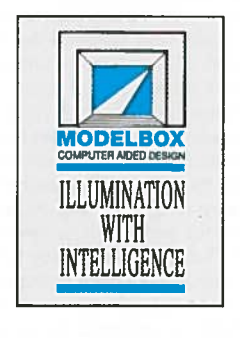
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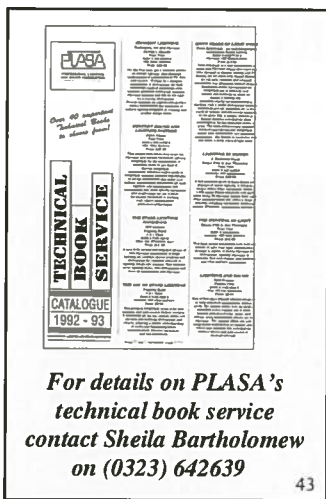
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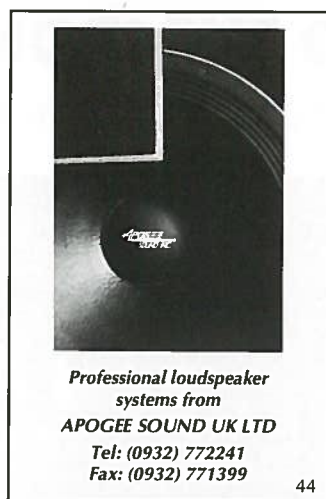
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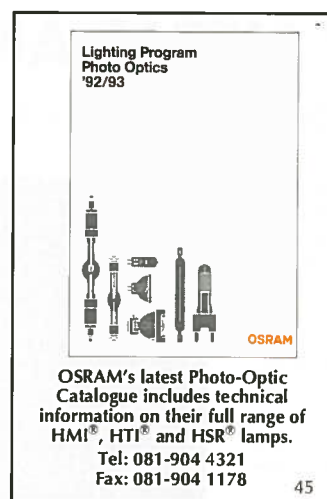


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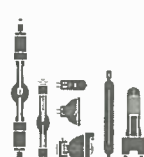
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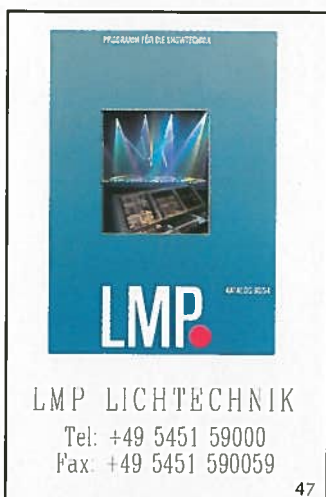
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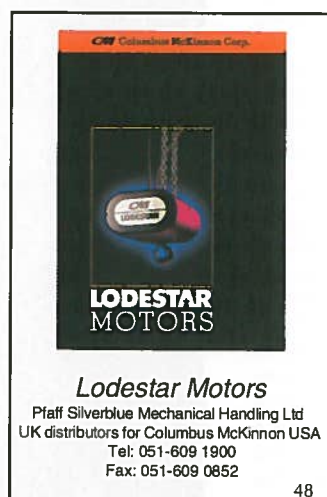


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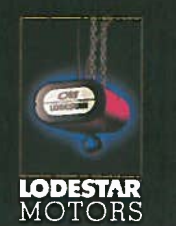
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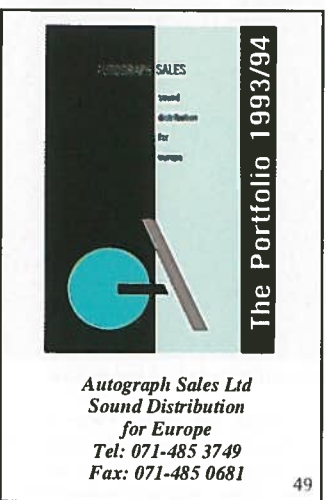
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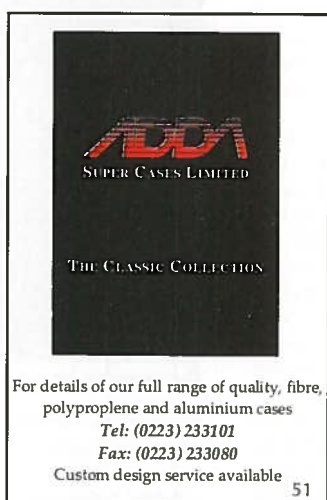



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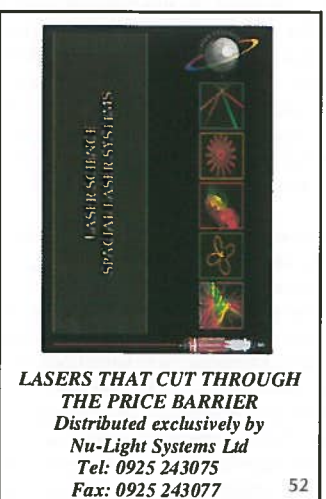
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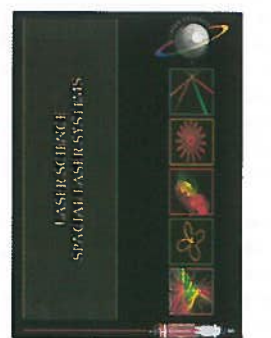
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HEAVY METAL AND THE IRON MAN

Ruth Rossington describes the latest production from the Young Vic

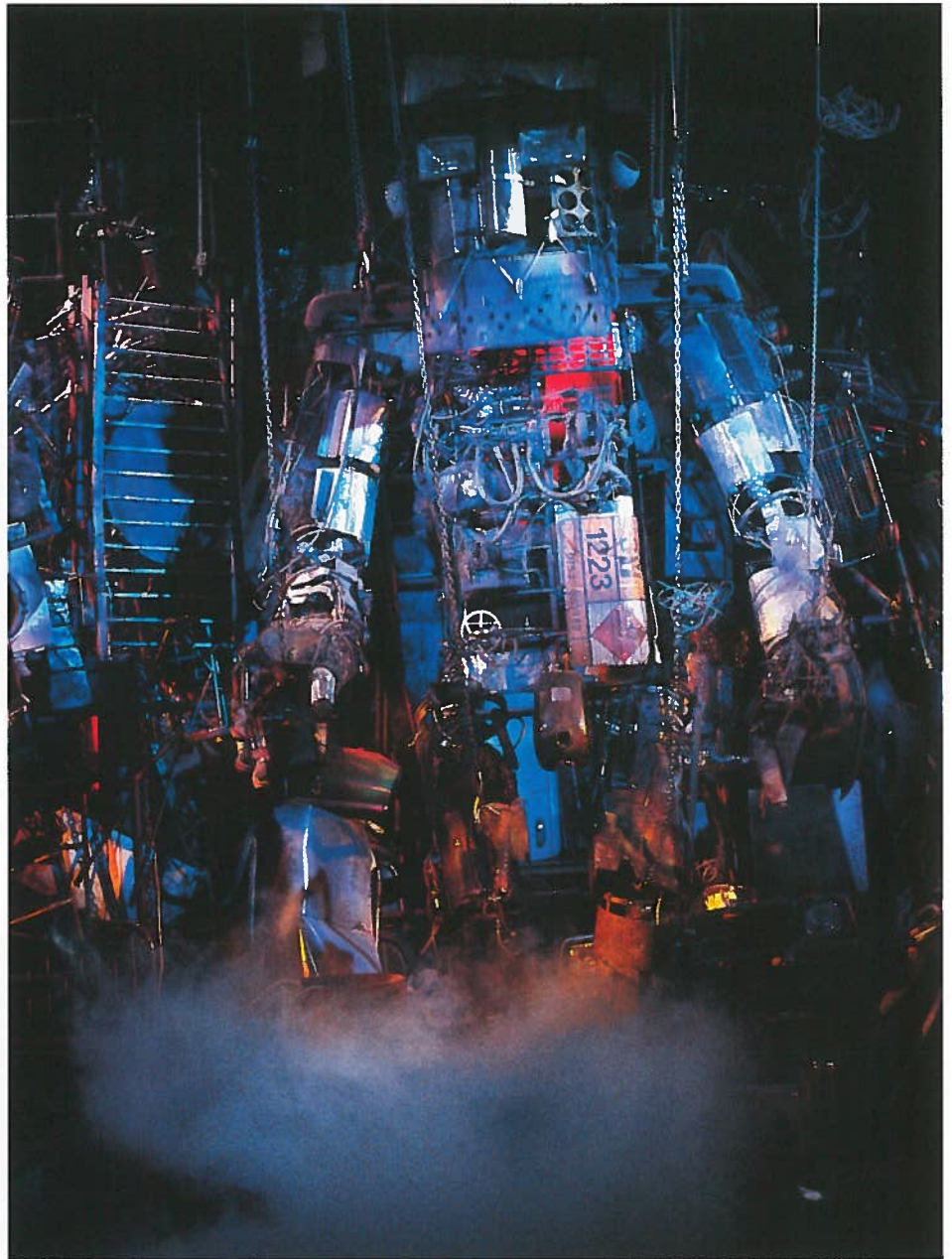
The Iron Man came to the top of the cliff. How far had he walked? Nobody knows. Where had he come from? Nobody knows. How was he made? Nobody knows. Taller than a house the Iron Man stood at the top of the cliff, on the very brink, in the darkness. The wind sang through his iron fingers. His great iron head, shaped like a dustbin but as big as a bedroom, slowly turned to the right, slowly turned to the left. His iron ears turned, this way, that way. He was hearing the sea. His eyes, like headlamps, glowed white, then red, then infra-red, searching the sea.

Ted Hughes' story *The Iron Man*, first published in 1968, began its journey towards its present incarnation as a rock opera in 1989, when Pete Townshend approached the Poet Laureate about writing a musical version of the children's story. The result was a song-cycle concept album which enjoyed a brief flirtation with the public, but which was destined to remain on the back burner until the Young Vic approached Townshend for the rights to *Tommy*. Townshend had already signed over the rights to Broadway (the production is planned into the West End this year) but the request proved the catalyst for him to renew his work on 'The Iron Man'. And so, some 20 odd years after the story was originally penned, its musical successor recently opened at the Young Vic. As any schoolchild will tell you, the story focuses on Hogarth, a young boy caught up in a technological world intent on destroying everything in its path, and eventually itself. The Iron Man is just a symptom of this world and it is Hogarth, who having tried to destroy the creature, realises that his dangerous force can be redirected to work for good. Having befriended him, he enlists his aid to ward off other evil spirits and so man and machine work together to save the world. Everybody say 'ahhh'.

The opera is ambitious on several fronts: for a start its list of characters reads like a Dr. Who episode: Space Dragon, war-mongering Generals, Star Spirit, Space-Bat-Angel-Dragon (I kid you not) and, of course, the Iron Man. Secondly, its technical requirements were beyond the call of duty; a dual of fire between the Iron Man and the Space Dragon, the odd earthquake, the Iron Man appearing phoenix-like from the ashes and a nuclear war. Complex pieces demand complex solutions.

So what were they? Well the foundation for it all was Shelagh Keegan's set design which created a contemporary, post-industrial world with a more than passing reference to *Mad Max*. Engulfing the Young Vic's fourth wall and thrust stage, industrial and domestic refuse spills its guts all over the stage, whilst tyres, cans, wheels and great chunks of burnt out cars rub rivets with tractors, fridges and washing machines.

The show's sound system was designed and installed by theatre specialist Autograph Sound Recording, who worked a subtle, unobtrusive installation into Keegan's scrap iron set. The audience are seated on three sides of the thrust stage and the lack of a proscenium initially posed a problem for loudspeaker placement. Autograph's designer Bobby Aitken resolved this by hiding 16 Meyer Sound UPM-1 UltraSeries loudspeakers around the lip of the stage. Used on their sides, these units can achieve 80 degrees of vertical coverage - sufficient to provide a coherent wash of sound for the full depth of the stalls. These are further supported by a 180 degree flying cluster of four Meyer UPA-1Cs, suspended from the theatre's central grid truss which perform fill



The towering Iron Man brought to life with a pile of scrap metal and a little technical know-how.

duties for the rear of the auditorium. This UPM and UPA combination is used solely to handle vocals and sound effects.

Bobby Aitken, whose previous design project at Autograph was for *Grease*, acknowledged the necessity of a very minimal approach to the sound reinforcement with the objective of making it as low-profile as possible. By mounting the UPMs just under the front edge of the stage, Autograph have kept the image very close to the actors and the audience remains largely unaware of the amplification. The several truck loads of scrap iron around the set were undoubtedly a gift from the Gods and provided ample means of speaker concealment.

Because there are times when the performers are required to turn their backs on the audience, Autograph's system also incorporates a total of 13 Micron radio microphones. These are used to provide just enough reinforcement to overcome the directional problems, without amplifying the level too far above that of normal speech.

A secondary localised PA system, using Meyer UPA-1Cs and USW subwoofers, handles the show's five piece band and, like the main vocal

system, helps to keep the image close to the performers. The band line-up includes cello and acoustic guitar, together with a vast array of percussion instruments, but no conventional drum kit. This emphasis on natural acoustic sounds is also reflected in the type of voices employed by the band's two keyboard players, one of whom uses a Synclavier to very good effect. At various points in the show, a sound engineer's nightmare is played out as the cast literally play the set like a giant percussion kit. Whilst the show's theme has a very 'heavy metal' image, the music is very much at the opposite end of the continuum.

The band system subwoofer units, hidden inside an onstage wrecked and rusted Citroen 2CV, are also used for replaying the low frequency end of the show's sound effects. Although only ten or so effects were required for the production, some were very complex to produce and were compiled in Autograph's own digital production suite on a DAR SoundStation. Although the company's existing library of sound effects gives them a huge choice of source material, they often have to work from scratch. The most involved effect on this

show accompanies the Iron Man toppling into a pit. Bobby Aitken and his team spent a happy few hours in the yard behind their offices, building piles of steel and knocking them over. Any spare rigging hardware was pressed into service, the crashes were recorded and then manipulated in the SoundStation to achieve the desired result. Autograph's sound engineer Nick Gilpin spent ten hours refining the effects.

During the production process a further trick was built-in to the effects to ensure maximum impact in the theatre. Once Autograph had installed the sound system, a tone generator was fed into the loudspeakers and swept slowly through the lower end of its frequency range. When this produced the loudest resonant rumble from the building, the appropriate frequency was duly noted and a signal of the same pitch was mixed into the final sound effect; a wonderful technique for creating the greatest stomach-shaking effect from a given volume level.

The completed effects were then mastered onto CD-R and DART formats in Autograph's studio, to provide a high quality playback media. In the theatre, two rings of Bose 101 speakers around the back of the auditorium give extra effects coverage for the circle and rear stalls.

The sound operator is Andy Pink, who previously worked with Bobby Aitken during the RSC production of 'The Beggar's Opera'. The show is mixed via a Cadac A-type console, with Meyer CP10 equalisers providing final system fine-tuning. Pete Townshend maintained a direct involvement throughout the show's production, loaning his own Digitech Harmoniser to help create the Iron Man's mechanical voice effect. Further sound processing is provided by a Klark Teknik DN780 reverb, together with various Lexicon and Roland units.

Alan Burrett, the lighting designer for 'The Iron



Josette Bushell-Mingo as the Star Spirit/Space-Bat-Angel-Dragon.

Man' designed 'Timon of Athens' and 'The Plough and the Stars' for the Young Vic company in 1991. His portfolio of work includes the RSC, ENO, Royal Court and Almeida, but he excels at the big event, having designed the 93/94 Duran Duran World Tour and acted as consultant for the Spanish Pavilion at the Expo in 92.

As Burrett admits, it was an ambitious project to stage a world premiere of a musical in the Young Vic and the limitations of size and budget restrictions, paired with the extraordinary safety requirements of the local council, imposed a somewhat rigid framework and forced his hand at an early stage. Some of the more dramatic

moments in the show involved big effects and because of the aforementioned limitations, the remit for solving some of these fell neatly into the lap of Burrett.

The lighting rig, therefore, would have to do a lot more than just light the actors, and so early on in the production period, and to the surprise of quite a few, Burrett took the decision to use Vari*Lites, a not inexpensive commodity as things go, and along with them, two-thirds of the budget. Five Vari*Lites were hired and he found that with seven channels each, the units took a little getting used to, but their movement, speed and range of colours brought him the flexibility he needed in the run-up to production, whilst the show was constantly changing. The traditional workhorses of the theatre, the Pars and Sils were pressed into a supporting role on the rig.

Every cross-point in the grid was covered with mini strobes so that at the point when the Space Dragon flies up to the sun, actually a Molefay on loan from Meteorlites in the grid, the whole lighting rig appeared to burn up and short out.

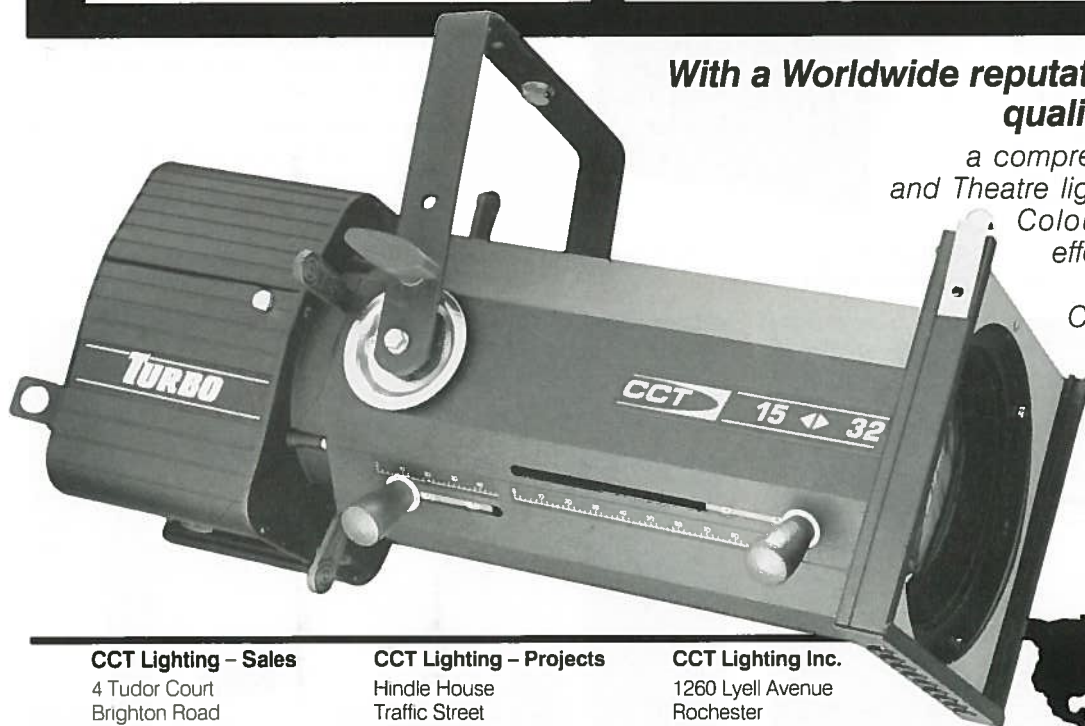
The Iron Man himself had six flash strobes plus two car headlights for eyes and 10 birdies on the inside, all running from battery and operated by the singer within. The Young Vic has a Gemini desk and around 90 circuits, but unfortunately the wrong DMX protocol for the Vari*Lites, so Burrett and team were obliged to buy an adaptor. Other specials included two looms of fibre optics that covered the Space Dragon's wings and two 2kW fire effects.

Scheduled for a 14-week run, 'The Iron Man' is already proving popular with audiences (though the critics remain divided) and advance ticket sales are approaching 90% capacity. Starring Anthony Barclay as Hogarth, the opera is performed by the Young Vic Company and is directed by David Thacker.

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THE PLACE TO BE

Ken Dibble highlights some of the more significant developments of the last year

It is interesting to reflect that many of the significant emergences in audio of recent years have been heralded and generally chewed over by the industry doyens, usually well in advance of their actual happening, at the Institute of Acoustics annual 'Reproduced Sound' conference, which has been held in late October or early November at Windermere in the English Lakes National Park, for the past nine years. I have heard it said that this conference is one of the industry's best kept secrets, yet each year, some 150 delegates from the UK, Europe and the USA take over the 100-bedroomed Hydro Hotel and talk of nothing but audio into the early hours of the morning - much to the resigned disdain of accompanying wives and girlfriends and accompanied by appropriate quantities of 'refreshment'. Last year we succeeded in drinking the hotel bar dry of draught beer half way through the Saturday night!

The 1993 event broke new ground in that a tutorial course in basic acoustics was run in parallel with the main conference sessions. This was specifically aimed at experienced engineers and contractors whose background is in electrical/electronics and/or audio engineering, yet by definition, are required to react to and accommodate the effects of the acoustic environment, often with little or no theoretical knowledge of the subject. The course was fully subscribed and to judge by the overwhelmingly positive reaction it seems that the IoA have stumbled across something of a chasm in the knowledge base of the industry generally and so the course is now in the process of being honed for a re-run at Reproduced Sound 10. This is scheduled for November 3-6 1994 and looks set to become a permanent feature of future conferences.

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Amongst the now commonplace technologies to have been aired at these Windermere conferences, in advance of its widespread commercial realisation, are the NICAM stereo television format, DAT, copycoding, CAD audio/acoustic modelling and much leading-edge work on speech intelligibility prediction and measurement in the light of BS7443. To my mind however the 'biggie' to emerge from Reproduced Sound 9 in terms of its likely market impact was home cinema surround sound.

This one topic took up a whole morning's paper

session, an evening panel forum, and on the Saturday night we were treated (courtesy of Harman Audio UK) to a showing of Hook using a top-of-the-range JBL 5.1 channel surround system using a laser disc source and a Dolby Pro-Logic surround decoder. These linked sessions opened a lot of eyes to the prospect of a huge new market opportunity for pro-audio and hi-fi manufacturers and dealers alike and predicted the likely emergence of a whole new specialist market operating at the crossover point between these hitherto disparate industries.

Rane Corporation have already released the first Lucasfilm licensed, dedicated THX home equaliser/processor, the THX-44, and of course, they already offer the MA-6 6 x 150W power amplifier to complement it. I don't doubt but that other hitherto 'pro' manufacturers will soon follow. This confidence is shared by many influential loudspeaker manufacturers including JBL, Celestion, KEF, Tannoy, B&W etc, all of whom have not been slow to recognise the fact that a full home cinema installation will require six loudspeaker systems - i.e. centre (dialogue) channel, sub-bass, front left and right, rear left and right - whereas your traditional home hi-fi requires only two. Consequently all are frantically engaged in developing product specifically for this

apparently burgeoning new market sector.

One of the main differences between home cinema and hi-fi lies in the directional requirements of the centre channel and surround loudspeakers necessary to comply with the Lucasfilm THX specification. Also, bi-polar loudspeakers are now being used for the left and right rear channel so that both direct and reflected energy is blended into the aural soundfield. I have certainly never before experienced such envelopment and aural excitement outside a cinema auditorium as we heard at the Harman demo, but at £43,000 for the complete 4kW system (including a large screen video projector and dedicated parabolic screen) I think there might be a finite limit to the size of the UK market at this level!

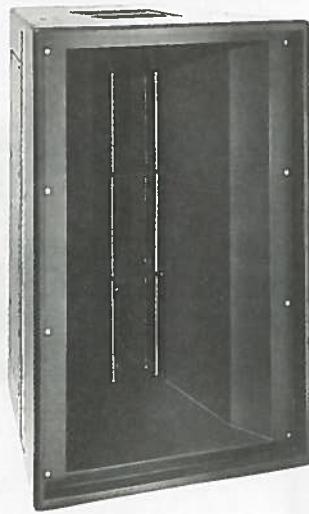
The Electric Banana

Another interesting product, which made its world debut at Reproduced Sound 8, but which was not commercially released until last April, is the Bose Panaray loudspeaker system, which has already been nicknamed 'Banana' because of its unusual shape. In essence it comprises a 5 x 12.5cm line array in which the drive units are angled in both planes relative to each other to produce a 90 degree x 50 degree polar pattern with better pattern control than some 'constant directivity' horns.

The secret lies in some clever (patented) phase cancellation and summing effect between adjacent drivers and is the result of a five year development programme headed up by Ken Jacobs, senior product development engineer at 'The Mountain' - Bose's US corporate headquarters which is now given over solely to R&D. Notwithstanding its strange profile, the Panaray is far more convenient to install than a CD horn and can be used a lot further down the frequency spectrum than all but the very largest horns. Its performance is indeed impressive - especially when the complementary band-pass tuned bass enclosure is used. And as always with Bose, a full range of mounting hardware is available off the shelf.

Talking of Line Arrays . . .

. . . I never cease to be amazed at the incredible variety of loudspeaker arrays which are conceived by designers who ought to know better, most of which show complete disregard for even the most fundamental laws of physics. However, some do and another impressive loudspeaker concept to



Renkus Heinz TSC CE3-MH long-throw co-entrant mid/hi cabinet.



Every home should have one: the cinema set-up from Harman/JBL.



The Bose Panaray sound system.



Austin Armstrong's 8-channel amplifier.

emerge during 1993 was the Renkus Heinz co-entrant Waveguide Technology as embodied in their TSC CE Series.

In order to reduce diaphragm and horn throat distortions to a minimum practicable level it is desirable that compression driven HF devices are significantly under-driven and that only one driver per horn is employed. This usually results in insufficient SPL, so more horn/driver combinations are used to achieve the desired level. This solution however is invariably counter productive because the phase cancellation effects, which will always result when horns are combined, will modify the polar response characteristics and produce erratic lobing effects.

Clair Brothers found a solution with their classic S4 by using cone and horn sources in a simple line array concept which does obey the rules and sounds fabulous in virtually any valid configuration, from one to 100 boxes. But the basic design must be 20 years old and can hardly be described as compact!

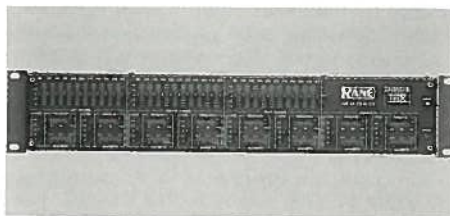
The Electro-Voice MT-4 also essentially obeys the rules and is an attempt to pack a lot more power into a smaller volume using 'manifold technology' to combine the output of several drivers into a single throat, which is claimed to overcome the phase and polar response difficulties. Whilst this has to be the better approach, unfortunately the manifold used is a little too basic and to my ears does not produce a pleasant quality - especially when arrayed. One thing the MT-4 has got right however is the 4 x 25cm manifolded CD midrange horn, and the system configuration is such that these align in the vertical plane to form a large, almost continuous, line source. However the hi-mid and HF horns remain as discrete sources and because these are mounted one above the other to one side of the midrange flare, prevent the MT-4 mid horn being combined in a coherent array.

Renkus Heinz have now taken this concept one stage further. They have retained the large format and correct aspect ratio of the MT-4 midrange horn but driven it with six manifolded 16.5cm high power cone drivers, three on each side, so that the energy source is uniformly distributed along the full height of the horn throat. But the clever bit is that the HF sources are similarly distributed behind the midrange drivers using a separate manifold which exits through slots in the midrange phasing plug, but which are sufficiently small as to be invisible at mid-frequency wavelengths. The result is a co-axial 60 degree x 40 degree trapezoidal format mid/hi CD horn covering the 250Hz - 20KHz range, rated at 136dB SPL continuous programme and measuring just 82cm high x 53cm wide x 60cm deep. Thus, multiple cabinets can be either stacked as a virtual continuous line source or arrayed side-by-side. It has to be the closest yet to the theoretical ideal and is a very clever concept indeed.

A complementary bass cabinet is also available, as is a half size mid/hi coax with a half size bass section in the lower half of the cabinet, thus providing a full-range system in the same size enclosure. Also, by changing the make-up of the manifold and phasing plug assembly the directional characteristics of any cabinet can be



Award winner: the Sabine FBX 900 feedback extermiator.



Rane THX-44 home cinema processor.

modified to whatever is required. All variants come in fully equipped 'road' and 'install' versions.

I have to say that whilst the full size mid/hi horn with the full size LF cabinet sounds very impressive indeed, I was less impressed with the full-range 'compact' model - I think there are too many compromises in that particular combination. I have still yet to hear anything to compare with the EAW KF-600 in this size/price 'compact' sector.

Multi-channel Watts

For many years now, in both fixed installs and on the road, I have found the restrictions imposed by standard 2-channel amplifier formats irksome, space consuming and unnecessarily expensive - a situation which is being compounded by the moves toward low-level signal routing under computer control as opposed to the former practice of loudspeaker line level switching. I have already mentioned the Rane MA-6 6 x 150W 3U amplifier, and since its release some years ago I have specified a lot of these into projects as a cost-effective and convenient solution for multi-channel or distributed systems. During 1993 the choice has been considerably widened by the introduction of the Austin Armstrong 'Multi-zone' range. These are available in five 4-channel and three 8-channel versions, rated at 4 x 160W, 4 x 300W, 4 x 460W, 4 x 625W; 4 x 750W, 8 x 50W, 8 x 100W and 8 x 250W. The build quality is superb and they audition very well indeed. I note that Chevin Research have also now introduced a 2U 4-channel model, the Quad-6, which is rated at 4 x 600W.

The Toys

I think the outstanding signal processing products have to be the two that we reviewed in these pages - i.e. the Cloud CX-335 dedicated stereo compressor/limiter and the Sabine FBX-900 'feedback extermiator' which of course, won the best new product award at the 93' PLASA Light+Sound Show.

Since testing the FBX-900 and writing up that review I have added a brace of these to my own PA rig, and have to say that I continue to be as impressed with their performance as I was at the time of the review. They were used on the IoA Reproduced Sound 9 conference PA system where presenters were able to walk around in front of the loudspeakers (Bose 802s) wearing an omni-directional tie-clip radio mic without any feedback problems. Also, I reckon that my own band are now able to run our foldback system at 6/8dB above the maximum SPL we could previously achieve. Whilst this system has always been capable of adequate front-of-house level without undue howlround problems, we now find

that no gain riding is required at all during a performance and we are able to use the system in situations which would previously have been impossible.

For example, we recently found ourselves (a 4-piece folk band) playing in a small Irish club bar with a very low ceiling, and where there was no option but to put the speaker system (Bose 802s) behind the mic line. We use six open mics most of the time and with careful system EQ, and using one of the Sabines, we were just able to get sufficient gain before feedback to work in that environment. Without the Sabines we would have left the PA in the van and played acoustically under these conditions.

In the light of experience however I have found just one niggle with this unit which had not come to light at the time of the review. I have found that when operating the unit close to its minimum gain, setting it becomes increasingly noisy - i.e. the exact opposite of practically any other signal-processing device I have ever come across. As both our units are connected to the main line level outputs of the desk they are generally operated at low gain settings and we sometimes have difficulty in finding a setting that will not illuminate the clip led whilst providing an acceptable signal-to-noise ratio. I don't think I have ever come across that sort of problem before.

Tank Tracks

As a final highlight to 1993 I was at last given access to Stephen Court's now legendary recording of a Sherman Tank on the firing range due to the release of the Alan Parsons/Steve Court 'Soundtracks' test CD (which we reviewed in the April issue). Tannoy were eventually persuaded to play this during a demo of their new Super Dual system at Reproduced Sound 9 and immediately succeeded in clearing the room!!! But it was impressive and the bass cones survived intact!

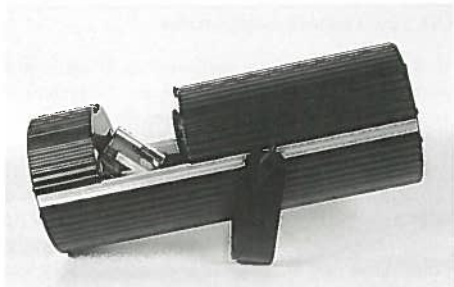
So there we are. Those are my impressions of the last 12 months, but to be honest, I have absolutely no idea what I shall be writing about this time next year. So I wish you all the best for 1994. Maybe Reproduced Sound 10 will fuel the pen when the time comes around!



E-V MT-4 mid/hi cabinet cluster.

EQUIPMENT *News*

Highlighting the Shadow



When the Shadow followspot was first launched at SIB Rimini last year, some were quick to criticise the location of the control panel, built into a handle at the rear of the luminaire, and this rather lost sight of the major benefits of having on-board electronic controls in the first place. Not slow to react to such feedback, the clever people at Clay Paky have addressed the problem, and launched two new versions at the same time, which gives us an opportunity to look at Shadow again.

Realising that running a followspot, or worse a group of them, is a cumbersome business, Clay Paky knew that their automated luminaire technology, developed for the Golden and Super Scans, could offer significant advances in the science.

Not that they imagined that they could replace the human-touch needed to follow a performer around, though others such as Wybron are developing that idea, but rather that they could replace all the knobs and levers previously necessary for all the other functions of a followspot with one simple control panel. Of course, the automated function of such facilities as colour-change, iris, shutter and dowsers are meat and drink to an automated luminaire maker such as Clay Paky. In fact, all they had to do was remove the really complex bit, the moving head, provide a localised control and, Hey Presto, a very powerful, yet comparatively lightweight, followspot emerges.

Though they have now made the position of the control panel optional, it can be on the side if you wish, the remote control facility from a ground-based desk via DN512, RS232 or analogue is still in place. So the guy presently calling the followspot cues on cans could, in fact, actually control every change, leaving the operators to concentrate on what they do best - shadowing, or rather lighting, the performers. Long-lived dichroic colours are used for their saturated hues, but both colour correction and colour modifiers are also provided.

The two new models recently revealed at LDI in Orlando are the short throw Shadow QS-ST and the long throw Shadow QS-LT, both of which use an HMI 1200 lamp.

'picoPLUS' from XTBA

XTBA has released the transmitting version of its popular handheld DMX checker.

Called the 'picoPLUS', it has all the original receiving and analysis features of the 'picoDMX', but will also transmit DMX. Packaged in a pocket sized sturdy metal case and powered by a nine volt battery (or from the mains using a battery eliminator) both the 'picoDMX' and 'picoPLUS' are invaluable tools for the technician on the road or in the workshop.

For further information contact XTBA in London, telephone 071-700 0996.

Top-End from Soundcraft

Soundcraft have launched the SM24, a new top-end stage monitor console which makes its debut at the Live Show. It features eight mono plus 16 mono or eight stereo sends, and an additional dedicated stereo sidefill send, with logic controlled solo system and a simple uncluttered layout. Also on show will be SM16 and Vienna II.

The recently launched SM16 is a fully-featured yet very compact purpose designed 16-bus monitor desk. Vienna II is an enhanced version of Soundcraft's mid-range front of house console, available in VCA and non-VCA variants. New features include a VCA grand master for extended control of VCA groups, insert points on all aux groups, improved EQ, a full function stereo mic/line input module option, a new high-spec input stage, and pre/post switching on every aux send. Vienna II is now available in 24, 32 or 40-input versions.

For further information contact Soundcraft Electronics in Potters Bar, tel (0707) 665000.

Selecon Performer Short Throw



The Performer 1200 MSR short throw completes the Selecon range of followspots which now comprises the 1.2kW tungsten Chorus, the 2.0/2.5kW tungsten Performer Quartz and the two models of 1200w MSR Performer, standard and short throw. The short throw Performer has been designed for the smaller venues where high output is required. Beam angle is adjustable from 10 degrees to 15 degrees via a linked zoom optical system. Light output is over 1 1/2 million candela providing 1600 lux at a 30 metres throw.

Features include rigid single piece extruded body, dowsers, horizontal cutter, 1/2 power switch and hour meter. A six colour changer, front and rear guide handles, gobo holder and truss mount yoke for overhead suspension are available as accessories. For further information contact AJS, telephone (0425) 470888.

Chameleon Add-Ons

Malcolm Hill Associates launched the Chameleon in 1991. With the original 2200S now in continuous production for nearly three years, the latest editions are the 1100S and the 1800S models. The 1100S delivers 250W/8ohms per channel with a burst power capability of 550W rms into 4ohms. The 1800S is rated at 600W/4ohms per channel 900W/4ohms. For details contact Malcolm Hill Associates in Hollingbourne, telephone (0622) 880601.

Vari-Lite Architectural



Using Vari*Lite automated lighting technology, architectural clients will now be able to transform their buildings into fully automated displays of stunning light and colour, or subtle change and shadow, making them the focus of attention.

The Vari*Lite AR500 automated exterior luminaire has the power to deliver an entire spectrum of brilliant colours that can slowly cross-fade or change in a fraction of a second. The AR500 luminaire is convection-cooled and the enclosure is sealed to ensure reliable operation in wet outdoor environments. The luminaire was launched at Lighting Dimensions International in November, where it was awarded Architectural Product of the Year.

Further information is available from Vari-Lite in Dallas, telephone (214) 630 1963.

Whisper Model C

December saw the launch of the new Whisper Model C colour scroller. As with the previous models it is available in 1k, 2k and 5k sizes but has many improved features.

These include remote and local fan control, visual fan status indicator, rapid scrolling motion (two seconds from frame 1 to frame 11 on the 5kW version), improved resolution for smoother slow motion scrolling, powerful 16-bit microprocessor and self test mode.

For further details contact Compulite in London, telephone 081-961 9750

'Bullet Proof' DMX cable from Kelsey

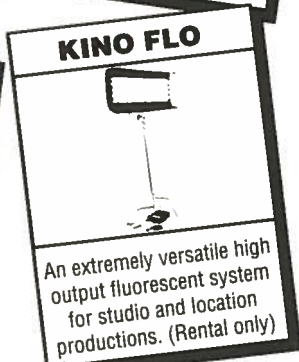
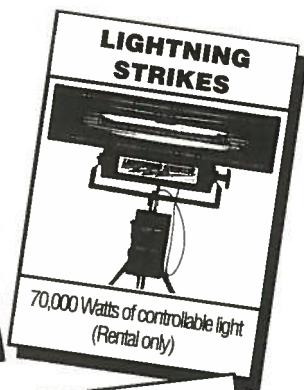
Proplex DMX cable, the first specifically designed cable for DMX512 applications, features a Kevlar strength member for tensile strength (the material used to make bullet-proof jackets) and is available exclusively from Kelsey Acoustics Ltd.

Proplex DMX cables are available in single and twin pair configurations with extra rugged, flexible, black polyurethane outer jacket, tinned copper braid and 100% aluminium/mylar foil screens and 200 degrees C FEP conductor insulation for low capacitance and high temperature protection.

Applications include DMX512, MIDI, USITT and other EIA485 applications.

More information is available from Kelsey Acoustics in London, telephone 071-727 1046.

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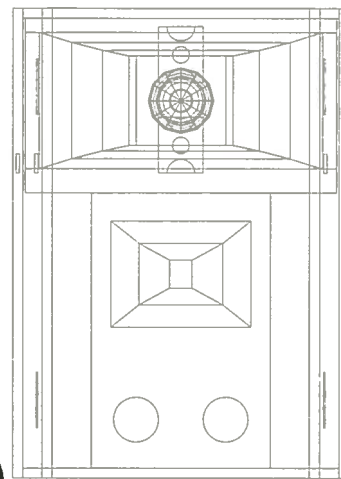
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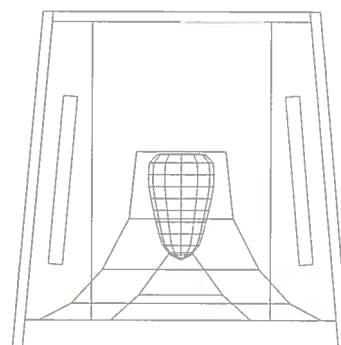
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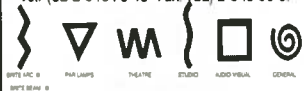
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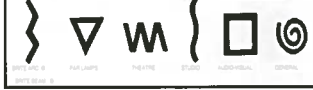
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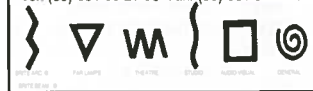
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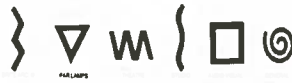
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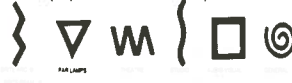


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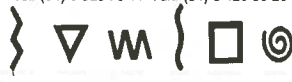
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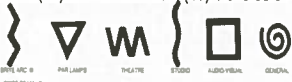
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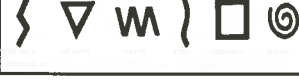
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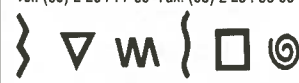
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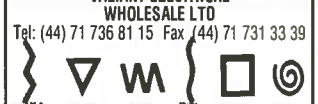
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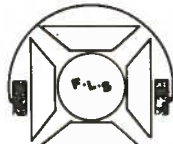
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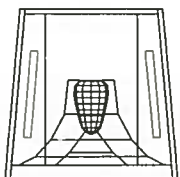
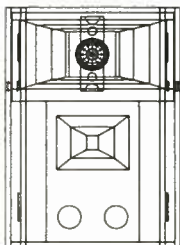
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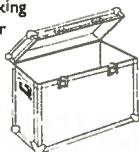
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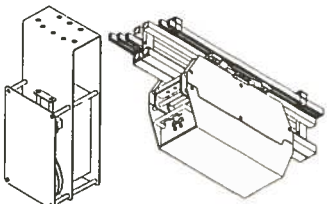
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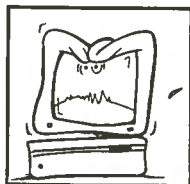
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VIEWPOINT

Bill Lee is

Lost in a World of CADs



486FX . . . 25 with 256K cache and 4Mb RAM . . . 340Mb on 179Mb . . .

Does that sound like gobbledygook to you? If so, read on. On the other hand if you are a knowledgeable computer

buff you score ten out of ten and should move directly on to the next page. But to the uninitiated, those of us unable to recognise a mega from a minor byte, with or without a magnifying glass, the jargon is extremely intimidating and off-putting. It stands as a barrier between the computer illiterate and an understanding of the remarkable range of equipment and its software.

Admittedly, I've enjoyed a pleasant relationship with computers until now. In one form or another they have entered our lighting world and enabled us to exercise far greater control over equipment. I've a vague idea of other things they are capable of, but the whole technology of their workings seemed quite irrelevant. It was CAD that shattered my complacency.

Computer Aided Design has been around for quite some time as a major aid for designers and architects. More recently it has been advertised as an aid for media lighting. It seemed a highly complex and exotic function for general television work, but a recent project required the very precise plotting of lamps and it seemed worth investigating what CAD had to offer. Overcoming the very natural fears of any rational man for 'high tech' I looked at the computer and software scene. But there is a problem for the uninitiated. Technology progresses so rapidly and its experts assume that everyone understands the basics. It's all right for them, they've grown up with it, but the rest of us are in danger of being left floundering.

I was lucky that fortune favoured the bold, or at least the keen follower of Lighting+Sound International advertisements. One way or another I was put in touch with Peter Byard of Model Box, suppliers of Autolight software programmes. Since they are also heavily into providing computer services as well, I was invited to join him and his colleague Chris Toulmin for a brief chat about the business. Over four hours later, we were still involved in our brief chat. If I retained little about the technology of computers it was simply because I was too thick to grasp and memorise the vocabulary, but I was excited by the demonstration of how versatile, flexible and comprehensive the equipment can be when associated with imaginative software.

I can't offer the details because it was all so new and impossible to accurately recall just where Autolight, Laplight and a great variety of databases and softwares started and ended.

I left with a series of impressions, the strongest of which was the remarkable quality of some very complex images which were pictorially quite superb, and created on equipment which is not expensive when compared to costly video effects machines. I admired the dexterity of the operators, although sometimes it seemed that whilst complex changes were easy, simple ones needed more operational movements. I liked the ability to position any type of lamp at will, to alter it, check intensity and even read the beam spread and overlap - all illustrated with clarity and detail including shadows, gobos and colours.

When the designer has used CAD for original drafting, all of the scenery details are available for lighting and effects to be overlaid and viewed from an infinite variety of positions. After all decisions have been made, then the computer completes the paper work in all of its detail with no effort on the part of the operator, except to pick up the wadge of printed paper.

I was also impressed by the ability to illustrate ideas of design and lighting to the director with clarity. We have virtually no vocabulary to explain our ideas normally, but here, not only can the set be lit and viewed, but camera positions and shots can be examined, including lens angle selection. It was an impressive and thought-provoking demonstration of the potential for the future use of computer and software.

If all this sounds as though I'm on a high, then I'll come back down to earth again. The systems seem excellent for complex, ambitious shows of all types in both theatre and television, perhaps even some films, and they are well proven already where budgets are sufficient to cover the work of expert operators. In my medium, television, it would seem to offer the opportunity to try out bold design and lighting effects for complex shows and large scale outside broadcasts. But for the normal routine shows that provide the bulk of our work, such an aid is unlikely to be utilised.

There is another problem which is perhaps more fundamental. The media industry is extremely conservative and those who have grown up needing only a sheet of paper and a pencil to construct a lighting plot will not be easily persuaded that there might be better ways. It is simple: we know it works because we've done it over the years, as probably our fathers and forefathers did. Why then should we be interested in this alien, and somewhat complicated aid that also costs money? It works well the way we do it now - so why change?

There is sense behind this point of view but I have a nagging doubt that it is partly influenced by the illustration at the beginning of this article. There is a lot to learn about the system before we can begin to use it like our present simple plotting.

Even more complex is the need to rethink our whole method of envisaging, creating and conceiving the lighting. It calls for a radical rethink of a system that seems to work very well in its present form.

Enterprising lighting folk might be wise to overcome this knee-jerk type of reaction and to anticipate the future possibilities of such systems. They already have much to offer and the speed of new development is phenomenal. Peter talked of an add-on card, a circuit board with the electronic capability equal to a fully equipped outside broadcast van of five years ago. What he demonstrated was a small neat panel about one foot by four inches by two inches. That wee unit was the add-on card. Then there is a new Magnetic Optical Drive of about 650Mb compared to the normal disc's 1.6Mb. It is also capable of storing the whole of the Oxford English Dictionary, if that happens to be the sort of thing you should wish to store and read. It is also capable of storing 500 video frames compared to the present disc's single frame. These advances in hardware offer the designer of the software the potential for considerable development of a system which is already fairly impressive.

It isn't necessary to be a prophet to foresee that the time might come when television programmes can be made by creating the design and lighting on computer, with the artistes superimposed later upon the backgrounds and lit in the studio to match the computer generated scenes. The setting, framing, light changes, shadows, moving camera shots, etal will be dreamt up and created on the computer. Everything other than boom shadows, props and artistes.

A farfetched idea? Perhaps! Except that most of it is possible already. It's a historical fact that most groups, not least the crafts, offer a strong resistance to change and a desire to maintain the status quo. But it should be worth the effort to learn something about the subject before deciding to reject it completely for the good old pencil and paper.

Mind you it could be hard going. I've just been told that there is no such thing as a megabit, it is a megabyte and that's not one million bytes, it's actually 1,048,576 bytes.

The ways of the computer world seem sometimes to be. . . just mind boggling.

Bill Lee started his career as a member of the camera crew in feature films and progressed to work with video. When Channel 4 started he left Thames Television to become freelance. He has been twice nominated for BAFTA Awards, is a past chairman of the Society of Television Lighting Directors (STLD) and has been a visiting lighting tutor for several years at the National Film School.

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