

# LIGHTING+SOUND

## *International*



PIRATES IN CRYSTALS: VISUAL MAGIC AT GARDALAND, ITALY

PHOTOS: MALCOLM LEWIS

- Italy's Gardaland: the Technology behind I Corsari
- Specials: Lepage at the RNT; Valley of the Kings; P&O in Hong Kong
- Talking to Lights: David King on the BBC's new Voice Control System
- Strand Lighting International: Tony Gottelier talks to Chris Waldron
- Company Profiles: Canon Audio and White Light
- Intelligent CD control from Revox

**JANUARY 1993**

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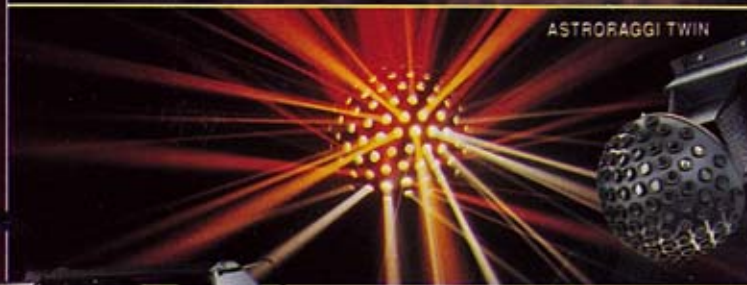
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Nuclear Power for Entertainment?

The views expressed in Lighting and Sound International are not necessarily those of the editor or the Professional Lighting and Sound Association

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## Samuelsons Stage a 'Glittering' Christmas



Samuelson Concert Productions, Samuelson Communications, Vari-Lite Europe and Brilliant Stages pooled their diverse talents in style for Gary Glitter's 1992 Christmas UK and Eire dates.

Gary's manager Jeff Hanlon worked with the combined team to conceive the set design, choreography and live projection - plus the lighting design in conjunction with LD Chris Clow and Vari-Lite operator Fraser Elisha. SCP's Dave Keighley, acting as production co-ordinator, hired Steve Nolan of Chromatic Productions as tour production manager, while Capital Sound provided the PA.

The brief was to give Gary's shows a brand-new look. Dave Keighley told L+SI: "Jeff, Chris and I decided we wanted a new look and a new perspective. Having been involved with Gary's shows for six years, I knew we had to keep certain elements for the fans that were traditionally very 'Glitter'."

Four creative companies co-operating under one roof made it much easier to bring a spectacular production like this to life. SCP and Sam-Com combined their projection ideas - simplifying the rigging task, among other things and saving time and crew costs on site.

Sam Comm provided an exciting visual twist - the video projection which opened each show's second half was of audience members on their way to that night's show, interspersed with local landmarks and scenes of the band in

rehearsal. All footage was edited on site during the first half of the show using Sam Comm's new Portable Production unit - a two camera vision mixing, monitoring and editing suite with Betacam SP editing. A Barco projector and electrically-retracting screens provided the big picture for the audiences.

The lighting too was designed to help create the 'new look' for the show. There was a large Par can rig and trussing system, including 18 moving points, and a much increased complement of Vari\*Lite luminaires, including the new VL5s, which contributed to a far more theatrical and less conventional show than before. **R.R.**

## Wybron's Autopilot Nears Take-off

Following a tremendous response to the launch of their Autopilot concept at the recent LDI show in Dallas, Wybron Inc. of Colorado Springs in the USA is hoping to set a March release for the completed system. Autopilot, which automatically tracks performers in 3-D space and translates this location in real time to automated luminaires, will allow for greater flexibility and innovation in stage lighting and is definitely a product with a futuristic feel and one well worth keeping an eye on, as most visitors to LDI would agree.

"Two major hurdles have been overcome since it was seen at Dallas," Wybron president Keny Whitright told L+SI. "The advancement of Autopilot as a stand-alone product capable of interfacing with most industry consoles has now been achieved. In addition, we have overcome problems associated with the isolation and out-of-sync thresholds that had been causing jitter in the signal flow. These major improvements will undoubtedly aid in the successful completion of system."

For further information contact Wybron Inc. in the United States on 719-548-9774/fax 719-548-0432. **J.O.**

## Icon - No Wooden Image

If Christmas in the West Midlands seemed somewhat warmer than the rest of the country this year, it was probably the huge sighs of relief from Light & Sound Design that helped raise the temperatures.

Ever one to buck a trend, LSD let slip their new weapon almost unannounced on Madness's pre-Christmas Pot Boiler. That 16 of their new 'Icon' automated luminaires performed reliably should come as no surprise to anyone, easy as it is to tilt a stalking horse. LSD have always backed their new products to the hilt and this was no exception.

What was a surprise was how dynamically these few lights were able to stand out in an arena, and they were unquestionably brighter than any rival moving light. With Mark Hunt seemingly without effort able to programme new software into what seems to be an inexhaustible desk, Roy Bennet's enthusiasm for this new system seems well founded.

If imitation is the sincerest form of flattery then the system's crash 15 minutes before curtain on the first night should raise a few wry grins on the older faces at Vari-Lite who remember that first Genesis Euro Tour. Enjoy it now chaps, Icon intends to be in serious contention. **S.M.**



Icons in action with Madness.

## SHOWLIGHT '93

Plans are well underway for Showlight '93 (April 19th-21st, Bradford) which promises to be one of the most successful Colloquiums to date.

Keynote speakers including the Oscar-winning cinematographer Freddie Young, Theatre Projects founder Richard Pilbrow, BBC lighting director Eric Wallis and Rolling Stones lighting

designer Patrick Woodroffe have been added to the already diverse programme of papers.

The first delegate registrations are now in and, as there is a limited number of places available, early registration is recommended. Only one stand now remains available in the exhibition area, and any companies wishing to exhibit should contact Ruth Rossington immediately on (0323) 642639.

## Action News



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## White Light Launch Subsidiary

White Light has formed a new subsidiary company, Technical Insight, which will specialise in all aspects of project management for the refurbishment of theatre and other leisure venues.

Based in Fulham it will begin trading with the prestigious refurbishment of the Duke of York Theatre as its first contract. The new company will co-ordinate extensive improvements to the London theatre liaising with architects, specialist electrical, mechanical and structural engineers. Technical Insight will benefit from White Light's production expertise and administration, as well as Modelbox's CAD design and drafting facilities, and architect John Eales has been appointed to join the new venture.

A full feature on the White Light Group appears on pages 35 to 37.

## Missing Masterpiece

We reported in our December issue that the new Martin Robozap won one of the recent 'Dance Aid Trust' awards. In fact this was a joint win with Pulsar's popular Masterpiece lighting controller. The award was received for Pulsar by Jane Dorling, the company's PR executive.



## OCLI's Single Source Optics

The makers of Dicro filters, Ocli Ltd, have created a new business group with the sole task of manufacturing, marketing and selling filters and other optical components, for use in intelligent lighting units, throughout the world.

The Intelligent Lighting Group, headed by Donald Cameron, is based at Ocli's Scottish facility and can supply not just a standard range of high performance filters, but also custom designed items which will meet individual customer's needs.

As well as colour filters the group will supply high efficiency lenses, mirrors, heat/light separators and sub-assemblies such as filter wheels. A technical consultancy service exists within the group to provide assistance with effect design.

As Charles Watt, Ocli's European marketing manager, told L+SI: "The formation of the group provides the intelligent lighting industry with a single source of filters and knowledge which is backed up by extensive manufacturing experience gained over 40 years."

"It is our intention to offer the industry unparalleled products and just as important, exemplary service," he said.

## Dave Martin

Most readers will have read in the UK national media of the disappearance from his home, on 30th December last, of Dave Martin, technical director of Martin Audio. We hope, as you will, that Dave will soon be back in circulation.

## Getting Sirius at the Players

It was a chance remark made at the end of a highly entertaining evening at the famous Players Theatre in London's West End, organised by L+SI during the PLASA Light & Sound Show, that caused Zero 88 Lighting, through a generous haze of bonhomie, to offer a donation to the theatre in the form of a new lighting desk to replace their outdated manual system.

On Monday December 14, just in time for the annual pantomime, an entirely grand spanking new Sirius 48 memory lighting board was presented and installed by Zero 88 represented by directors David Catterall and Freddy Lloyd. L+SI's editor John Offord went along to take the pictures and ensure fair play.

Players Theatre directors Dominic Le Foe and Geoffrey Brawn were present to get their hands on the new equipment, as were chief electrician Kendall Johns and his assistant Simon Macer-Wright. Also proudly in attendance was Johnny Dennis, stalwart of the Players, and popular chairman on the evening of the special L+SI night last September.

The Sirius has already saved the Players a great deal of pre-show production time and Kendall Johns was delighted to get his hands on it prior to the pantomime - for obvious reasons.



The Sirius arrives at the Players: David Catterall, Dominic Le Foe, Freddy Lloyd, Geoffrey Brawn and Johnny Dennis in a VIP line-up for the customary hand-over.



The champagne ready, and Kendall Johns and L+SI's John Offord join the team for a celebratory glass.



Wired for lighting: Kendall Johns, David Catterall, Simon Macer-Wright and Freddy Lloyd announce all systems 'go'.



A quick ten minutes check-out of Sirius features with David Catterall and Kendall Johns (right) is ready to programme for the pantomime.

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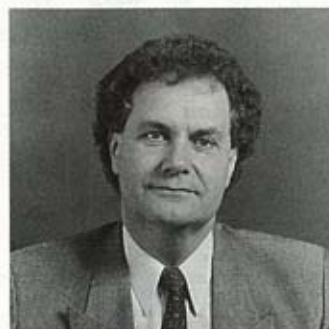


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## PEOPLE IN THE NEWS

The past six months of intensive reorganisation at Le Maitre continues with the news that **Dick Carrier** has left the company, after almost 13 years of continuous service. Carrier, better known for his role in charge of Le Maitre's successful mid eighties installation and distribution division, LSD, announced his decision within a few days of the New Year. He has now joined Lightfactor Sales. Le Maitre's UK sales manager **Dave Winfield** will continue to oversee the distribution of Le Maitre's branded products, including proprietary makes of sound and lighting equipment, aided by recently promoted sales assistant **Shereena Fisher**.



Martin Kelly.



Darryl Thorpe.

Zero 88 have appointed **Paul Fowler** as UK sales manager. Paul is a well-known face in the industry and was previously branch manager with Lancelyn Theatre Supplies. Prior to this he was several years with Donmar as special projects manager. Paul will have special responsibility for AVAB and Niethammer ranges, in addition to the sales of Zero 88 products.

Following the departure of **Bob Cummings** from Ohm Industries, **Darryl Thorpe** now heads up the sales team with UK sales being handled by **Bernie Bowyer**, **Paul Adamson** and **Chris Lord**. Jo Olenski remains chairman of the Ohm Group of companies whilst Bo Olenski continues as Ohm's MD.

Following the panto season **Francis Reid** has returned to the Far East as Dean of the School of Technical Arts in Hong Kong. From April 17th he will once again be UK based. Future plans include New Zealand masterclasses in late May and a British Council course in early September.

Martin Audio have appointed **Martin Kelly** as sales and marketing manager. The appointment coincides with the recent introduction of the EM Series of installation and contractor loudspeakers. The company will be marketing these through a strictly controlled dealer network in the UK, and its export distributor base. **Nigel Collison**, formerly Granada's manager at Options nightclub in Kingston, has been appointed to the board of directors of VSI Clublife.

## US Approves Intellalaser

A joint venture between High End Systems in the US and UK-based Laser Grafix, the Intellalaser is a modified Intellabeam intelligent lantern fitted with a Laser Grafix laser head using state-of-the-art fibre optics for laser transmission. The unit is capable of providing stunning effects and is in heavy demand in Europe from both the touring and fixed installation markets. It was officially launched in the US at the recent LDI expo in Dallas. Officials from the Texas Department of Health inspected the equipment at LDI and have issued a certificate of compliance for use in that state, where strict laser safety regulations are in force.

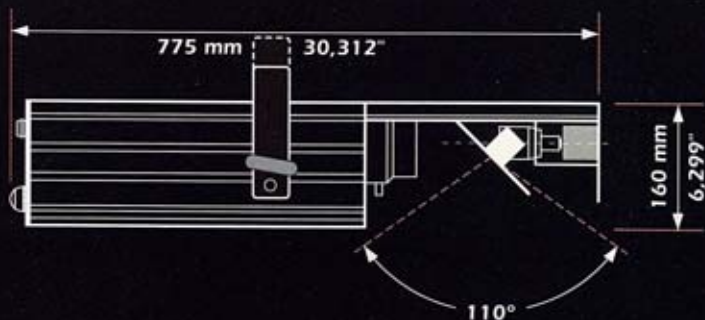
Laser Grafix' Mark Brown told L+S: "We wanted to test the US market, and were amazed at the response we received for the 4-head system that we had on show." The Laser Grafix Nexus fibrehead fits directly onto the Intellabeam lens assembly, and the prime advantages of the arrangements are that the laser source appears at the centre of the Intellabeam light source and does not affect the normal working of the intelligent unit. Also the even-colour Purelight laser source is capable of scanning in separate axes from the non coherent 700 HTI lamp of the Intellabeam.

## Techno-Dressing

The Clothes Show, which took place recently at Earls Court 1 in London, boasted one of the largest fashion arenas ever built. At its centre was the longest catwalk in Europe (the length of a football pitch) which was the focus for a full fashion display lasting 40 minutes. As is usual with these events, the more sartorially-disadvantaged amongst us were providing full technical support behind the scenes.

The Music Company designed the sound system which had to generate, at the request of the organisers, high volume and loads of excitement. The main thrust of the sound system was provided by d&b audiotechnik E1, F2, B1 and F1220 loudspeakers and controllers. Two Akai DD 1000 provided the sound source routed through a Midas XL3 console and three Turbosound TXD 530s were also in use. The lighting system which featured an array of Parcans and searchlights was supplied by Meteorlites.

In the main Clothes Show exhibition in a separate hall, a giant video screen, supplied by Screenco, was attracting most attention. While the screen has been at the show for three years, this year the 48 square metre display was bringing visitors more close-up action of the event than ever before courtesy of a feed of pre-recorded and live coverage via a microwave camera link. **R.R.**

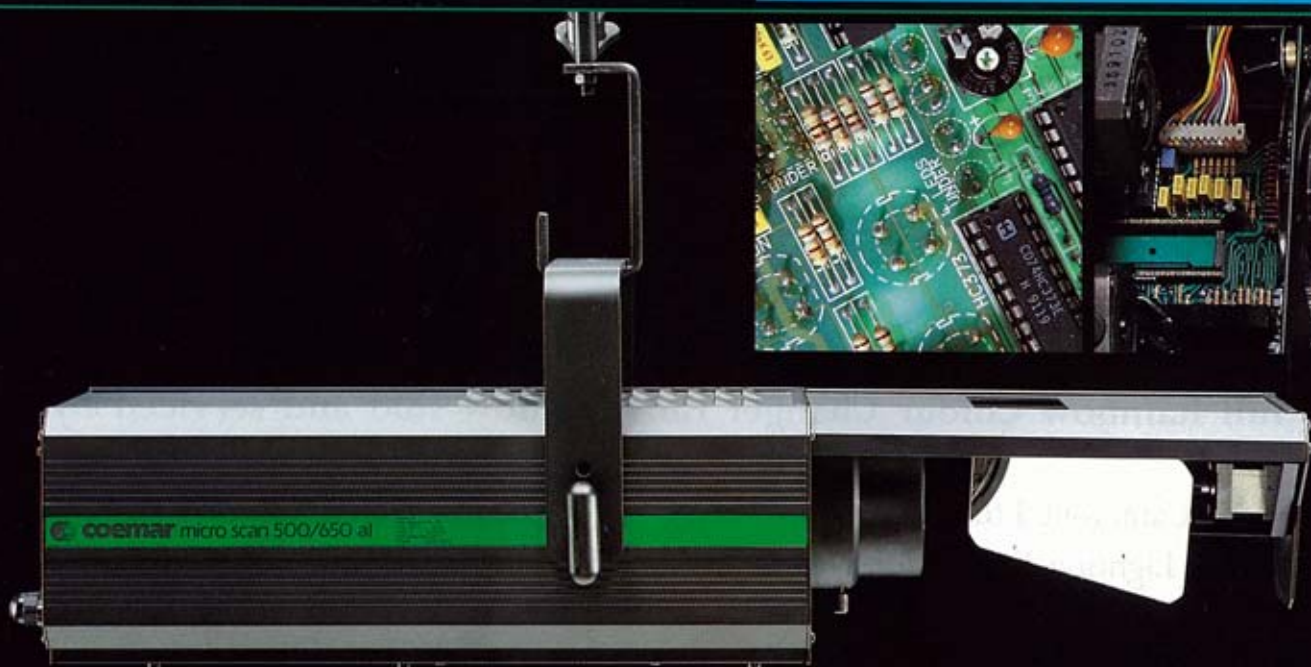


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## Indignant Rigging

L+S received a very simple fax the other day. The message read:

"How do you think they got it there? They used a \*\*\*\*\* rigging company, didn't they!"

This was in response to our question (December issue, page 16) as to how Imagination got a 80 foot tall Christmas tree into their atrium at their London HQ (the same venue, incidentally, for the special presentation covered in our article 'Valley of the Kings' on page 28 in this issue).

Unusual Rigging's Matthew Abercrombie (the very same guy who used the rude word in the fax), gave us the exclusive background story on how the trickery took place. "Every year, in November, I send a note up my chimney addressed to Santa, and every year the note says: 'Dear Santa, that company Imagination want to put up that \*\*\*\*\* tree again in their shop. Could I borrow a couple of elves for a day or two? Yes, I know it's your busiest time of the year and, yes, I know trees are supposed to be outside. But if we don't do it they'll never employ us again and we'll all be out of work - so please help!'"

"Sure enough, every year on November 26th when our Unusual Rigging people turn up to put the pretty lights on the front of the shop, lo and behold, inside there's a great big tree all lit up and sparkling, and in the air a hint of magic dust."

L+S faxed back and said: "\*\*\*\*\* Magic!" Now tell us the real story!

The simple facts are these: The tree arrives in two pieces (ever seen an 80 foot trailer negotiating the West End?). It is crained down onto trolleys and wheeled round to the side of the building and through to the rear entrance. Two-ton hoists are pre-rigged in the top of the atrium and from there on it's a fairly standard rigging operation.

The question we forgot to ask was how they get it out and do Unusual Rigging get a bonus if they manage to do it and leave all the pine needles on the tree. More next month.

## Anytronics to Rescue



Anytronics power packs have found a new calling in life, and by doing so have given proof positive that they are the sturdiest little beasts going. The story goes like this . . .

The power packs were specified by Maltese company Marbelt as part of the equipment inventory for a concert taking place on the island. A few hours before the performance was due to start, one of the technicians was below the stage carrying out some last minute adjustments during a sound check when the whole construction collapsed. As our picture above shows, if it hadn't been for the Anytronics power packs, the technician might have been singing falsetto in the choir or much, much worse.

## Brilliant Expansion

Due to the increased workload secured since joining the Samuelson Group, Brilliant Stages have acquired an additional 11,000 sq.ft of warehousing which is conveniently located near their existing offices. The extra space will allow the Brilliant team to build three sets simultaneously. General manager Charlie Kail told L+S: "My ambition has always been to have a facility of this nature to enable us to cater for the largest rock and pop stages as well as the industrial and commercial stands."

## Great Minds . . .

Hardly was the cat out of the bag on Strand's new Leko launched at LDI in November (see feature this issue), than new competition was moving upstage, and threatening to grab the limelight. And this from a most unexpected quarter. Electronic Theatre Controls (ETC) is a leading-edge manufacturer of lighting desks in the US and OEM supplier of Arri (GB)'s Imagine and Mirage boards.

Also in a stylish die-cast aluminium body, the major claim for the new Phase Four ellipsoidal is that, as a result of improved optical performance, up to 40% more light is delivered than from a conventional 1k equivalent. Since Phase Four uses Entertec's 575W HPL lamp, ETC can also claim to a saving in power consumption of 45% and up to 62% efficiency in their luminaire from its four-coil compact filament.

In a decidedly unfriendly act ETC lined up their Phase Four alongside the Strand, Altman and Colortran 1k ellipsoidal luminaires to prove their point. However, they hadn't got hold of a Leko 3 so the comparison was already a piece of history. Other proud boasts for Phase Four are improved heat dissipation, due to an integral heat sink in the lamp, and the cooler beam which results should extend pattern and gel life, while it is claimed 'superior' optics provide projector quality imaging. Since the lamp is not available in a 230v version, its appearance in Europe will be limited to the 'twofer' which traditionally has also been done with the Par 64 and, of course, with the Leko before suitable Halogen lamps came available. Nevertheless, the stage would seem to be set for a battle royal between the new fixtures to gain the volume market middle ground in performance lighting in which both companies will have invested considerable funds and corporate pride.

However, Round One would seem to have gone to the challenger who walked off with both 'Best New Product' and 'Best Stand Design' awards at LDI. T.G.

## Teatro for Italian Distribution

Luminaire company Teatro recently acquired the exclusive distribution rights in Italy for Smoke Factory German smoke machines and DHA lighting effects out of London. In addition, the company has also announced the introduction of two control desks, the T12 and T24, and the Tdim dimmer pack, all tailored for the Italian market.

"Italy has its own way of doing business, and it is almost impossible for a non-Italian to comprehend the complexities of the system," managing director Mike Lowe told L+S. "Having worked with Italian suppliers for over 15 years, I took good care to find just the right person to take the Teatro name and products into Italian home market." The person he was fortunate enough to find was Chiarrà Pellicelli, who joined the company last July and who is now responsible for selling products throughout Italy. "Chiarrà knows the market very well as she has worked with other suppliers for a number of years and is therefore familiar with the customer base and methods of trading," continued Mike Lowe.

Teatro is now looking for additional products to distribute on an exclusive basis in Italy. With Mike Lowe's international experience coupled with Chiarrà's local knowledge, the company is in a unique position to offer world-wide manufacturers an excellent method of entry into the difficult Italian market. (Teatro's contact information is included in this issue within the PLASA International Member listings).



Mike Lowe and Chiarrà Pellicelli with a Smoke Factory 'Scotty', DHA effects and Teatro lanterns in the company's Castel Goffredo showroom.

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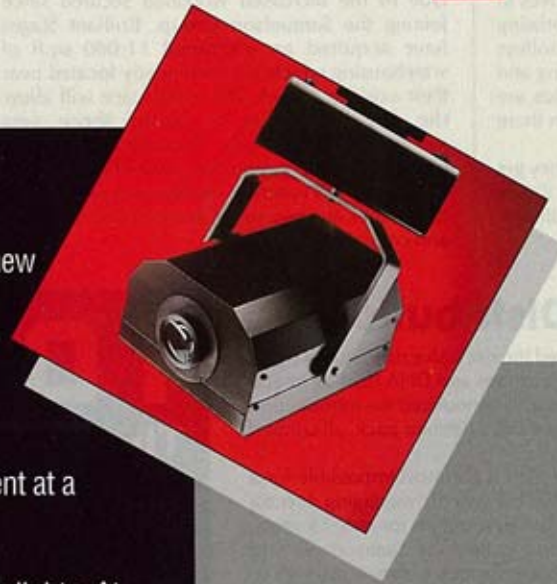
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## NEWS SHORTS

**Michael Samuelson Lighting** have opened a new depot at Meridian Studios in Southampton. The manager will be Bev Snelgrove, until recently head of lighting at TVS. The Southampton base will complement the existing network of branches in Cardiff, Glasgow, Leeds, Manchester, London and Pinewood.

**VSI Clublife** having just signed a number of Far Eastern contracts and having completed the Old Kent Road's newest nightclub the 'Jack of Clubs' have now secured the contract for Oxford Polytechnic's 'Morrell Hall' discotheque in Oxford. According to VSI, the club will feature some very futuristic lighting rigs made from rigidised metal sheet, all the lighting including Roboscans will be hidden with just the light sources visible through irregular holes in the sheet steel. A JBL/Dare sound system with amplification by Citronic will be used to test the students hearing capabilities.

**Tannoy** has won an Export Award for its success in supplying loudspeakers for karaoke machines to the Japanese. The award, sponsored jointly by the Scottish Council Development and Industry and the Japanese External Trade Organisation, is designed to draw attention to the value of Scottish manufacturing exports to Japan.

**Sennheiser UK** have supplied the entire mic kit for Greece's new Megaron Mousikis Athenon concert hall development, in a £100,000 deal for sound installation company, Elliott Bros Audio Systems. The contract covers the entire microphone and accessory requirements for the two concert halls and fully digital recording studio that are contained within the centre.

Belfast-based **Walker Audio** have supplied a Soundcraft Delta 8 mixing console to BBC Northern Ireland. The mixer is to be used as a sub-mixer in a Type 6 CMCR and has been modified to suit the requirements of the BBC. Walker Audio have also supplied a second Soundcraft SAC 100 to the North-West College of higher education in Londonderry, and an AKG hard disc editing system to Downtown Radio.

The world famous Abbey Road Studios have installed a **Vestax MR-44** multitrack in their new writing facility. Abbey Road's Mike Jarratt used the system in the new facility after machine evaluations. On the product front Vestax report that the MR-44 and MR-66 series is shortly to be joined by MSX-2, a unit that will synchronise additional machines to enable 'modular' building of track facilities.

**Envo-Tech** have just completed a total update of all sound and lighting equipment at The Park, Chorley. Their brief was to bring the lighting up-to-date, which they did with a combination of Coemar and TAS equipment controlled by a Pulsar Masterpiece and dedicated controllers. On the sound front, the main system featured 12 Toa speakers with Toa and Klark Teknik signal processing and amplifiers.

Following from their most successful PLASA show to date, **Doughty Engineering** have had two consecutive months of record sales. As well as eclipsing their sales targets for November, Doughty were also represented for the first time at the LDI show, courtesy of Head-Water Industries of Canada. As a direct result, they have now established a network of distributors through North America.

BBC Pebble Mill has completed the stereo upgrade of ten of its editing suites with the purchase of a Klark Teknik DN735 Solid State Audio Recorder from dealer **Raper and Wayman**. This also marks one of the first sales of the London-based dealer under new Klark Teknik UK distributor **Network**. Network have recently been appointed as exclusive UK distributor for Lab Gruppen's range of amplification products. Formed only three months ago, the company also handles Nexo in addition to the above two lines.

Australian-based **LSC Electronics** is very busy on the international front having just shipped three 72 channel Tour series dimmer systems to China complete with Precept+ control desks, 10 of the new 10-way splitter units to the Helsinki Opera House, and the first of the DMX512 Series H dimmers to Bali's Nusa Dua resort.

Hertfordshire-based **Cyberdesence** have expanded their special effects ranges with the addition of 5kW tungsten halogen 252 effects projectors and conventional 2000 range projectors and various crossfade units, some of which are specifically designed for theatrical use.

**R B Lighting** have had a very busy season as long

term major CCT distributor. Current projects include delivery of over 60 luminaires, including the latest Silhouette Turbo profiles, to the Royal Theatre, Northampton in December, a large shipment to Hong Kong of 2k Starlette fresnels and the supply of various CCT equipment including 14 Coloursette semaphore colour changers to the Arts Theatre in London.

As a result of funding from the ITVA/Channel 4 Freelance Training Fund, a total of nine **BKSTS** training courses for this year will receive sponsorship. The courses are aimed at freelancers and will cover lighting for 16mm film; sound recording; location lighting and 35mm motion picture cameras. For further details or copies of the training programme, contact Anne Fenton at BKSTS in London on 071-242 8400.

Rig hire specialists **Star Hire** have incorporated **Vitavox S6** speaker drivers into their Turbosound Festival System which is hired out for use at outdoor performances by symphony orchestras and rock bands.

In a record-breaking 1992, **Marquee Audio** report that they have sold 126 Soundcraft consoles, spanning the company's entire range of SR desks. Most recently, Marquee delivered a Europa console to Delta Sound, whilst a Venue console went to the Jazz Cafe in London, and the Royal Festival Hall boasts a new Delta DLX, supplied by Marquee as part of a Court Acoustics installation.

## Autograph Sound Under Milk Wood

The opening of Lyndhurst Hall, Air Studios' new London premises, was celebrated on December 13th by a Royal Gala concert in aid of the Prince's Trust. Autograph Sound Recording designed and installed the live sound system for the event, which featured a two-hour orchestral production of 'Under Milk Wood'.

The company installed two separate sound systems for the Gala concert, which was based on the CD version of 'Under Milk Wood', released by George Martin four years ago. One system accommodated signals from the 24 Micron radiomics and 18 orchestra microphones, whilst the other was dedicated to handling the numerous sound effects employed on the show. The task of replaying the 150 effects, which included voice-over passages, was shared between Air's Audiofile unit and two Akai samplers.

Directed by Anthony Hopkins and presented by Imagination Entertainments, the show featured a star cast of 22, with support from a 12-voice male choir. The system design included Meyer Sound loud speakers, positioned in a central cluster, complemented by further units arranged in twin pairs with sub-bass reinforcement. Lyndhurst Hall is split into two levels and Autograph also installed rear loud speaker pairs in each of the upper galleries to maximise the impact of the atmospheric sound effects. Each system was mixed via a Cadac console, with both being fine-tuned by a Meyer SIM System II analyser to ensure the fastest possible commissioning time.

Autograph's Nick Gilpin operated the sound effects system and triggered the samplers from a keyboard, whilst Paul Stanner mixed all the vocals and the 16-piece Wren orchestra. Air Studios' engineers John Jacobs and Geoff Foster recorded the performance using split feeds from the auditorium systems, and also provided a guide audio track for the Chrysalis Television Mobile. Lyndhurst Hall has been wired to accommodate Autograph Sound Recording's standard of multi-way connectors, to allow the easy interfacing of future projects.

## OOPS and Sorry!

The Christmas gremlins paid a visit to the offices of Lighting and Sound International with a seasonal two finger salute to our captioning department. Our apologies to Frances Thompson and Mike Garl of Thomas USA who we clothed in another company's garments, to all at the Vari-Lite party who, due to some back-to-front trickery, were not who they seemed, and finally to John Orentas, Tom Needham et al at Frances Searchlights who likewise became victims of the gremlins. If you spot any more, please don't tell us - we swear we won't touch the gin again. The assistant to the assistant head of captioning has been sacked.



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**Solar Goes Euro****Neil Rice with the Solar 575.**

Optikinetics new Solar system has just completed a month long series of shows as part of the new year European unification celebrations in Brussels.

Two Solar 575 projectors, one fitted with the Solar system, projected images across the Grand Place onto the facade of the Hotel de Ville.

Three shows each evening featuring carols from each of the E.C. member states were staged by the Belgian electricity company Electrabel/Sibelgaz, based on a idea by Jean-Marie Detienne.

Custom 'D' size gobos representing the 12 member states and the 12 yellow stars of the European flag were mounted in the Solar system. These were programmed to change and revolve on cue via a Pulsar Masterpiece 108.

The second Solar 575 provided the blue ground of the flag. The equipment was mounted externally at first floor level of the Maison du Roi in a specially built housing with a heater and thermal controls to keep the electronics from freezing when the projectors were not in use.

The Solar system was chosen by Electrabel because of its programmability and 16 gobo capacity. Optikinetics projection equipment and the Pulsar control system were supplied by Belgian distributor Ever Radio Violette.

**Philips Light Tallest 'Christmas Tree'**

In IJsselstein, near Utrecht in the Netherlands, was, according to Philips, the tallest 'Christmas tree' in the world. The 'trunk' of the tree was formed by the 375-metre-high mast of the Dutch Broadcast Transmission Company (NOZEMA).

On the cables supporting this gigantic mast were Philips Micro Power-Light gas-discharge headlight lamps which are extremely small and feature 35 watt light sources (slightly larger than the head of a match).

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**Protek Expansion**

Protek's latest loudspeakers, the K Series and the SR Series, both launched at the PLASA Light and Sound Show in September, are proving a great success for the company. The most recent installation using their products was at the Cahir House Hotel in County Tipperary where six K12s and two K15s were involved.

Protek are the only speaker manufacturer in Ireland and are based in Dungannon, Co Tyrone and they've been in the business for the past eight years with their first factory opening in 1986. Their first trip into Europe took place when they demonstrated their speaker range at SIEL (Paris) in 1989.

**Protek SR Series.**

Despite a disastrous fire in April 1991, they managed to continue the business and have since gone from strength to strength, with new premises opening in April last year. As well as speaker manufacturing, which incorporates Eminence drivers, Protek also manufacture high quality flight casing and can custom-build systems at 'affordable' prices.

"Our success comes from high quality products with all cabinets manufactured from Baltic Birch ply and having a very dedicated workforce," said Protek's Noel Boyd. "In March we will be at the Frankfurt Music Fair with PSL Amplification for which we are all-Ireland distributors."

The company is currently looking for more distributors in England, Europe and the USA. Contact number is (08687) 47327.

Following our feature celebrating 35 Years of Theatre Projects (November, 1992), David Col-lison has asked us to point out that the picture of him on page 47 was actually taken during commissioning of the sound desk in the National's Lyttleton Theatre, and not during rehearsals for Jesus Christ Superstar as stated.

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## High Praise for Carousel's Sound

The Royal National Theatre's production of 'Carousel', which opened at the Lyttleton earlier this month, has received excellent reviews for both the production and the sound quality. At the heart of the sound system is a 61-input Cadac J-Type mixing console, with a 12x24 matrix and 12 VCA masters. The show, which was re-scored for a 27 piece orchestra with a 30+ strong cast, uses a total of 18 radio mics and approximately 70 loudspeakers to achieve the deceptively 'pure' sound quality required by director, Nicholas Hytner.

The team provided by the NT for the sound design comprises Paul Groothuis and Mike Walker, with the aim being to provide the minimum possible sound reinforcement to ensure optimum clarity. Paul Groothuis told L&S: "The nature of Nick Hytner's brief placed a greater emphasis on using the cast's voices as the main anchor for the sound.

"This is in turn assisted by the use of a top quality console, providing the foundation on which the rest of the system is built. The Cadac fits the bill perfectly, with the added bonus that it is tailor-made for theatrical applications. We needed a stalls sound position, and this desk takes up just seven seats. The desk is angled off to the side of a fire exit, with Cadac even removing the armrest on one of the frames to give us a valuable extra three inches in order to conform with fire regulations. With a relatively short-run production such as 'Carousel', keeping the space requirement to the absolute minimum is essential."

The sound system comprises Apogee AE-5s and an EV Deltamax 1152S and sub bass cluster for the proscenium, whilst for the orchestra EVS200s and Galaxy Hotspots offer comprehensive orchestral foldback. Some of these are rigged on masking flats which fly out during scene changes. The amplifiers are a mixture of Amcron, Carver, Quad and C-Audio.

Processing-wise BSS, Yamaha and Klark Teknik provide the graphic equalisers, delay lines and reverb units with most of the programmable processing having MIDI system exclusive information, so that all the data can be stored in a MIDI library on the Cadac PCs.



Paul Groothuis at the Cadac desk.

On the microphone front 25 actors in all wear radio mics, which are either Sennheiser MKE 2 2-R-RD or Sony ECM77Bs, involving transmitter

changes which are conducted by two onstage sound operators.

One unforeseen aspect of the sound design involved overcoming the problem of the orchestra pit location. An area below the stage was specially created, directly under the revolving stage section.

This caused severe vibrational problems when the stage was in motion, which could only be overcome by completely isolating the pit construction. This involved siting it directly onto the National's concrete foundations, using a combination of plasterboard and the BBC-developed RMD girders for the construction itself.

The Lyttleton Theatre sound system is currently undergoing refurbishment, with some of the above equipment being bought as part of this process. The remainder is on hire. Almost all the multicores have been run in for this production, enabling a new jackfield to be installed whilst 'Carousel' is running.

The show runs at The Lyttleton Theatre until 27th March, 1993.

## LCI Seeks Agents

Due to the success of their involvement in Expo '92, Laser Creations International are actively seeking agents to promote their service and products internationally.

LCI have received a substantial increase in enquiries over the last 12 months with many generating from the Middle and Far East. Branch offices are planned for a number of these countries as well as new agencies in others. A new logo, brochure and video have just been released. Interested parties should contact Marc Ritchie or Colin Lane Rowley on 081-741 5747 for details.

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## Pulsar Open Doors

Pulsar's 1992 series of educational seminars got off to such a good start that the company have decided to develop the scheme further during the coming year.

They are planning to condense the introductory and advanced seminars into a one day intense training course, leaving the next day as a hands-on 'Open-Day' for all candidates wishing to apply for a certificate of achievement and approved user card.

The new 'Open-Days' will also be available to any other individuals wishing to visit Pulsar to view any product in the Pulsar and Clay Paky ranges. All reservations should be made in advance in writing or by fax to Sabrina Marengi, sales and marketing assistant. The seminar dates for 1993 are as follows: 26 January/27 January, 23 February/24 February, 30 March/31 March, 4 May/5 May, 1 June/2 June, 29 June/30 June, 27 July/28 July, 31 August/1 September, 28 September/29 September, 26 October/27 October, 30 November/1 December. For further details contact Pulsar on (0223) 66798

## Wembley at V&A

Wembley Loudspeaker Co has supplied the sound system for the audio-visual presentation at the 'Sporting Glory' exhibition currently running at London's Victoria and Albert Museum. Wembley installed eight Spyder speakers, four 2820 subs and Citronic amps and crossovers.

## Strand Distributors

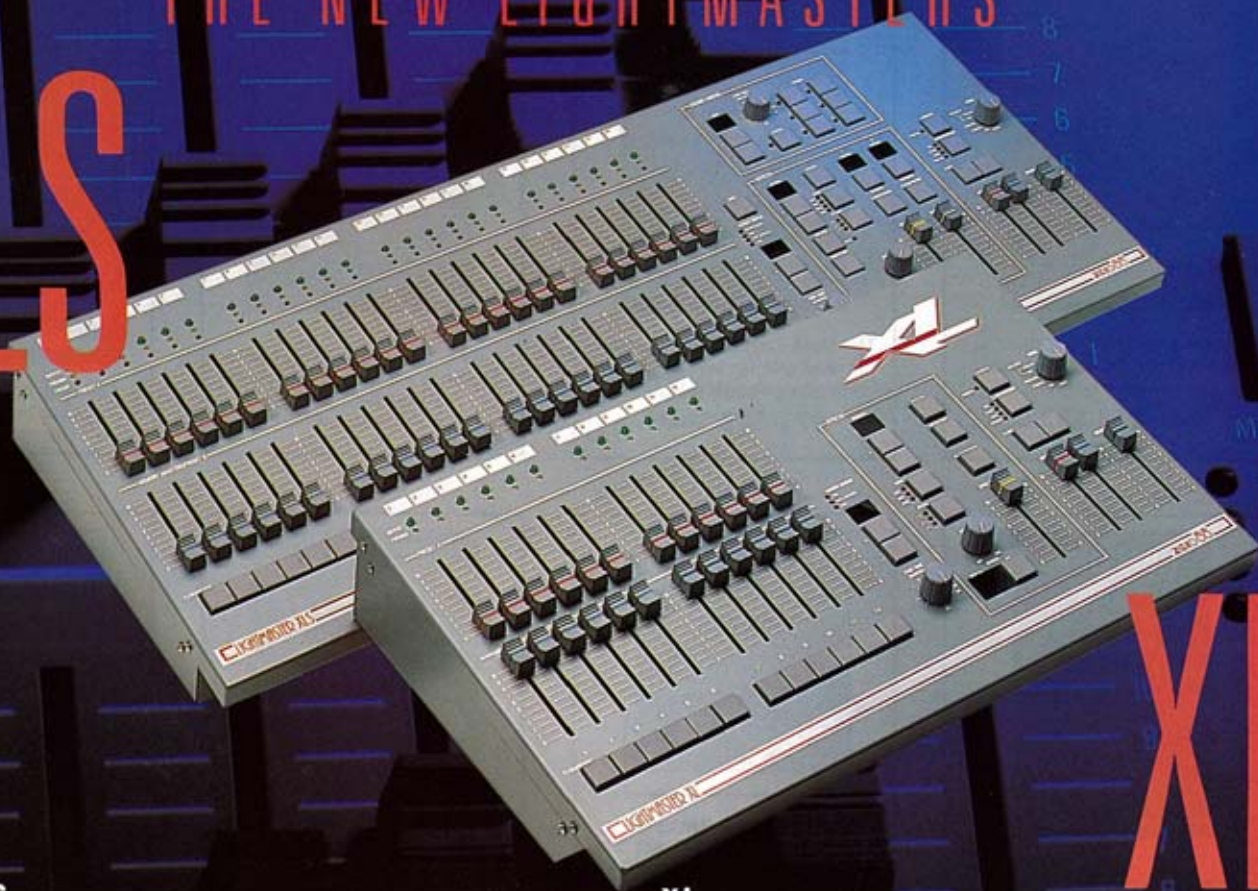
Strand Lighting has appointed two new distributors. The main distributor for Strand and Quartzcolor products in the Netherlands is Barndoor BV, who are based in Amsterdam. In the UK, Strand have welcomed back Donmar Limited as a main distributor for London, and dealer Midland Theatre Services are expanding their operation with the opening of new premises in the East Midlands at Leicester. They can also now be contacted at 35 Oswin Road, Brailsford Industrial Park, Braunstone, Leicester LE3 1HR.

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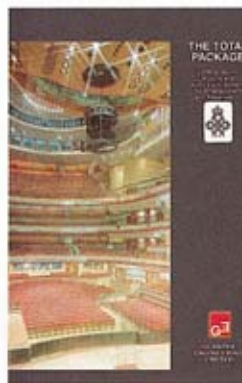
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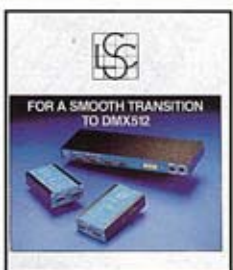
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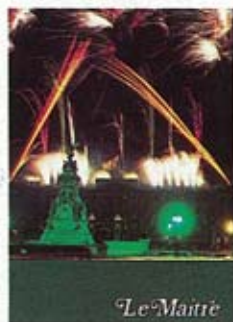
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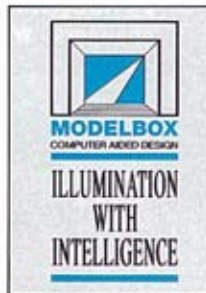
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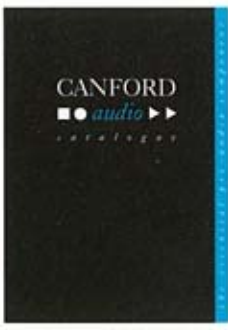


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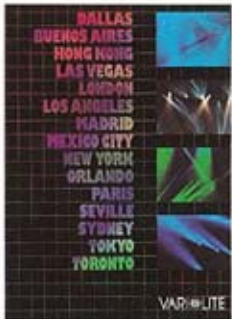
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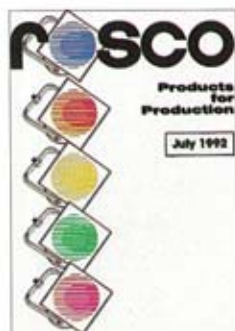
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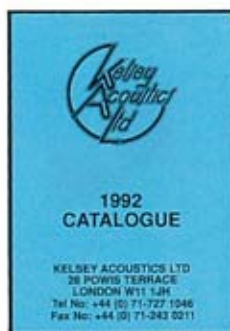
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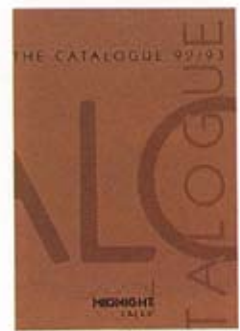
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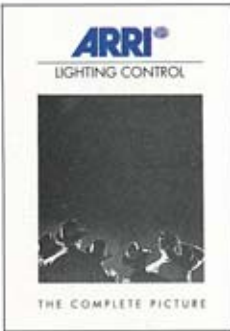
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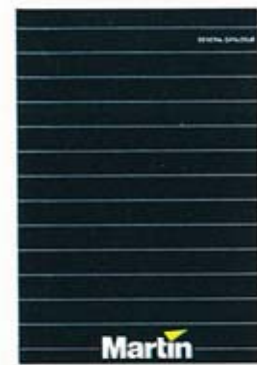
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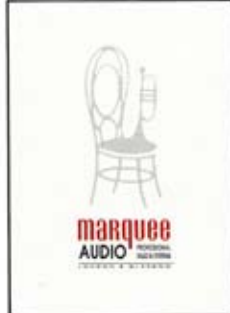
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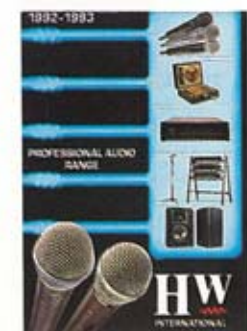
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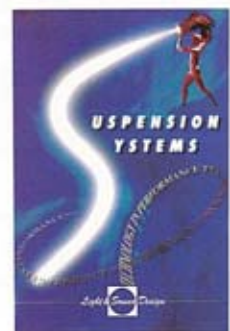
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# NEEDLES & OPIUM

Jonathan Gottelier Reviews a solo piece by Robert Lepage at the Lyttleton Theatre, RNT

Robert Lepage is making quite a name for himself: artistic director of French Theatre at The National Arts Centre (Canada's National Theatre), first North American to direct Shakespeare at Britain's Royal National Theatre, and the accolade of having had an edition of the BBC's Omnibus made about him. The word genius is regularly linked with his name.

Add to this the fact that at the time of the performances of *Needles & Opium* in November last, his productions were filling the two largest of the Royal National Theatre's three auditoria - The Olivier Theatre was playing host to Lepage's production of *A Midsummer Night's Dream*, and you begin to realise the level of impact he is making.

*Needles & Opium* is a stunning piece of theatre, all the more impressive for the fact that it is a solo piece. It takes three unconnected stories and weaves them into one spell-binding piece, pulling elements from each of the three stories, making emotional or accidental connections between them, and continually flitting from one story to the other. The three elements are as follows: Hotel Louisianne, Paris, 1989 and a young man is on the line to New York trying to reach the lover who has rejected him; Hotel Louisianne, Paris, 1949 and Miles Davis is falling in love with Juliette Greco; high above the Atlantic Ocean, Jean Cocteau, flying back after his first trip to New York, drafts a letter to the American people.

At this point you may be saying to yourself, why is L&SI covering such a small scale theatrical production, no matter who it's by? The answer to these questions lies in its staging and is best provided by a quotation from the Observer's review of the piece: "*Needles & Opium* is the most technically adroit and emotionally coherent mixed media presentation I have ever seen".

To help him combine the different elements within the show, while at the same time keeping them distinct and also keeping the audience clearly informed of what is going on, Lepage has used a whole cocktail of different techniques: back projection, front projection, overhead projectors, slides, 16mm film, flying



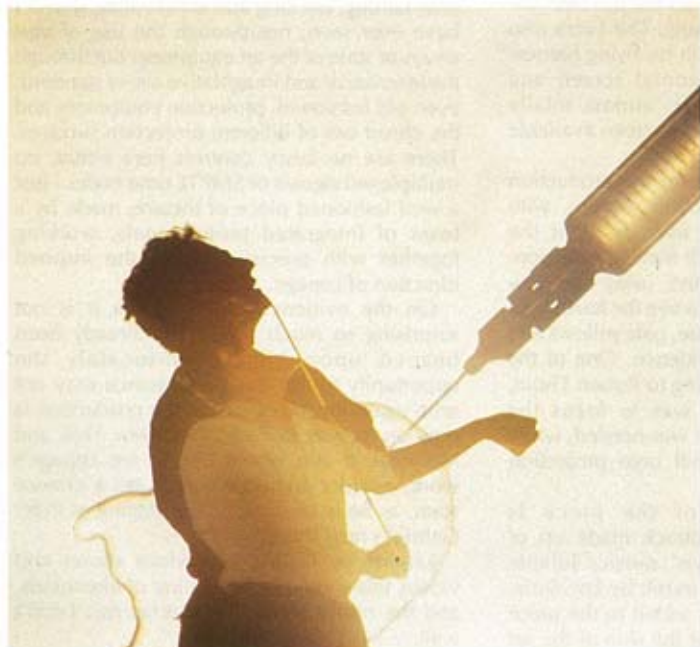
Above and below, Robert Lepage with his solo performance of *Needles & Opium* at the RNT.

harnesses, rotating screens and even sub-titles.

The stage itself is dominated by a large screen approximately three and a half metres square, supported at both sides by two-metre high pillars of red aluminium trussing and surrounded by a larger truss frame. Cantilevered from each top corner is a trussing arm, with a six-bladed propeller at the end.

The screen stands on a riser, about one metre high and five metres wide by three metres deep. This acts as a stage, giving the feeling of a

smaller, more intimate performing space within the larger auditorium. It has other benefits as well, allowing up-lighting and smoke to represent the pit of hell in one scene, facilitating Lepage's assistants to quickly and unobtrusively set the props for the next element of the piece while Lepage himself continues with the performance (the piece is one hour and 25 minutes long with no interval). The front of the riser is also used as a screen onto which are projected sub-titles, which explain to the



audience where the present part of the piece is, in time and space.

The screen itself is the main focus for projection; it also acts as a boundary, keeping the three elements of the piece separate. All the 1989 action happens in front of the screen, the Miles Davis element happens behind the screen and the Jean Cocteau element above it. The screen is able to rotate about its horizontal centre, allowing Lepage to move quickly from front to back and vice-versa. The Miles Davis element is largely back-lit, thus Lepage becomes a silhouette against the screen, removing any problem the audience might have in accepting the red-headed, caucasian actor as Miles Davis. Also, from behind the screen, an overhead projector is used to great effect. Small scale action happens on the platen of the projector (the assembly of a trumpet and the preparation of a heroin fix), and is rear-projected onto the screen. This allows the audience to be privy to what is happening, yet at the same time keeps the feeling of intimacy of these symbolic acts. The OHP is also used to show the meeting and romance of Davis and Juliette Greco. They meet in a cafe, the projector platen acting as the cafe table, thus you see the glasses of wine poured and removed, and the lingering first touch of hands between the two. This method of using the OHP allows Lepage to communicate subtle and intimate actions to the audience, which would otherwise be difficult enough in a normal theatre performance, and impossible in a solo piece.

Lepage also interacts with the images generated from the OHP. When the heroin injection has been prepared, the normal-sized and silhouetted Miles appears on the screen along-side the syringe, seemingly as large as himself, and is injected by the hand which has prepared the fix (all OHP manipulation is done by Claude Lemay).

In addition to the OHP, there are also two slide projectors behind the screen. These are used in combination with three other slide projectors and a 16mm film projector front of house. Many of the effects used are created by the rapid changing of images and the switch from front to back projection. Thus a twinkling star field (not unlike a Starcloth) is generated by switching between images on the three front of house slide projectors. Lepage appears as a ghost-like image behind the screen by combining back-light and light from the sides of the stage and by combining front-projection with back projected images on the screen, and only materialises when part of the back-light source is obscured by a silhouette.

When Lepage becomes Jean Cocteau, and is supposed to be flying back across the Atlantic, he is flown up above the screen, which is then angled to give the impression of the land below. In addition the cantilevered arms swing in from the truss and the propellers start to spin, giving the impression of the plane on which Cocteau is travelling. This gives not just the image of the plane, but also the hum of the engines, for the sensation of flying. The propellers, however, also serve another purpose. Later in the piece they become yet another image surface, onto which are projected line drawings of eyes and then hands. This use of the propellers is very effective, in no small part due to its unexpectedness. Suddenly out of nowhere there are two large eyes staring at you. The flickering caused by the propellers themselves only serves to add to the effect.

Much use is made of the flying harness, with Lepage sometimes sitting motionless in the air conducting a conversation with the audience. At other times he is seen tumbling continuously end-over-end in front of endlessly moving and



With *Needles & Opium*, Lepage has created a 'cocktail' of different techniques.

changing images projected onto the screen, to give the impression of tumbling into the abyss of insanity. The mechanicals have been designed so that when Lepage is flown in his harness he can not only turn himself, but he can also be rotated in a standing position around his own vertical axis (ie. like a spinning top) and moved from side to side along the truss. This is achieved using hand-winchers operated from the bottom of the truss and required careful mechanical design. The set and its mechanicals were originally developed and built by Michel Elliot in Montreal.

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***"Without a doubt this is one of the most entertaining, exciting and exhilarating shows I have ever seen."***

---

One other element of the set which deserves comment is the main screen itself. This is made of double knit Lycra. In addition to its lightness and its suitability for back and front projection, it has another property which is well used in this piece, its elasticity. This allows the material to stretch out of shape and spring back again with no damage. Thus objects can be pushed into it from behind giving the screen form and shape. In this case a female mannequin is pushed against the screen shaping a woman's body in relief and then hands are run over the torso to simulate love making. The Lycra also allows the sight of Lepage in his flying harness walking across the horizontal screen and apparently sinking into it, almost totally swallowed up, yet leaving the screen available for projection only seconds later.

Most of the illumination for the production is provided by the projection sources, with much of the rest being used to light the imposing red trussing which frames the action. What remains is very muted, using soft, low lighting to pick out Lepage when the harsh light of the projections is not in use, pale yellows and ambers being much in evidence. One of the biggest difficulties, according to Robert Thout, Lepage's tour manager, was to focus the additional lighting where it was needed, while ensuring there was no spill onto projection surfaces.

Throughout, much of the piece is accompanied by a soundtrack made up of recordings of Miles Davis' music, Juliette Greco's singing and other music by Eric Satie. Additionally, live music is added to the piece by Robert Caux who sits at the side of the set

throughout the performance controlling the soundtrack and playing keyboards. Since Caux joined the production this Spring he has worked with Lepage to change and improve the soundtrack. Now it certainly forms an integral and enhancing part of the whole performance.

So how was all the different projection and lighting equipment controlled to achieve such dramatic results? Had the company brought with them some fancy new computer-based show controller to integrate the entire show and ensure the smooth running of this technically complex piece?

The answer to these questions turns out to be no. All the projectors are controlled by hand, with at most the projectors' own remote units. The projection sources themselves are nothing out of the ordinary either, standard slide, over-head and 16mm projectors, if anything rather out-dated. The real genius in the staging of this piece is to have taken such standard equipment and to have combined it in a way that gives a thrilling and almost magical result. Here again, Lepage gets much of the credit, as he is not only the solo performer, but also the writer and designer of the entire original concept.

According to Robert Thout, during rehearsals for the show Lepage was in total control of what was going on, able to pick out any changes in the soundtrack, or the lighting and to visualise how such adjustments would affect the form of the piece and how they would be perceived from the audience.

Without a doubt this is one of the most entertaining, exciting and exhilarating shows I have ever seen; not through the use of vast arrays of state of the art equipment but through the innovative and imaginative use of standard, even old fashioned, projection equipment and the clever use of different projection surfaces. There are no fancy controls here either, no multiplexed signals or SMPTE time codes - just a well fashioned piece of theatre, made by a team of integrated professionals, working together with precision under the inspired direction of Lepage.

On the evidence of this piece it is not surprising so much praise has already been heaped upon him. Unfortunately the opportunity to see this performance may not arise again for sometime, as the production is now on its way to Paris, then New York and Montreal. If you would like to see Lepage's work, a wider audience should get a chance soon, as he is involved in the staging of Peter Gabriel's next show.

Judging by Gabriel's previous shows and videos this should be a meeting of like minds, and the results should be spectacular. I can't wait.



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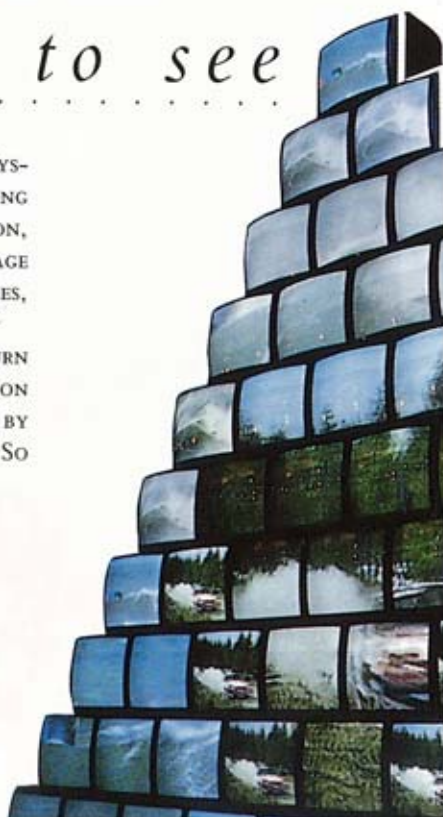
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# VALLEY OF THE KINGS

L+SI reports on a very special performance in the atrium of Imagination's London headquarters

On Sunday November 22nd creative company Imagination designed and staged an exclusive concert performance of a new musical entertainment - Tutankhamun - to commemorate the 70th anniversary of Howard Carter's extraordinary discovery of the famous tomb.

The performance was produced by Imagination Entertainments, a new division within the organisation, and took place within the unusual and challenging environment of the Imagination building itself in Store Street, just off Tottenham Court Road in London. It was based on George Stiles and Anthony Drewe's original presentation as a student production at Exeter University in 1984, and both Stiles (music) and Drewe (book and lyrics) were involved in the production of Imagination's new concert version.

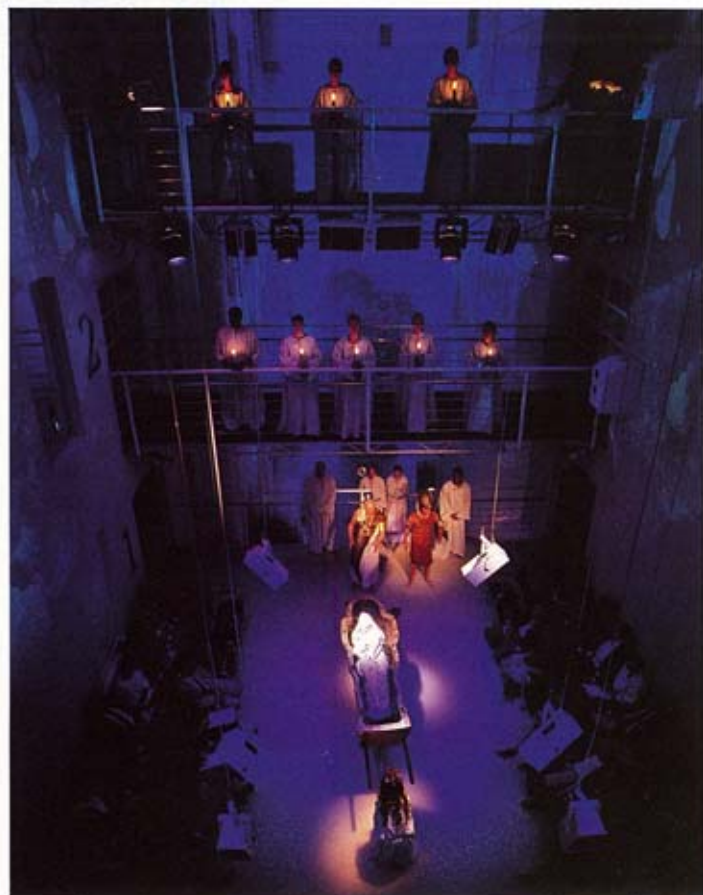
A specially invited audience from theatre, film and television attended the performance of the new musical piece which is being developed at Imagination Entertainments, and the story-line followed Carter's lifelong quest to find the lost tomb of the boy king and starred such well known names as Dennis Quilley who played Lord Carnavon and Martin Smith (ex-Phantom) as Howard Carter.



Imagination used the unique structural design of their building to recreate the environmental feel of the 'Valley of the Kings'. To enhance audience experience of the total environment, sand was spread across the floors and a night sky scene was projected onto the roof. Large-scale projection utilising over 200 projectors was used to create all the scene changes in which the action took place. These ranged from the pyramids in the Valley to the colourful gardens of Lord Carnavon's Highclere Castle, and the effect was quite spectacular as the projected images completely transformed the atrium space.

Staging the production in the award-winning six storey building presented Imagination's lighting and sound designers with a completely new set of challenges. The building was a working space until Friday evening which left the design team until the first performance on Sunday afternoon to ensure that all the equipment was in place. There wasn't the time, space or power to accommodate a full conventional lighting rig, so the designers took a totally different approach.

Having seen a demonstration of the new Vari\*Lite VL5 luminaire, the team realised that here was a



Three scenes from the performance of Tutankhamun set against the challenging backdrop of the six storey atrium at Imagination's headquarters

perfect opportunity to use the new instrument in a theatrical environment. The units were programmed to enable the entire stage area to be lit with the VL5s alone, reserving the VL2s and VL4s to light the other areas of the building - the atrium and the exhibition space.

Everything worked to plan. Barring the live colour changes, the audience only saw one 'live' move throughout the show instead of the usual 'wiggle' lights. The design team were able to light one scene with one section of the rig, while another section moved silently to the next preset.

Running from the Vari\*Lite Artisan and VLDi combination, the Vari\*Lite provided a huge range of colour focus and intensity and the limited conventional rig was virtually reduced to four beamlight followspots. The finished design was extremely effective in enhancing the atmosphere of the show and the unique setting of the building itself, and the performance demonstrated that the new VL5 is a highly flexible and effective lighting tool for theatrical events.

Imagination's sound designers also found working in an atrium space extremely challenging. Sound reproduction is usually a problem in such cathedral-like environments, but in this situation the reverb worked well in creating the echo and 'feel' of the 'Valley of Kings'.

As well as the atrium space itself, the bridges across it were used as acting areas. These were each at a different distance from the audience and therefore required different delay settings and as they were on varying levels voices had to be re-routed to different loudspeakers. The sound team produced 140 manual re-routes to achieve these changes as well as operating the 22 Lavalier radio mics.

A 27-piece orchestra was situated on a specially built raft above the audience, rather than in the company's sound studio, as this would have caused problems with communication between the cast and musical director. Also, the audience were able to see the orchestra perform, adding an extra dimension to the show.

The performance was a huge success, and as a show-case experiment it drew exactly the sort of response Imagination were looking for, and it confirmed their decision to progress to a full development of Tutankhamun in the New Year.

It is also a taste of what's to come from Imagination in the future. Under managing director Martyn Hayes, who moved in from the Really Useful Group, Imagination Entertainments has been set up to bring staged events to a wider audience, and in unusual environments.

Watch this space!

#### Credits

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Producer: Imagination Entertainments

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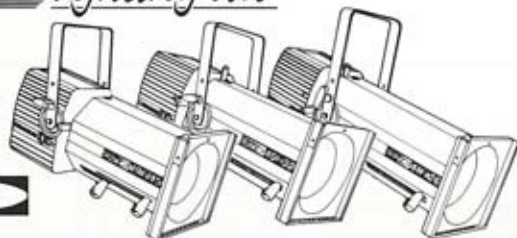
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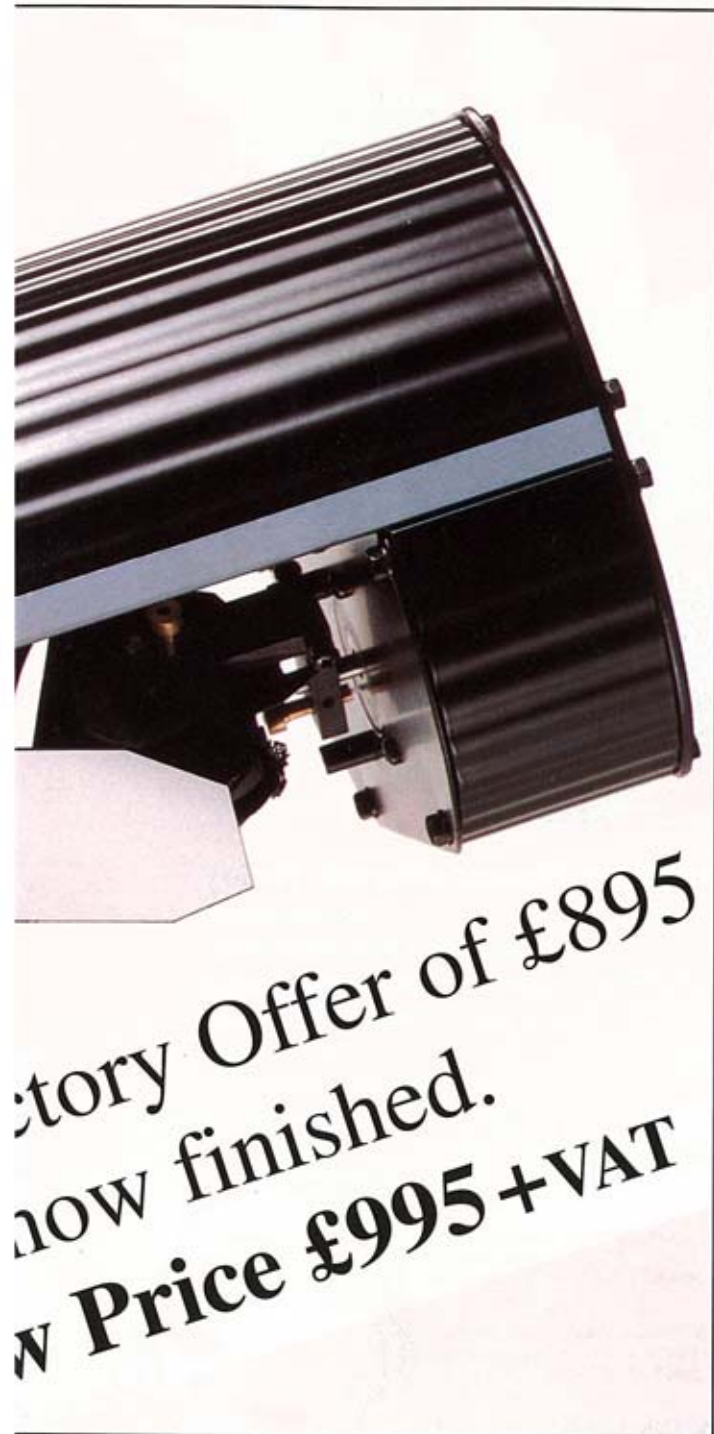
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# ON TOUR

## The Beach Boys Sydney LD: John Rossi

John Rossi has been working as lighting designer/director for The Beach Boys since 1986 and the band play, on average, over one hundred shows a year, so John is kept working full time. The production has to be adaptable to all environments especially as over one fifth of the shows are outdoors. Experience has taught them that if a large production goes on the road and is geared only towards large venues, then performances at the smaller venues creates an enormous amount of frustration. As John explains: "It's like trying to figure out how to get a square peg into a round hole." As a consequence the basic design for the lighting rig is four straight trusses instead of a special geometric design, as it can be easily adapted to fit just about anywhere. As the band play both daytime and night-time shows, two productions are carried and there is a duplicate of everything except the lighting rig itself which generally only appears for the evening shows.

The lighting design and stage set for 1992 is basically a re-worked version of the 1991 design. The truss configuration continues as three pods and four borders, but the artwork has been changed. The four straight trusses, concealed by the four borders, are staggered in height so that they are all visible - as if a backdrop has been cut horizontally. On this year's design, the artwork of Robert Lyn Nelson has been employed ensuring that the scenic paint used would be effective in light. A scenic artist, Ron Strang, who works on many Hollywood pictures as well as in the touring industry, made tests and completed the artwork. On the upstage truss there are three 'pods' which are actually frames suspended at the four corners by four quarter ton motors. In their full trim position they live inside the upstage truss. The front panel of the frame measures 3ft x 6ft and at the beginning of the show they are covered by a black duveteen that has a palm tree cut out on the on-stage side. Hanging beneath each of the pods are four moving lights so the inside of the frames can be illuminated.

"It was a bit like lighting the inside of a



Enter the inflatable car, 28ft wide and 10ft high complete with working headlights and smoking grille.

chimney," explained John. "I could change any colour I wanted and I had them circuited separately so I could chase them. They had rip cords in them so they could be struck easily - a cue to backstage, blackout and, when someone pulled the ripcord, the velcro that attached the panels would come down and they would lower to the ground."

The next part of the show is when the band do a 'car medley' and the rear truss moves up to accommodate a scenic piece which is an inflatable car.

The vehicle, constructed by specialist Bigger Than Life, is 28ft wide and 10ft high and has working headlights and smoke which comes out of its grille. "I front light the car using colour changers. So all through the car medley the car is up, works, changes colour and there's actually a sound cue that makes the sound of a motor revving. Someone also actually shakes the car so it appears like a car at the beginning of a race. We did use a computerized motor system to get the cues accurate i.e. the truss had to go up so the car

could be at an appropriate trim. We used a Skjonberg computer system for motors and it was really accurate and made trimming the trusses everyday really easy. When you look at the way this is staggered, all that makes life a lot easier. I wouldn't light the borders for every song i.e. the car medley, as the look was the car so to have these things reverse their rake a little bit didn't matter. Then we'd push a button after the car medley and everything settles back down to where we want it."

Once the palm trees get struck, the four lights that were focused straight down the 'chimneys' now become four lights on each pod for a total of 12 lights to use on stage.

The third look with the pods is to lower them. The artwork around them has been painted onto polysheer, a lightweight nylon, because it had to be scrunched up when it was at its high trim. When lowered the fabric is taut yet flexible. These panels would then be lit from the front using a Pan Command System from Morpheus for flexibility.

"Once these three pods are in the down position, I have the full scenic look with the four borders and what I refer to as the Tryptich (three verticals in a row) which makes up the total picture of this marine environment that begins in outer space and comes down to sea life," continued John. "The designs on the riser panels are water, coral and fish. The four lights previously mentioned are now down on the floor and, again because it is Pan Command, I can move them wherever I want. I use them as floor cans, 12k of back floor light that can change colour. We have a fourth look with the pods where, since they are on the Skjonberg control system, we wrote cues where we would move them up and down and angled for effect."

Another effect is the 20 artificial Tiki torches made specially by Rocket Science of San Francisco. There is also a hand-held Tiki torch which starts the show, being used to guide the band onto stage. The four straight trusses contained a total of 70 Morpheus Fader beams - 70 lamps that can move anywhere, focus anywhere assigned to any channel, and have 90 different colours. There are also another 50 fixed instruments all with Colour Faders attached. The front truss had about 60 Pars. Included are 18 PC Spots with selected specific gobos. With the PC Spot there are six fixed gobos and then four



The artistic skills of Nelson and Strang in use on the covers for the staggered trussing and triptych.



Lighting designer John Rossi.

spinning gobos which John Rossi believes is the most significant difference between Pan Command and Vari\*Lites. In fact he often uses the comparison of 'Coke and Pepsi' as they are both great products.

"You can lay a spinning gobo on top of a fixed gobo so if you have a triangular shape that is a spinning gobo and you lay that on top of a cone shape: the result is three little points of light right where the tip of the triangle is. I also use 16 Colour Rangers which are basically colour changers with



Jeff Peters, sound engineer.

12 different colours used on floor ACLs. I use an Avo QM500 which I've used for years and it's what I'm happiest with. There's also a Pan Command system console. We have six front of house followspots with none on the truss. Each of the four principal Beach Boys is lit all night and the remaining two spots are used for pick ups on the back-up band. Also six girls perform in the show often symmetrically on opposite sides of the stage so I use them for that as well. I don't have spots on the truss for financial consideration and

also it's difficult with moving trusses."

The indoor Australian shows have been adapted with the essential idea retained. It was not possible to use the triptych as it was custom built, however a full backdrop is used that has the same palm trees as the triptychs but in reverse. The palm trees are a reverse silhouette being black with a scenic ocean lit up around them from behind with cyc lights. Some of the integrity, like the four borders, are kept but not the mammals. The rig is again four straight trusses but with conventional lights and 12 PC Spots. John took the programme from the American shows which contained massive amounts of information for the PCs, Colour Faders etc although all he needed was the PC Spot information. He then went into the Morpheus shop and on their computer he blindly touched the programme up to accommodate the Australian shows. Basically, he took the integrity of the show and mixed it down to 12 PC Spots. The PC Spots, from CLS of Melbourne, were hung six on number two truss and six on number three truss. Their locations were staggered so if you were front of house they didn't line up in a column.

The lighting requirements for the outdoor shows has always been two straight trusses, an upstage and a downstage, of white light. John usually specifies the types of lamps but he doesn't do a lot of specification for channel assignment because there is no real cueing needed. In Australia, sound engineer Jeff Peters used a Soundcraft Europa console and a Clair Bros S4 System supplied, like most of the lighting instruments, by Jands.

Catriona Forcer

## Ned's Atomic Dustbin Brixton Academy LD: Nathan Matthews

I caught up with Ned's Atomic Dustbin in December at Brixton Academy to find out whether I met the challenge of their tour title - 'Are You Normal?' The lighting rig certainly has some differences using Robozaps and Tigerscans for the first time on a touring rig, together with 12 Superscans, eight fast-firing UV stripes (discharging up to 600 b.p.m.), 12 Megastobes all hired through Spot Co and Raylights hired from Neg Earth Lights, who also supplied the trussing.

Nathan Matthews (caught operating at Brixton in complete Elvis attire!) wanted to run the entire show digitally through a single console. He chose Flying Pig System's Whole Hog console and explained that the features he found most useful were the accurate real-time playback and quick, easy re-programming for different venues.

Being such a 'normal' tour, Nathan focused his rig asymmetrically and enhanced the energy of the



The deep and darkly mysterious world of Ned's Atomic Dustbin on stage for their 'Are you normal?' tour.

band and manic crowd by using various strobe effects, with the Robozaps throwing the band into silhouette and the Tigerscans, with their variable speed rotating gobos, adding depth, interspersed with subtler lighting from the Superscans. Nathan, Dave Gibbons (dimmer and DMX specialist) and crew are now off to USA, Canada, Singapore and Australia to continue the World Tour.

Mary Webb

## Status Quo Wembley LD: Pat Marks

The recent Status Quo 'Alive' tour starred the Avo Rolacue Sapphire, where its versatility and tangibility were in clear evidence, accompanied by a spectacular Intellabeam show. Lighting designer Pat Marks and Intellabeam operator, Bill Surtees, were in full flow at the Wembley shows, evidently making the gig one of the more memorable of 1992.

Bill had positive vibes on the Sapphire: "Using the Sapphire allowed me more time to concentrate on the actual result - instead of the technology - to achieve a particular mood." In addition to controlling the 12 Intellabeams which were a dramatic and integral part of Pat's show, the Sapphire controlled Rainbow colour scrollers for Pars, Molefays and 5ks.

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# THE CHANGING COLOURS OF WHITE LIGHT

John Offord talks to John Simpson

The wide mix of companies now sitting under the London-based White Light umbrella are as diverse a conglomerate as director John Simpson's own long and varied experience in theatre. And they reflect the dynamic evolution and growth of Britain's highly creative show business development over the past two decades.

Things will probably stay that way with White Light. Growth won't come from any master plan; it will come from natural additions to a kind of 'themed' framework. John Simpson will admit to no broad or secret plans, and drift your question on acquisitions or future plans to one side with a pragmatic comment like this: "It's about doing something instead of standing still."

When it comes down to it, development will be determined by a number of key factors, just as it has been up to now, 21 years down the road. Building up and improving the level of 'core' service across various aspects of the industry will always be the first priority. 'Does it make commercial sense?' will be the next. The clincher, and the ultimate test, is 'will it be enjoyable?' And that, most often, links to the personalities involved.

"What we're actually doing is investing in people. If we make the decision to expand an area or to acquire a company we ask 'who will do it?' and 'do we trust them?' It happened that way with John Anderton at White Light North. John was a chief electrician at the Round House in London when he told me he wanted to start a hire company in the North. I'd dealt with him for a long period and found him hard-working and trustworthy. He found some premises, we gave him a few lines, and he's done magnificently ever since."

John Simpson trained as a teacher, but after a year's experience at a Wolverhampton comprehensive, and having to work at a petrol station in the evenings to top up his nine pounds, seven shillings a week, he asked himself some searching questions. "I actually did my thesis on stage lighting, which had been an interest for some time," he explained. "I applied for an Arts Council bursary to study theatre administration. Under the Labour government of the day, arts funding was shooting up by a million pounds a week and the Treasury were extremely concerned that a lot of this money was going to regional theatres who basically didn't know one end of a balance



**John Simpson, managing director of White Light. Under his guidance the company has just completed its busiest ever autumn season.**

sheet from the other. They were desperate to train arts administrators with accounting experience and the fact that I had studied maths obviously impressed them!

"So I got a grant of £16 a week to go round and look at theatres. It meant six months at the Bristol Old Vic and visits to the National, Watford Palace, Salisbury Playhouse and so on. I had a wonderful time and learned an enormous amount."

The first real taste of what was to come stemmed from John's appointment as general manager of Watford Palace Theatre under Giles Haverall before moving with him to assist in the establishment of his now legendary term at the Glasgow Citizens' Theatre. From there came the most important move, to the position of theatre manager at the Royal Court Theatre in London's Sloane Square under the artistic triumvirate of Lindsay Anderson, William Gaskill and Anthony Page.

"It was a very powerful time. Andy Phillips was chief electrician with Rory Dempster as

assistant. Andy, being Andy, decided he'd had enough of the usual style of lighting and decided to remove all colour from the lanterns, doing everything in open white. At that time it was extremely difficult to hire lanterns, so Andy, Rory and I decided to start a company of our own and we called it 'White Light' for obvious reasons."

After this short but inspirational stint in the world of subsidised theatre, it was time to "get out and see the real world". It happened in the form of taking care of the smash hit 'The Rocky Horror Show' during its long period in the Kings Road. "Producer Michael White wanted to transfer it from the Theatre Upstairs at the Royal Court, but didn't want to take it into a traditional West End theatre. We decided to convert the old Essoldo Cinema into a theatre for the show where I managed it for Michael for a year before it had to move at short notice to its new home at the Kings Road Theatre. It was another cinema conversion and we had just six days to achieve it."

Working from a window-less basement under the theatre, John had an exacting but exciting six-year spell of managing Rocky Horror, running White Light and an agency (Simpson-Fox) for actors and designers. "The income into White Light didn't warrant any income for me so I survived on managing the show. All the money was ploughed back into the business to buy more equipment. The grand philosophy of Andy, Rory and myself was to provide a service and that we should be putting something back into the industry at the same time."

A numerous mix of projects was undertaken along the way, including the design of the seating system for the nearby Riverside Studios in Hammersmith, before The Rocky Horror Show closed six years later and the theatre became a cinema again. Near to being out on the street, they luckily found that the ground floor of the premises in Fulham they now own was available for rent. They duly moved in, hardly envisaging that in the not-too-distant future they would own the whole site and fill the place from top to bottom.

White Light progressed steadily over the ensuing years, building up its market share in lighting equipment sales and hire across a wide cross-section of the industry. Along the way they've supplied equipment for 'Chess' and 'Miss Saigon' in the West End. Nowadays 150



**The new demonstration and conference facility at White Light's Filmer Road premises.**



**Part of White Light's Fulham base. Ever more activity is being shoe-horned into the site.**



The well-provisioned stock room.



Front-of-house sales enquiry desk.

jobs a week is no surprise - they'd managed to score 165 in the week prior to my visit in mid-December, and they can range from the West End and major tours to a few lanterns for an amateur production.

"We've always believed that we can't simply rely on the West End as our source of business. It's an important part, and it's progressed, particularly since general manager Bryan Raven joined us, but we have tried to spread ourselves across the whole hiring range. So we supply regional theatres throughout the country. We support numerous tours that go out including those from the English Shakespeare Company, the RSC or the Royal National.

"Investment in the West End, which is huge on projects such as *Miss Saigon*, is a commercial decision based to a large extent on the artistic liability of the product - which means that if it is an Andrew Lloyd Webber it is likely to do well. You are in a situation where you are expected to invest a huge sum of money, possibly in excess of £150,000 in some cases, for new equipment. And that's in addition to possibly a quarter of a million pounds' worth of your own equipment. You have no idea as to how long a show will run and you're being asked to make an artistic judgement. It's a real dilemma at the moment, and the problem is getting successively worse."

The apocryphal story is that, yes, John Simpson wasn't interested in 'Cats'. "I just couldn't believe that anybody would want to pay a lot of money to watch people dressed up as cats dancing around a pile of rubbish!"

Needless to say, with the swings and roundabouts, there were many decisions he did get right, but broadening White Light's base and widening their contact list, with the future heavily in mind, is always a prime concern.



Mike Crossman, White Light's hire manager.

"We've just appointed our first lighting consultant representative who will cover the South-East in the amateur, schools and semi-professional markets. This is where our future is. It's where the 'hands-on' starts and we've got to invest in it. In the same way we're associated with LAMDA and Central and have their students here on training and courses and we support some of their productions."

Outside the main preserve of White Light itself, and surveying the full range of the group's specialist company's activities, you can feel the buzz that must have been very evident in the early days of the basement office in the Kings Road. John Simpson's interest in the theatrical agency has been sold, but more and more activity has been spilling out from the Fulham Road over the past few years.

Halifax-based White Light North has already been mentioned, and the role of Modelbox, with Chris Toulmin and Peter Byard at the helm, has been regularly covered in the pages of L+SI. So too has the work of Dublin-based Lighting Dimensions. The group's most recent 'add-on' is TSL (AV) Ltd, who joined the White Light family last September. Under Matthew Griffiths, the company will continue its main range of activities from supplying technical equipment for dry hire to organising complete conferences for all types of industrial clients.

The latest and totally new group company is Technical Insight Ltd where architect John Eales is the man on the spot, and John Simpson's intention here is to make consulting and technical advice as practical and available as possible, and appropriate to the real end-user.

An American link was formed a few years ago for White Light and Modelbox whereby John's brother Peter Simpson, who already has a successful business in the country, handles US affairs for both operations. "He understands Americans and how they do business. It's going great guns albeit with only three specialist lines for White Light plus Modelbox. The connection has also proved useful when we've needed special equipment from the US."

Outside the group subsidiary companies there is an investment in Turnstyle Group, the theatrical producers. The Group in turn has an investment in Woking Turnstyle at the new Peacock Theatre in Woking, Surrey and has just bought a share of the Duke of York's Theatre in the West End.

"All of these activities are just part and parcel of the original philosophy of not just waiting for the telephone to ring and then string out a few more lanterns. We care very much about where the lanterns are going, how they're going, what they are being used for and sorting out problems along the way. Coping with

operational problems and our input into the industry in general means putting our money where our mouth is."

Over the 21 years our discussion covered, annual turnover of the White Light operation has gone from the first bill for hires to the *The Rocky Horror Show* through to over £4m today. I didn't know White Light in the very early days, but I'm sure their operating principles have stayed pretty much the same. There's the same enthusiasm and feeling of embodiment within the industry, and the involvement with Modelbox gives us some of the best clues as to why the good ship White Light ploughs steadily on.

"We've been involved with Modelbox for five or six years now. We invested when the idea came up and followed it all the way through and eventually took it all over three years ago. It still costs us a lot of money in research and development, but it's the way forward for the industry."

John Simpson is quick to defend show business when called upon to do so. "I go to a lot of business meetings where as soon as people hear I'm anything to do with theatre they imagine I'm a profligate queen throwing money about. My defence is quite simple. We have the only industry which offers its product not to the year, not to the month, not to the week, not to the day - but to the minute. In other words, if you book a ticket for *Miss Saigon* for next month, at a particular time on a particular day, you go and see the product. You just try ordering a gas fitter to deliver your gas boiler or your fridge in three months time at 4.30 in the afternoon. Ask these same people to find another industry that organises itself to that level of efficiency and they all go 'Oh! I see what you mean'."

"What we achieve in our industry can only



General manager of White Light, Bryan Raven.

be done by a very committed work-force who are by-and-large underpaid, who are well organised, and actually provide the service and support for the product right down the whole production chain. That's what we're part of, and I defy any other industry to be able to guarantee the product to the minute, which is what we do."

John Simpson's own committed work force numbers around 65 in total, and his attitude to them is simple. "I don't want to be standing at the front desk with a big whip every morning. People know when they've done an honest day's work and it doesn't need me to tell them that. Their companions will soon remind them if they aren't pulling their weight, so they see each other along."

"We have profit-related pay in the company and other things to encourage people to learn what they can from the business and put something back into it and then progress onwards. Most people who have moved on from here have gone to positions of more responsibility and more technical knowledge and I think the reputation of White Light has stood well through that."

The company has just completed its busiest autumn ever with equipment supplied to a wide variety of tours, West End shows and conferences. For 1993 they have secured the contract to supply the lighting equipment for 'Crazy For You' which transfers to the newly refurbished Prince Edward Theatre from Broadway this month. And I have an inkling there will be more than just a few strong news stories from White Light in the year ahead.

As I was leaving John and Bryan Raven told me - with accompanying smiles - that they'd bought the hire business of Manchester-based Mike Sweetland Lighting the previous week. They enjoyed that.

## The White Light Companies

### White Light (Electrics) Ltd

Tel: 071-731 3291  
John Simpson, managing director  
Jane Cody, financial controller  
Bryan Raven, general manager  
Mike Crossman, hire manager  
Sam Farouk, assistant hire manager  
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Paul Simson, project manager  
Dave Isherwood, control manager

### Modelbox

Tel: 071-731 7021  
Chris Toulmin, design consultant  
Peter Byard, design consultant  
Steve Appleby, design assistant

### TSL (AV)

Tel: 071-582 8009  
Matthew Griffiths, general manager

### White Light North

Tel: 0422-839651  
John Anderton, director  
Adam Mansfield, project manager  
Jon Bird, hire manager

### Lighting Dimensions (WL) Ltd

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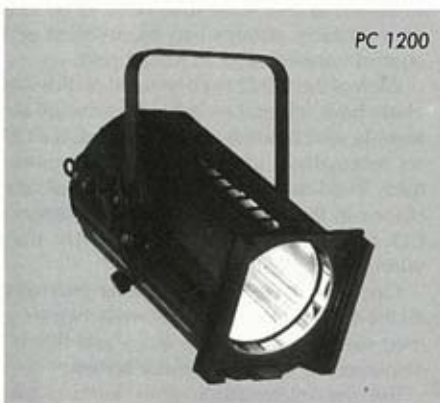
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And again.

# CD CONTROL BY INTELLIGENCE

Tim Frost charts the development of Revox's new FX controller

The trouble with offering something extra, like a system that can let you not only control a CD player but also communicate with it, is that sooner or later somebody wants to use it.

Revox developed the idea that a standard computer RS232 port could add the capability of all sorts of control and reporting facilities to their CD221 CD player. One of the first ideas they came up with was a PC-based diagnostics package. You simply plug in the computer and enquire after the player's health. It will report back to the computer the status of the major performance factors, including, for example, whether the laser power is working up to strength.

So within a couple of minutes, with no more effort than plugging in what could be a very basic portable laptop PC, it is possible to know that everything's OK or not, as the case may be. And once there is a parallel interface with this sort of power, it is possible not only to send remote control information to the player but also extract everything you want to know about the status of the machine - and the disc that it is playing.

This can be very useful in any situation where the remote controlled and fail-proof playing of a CD would be handy. Areas that come to mind are theatre work, installations, museum and 'Experience' set pieces and theme parks.

A system like Revox's new FX controller is unlikely to compete against the top-end audio-visual control systems designed from the starting point of big multiple slide-projector shows with fairly simple audio requirements. But fixed presentations especially are now beginning to go the other way, combining multiple audio with more straight forward image control. So running a system conceived primarily for CD control with additional switching is beginning to make sense.

With the introduction of relatively low cost recordable CDs there is no longer any serious argument against using CD instead of tape for stereo playback. CD has substantial advantages over tape to cassette.

It is digital, so the quality is as high and as noiseless as could be wished. It suffers from minimal speed variation so CD playback can be used without time-code in situations where synchronisation for short sections is important. And most important of all for installations operating every day, since there is no physical contact between player and media there is no wear. Anyone considering using cassette nowadays for any decent application really needs their heads examining.

So CD players are increasingly becoming the standard sound source. Within the total cost of creating and installing a presentation, purchasers often take a long term view on the cost of the CD player, opting for reliability and facilities over low price. Therefore despite their relatively high price, Revox CDs have already done well in the installation market. Now system designers and users are looking with interest at the machine's communication port and what it could offer in the way of additional control.

The problem is, that to make use of the data is not a simple process. You can hardly wire in a couple of make/break switches to an RS232 line and expect something to happen (apart from a nasty smell of burning communications chips).

So here in the UK, Revox are developing a



The FX system: a PC-based hardware/software package that can operate up to 15 CD221s.

complete control system that can intelligently operate the CD players.

FX, as they are calling this system, is a PC based hardware/software package that can operate and communicate with up to 15 CD221s as well as being able to control an endless number of digital on/off switches and analogue level controls.

The unit I saw at Revox's new Thattham offices uses a standard PC to control the CDs through the RS232 with an additional external interface box that deals with all the switching requirements.

David Wood, MD at Revox UK, was spurred on to do something like this by the increasing number of customers who liked the idea of communicating comprehensively with their installed CD player but were not knowledgeable enough to do the work on a sophisticated system themselves.

"People have said they want to get into the sub-code and some have done it, but then they come back with problems," David recalled.



David Wood, Revox's managing director, outside their new Thattham offices.

"Historically Revox have not published this type of data in the manual because you can end up with all sorts of problems and it is in our interest to make certain the machine works as it should. You can't just hand it over and say here is an RS232 controllable CD player and let them get on with it.

"So we see it as our job it to take products and do a certain amount of work with them to create a package that the dealers can easily sell through to the customer."

The system has been developed by a third party company, the William Dean Consultancy, whose Steve Blencowe did most of the work. From first discussions to 'sellable product' stage has taken six months. FX goes far beyond simple remote control as it incorporates a complete programming language so that complete performances can be designed, stored and replayed.

Apart from the interface box, the hardware is completely standard. The PC must have a minimum 286 spec. but apart from that is nothing unusual. The CDs are daisy-chained together so that only one RS232 lead and port is required. Since this serial signal will survive a 1,000m run or longer it is quite happy in large installations and if the runs need to be longer then repeater stations can be installed or the control transferred to an RS422 port.

Each of the CD221s connected on this single chain have internal switches that can be set to identify which number machine it is. If a CD is set internally to identify itself as CD number 8 then it doesn't matter where that player is placed in the chain, it will always respond to CD 8 commands, which certainly makes wiring less critical.

Once connected, the computer interrogates all the machines, to work out what they are and their status - play, pause etc. - and this is all displayed on a single monitor screen.

But the interrogation goes further, asking about the disc itself. As well as the usual information about number of tracks on the disc, track and disc play times, FX also pulls off frame



The C221 CD player.

counts for even more accurate cueing and something that few if any other player can read the disc's number.

Every CD album ever produced has its own unique disc number buried in the data sub-code. So every copy of 'Abba's Greatest Hits' (just as an example of course) will have the same 10 digital identity number.

Now this information is surprisingly useful. The software prompts you to allocate an album name whenever a disc is played that FX hasn't seen before. It stores this title (say AbbaGH) in a data file against the disc's unique number. So the operator or programmer can simply tell FX to play track 3 of 'AbbaGH' whenever it is needed and FX will automatically find which machine it is loaded on and off it goes. Also in any installation or live playout situation there is always the possibility that the discs have been removed or loaded incorrectly. Instead of blithely playing out Mantovani instead of Motorhead, FX will recognise the problem before it gets out to the audience.

In developing FX, it was important first to make sure the PC can cope with the fairly substantial amounts of data flowing back and forth from the CD players.

The first version used fairly low-level instructions that are close to hard computer programming languages to maintain high speed operation. But this had to go, since the system has to be easily operated and programmed by a normal user, rather than a computer expert. The programming language was turned into something much more closely resembling English, whilst still keeping the operational speed up.

"The first method of controlling the events was written in more computer-like languages which was very fast, but we need it more accessible to the user," confirmed Steve Blencowe. "It is now very easy to do. Once you've spent just a little time with it you can build a show very quickly."

To prove whether they got it right or not, Revox used their warehousemen as guinea-pigs to test and program the system from cold.

The programming is done simply by entering an instruction list. There are over 50 different functions that can be programmed in for each machine. For the Abba example:

*Play\_track AbbaGH (3)*

is all that is needed to play that track and most of the other instructions are just as logical and obvious.

The switching system runs in a similar manner. Each switch or level controller can be given a name that corresponds to what it controls. This works on the basis that it is a lot easier to find 'Smoke 1' than have to look up somewhere to find the smoke machine is on switch number 46. The control language for the

relays is much the same as for the CD players i.e.

*Turn\_relay\_on (46)*

All very straight forward.

The system works to frame accuracy so it is possible to edit tightly the start or stop points of an event or CD play/stop points. To put in programming and an interface for external switching obviously puts FX beyond simple remote control and into the presentation automation field.

This is an area that greatly interests Revox, especially as it is an important market already for the CD221, because of its controllability and the reliability and ruggedness implied by the name Revox.

"In this form it is designed for theatres and theme parks - those sorts of uses," Dave commented. "For the more straightforward presentations like an 'Experience' which has to drive lights on/off, mechanical events, moving pictures off video and multiple audio events, this would be able to do everything. You can put in a complete production on and it would do the same thing ad infinitum or let you run exactly the same program on different sites."

The first hard interest in FX has come, in fact, from a theme park that is due to open next year and at the time of going to press their engineers had just begun evaluating it.

Although the system has now been developed into a 'sellable' product, Revox is working on variations on the theme. With the software 'engine' developed, changes in the human interface - the way the screen works - can be altered with relative ease.

Also on the hardware side of things a play-out system can be considerably simplified by replacing an off-the-shelf computer with a PC board with the FX program loaded permanently on an EPROM chip. Rather than a serious cost cutting exercise, this stripped-down version is more about convenience, as technical rooms can very easily get overloaded with screens and computer boxes with lots of individual PCs operating different parts of the venue.

At around £7,000 for the control package to work with five CDs, digital and 6 analogue switching channels, FX is a mid-priced system that would be cost-effective for many commercial applications. For the moment David is concentrating on getting the system out to potential users and setting its position in the market-place.

"We have got to the stage of completing the off-the-shelf system that can control the CDs and other events. We have developed the engine for control in which we can add the other features easily. But now we want to get some out and see what users want and what they will do with it."

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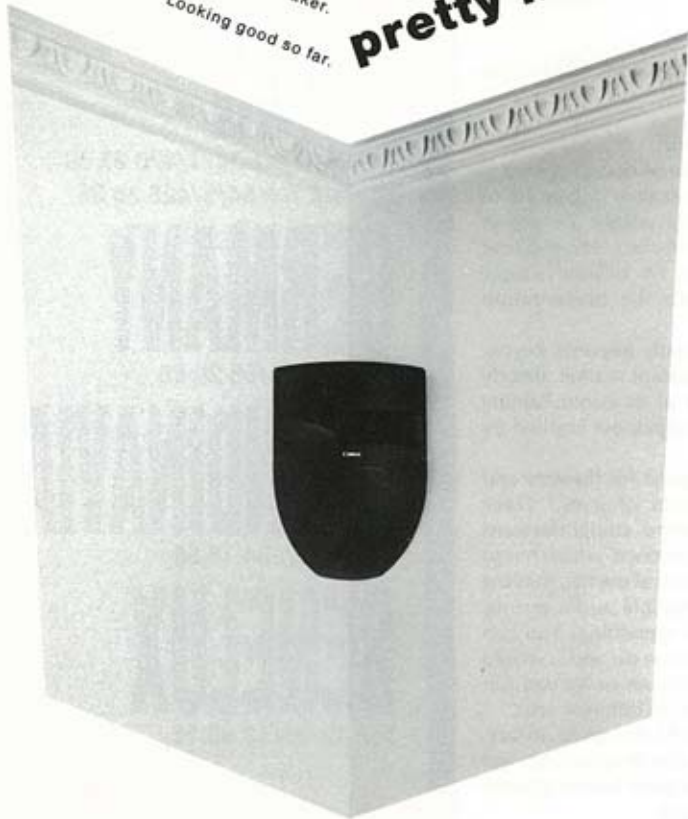
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90° sound field  
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Looking good so far.

**but it also looks  
pretty in a corner...**



**on a ceiling...**

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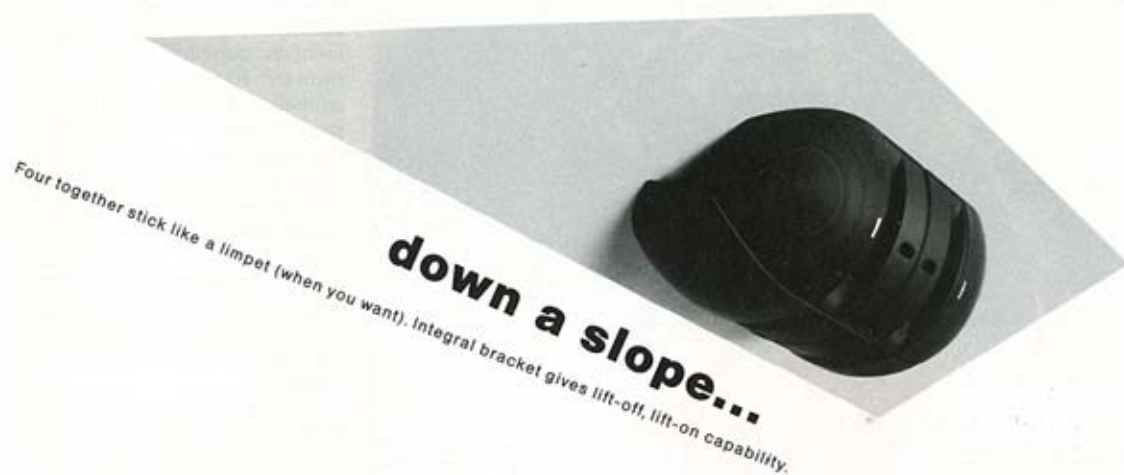
**round the bend...**

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# V-100<sup>pro</sup>

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# THE DOUBLE DECEPTION OF I CORSARI

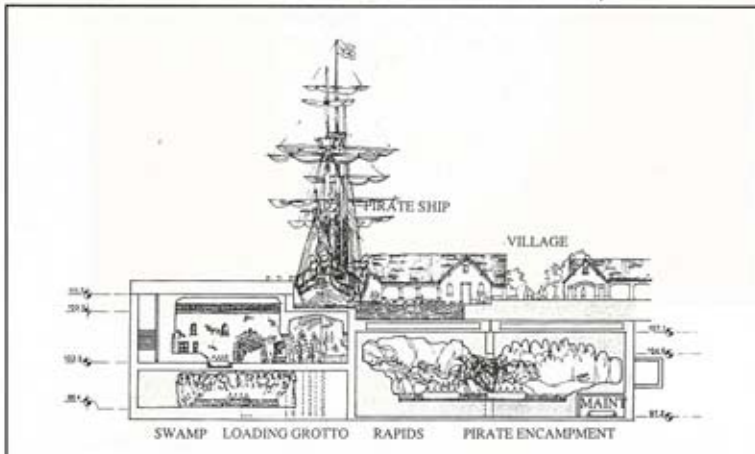
John Offord goes deep behind the scenes of a new and unique 'technological' ride at Gardaland in northern Italy

Hidden within the 7,000 square metre maze of a huge purpose-built underground concrete nuclear-type bunker located underneath a pirates' galleon, and sited within the popular Gardaland leisure park on the south-eastern shores of Lake Garda, is a new 'ride' that has been drawing visitors in their hundreds of thousands since its opening in the Spring of 1992.

'I Corsari' (The Legend of Jason Montague and the Black Corsair) is the name of this unique pirate adventure, and its special interest to us is the way creative talent, most particularly from the US and UK, has been harnessed to provide the ultimate in magic, mystery and deception. You will be easily deceived on this ride from the moment you make your way down through the hold of the galleon, and queue up for the underground boat journey. When you've finished the quarter-of-a-mile circuit you'll probably want to go round again, and again, as most visitors do, either in an attempt to see all the bits you missed or in a vain attempt to work out how it was all achieved.

The magic of the scenery, the flowing water, the movement and so on is an application of more readily understood skills. But the behind-the-scenes imagineering that was produced largely 'off-site' is much more secret and for the layman probably impossible to figure out. However, I'll attempt, with assistance from some of the principal people involved, to let you in on a few of the details.

First, I should set out to put the adventure into context. The ride uses a number of pairs of 20-seater boats which proceed from the grotto loading area through a sequence of 18 separate 'scenes' of various lengths. The whole ride tells



A cross-section showing how the galleon is sited over the ride complex.

a story, rather than running through a continuous sequence. Each of the scenes is a theatrical set, with a show that follows the

boats' movement, allowing a fully planned sequence. The activity in each of the scenes involves complex animatronic human figures, trees and animals and even special effects ranging from water explosions to swimming rats. Audio plays a major part in every scene, with general background tracks and many spot effects tracks for specific effects. A theatrical lighting scheme and many optical, video and slide special effects all combine to produce the magic that is special to 'I Corsari'.

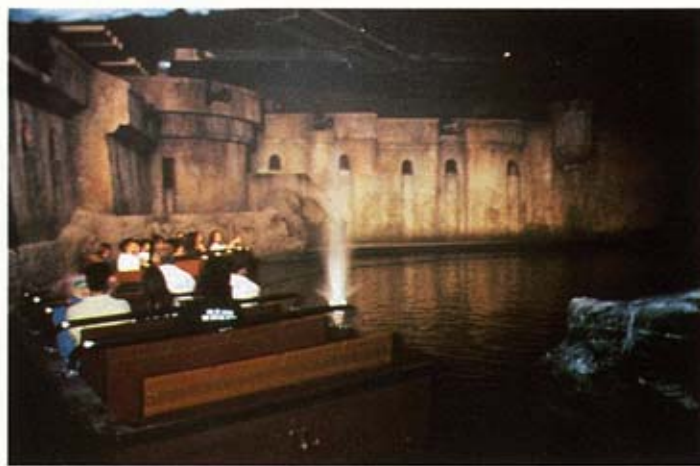
Project management for this great adventure was in the hands of Mellon Stuart International of Orlando, Florida and the key names involved with all the specific elements of mystery (see comprehensive listing at end of this piece) are, as you will note, either by name and/or location, a high-powered bunch, well-versed in handling out-of-the-ordinary projects.

Overall production was in the hands of Richard Crane. "The project has a number of obstacles to overcome," he explained, "not the least of which was the extremely tight schedule in which to complete it. By the time all of the approvals had been obtained, there was less than one year in which to complete the design, fabricate and install. The reason it was successful is due entirely to the fine co-operation within the team and their orchestration by Mellon Stuart International."

"Geographically, the team included members from Florida, California and the UK and a couple of meetings along the way were necessary but most of the co-ordination was accomplished electronically through facsimile messages and by transmitting drawings from one computer to another through telephone



Gardaland and the I Corsari pirates' galleon.



Scene 16: the great battle is about to commence with cannon balls sending huge geysers of water into the air.



From concept through to reality. The sea monster makes its appearance.

modems. Just a few years ago this could never have been accomplished in the time available."

The project was sensibly organised into three phases of work: outline design, detailed design and production and each stage was approved by the client before the next was begun. Because the initial work was fee-paid, the right amount of time and effort could be put in to develop the ideas and their costs, and the owners of Gardaland had accurate information upon which to make decisions. "So often, initial concept and development work is expected without fees," explained Malcolm Lewis of London-based Media Projects International, who took care of the audio visual aspects of the project. "This limits the quality of the information and is often a false economy on the part of owners and developers."

The project began with a briefing organised by HHCP, the designers and architects, which brought the whole team together, allowing for everyone to put faces to names and develop a relationship. "This made working together much easier and the barrier of distance between the UK and US teams virtually disappeared," continued Malcolm Lewis. "There was an excellent team spirit and easy communication."

I can testify to the amount of preparatory

work involved simply by glancing through various inch-thick volumes of scripts, story boards, scene structures, 'storyline and atmosphere drawings for a 'dark ride' and 'Technical analysis for a dark ride' that are sitting on my desk as I put this piece together.

Back to Malcolm Lewis, who describes in detail some of the secrets of deception.

"The two most challenging sequences we had to create were an underwater scene with Corsari and Honorata, and Jason Montague's ship firing on the fort and visitors. The underwater scene had to be convincing. We created four layers of image and combined them in the edit. The first layer was our two actors, swimming as if under water and 'guiding' visitors out of trouble. They were suspended on Kirby harnesses two metres above the floor, in front of a blue screen with two wind machines below them.

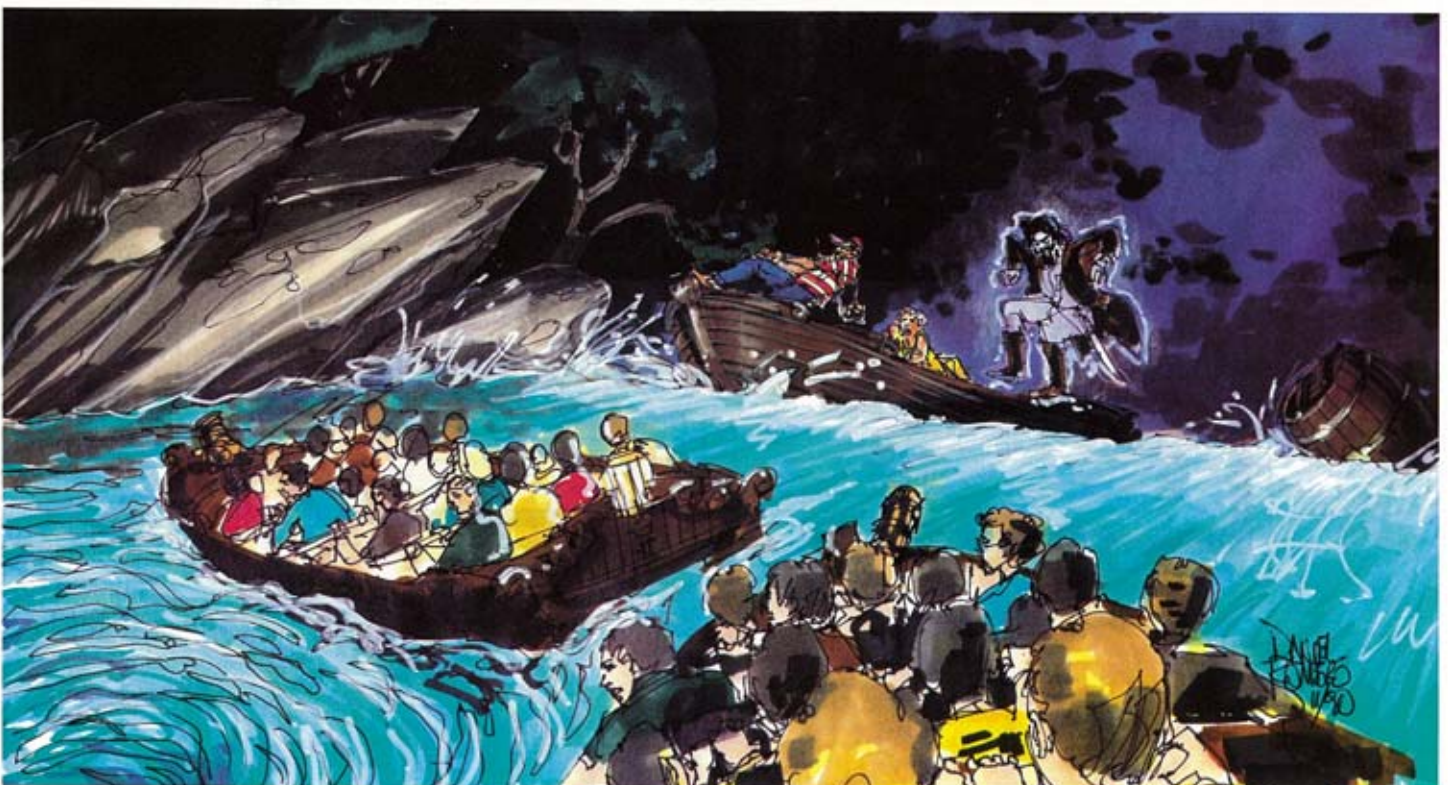
"This was the only scene that was shot on 16mm film because we had to shoot at 100 frames per second to 'slo-mo' the action. The harnesses became quite painful after a while but traditional fortitude and masses of foam rubber near private parts saved the day! It wasn't really dangerous, but diving towards wind machines requires a certain nerve. In the event, the very expensive period dress, covered

in lace, did become a casualty when it got caught and torn in the machine. Thank God for insurance!

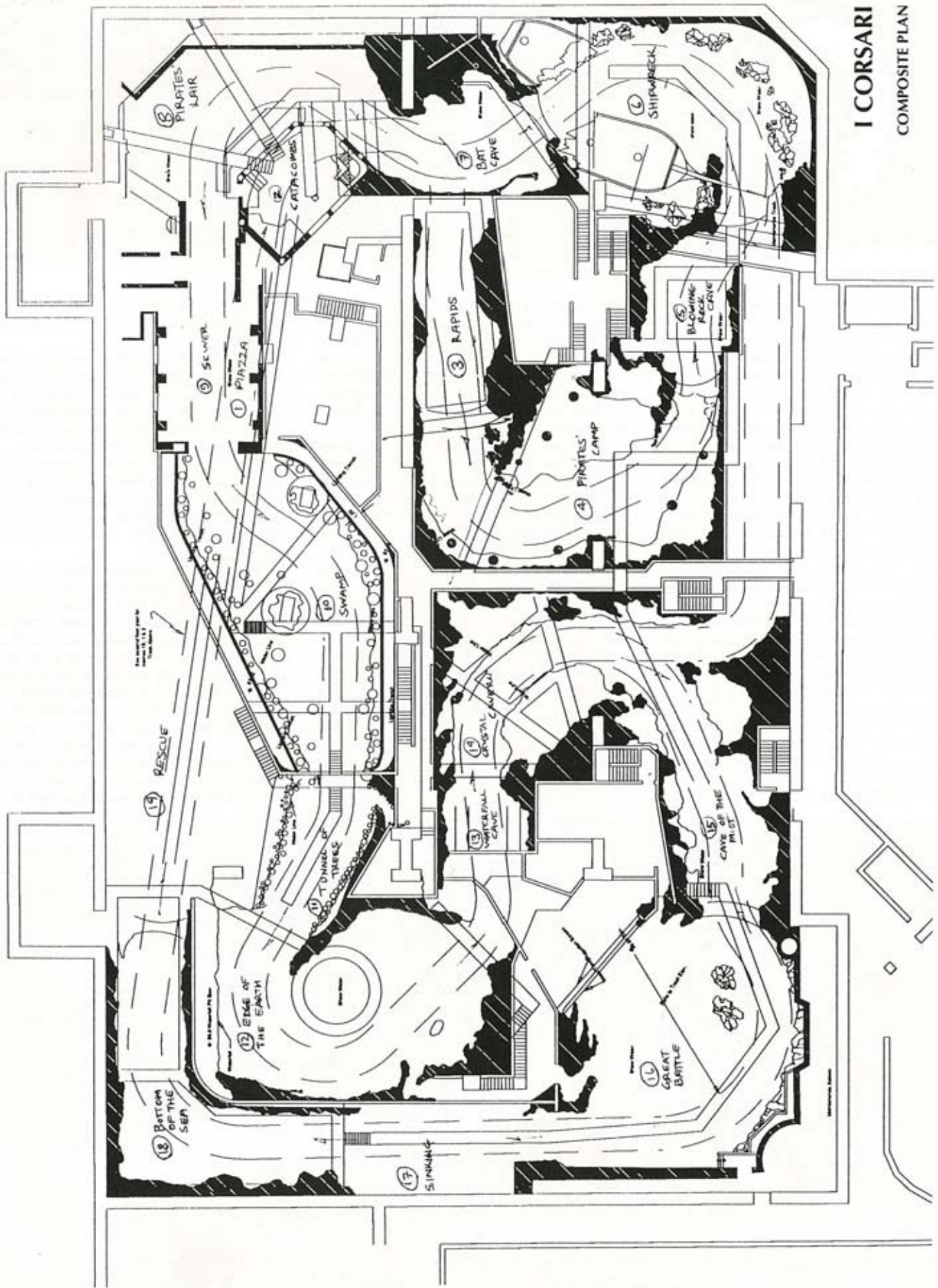
"We shot flickering shafts of light reflected from broken pieces of mirror placed under water in flat dishes, bubbles rising in a glass tank, and in a warehouse in Edmonton, exotic tropical fish. When combined together with the live action, it is absolutely convincing."

Probably the most physically exciting part of the ride is the scene where visitors are caught amongst the crossfire, with canons seemingly firing within inches of the boats and landing in the water alongside, complete with the necessary spray.

"The ship firing at everyone had to be ghostly and fire its cannon in a certain sequence, to an accuracy of tenths of a second," explained Malcolm Lewis. "It was a model, made by a company coincidentally named 'Pirate Models'. Though we looked at other model makers, their name was too good an omen to pass up! They built a one-sided model 60cm long which was a replica of the full-size ship above the action which is the entry point for the ride. It had canons that could fire individually and had a couple of explosions on board for when it was hit. We got the scene after five takes, which was just as well as with



A concept illustration for Scene 12 of I Corsari: 'The Edge of the Earth'.



**I CORSARI**  
COMPOSITE PLAN

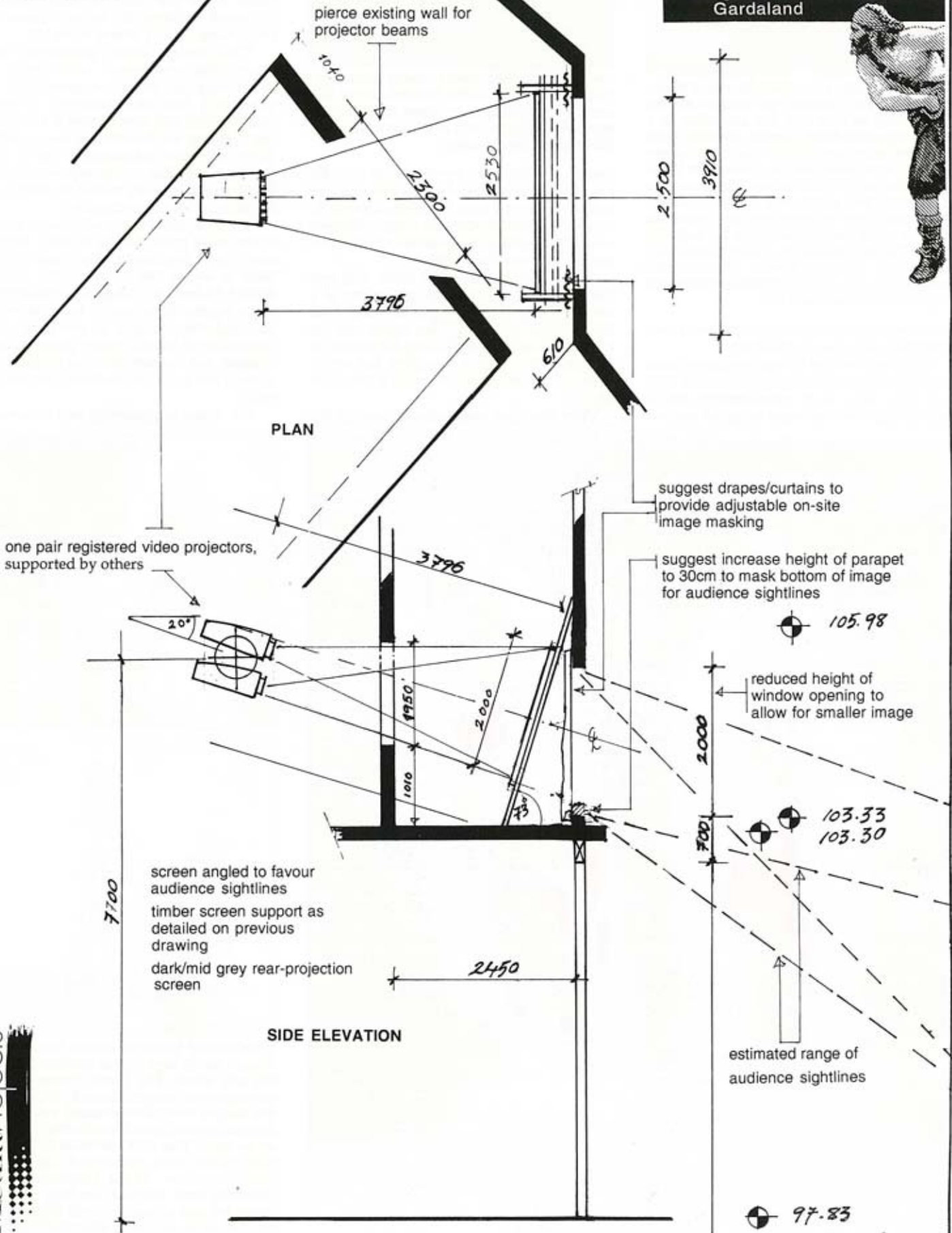
**PROJECTION - SCENE 8**  
**REVISED DRAWING**  
*Option A*

**Balcony - I Corsari Nero & Honorata**

scale: 1: 50  
 drawn by: Malcolm Lewis  
 date: 29th Nov. 1991

**NOTES:**  
 1. This drawing shows the maximum imagesize made possible by piercing the existing wall shown. It is smaller than originally envisaged and shown in previous drawings and requires the window aperture to be reduced in height from MI's current drawings.  
 2. An estimate of the variation in audience sightlines, as they approach, has been made. This requires the raising in height, of the balcony bottom parapet, to 30cm.

**Gardaland**





The model makers (incidentally called Pirate Model Makers) priming the cannon on the model ship so that they fire according to a timed sequence during filming. The ship, after much video post-production to make it appear ghostly, is projected via two, in-register video projectors in the battle scene. Visitors on the ride, when they go through the battle scene, experience large splashes near to them as the cannon shots fired by the ship fall into the water. The fort returns fire. This is a large scale scene with powerful special effects which include a portion of the fort falling towards the visitors after it had been hit.

each take, the on-board explosions were very effectively reducing its splendour.

"In the edit we had to time the cannon shots precisely and give the ship a 'ghostly aura'. This was done after much experimenting with a monitor showing the image being put under a



caption camera, with tracing paper over the top, to provide a soft key that could be coloured and superimposed over the original image. In all, we re-edited this scene six times as different calculations of its timing in relation to ride boat speeds were sent from Italy!

"The video image of the pirate ship was projected into a large Pani projection of a moon-lit sea. This background image was substantially retouched - the moon and the rocks were re-positioned - using Photoshop on the Apple Mac. This is something that would have cost a fortune out-of-house a few years ago.

"The Mac also came into its own for the

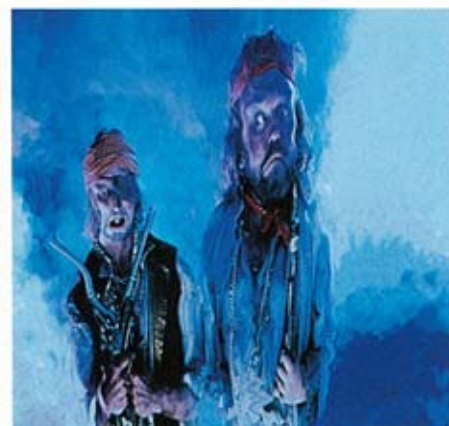
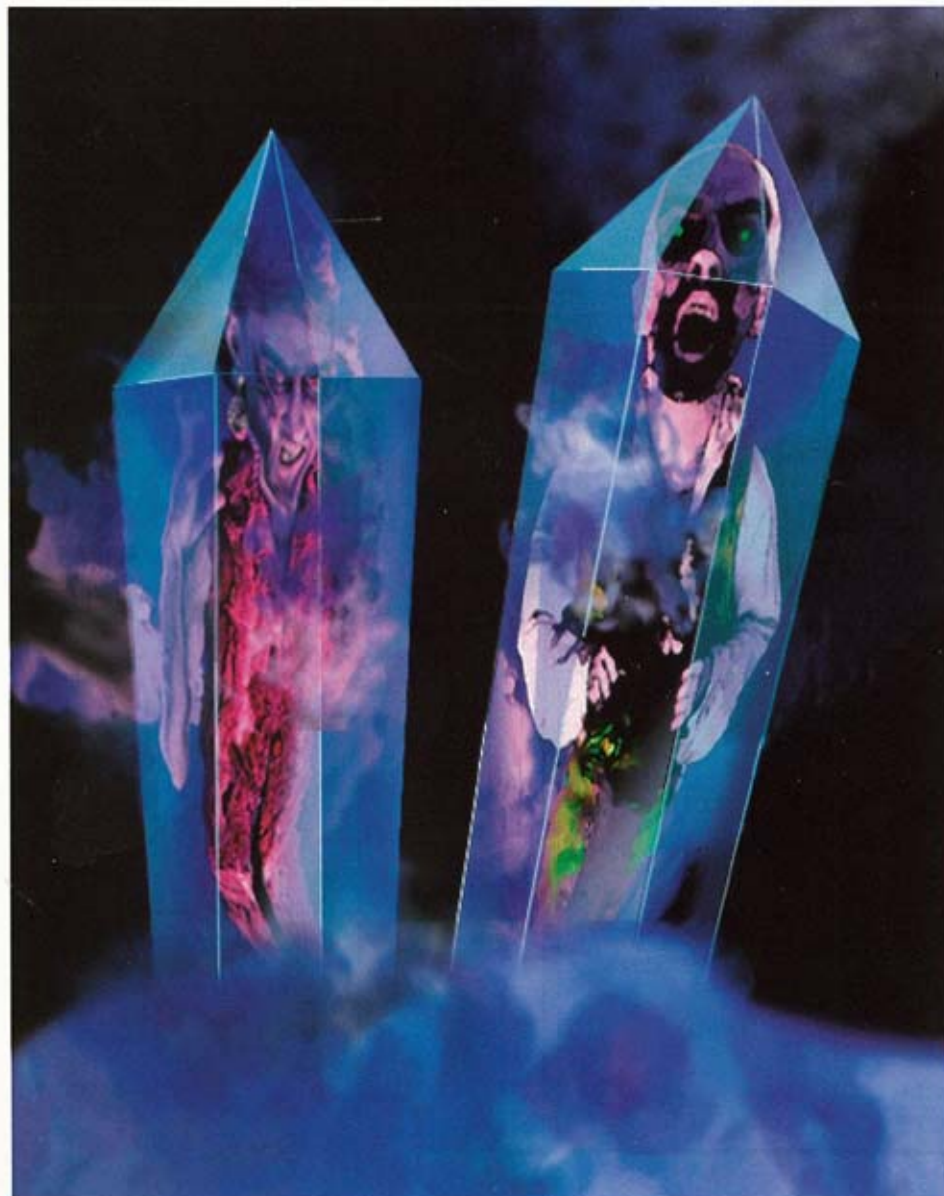
Crystal Cavern scene. Here we started with straightforward studio shots of a number of evil-smelling pirates, then scanned them into Photoshop and distorted them to a point where their own mothers would not have recognised them! As well as distortion, we changed their costume colours and swapped various pieces of anatomy to create six pirate 'spirits' from an original set of four pictures."

Control and systems design for I Corsari came under the wing of Kevin Murphy, divisional manager for Leisure Systems at Electrosonic Ltd of Dartford in the UK.

"The design stages presented some interesting problems," said Kevin. "In convincing the American specialists and especially the animatronics (Creative Presentations) and special effects (Technifex) teams to use the Electrosonic Ancor system. There was some reluctance to use a show control system they had no experience of, but the programming went so well on site that any doubts were very soon dispelled.

"The particularly important point to this ride is that every scene runs as a show, triggered every time a boat enters. Great care had to be taken to ensure that all the action unfolded around the boat as it progressed through each scene, to give visitors a story. Some last minute unscheduled changes in the ride speed necessitated some quick programming changes, but the ease of Ancor programming allowed this to be done with the minimum of fuss."

The actual programming and rehearsal of



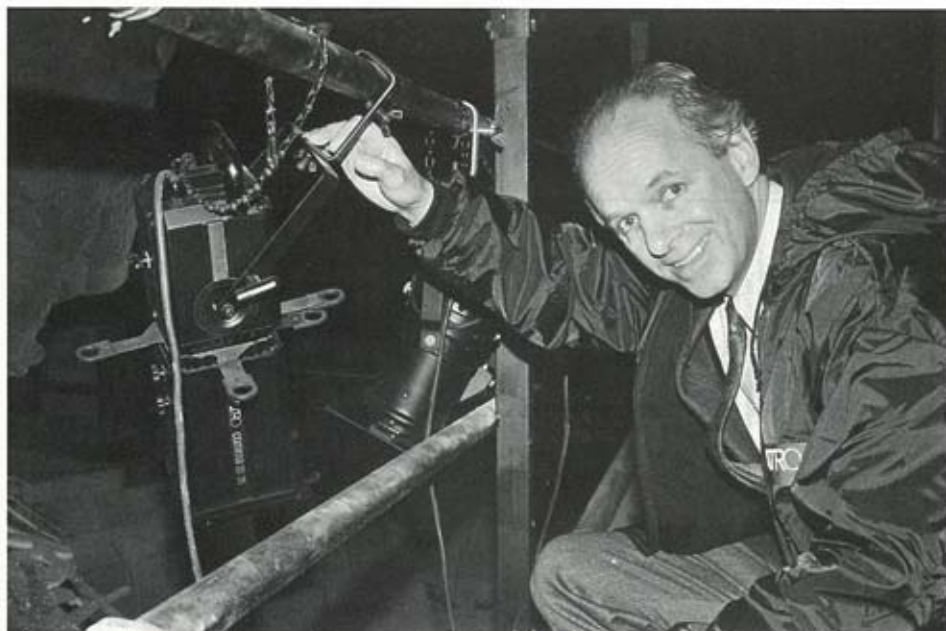
The distorted images of pirates which appear 'frozen' inside large crystal clusters are shown left and above. The pirate characters were photographed straightforwardly in the studio, the images were then scanned onto optical disc and worked upon in Media Projects' office on an Apple Mac (2FX) in Photo Shop. These files were then converted into 35mm transparencies. These particular transparencies were shot off the Mac screen to check for size proportion and alignment on site, before the bulk copy run was carried out. Photos on this page by Malcolm Lewis.

each scene involved the use of a PC based programming station with a special panel complete with servo driven sliders, joystick and switches. The completed programmes were then recorded onto solid state EPROM based show cards for the highest level of reliability. All audio is replayed using the Electrosonic ESTA tapeless audio range, and general background tracks are also recorded onto EPROM. Every audio channel was equalised using Electrosonic modular mixers, with amplification by Rane and Crest. The main show loudspeakers are Turbosound and LEM, and any spot effects are replayed using JBL Control series.

Ian Scott was Electrosonic's project engineering manager, and the man responsible for all implementation in production, final designs and all on-site work. "The final design, wiring and production of 16 control racks and 11 lighting racks was carried out at Hawley Mill (HQ of Electrosonic) with staged shipments and installation in Italy to match the construction schedule," he explained. "The production schedule was always extremely demanding. Once we had been given the go-ahead for the project, following the design stage, Museum Services (responsible for scenic design) were already putting together the first scenes. The final system is based around four main control areas, with an overall supervising and operating console room overlooking the grotto boat-loading area.

"In order to provide real flexibility in production to the show producer, we had to put together and record most of the tapeless audio system on site. Tony Frossard (SAV) carried out any final editing on site using the installed audio system to check the required effects. A complete tapeless audio recording facility was then used to record the sound EPROM's from approved audio tracks - a job that is usually carried out back at Hawley Mill. At least there were no major surprises, and we managed a fairly immediate turn-round in the EPROM loaded tapeless audio cards."

One new item the Electrosonic team now have to include in their tool-kit is a pair of waders! To install sensors and get to vital parts of the ride after the water had been put in, they



High up on the I Corsari catwalks, Teatro's Mike Lowe shows a Comma profile luminaire. Other Teatro equipment included 8 Diluvio 500W cycloramas, 11 Tratto 1000W profiles, 207 Comma 650W profiles, 71 Punto 500W fresnels and 131 Top hats fitted to the Comma profiles.

were an essential fashion and practical accessory.

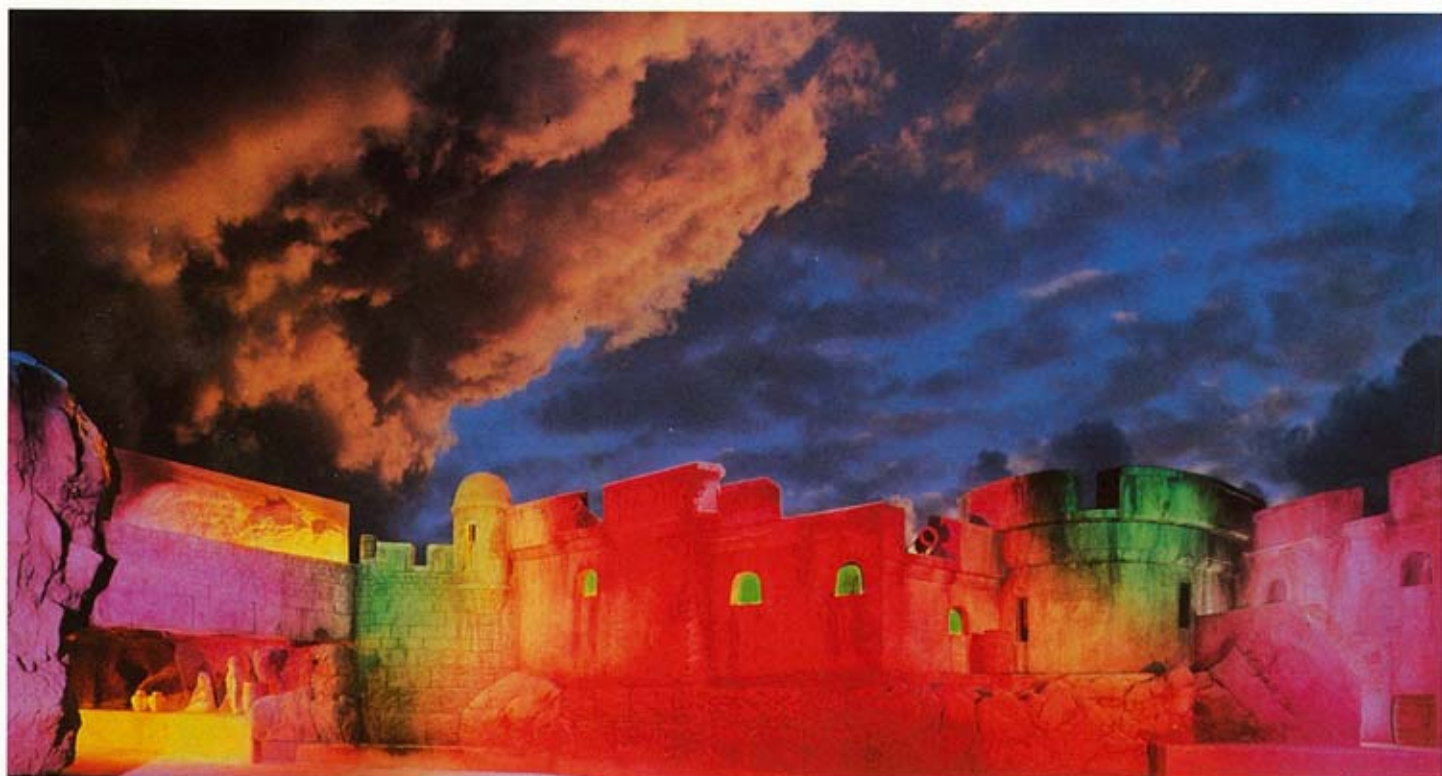
One of the biggest problems facing the installation team was the multicore control cable that was required to meet the Italian fire regulations. "The cable we had to use was particularly stiff and inflexible," said Kevin Murphy, "but the colour coding available for the cables, generally 4-pair in an overall sheaf was very limiting. The choice was down to black sheaf with four black pairs! With thousands of control channels, both analogue and digital, this took a considerable amount of time and patience."

Lighting design for I Corsari was executed by DHA Design Services, the team being led by David Hersey working with associate designers Ted Mather and Adam Grater. "Being involved in the initial stages was a bonus often denied to lighting designers," explained Adam Grater, "and, along with plotting out a good overhead catwalk grid, we were able to build up a set of

'Design Intention' sheets which helped us develop our palette and equipment lists, get our requirements integrated with the rest of the team, and carry it all through to the commissioning."

The manifesto for each of the scenes makes for intriguing reading. Take scene 12 ('Edge of the Earth') as an example:

- 1) *Cloud effects on all rocks swirling counter-clockwise.*
- 2) *Dark blue fill in fresnel wash.*
- 3) *Pinspots and cool moonlight breakups on boat, barrel and tourist.*
- 4) *Fibre optics to light edge of earth. Mount on far side with U-channel to direct light upwards.*
- 5) *10 strobe Lekos with lightning templates and five Dataflash strobes for lighting on rock walls throughout.*
- 6) *Three gobo rotators for whirlpool focus in three different sizes. Variable speed on a channel to speed up as water speed increases.*



Scene 16: the scenographic and lighting masterpiece of the 'Great Battle'.







One of the four dimmer rooms situated in the I Corsari complex.



Bernie Allison of Mellon Stuart in the main control room.

Vary colour slightly.

7) Underwater Pars in Red (pre-boil), Green (appearance) and NC (climax) for monster head and tail. Mount on side of concrete pit walls.

8) Downlight and crosslight from catwalks for head and tail.

9) Downlight waterfall with three cir Ministrip (light blue, dark blue, green).

An interesting note at the foot of this section in the manifesto further advises the light artist: 'Most fantastical action scene of all. Swirling clouds and lightning everywhere. Then monster appears in a great flourish! Wow!'

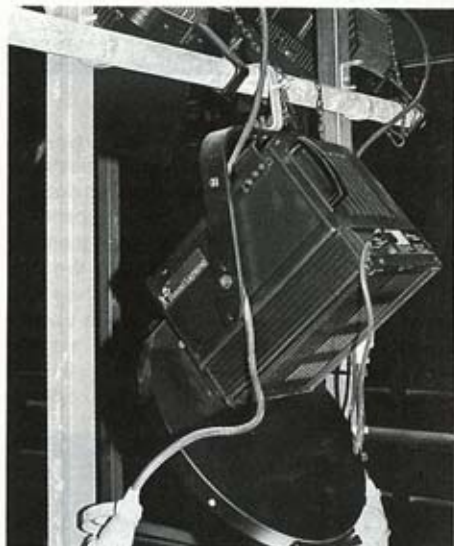
The bulk of the standard lighting equipment comprises mainly Teatro fittings (a choice possibly influenced by the factory being literally up the road). Wherever possible, lamps were fitted with long life M class lamps (levels in this kind of work are generally pretty low) and lamp life is further enhanced by each scene being triggered by the approaching boat, the lights ramping up to do a series of cues, and then settling back to preset level as the boats depart.

Back to Adam Grater. "The lighting was written on a Colortran Prestige, supplied by XTBA, and then downloaded into the Electrosonic system for continuous playback. Other equipment heavily used included the excellent White Light VSFX units, rather a lot of tubular ripples, the occasional M16 and one or two (or more) gobos and animation discs.

"Some specials were produced: in particular the load scene, originally seen as a piazza, had lots of moonlight filtering through a tree canopy overhead. However, as one or two financial problems occurred it was re-themed as a grotto and we lost our lighting positions due to the new design. Grasping the obvious, we decided to fill it with larger than life practicals - sort of gothic pirate chandeliers - which were detailed by Mike Almond and, along with numerous other types of ships lamps and hand-held pirates lanterns, were beautifully made by P.L.P. in London.

"Further down an entire scene is full of translucent crystals, the brief having them all in one colour as the boats entered the scene, and then cycling through a range of pastels as the rest of the scene was revealed. A neat little three (dichroic) colour M16 downlighter (by Laser Systems) stood on its end sorted this one whilst further down the ride, an entire scene (the bottom of the sea) painted in UV is lit with UV tubular ripple units (adapted by Bev Bigham of Lighting Technology and Howard Eaton), along with animation discs fitted onto Light Projects UV Par 36s.

"The ubiquitous Mac reared its head again as we were able to translate the original design drawings (on AutoCAD) into our system (Powerdraw) and use these for the backgrounds of the 18 lighting plans. On-site computers and



Six Strand Cadenza EPs with White Light VSFX motorised effects units were employed at various points on the ride.

a printer then allowed for each scene to be updated as it was progressed, and an individual A3 was created for each area to work from whilst plotting. This was an interesting period as it could only be done from the audience point of view and wading through a fairly rapidly flowing, cold and dark river (containing hidden obstacles such as 20' pits with animatronic serpents) may not be considered over conducive to the creative process. On one occasion, the desire to scuba-plot became too much for one of our more distinguished colleagues. He, of course, was the one man with waders that didn't leak."

"The completed project shows how a strong team of specialists getting together can provide the very best result," said Electrosonic's Kevin Murphy. "During design meetings in the UK and US, expertise and experience tended to overlap, creating some very positive and quite exciting interaction, even though the team had

never worked together as a whole beforehand. Once each stage was defined, the specialist teams concentrated on their own areas of the ride to ensure the latest and best ideas were utilised efficiently. "The end result is really one of the finest rides I have experienced and a project to be proud of."

Another man who thoroughly enjoyed seeing the project come to fruition and who is still based on the site is Bernie Allison of Mellon Stuart. With Mike Lowe of locally based Teatro, who supplied the majority of luminaires installed on site, he took me for an almost dry walk (without waders) through the labyrinth. After 24 years in the US military he's fallen in love with show business and this corner of Italy and is hoping to stay with Gardaland and I Corsari. Bernie assisted on project management and has worked on the mechanics since the ride has been in operation.

"It's been lots of work but a pleasure to make this thing happen," he said. "Scenographically it's extremely entertaining and the special effects and lighting that go with it add the final touch to making the ride one of the best in the world. People applaud when they get off the boats at the end of the ride, before queuing up to go through again!"

#### I Corsari

Gardaland, Castelnuovo, Italy

Main contractor and Project Management:

Mellon Stuart International (US)

Show Production: Richard Crane Productions (US)

Set Building and Design: Museum Services Inc. (US)

Show Control, Lighting and AV Control Systems: Electrosonic (UK)

Animatronics: Creative Presentations (US)

Audio Visual Production: Media Projects International (UK)

Special Effects: Technifex (US)

Lighting: DHA Design Services (UK)

Sound: Tony Frossard

Ride: Intamin (Switzerland)



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# A VERY PRIVATE PERFORMANCE

An exclusive corporate presentation in Hong Kong bucks the low spend trend - Tony Gottelier reports



Harbour lights. A baptism of fire for the 59,000 tonne 'Repulse Bay'.

The luxury of a spend, which must have been approaching \$1million (US), on a six minute corporate spectacular for an exclusive audience of a handful of VIPs doesn't occur often these days. And one which causes an international airport to close for the duration, to say nothing of sealing off a busy waterway, has to be rarer still. Fortunately, I happened to be on hand in Hong Kong to bear witness, though I and my dinner companions were alone in this privilege - for, aside from those invited by the sponsor, nobody else in the city had a clue what was going down. Bit of a shame really, especially as private fireworks are strictly banned in the colony, with one annual exception.

The great occasion was the launch and baptism, in the time honoured manner by the governor's wife Lavender Patten, of P&O's latest container ship, the giant 59,000 tonne 'Repulse Bay'. Named at HMS Tamar, the naval pier in front of the central financial district of Hong Kong Island, the monster vessel was to slip silently away under the pall of night out into the harbour and park itself between two tugs. In place, its awesome shadow stretched an iron curtain of decks, stacked two high with branded containers, completely eclipsing the view of the Cultural Centre and the neon signs on Kowloon side. This then would be the sombre backdrop to the show to come, with the foreground cleverly provided on the quayside by a crescent of existent flag-poles in front of the Exhibition and Convention Centre, to which the guests had by now repaired, cleverly dressed with sails to form a series of ad hoc projection screens.

Talking to Chris Matthews of Laser Creations, who were heavily involved in staging the event, a couple of days beforehand he pointed out that a successful outcome was probably dependent on the wind situation on the night. "Not only is the relationship between the tugs and the ship critical as some of our gear is on the tugs, but also we are projecting both laser and Panis onto the sail cloths. However, they tell me the weather is generally settled here at this time of year," he added, with just an inflexion of doubt

in his tone of voice.

Later, I was to realise just how critical the conditions would be to the success of the event. As I sat having lunch, on the Sunday prior to the dress rehearsal, in the genteel surroundings of The Hong Kong Club, I took a keener than usual interest in what was happening outside the panoramic windows of that hallowed refectory, where the standards of the Raj are still maintained to this day. So, when the sky started to turn a dark chocolate colour I was quite distracted from the banana flambé. By about 2.30 it was chucking down that warm tropical rain which, to a Brit, feels like warm English beer does to a Yank, leaving behind it a residue of strong gusting winds. All of this was the last gasp of a monsoon which had hit China earlier in the week, or so I was informed. Surely, it would clear up for the performance itself in two days time?

When Monday dawned revealing its menu for the day of the dress rehearsal, to take place in the dead of the night under strict security, it was still gusting and by now all must have been resigned to the worst. What Chris Matthews, Le Maitre's Wilf Scott and the crew from local hire company, Rule 1 Asia, *simply red-eyed* from four straight nights of Mick Hucknall and the boys in concert which, as Parkinson's law would have it, overran by one unscheduled night due to 'technical gremlins' - were going through under the benign lash of Major Michael Parker, one can only imagine.

Major Parker is the ex-army officer who has put logistical training to the best possible use in the organisation of gigantic events such as the Royal Tournament, which he has been



Gently does it! A military operation for the get-in.



Sailing too close to the wind - nautical projection screens.



Pomp and circumstance for the Governor.

producing for several years. He had arrived in Hong Kong fresh from the Queen's extravagant 40th anniversary bash at Earls Court. On this occasion, in true military fashion, he had dragooned a platoon of Gurkhas and the Royal Navy to render all possible assistance.

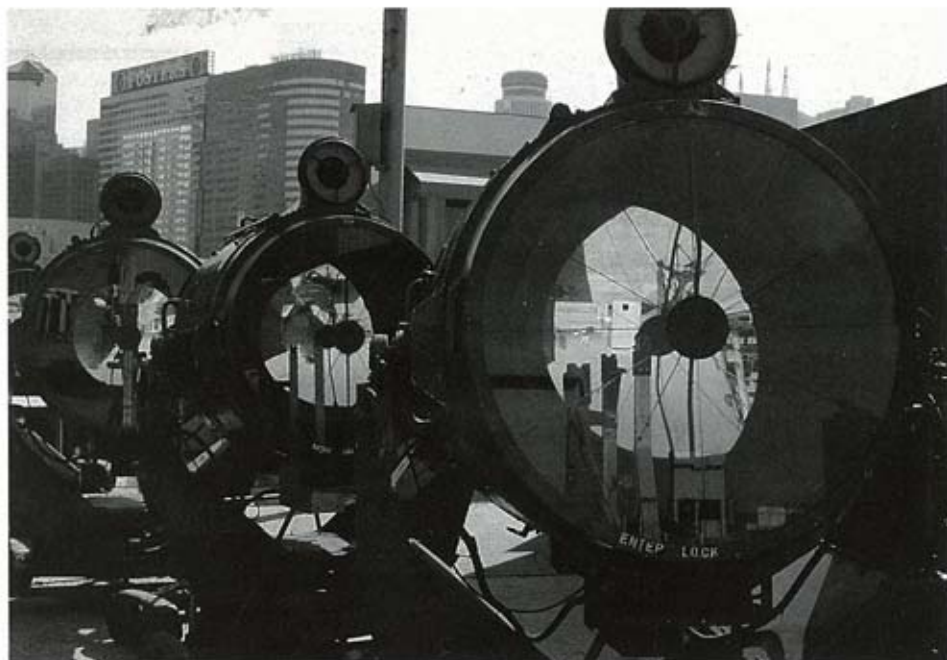
Inevitably, with such uncontrollable props, there were to be sticky moments in the set-up. Wilf Scott told me later that his big moment came when gaining access to the Repulse Bay by the only available means - the pilot's ladder. "Like climbing up the Telecom tower on a piece of wet string in a gale," was his best attempt to describe the sheer terror of the moment, "no fun at all, I would rather be in an explosive magazine with a blow torch!" Prior to that he had sweated some pretty hairy moments in long negotiations with the Mines and Explosives department of the Hong Kong government. Touchy people these who, in the full knowledge of the Chinese propensity for banging off fireworks at the drop of a squib, maintain a strict ban in the territory over the use of all forms of pyrotechnics. The only exemption is on the night of Chinese New Year, when the people are treated to a giant firework display provided by HMG, which has to last them for all of the next 12 months.

Eventually, this was to be the only other event ever, outside that annual festivity, when such volatile material would be allowed to be used. Even then the display would be restricted to 40 feet maximum and no debris. Not only that, the harbour was to be closed to other shipping in the vicinity and the airport was to cease flights for the time. To satisfy this condition 200 Spanish white filter mines in one shot cards were mounted on top of the container wall on the Repulse Bay's deck, involving 600 brackets, 200 igniters, 800 metres of bell wire and a Wasag 500v quarry blaster. All of this installed by Scott and Keith Webb in 48 hours, during which time they were based in the ship's hospital; this following the delivery of the material by truck from Peterborough, via Holland to Europort, thence to Singapore, Korea and Hong Kong. And all for a single shot!

Laser Creations' contribution was to be a seven colour Coherent Purelight for front projection of animated sequences onto the sail screens in combination with a couple of Panis, plus two large frame Argons out on the tugs, where they sat alongside a pair of Xenon trackers and followspots. The shore-bound sheets were to be artfully front and underlit by Parcans.

Sure enough, come the night of the event, it was still blowing as the invited guests left their banquet in the Convention Centre and sauntered out onto the balcony to watch the performance. The Governor, Chris Patten and his wife, Lord Stirling, the P&O chairman and other worthies were treated, courtesy of the aforementioned gear, to a private history of the Peninsular and Orient shipping line from its berth in the mid 19th century to the naming of their latest super tanker by the Governor's scented lady. This was achieved in a series of slides overlaid with some excellent laser animations. Needless to say, the incessant flapping of the flag-pole-mounted sails did little for the coherence of these images but I think everyone received the message loud and clear nevertheless.

The climax of this short, but beautifully formed, vignette was the sudden illumination of the great vessel and its cargo, the firing up of the argons kissing the deck and skimming the water. Then as the searchlights swept the skies over Hong Kong harbour, the ship exploded in a wall of white fire which showered the hull for



World War II? - No, but they closed the airports.

a brief few seconds. What you might call a Wilf's Whiff!

And when we looked again she had gone, as stealthily as she had first appeared, back to the safety of the typhoon dock and afterwards to Southampton. A journey of a mere 20 days, with all that modern technology. May God bless her and all who sail in her.

PS. Message to Lord Stirling: When can we have some up-to-date ro-ro ferries on your channel crossings, your lordship?

1 x 63A feeds (Pani Golds)  
2 x 32A feeds (Pani 4ks)  
1 x 100A feeds (laser)

**Barges**

2 x Denyo 300A generators 415v/50Hz  
2 x 100A feeds (lasers)  
2 x 100A feeds (HMI's)  
2 x 32A feeds (searchlights)

**Communication**

22 x Motorola walkie talkies  
12 x Clearcom RS 501

**P&O Equipment List (courtesy Rule 1 Asia)**

**Site 1 HMS Tamar (Naming Ceremony)**

**Lighting System**

30 x 6 way Thomas Par 64 Pars  
10 x 4 way Thomas Par 64 Aeros  
8 x Thomas 6 Lite  
1 x Pani 1202 HMI followspot  
1 x 72 way 10A Celco Series 2 dimmer rack  
1 x 36 way 20A Celco Series 2 dimmer rack  
1 x 30 way Celco Major  
stacks of Socapex multicore

**Sound System**

8 x Bose 802 full range speaker  
2 x Bose 302 sub bass speakers  
2 x Amcron MA2400 amplifier  
1 x 8:2 Soundcraft Spirit desk  
3 x AKG 451 & CK1 mics

**Site 2 HKCEC/Harbour (World of P&O)**

**Lighting System**

**Shoreside**  
240 x loose Thomas Par 64  
12 x 4 way Thomas Par 64 Aeros  
60 x Silhouette 30 (rigged on upright Thomas pre-rig truss)  
8 x Thomas 6 Lite  
2 x 36 way 20A Celco Series 2 dimmer rack  
1 x 60 way Celco Major  
more stacks of Socapex multicore

**Barges**

8 x Arri 6k HMI  
4 x Arri 4K HMI  
6 x WWII searchlights (5k xenon)

**Sound System**

14 x Renkus Heinz SR1A full range speakers  
6 x Amcron MA1200 amplifier  
1 x 38/8/2 Soundcraft mixer  
1 x Teac A3440 4 track

**Projection**

2 x Pani 6k HMI (Gold)  
2 x Pani 4k HMI  
4 x Pani dimmer shutters

**Power Distribution**

**Shoreside**  
2 x Denyo 300A generators 415v/50Hz  
2 x 200A feeds (racks)

**Rule 1 Asia**

Local Hong Kong company Rule 1 Asia, owned by the Rule brothers John and David, is a full service production company capable of managing most aspects of events, from one-offs to conferences to concerts. They are able to provide full staging and technical support, video and projection.

Since its inception in 1987, the company has provided technical support for such international artistes as the Pet Shop Boys, Erasme, Simply Red, John Denver, Luciano Pavarotti, Placido Domingo, Kiri Te Kanawa, Dionne Warwick, The Bolshoi Ballet and the Moscow State Circus. They have also facilitated the presentation needs of many corporate clients such as IBM, Alfred Dunhill, Cathay Pacific and American Express. The company has a substantial equipment base. They have toured with both corporate presentations and arts events throughout Hong Kong, Singapore, Japan, Taiwan, The Philippines, Thailand, Bali, Malaysia and China.

The company's personnel combine experience in production, sound and lighting and their flight-casing system makes them one of the most 'portable' production units in the East. Rule 1 Asia say they are committed to the integration of technology and art to facilitate production to the highest possible standard.

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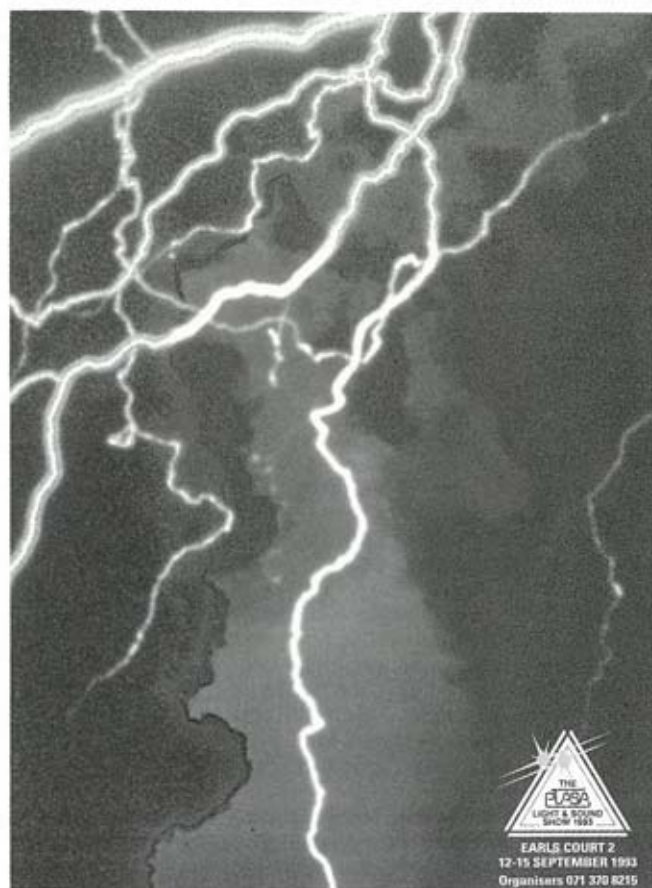
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# PULLING THE STRANDS TOGETHER

On the launch of the new Leko and the introduction of a new global marketing initiative, Tony Gottelier talked to Chris Waldron, managing director of Strand Lighting

Unlike the Queen's notorious *annus horribilis*, 1993 could prove to be a seminal year for Strand Lighting, with the culmination of its global restructuring as a single worldwide 'fast response' unit, the arrival of new dealer marketing packages called Euro System (Century System in the US) and the launch in America of the new Leko, crowning 60 years of success for the product which, more than any other, made Strand Century's name in lights across the Pond.

As a relative newcomer, and I suppose I would need to be around 80 years old to know better, I was pleased to have the mystery of the Leko name cleared up. For amongst the PR bump for the re-launch, there was the information that Century's founding fathers Joseph Levy and Edward F. Kook (not Cook as inadvertently stated in our December issue) combined their surnames to create the brand, when they first applied for a patent for the ellipsoidal spotlight in 1933. Although this is a product which has been restricted in its application in Europe, due to the difficulty of producing a suitable 240v tungsten halogen lamp and different safety regulations (though it is now available with the 650W FKR and 1k CP77), it is as closely identified with the combined company as the long lamented Patt 23 and will, no doubt, make a similar global impact. It should also be noted that the 110 volt operation in the USA requires different safety codes to Europe where EN598 is the appropriate standard (in the USA the unit is approved by Underwriters Laboratories). For full technical details of the new Leko range see the inset panel with this article.

To find out more about how these moves impact on Strand's new global strategy and to clarify the purpose behind Euro System, who better to talk to than the architect of the masterplan himself, managing director Chris Waldron. Chris has been operating under the sign of the gong for around 20 years, having first joined Rank Cintel from the Engineering department of the BBC via Ampex. Having risen to the post of managing director, he passed at the same level through Rank Taylor Hobson gravitating eventually to Strand Lighting, where in 1991 all Strand operations worldwide were consolidated under his direction.

Despite the change to a universal Strand Lighting monicker in the mid-eighties, this would be the first occasion, since Rank acquired Strand and Century Lighting in two separate deals in the late 1960s, that the two operations would actually be running as a truly combined entity, other than in name only.

On the occasion of our meeting at LDI'92, Waldron was accompanied by Bill Groener, executive vice-president of Strand Lighting Inc., who was to provide the American viewpoint. I started by asking what changes had been seen as the result of the new global policy since it was first mooted 18 months previously.

"I think in many ways the evidence of the success of our global investment can be seen at this year's LDI as it was, also, at the PLASA Show this year," was Waldron's response. "These were the first opportunities for our customers to see that we can apply our

resources, wherever they are, from all around the world to focus on the needs of any particular market. Whether it is in terms of development, customer relations, or marketing strategy."

He went on to tell me that he saw everything around the development of the new Leko and the new marketing push as the result of a hugely cooperative effort right across all national boundaries, between the United States, Canada, the UK with Scotland singled out for a special mention, to say nothing of Italy where the Leko castings were all carried out. For the first time it had been possible to put into practice schemes which previously they had looked at with the intention of becoming a global operation.

Bill Groener concurred. "I am a veteran of multiple re-organizational structures since December 1985 when I first joined the company, all of which supposedly had an international flavour. Although at that stage we were already Strand Lighting, as opposed to Century and Rank Strand, and operating under a single chief executive, I could not have conceived what has occurred under Chris Waldron in the past few months. This is a phenomenal international operation that he has put together."

Groener pointed out that for him one of the major plusses has been the opportunity to grab the successful Euro System marketing concept, launched in the UK at PLASA, and to slant it at the US market with a very American flavour. Then, using essentially the same basic programme, to be able to apply it in the US, using a name which is a deliberate link back to the group's roots on that continent. "This truly shows the diversity of Strand Lighting, the ability to put it together as a Group, but also to focus on two very distinct markets," was Bill's summation.

I had noticed the following description of this new sales programme in the press release (only the spelling has been changed for UK readers): 'After investing significant resources in its worldwide manufacturing facilities, Strand is

further enhancing its long-term partnership with its dealers by enacting a sales programme with discounted pricing that will enable customers to both fulfill their lighting requirements and meet their budget! The new Century System offers a complete system of controls, dimming and luminaires at substantially reduced prices.' However, my suggestion to Chris Waldron that the new marketing package was a discount scheme, by any other name, clearly hit a nerve.

"No, its not a discount scheme, it's a dealer programme aimed at a specific slice of the market, really the price sensitive publicly funded sector of schools, universities and other smaller-scale performance spaces," he emphasized. "It is designed to focus on our dealers and to demonstrate that we have a strong commitment to them. They are partners in our business and it is through them that we service our customers' needs. In doing that, we recognize that it is only going to work if we assist the dealers to have a profitable business by so-doing. So it is a real partnership basis which we are aiming for, and I think that rates far higher in importance in the scheme than anything to do with specific pricing. We see it as a win, win, win situation!"

Apparently, the basis of this deal has been the establishment of nett trade prices that distributors can buy from Strand, on a level which puts them in a position to be competitive, while making a profit at the same time. Basic economics, I would call it! But then, when you fold that into a Strand supported marketing and promotional package aimed at the target sector, everyone in the chain benefits from a potentially increased market share.

Clearly, however, there has to be a cost to the manufacturer, so I wanted to know where the extra money comes from. The answer is, apparently, that the reward for their heavy investment in improved manufacturing techniques is not only better quality products but cost savings also. It is this which has made it possible for Strand to be more competitive. The Kirkcaldy factory has recently been granted BS5750 status, which extends to R&D at the Isleworth headquarters also, and the same philosophy is being applied to the Rome factory and the LA plant.

Going back to Strand's global policy we discussed the differences which have occurred since last year. Most of these have focused on the restructuring of Europe as a single territory in anticipation of the single market in 1993. "We have to treat Europe as a single market now and in the past 12 months we have witnessed the very rapid erosion of differences between those countries and the removal of such barriers to trade," Waldron said. "This has been highly beneficial to us, for example it no longer has to be that if you need expertise delivered in one territory, that expertise must necessarily reside in that particular territory."

He cites the changes in the capabilities of physical distribution, communication systems, travel facilities and indeed the whole cultural gamut as contributory to a new world commercial order. All of this, he says, helps to make Strand a more global entity, bringing the parts together into a tighter whole; more



Chris Waldron.

cohesive and, ultimately, more cost effective. And Waldron is convinced that this new structure brings them closer to their customers also, a matter on which Strand, as the 'establishment' company of the performance lighting industry, have often been the subject of sniper fire from the wings. "Many of these changes may not have been visible to the outside world as yet, we have been digging the foundations and filling them with concrete," he explained, in an architectural allusion. "This is never very glamorous, but soon people will get to see the elevations as they rise above ground level and then they'll begin to see what its all about!"

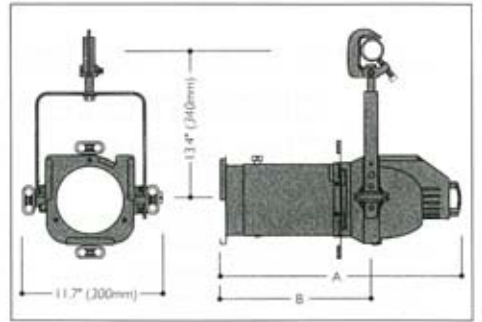
I suggested that there was a universal problem developing with the advent of software-driven lighting boards, where, though perceptions have increased and people were quite used to coping with the odd bug on their desk-top computer, when you wrap it up in a control desk such glitches are simply not accepted - a throwback to the mechanical desks which did as they were told and no more. "Yes, you could use the following analogy: can you honestly say that there has never been an issue of L&SI without a comma out of place?" I felt this was getting a little too close to home for comfort but I let Chris Waldron continue! "The fact is that we can bring resources to bear on any of these problems and the new structures mean that we are going to be able to respond. That is the added-value you will buy when you acquire a Strand product, full support all the way down the line."

Bill Groener: "At various times in the United States we have been inclined to look at this group of people called dealers in different ways. At times there have been people at Strand who wanted to see them as stocking warehouses, which they are not, and the

## The Strand Leko™

Features of the new Strand Leko include:

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- All models accept the same drop in iris accessory with no modification to the luminaire
- Ergonomically designed shutter handles hug the luminaires body for close hanging
- Multiple clamp attachment locations allow standard, tight or side mounting
- Safety cables attachments molded integral to the luminaire body
- Gate assembly easily removed in seconds for maintenance
- Finger slots and safety holes allow quick and safe colour frame use



economy won't allow them to be. At other times we have also seen them as end-users or consumers of our products. Well they are not that either. What they are, is the conduit to our customers. So having finally recognised that what can we do to most effectively support these guys? In fact, the biggest thing is that the Century/Euro System marketing strategy involves Strand actually going out and doing the marketing to the users on the dealer's behalf. Through promotional campaigns, direct mail and advertising, the action call will be: 'Contact your Strand dealer for these

products to get the service that you need on a local level.' "

The last word to Chris Waldron. "Everything has to be focused on how to serve the customer, because if we don't neither us nor our dealers will be successful as a business. The reason we are doing these things is to be a successful business; if we can't be that we can't be anything. The new Leko demonstrates that exactly; it shows that despite any criticism there may be to the contrary we are listening to our customers. It is *their* wish-lists which are incorporated in the new product."

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# OUT OF THE UK: CANON AUDIO AND WIDE DISPERSION

Canon Audio's launch of their V-100 loudspeaker was a major news story from the PLASA Light & Sound Show. John Offord talked business with managing director Andy Szeliga

Canon Audio brought their touring coach to the 1992 PLASA Show last September and with it their new V-100 wide dispersion loudspeakers. The coach was a neat idea and looked good on stand - end of story. The V-100 caused a stir and could well become a trend-setter in the installation field. It also marked the arrival of the company into the pro audio sector after just over a year in the hi-fi field.

The man behind the concept behind the V-100 is Hiro Negishi, who joined Canon in Japan in 1963 and after periods in Amsterdam and Germany came to the UK in 1981. Part of his brief was to explore potential areas of technology which might lend themselves to future Canon products. He recognised that with the introduction of its audio visual camcorder, the company had inadvertently made its first step into the audio market, and immediately pursued the idea of developing Canon's audio research activities. He put forward a proposal to Canon Inc and was in due course given the go-ahead to set up all R & D in the UK, which from 1989 has been based at Guildford in Surrey.

Negishi soon began work on what he called a more 'sociable' loudspeaker, which would enable more people in the same room to appreciate a 'true' stereo effect. The first unit was a very DIY affair, with the acoustic mirror made in concrete by Negishi's wife whilst the driver was purchased from Tottenham Court Road. Following successful tests, 'Wide Imaging Stereo' was patented and in June 1991 Canon Audio launched its first product into the retail market - the S-50. This was to be followed by the S-70 in May 1992 and the S-30 in September 1992.

All Canon needed to do now was to apply the principles to the pro-audio field. Without the hindrance of history they could move fast and in the direction of their own choosing. They had originally set up with five people at Woking in June 1992 when they launched the S-50, and managing director Andy Szeliga, who had been wooed to Canon after 15 years at Harman Audio UK, quickly built the team up to 32. They are now all set up to sell their products world-wide, outwards from the UK. Incredibly, the V-100 took only a year from start to finish, with product now available.

Being truthful, I don't think the men from Woking could have forecast in detail what kind of response they'd get at the PLASA Show. They knew they'd got an interesting piece of kit, but on opening day they just waited in eager anticipation.

Andy Szeliga takes up the story: "We had a tremendous response, not only from the UK but on a world-wide basis, and from a very wide range of potential customers. I think the V-100 is the first really new and exciting sound product that's been launched onto the market for a long time, and a lot of people showed interest because of its unique design and the range of its applications.

"One particular company from the Far East were absolutely delighted that someone had come into the market with a product that offered them the possibility of fitting it round columns easily. When we explored the scene further, we found that they had been given the



Andy Szeliga and the V-100.

contract to supply sound to hundreds of mosques! It's still very early days for us, obviously, but we've had huge interest from the European, American and Eastern markets."

Next product from the Canon pro-audio production line will be the V-200 foreground speaker. "It is effectively complete as far as design is concerned and is due to be put into production by late Spring," continued Szeliga. "Unfortunately the tooling takes some time to get absolutely right. I'd love to have a square box which is very, very easy to tool, but something as unique as this, with curves, takes some very sophisticated tooling. Also, we have to work within very strict guidelines. Anything I put the Canon name to has got to be excellent - it cannot be a 'make-do' product. One of the reasons the V-100 has been so well received is because it's not a box loudspeaker; it's something a little bit different, and the industry is recognising it as such.

"If we are to become a credible force in this business in the future, we have to carry on being innovative. To compete with other companies by offering similar products isn't going to get us very far. Why should people change? They will only change when something new comes along, and with the V-100 I believe we've showed clearly where we're heading, not only with the products coming out this year, but further down the line. We always intend to have something a little bit different to help create new markets and offer customers new benefits."

Moving into our industry with the back-up of the high-tech Canon brand name has brought immense benefits. "If it's Canon it's got to be good," said Andy Szeliga. "It's the same with Sony. A consumer who buys hi-fi, TV or video from Sony, whether he is or isn't getting

good quality is almost irrelevant, feels he's getting good quality because it's got a very powerful brand name on it.

"We did an exercise during our market research when we were looking at hi-fi products. One of the questions we asked was 'What do you think of Canon televisions?' 70 per cent of people questioned said 'Great!' - despite the fact that Canon doesn't make televisions. Sony did the same thing in New York in 1985 when they asked several thousand people what they thought of Sony in-car entertainment equipment. Most said 'tremendous', oblivious to the fact that Sony weren't in that market. That's what you get with the power of a major brand name.

"It was a very valuable lesson to me in that it's sometimes very easy to devalue your own name, because in the market-place it has a very powerful voice. What we now have to do is to translate that consumer end-user confidence in the brand name to our dealers and the installation companies. They are already beginning to appreciate that we've got a highly credible product, and we don't want to be seen just as another big Japanese company entering the business with bells, whistles and flashing lights and buying a market share that could be great for six months or so, but dead inside two years when the market has forgotten us."

Interestingly, Canon Audio have no standardised and set procedures through to the corporate machinery. Operations, product quality control and so on are based largely on a self-regulatory common-sense. Things just have to stand up.

"There is no way they could test the products, for example, because they have no knowledge, and they couldn't tell you whether a loudspeaker is good or bad because they've



**Andy Szeliga: "Box manufacturers are going to have to start looking at Canon Audio and ask what we're up to."**

never been in the business. It would be like asking Heinz to tell whether a Boeing aircraft was good or not.

"However, we do keep a close eye on product quality, and I can say without any hesitation that the quality of our manufacturing and assembly - at an OEM plant in the West of England - is higher than any other loudspeaker manufacturer in the UK. The tolerances and tests we put our products through are to much, much higher standards than anything currently available in the UK."

I remarked on the strength of this Szeliga statement, but he was happy to follow right through. "You only need to look at either our hi-fi product or the V-100 to see the way they are put together. Our tolerances of what we accept as a finished product, right down to small scratches, are extremely tight, and that goes hand-in-hand with the name on the product. We just cannot be seen to have a failure, because, obviously, the impact on the Canon name world-wide would be very damaging."

When it comes to selling Canon's pro-audio products in the UK, effort will be directed at the installation companies. "We have no plans to distribute our products direct to the end-user," said Szeliga, "no matter how big the project. The reason for this is very simple in that we do not have the staff, nor the intimate market knowledge on a shop-floor basis to actually do installation work ourselves, so we have to rely on the experts."



**Design engineer Graeme Foy with Andy Szeliga.**

"On a European and world-wide basis we are fortunate to be part of the Canon empire, for want of a better way of putting it, and our first route will be to deal through various Canon companies in each country. What we are doing is talking to independent installation companies about doing business in their particular countries. However, for a lot of very good reasons, the business will go through the Canon company in that country."

According to Szeliga, all Canon companies will be 'wired up' for sound in 1993. "If anyone in the trade wants to get in touch from overseas they can either contact us in the UK or go through any local Canon company. In addition, any particular Canon company can also get into the business themselves, provided they have the necessary level of expertise. It's a two-way thing."

Canon Audio's 'independence' of operation is described by Szeliga as both simple and in other ways complicated. "We are a unique operation within the world-wide Canon structure. At the last count I believe there were 66,000 employees, and as you know, the company majors in business machines and photographic and video cameras. However, within Canon we are the only company with its own R & D facility, production, manufacturing, quality assurance, sales and marketing. In terms of reporting we come under Canon Europe and that's it."

"One also has to see things in terms of what Canon call their globalisation process, something that Sony has also been pushing quite hard, which is where major Japanese corporations are very keen to appear as global companies as opposed to purely Japanese operations. It's very important to them to be involved with local society, and one of the reasons why Canon Audio is located in the UK is very simple. It allows Canon to lock in to the 'heritage' of the British entertainment scene."

At its Woking HQ the fledgeling company already includes in its 32-strong team designers, engineers, a procurement operation and all the necessary specialists in sales and marketing. "We can put the whole process of getting a product together from the initial scribbles on the drawing board and buying the parts from around the world through to designing and developing the whole tooling process."

"If you think about it the S-70 and V-100 are closer to aircraft engineering and manufacture than we are to box loudspeakers. We have our own anechoic chamber, our own IEC listening room, and all the products are linked to a computer system so that we can test frequency codes and provide a thumb print for



**Mark Homer, design engineer.**

every single driver. In effect, we can create everything in-house and once we're satisfied we start putting the product out to manufacturing under strict quality control guidelines."

Alongside the V-100 and V-200 will come the V-300 later this year and an amplifier, currently nick-named the 'Vamp'. The latter came about because of what Szeliga describes as a gap in the market place. "When we asked the question at the installation stage regarding what amplifier people would hook the V-100 to, the response ranged from pub managers planning to use domestic hi-fi amps through to high powered 600 watt professional amps at the other end of the scale."

"There was nothing in between so the obvious answer was to build a new one, which is exactly what we've done. We've built a very simple and clean amplifier that will drive four V-100's perfectly so that we can package the system for the background market. We've dipped our toes into the electronics world with the V-amp in the professional domain. It's nice and black, as these things tend to be, but this is what the market wants: a powerful, very clean, no frills unit that does the job it's been asked to do."

Andy Szeliga and his team are exceedingly confident about the future, and where their own particular path is leading. "Many people think we're going to have a CD player or whatever overnight and that we're gonna do this, and gonna do that. They're wrong. We are going to take our time, and we're not in a rush. We're carving our own niche in our own way. Yes, we are competing against boxes, but I think it's going to be a matter more of boxes competing with us."

"In the short time we've been in business the hi-fi magazines are talking about greater stereo image. Some manufacturers have actually cut off corners and started to talk about stereo over a much wider area. I'm sure it's going to be the same in the professional market. Box manufacturers are going to have to start looking at Canon Audio and ask what we're up to. I'm sure they'll be taking us very seriously because the product works and does a great job. And they'll be asking why they can't have a big plastic tooling budget!"

## **Tim Frost takes a close look at the V-100**

When JBL introduced the Control 1 over five years ago, they became the first company since Bose to treat the step-ladder (that's all you need to fit the system) installation market seriously,



**Lance Miller (left), marketing manager with sales manager Sean Martin.**



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Multiple configurations for the Canon V-100.

with a high quality mass produced low-cost product, complete with all the mounting options that an installer could wish for. Now everyone and his mother have their own Control 1 look-alike - dozens of oblong moulded boxes with Omni-Mount bracket fixings. It is often difficult to tell them apart.

When Canon Audio decided to go into the pro-loudspeaker business it was no surprise that they too targeted the small back/mid ground speaker market. What is refreshing is that they have taken an entirely different approach, and created in the V-100 a speaker that needs a little thinking about but has much to recommend it.

It looks different for a start - take a dome and cut it into quarters and you have some idea of its shape. It is moulded in black polypropylene (recyclable) and the front baffle curves around a quarter of a circle, so that it fits neatly into a corner. The bass driver faces forward and a little down as you might expect, but the HF driver is mounted two-thirds up the box facing vertically upwards into a 'mirror' that controls the directivity of the unit in much the same way as a sophisticated HF horn.

This is the key to the system's ingenuity. Instead of beaming the sound out directly from the HF driver, the mirror reflects it into the room in a fairly tight pattern. In the horizontal plane this is a 90° dispersion which keeps the sound off the side walls. In the vertical plane the top of the radiation runs horizontally, parallel with the ceiling, so there is not too much leakage into the top of the room. The vertical beam goes 70° down into the room, which means that if you are sitting directly under the speaker you are off-axis to it and it doesn't seem too loud. As you move further away from it, the sound level should drop of course, but as you are then moving into its main beam, in fact the level remains much the same.

This is the logic behind the design. By throwing energy into the room in this way the dispersion is generally more diffuse and the speaker becomes less noticeable. It can produce the desired overall level without localised hot-spots.

So much for the theory, but what about the unit as a piece of installation hardware?

Looking inside (by removing nine screws, the two closely fitting front and back mouldings pull apart) there is a 166mm bas/mid driver with a reasonably substantial magnet and the 14mm HF driver. The 3.5kHz crossover is a simple two inductor, one capacitor affair with a thermal cut-out to protect the HF unit. The components are securely mounted and glued to the 4cm square circuit board and the wiring is plenty heavy enough for application. Everything is fitted with spade terminals and bolted to the cabinet, so any offending component can be replaced with nothing more technical than a cross-head screwdriver.

Canon have done away with the Omni-Mount approach and supply in the box with the speaker an integral wall bracket, so there is an immediate cost-saving over systems needing additional mounting hardware. The bracket, which is a moulded corner fitting bar, contains the terminating choc-block so that they can be installed and pre-wired without having the speakers on-site. The speakers then just slot onto the brackets and are secured by two screws from underneath and these also make the electrical contact between the bracket and the speaker. Soon to be available will be a cover for these screws since such ease of installation also infers ease of surreptitious removal. Another goody to be available is a plastic grille that can be sprayed any colour to match the decor and this covers the whole of the front of the speaker.

Since the speaker describes a quarter circle, a single unit must be mounted in a corner. However the brackets are designed so that a pair of V-100s can be used to create a semi-circular speaker for mounting on a flat wall and if you want to be a bit more adventurous three can be mounted around a pillar.

As well as these wall mounting options the speakers can also be clustered in a full circle. This is done using an optional cluster bracket which is a square extrusion to which the V-100 brackets can be bolted. Canon have paid a lot of attention to safety aspects and mounting security, and as you should expect from a large multi-national manufacturer both wall bracket and cluster mount look as secure as anything on the market.

The V-100 has taken ease, speed, cost, convenience and flexibility of installation a big step forward and I wouldn't be surprised if we don't see other manufacturers re-thinking their mounting systems along the same lines in the future.

In overall electrical and sonic performance terms the Canon unit is very respectable. Efficiency rolls in at around 90dB, on

a par with the Control 1. Power handling is quoted as 50W with a maximum SPL of 98dB, so it is not really designed to be used as a cheap high-level speaker in loud rock oriented eateries. As would be expected from a box this size (3.5l), the bass end drops off below 90Hz but extends comfortably up to 18kHz and beyond.

On our listening tests, the dispersion technique does what it is meant to, creating an overall sound level in the area without any noticeable variations in frequency balance or a tendency to be too loud when sitting directly under it. As would be expected, the bass response - especially in the areas between 100Hz and 250Hz - altered dramatically depending whether the speaker was against one surface (mid-wall), two surfaces (corner) or three (in a corner up against the ceiling).

The V-100 has been voiced for the corner/ceiling position, where it will most commonly be used, taking maximum advantage of the 9dB bass lift that radiating into 1/4 space offers.

The units reviewed came with a 'domestic' manual but the installer's manual should be ready by the time you read this review and will be in 'filofax' form. This will up-dateable and include installation and service data and outline how to design a system using the unique dispersion characteristics of the V-100.

The UK based design team have taken advantage of the combination of factors unique to Canon: the company's tradition of quality, its ability to put a lot of money behind custom development and tooling, plus absolutely no history in loudspeaker design.

With no tradition to fight against, they have been able to take a clean sheet of paper and re-define the compact installation speaker. In my view Canon have moved the product forward a generation.

It won't suit every application or every installer for that matter - but it is a significant development and contractors should be adding the V-100 to their tool-box of essential installation speakers.

#### V-100 Speaker

Impedance: 4 ohms  
Sensitivity: 90dB (2.83V/1m)  
Power handling: 50W  
Max SPL: 98dB  
Dispersion : V = 0° to -70°, H 90°

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# LOOK, NO HANDS!

## David King and Judy Nunn of the BBC report on the latest developments in Voice Control of Lighting

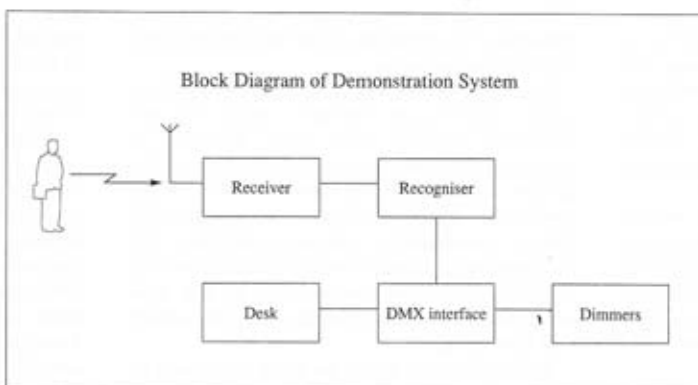
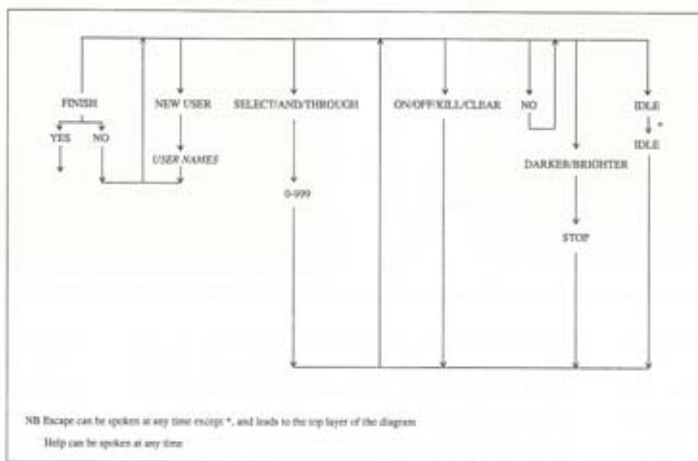
At the PLASA Light and Sound Show back in September, tucked in a corner, away from all the desks, speakers and smoke, could be found two engineers standing talking to their lights. And perhaps more amazingly, the lights were responding to what they were saying.

They were demonstrating the results of the BBC Development Group's investigations into alternative means of controlling broadcast systems, and particularly lighting. The system being shown used speech recognition techniques to give you hands-free remote control of lighting over a radio link, allowing you complete geographic freedom in the working area.

Speech is the most natural form of communication for humans, and people have long wanted to make machines which can respond to a human voice. The technology to achieve this ambition is now maturing, rather than being purely science fiction and voice control systems are already common for telephone information lines, phone banking and aids for the disabled.

The system which was shown at the PLASA show directly controls a DMX stream and can be added to the output of any DMX desk as a rigger's control. It allows one or more lights to be turned on or off, and faded up or down.

In addition, a clear function lets you turn off all the lights at once. An idle command allows you to put it into a standby state, so that you can talk to other people without fear of the system responding and the lights starting to flash on and off. It would be quite straightforward to connect it to the remote control input of the desk and give full access to the desk's memory as well as it is all contained



Diagrammatic representation of the routing system (above) and beneath the demonstration system.

within a PC.

At present the system needs to be 'trained' by each user for reliable operation, but an enabling phrase, 'New User', was trained independently. This allows you to give your name, and it switches to recognise your voice 'on the fly', so you don't have to return to the host computer and press any keys, but can switch to your voice by speaking. In practice, more than one person can use it at the same

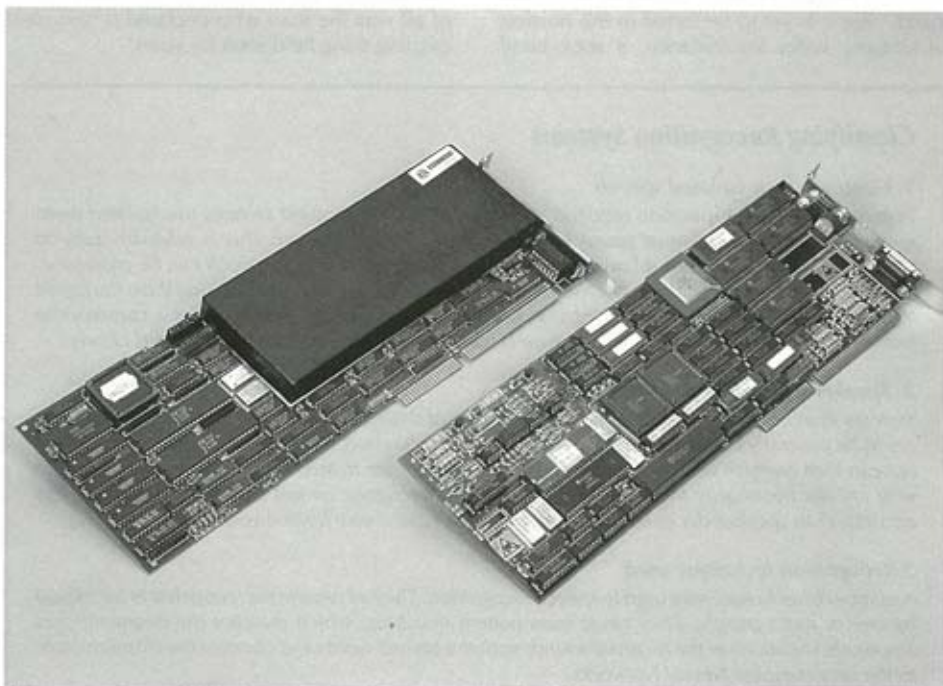
time, and once trained it will recognise you reliably, even, as I found out, if you catch a cold and lose your voice!

Like almost all current recognisers, the one used has a fixed syntax, or structure of words which must be stuck to (see diagram). In this respect, the system is very unforgiving, and the predefined syntax must be kept to, or it will either not recognise you, or act in unexpected ways. A help command tells you what can come next if you become confused, and an escape command takes you back to the beginning of the syntax.

The voice is taken from the operator to the recogniser across an rf link. A standard studio radio talkback link was used, but any radio mic should work. It is a two-way link, so the system can talk back to you in the same way that a board operator would.

Early in our studies, we found that you need this kind of feedback so you can tell whether the system has recognised what you asked for correctly, but it shouldn't be too intrusive. A speech synthesis card within the PC, taken across the radio channel, provides a mixture of tones and words, and since the words are pre-recorded rather than computer generated, they don't sound robotic. Tones let you pace yourself, and words confirm whether it has heard the correct channel number - a level of error checking, and provide help messages and other special confirmatory messages.

You may want to end voice recognition, for instance, to stop anyone using it rather than controlling the lights from the desk during a show, so the system allows you to do this in a controlled way by saying "finish". But to stop you doing so accidentally, it asks you to



The recogniser and synthesis units.



The system is contained within a PC and is easy to train and run.



Judy Nunn with the system in the studio (above) and Dave King (right) demonstrating the prototype at the recent PLASA Light & Sound Show.

confirm that you do really want to end voice control.

It is all very well knowing what a system can do in theory, but in order to assess it, you need to know how well it works in practice. It may work very well, but if it is too slow in responding, its usefulness is limited.

The first measure to use is its accuracy; in other words, does it recognise what you are saying. This depends very much on familiarity with the system, and remembering the syntax itself. So it is important that the syntax should be as easy to remember as possible, to lessen the number of misrecognitions.

It can be improved by retraining any words you have problems with, to give a maximum recognition accuracy of around 99%. With the feedback enabling you to check the results and change any errors, in practice there are few serious mistakes. It also gets better with practice.

The system generally responds very quickly to the instruction, typically in less than a quarter of a second. When raced against an experienced desk operator being told what to do, it lost out slightly, but has been speeded up since then. Indeed, further performance improvements are possible to make it even faster.

The only time that it is a problem is if a word is recognised wrongly, when correcting it takes a time. If too many commands are fed to it too quickly, it can slow down considerably, but this is the exception rather than the rule. Overall, it feels like talking to an operator who is slightly hard of hearing, in that most of the time it recognises you, but occasionally it misses what you are saying.

So, it is possible to control lighting by voice, and feels quite useable, but what advantages does it have? Why should anyone think of using it instead of a keypad or other handset?

Using a headset and a radio mic means that remote operation is both hands free, so you can be hanging on to rigging, holding a plot or even keeping a tight rein on your coffee at the same time. The use of a radio link means that you can have geographic freedom within the working area, without having to worry about trailing wires or where the infra-red receiver is. From the system designer's point of view, radio links are intended to carry voice, so the problem of sending data over a narrow bandwidth is avoided.

It is generally easy to teach someone to use the system, and careful design means that current working practices can easily be matched. Training the system yourself means that regional accents, however broad, and even having only a limited speech capability are not a problem. Indeed, the system can be more successful in recognising a strong Glaswegian accent than some Londoners would be!

However, at present the system is not without drawbacks. The reliability can still be a problem at times, and means that it would not yet be suitable for live control, where the lights must change at an exact time, as this cannot be guaranteed. And on the rare occasions where it does seize up, it becomes very frustrating. However, this problem could be removed with more robust software.

The system at the moment requires about half a day's training per operator, before you are confident to use it for real. But this is comparable to the learning time on many other pieces of control equipment. The main tendency is for people to think they can use it almost immediately, without practicing, and the ensuing poor results make it disheartening. It can also be quite complicated to add new users, on top of those named when the system was first set up.

At the moment it can be quite expensive to add speech control to a system, when it is an extra to an existing desk. However, if manufacturers added it integrally to their new desks, the price could fall to a realistic level.

A major concern to anyone in the entertainment industry must be the effect of background noise. So far, due to good microphones with only close range pick-up, and the noise cancelling properties of the speech recognition software, this has not caused us a problem. This has included using it in a lab and at the PLASA show, where even if the noise wasn't coming from the other stands, it was from people talking on your own stand. But it is yet to be tested in the noisiest of venues, with, for instance, a rock band

rehearsing nearby.

By interpreting the results of the speech to give a DMX stream, it is relatively easy to install speech recognition in your system. However, it does require an rf link to carry the voice, which may or may not already exist, depending on the venue. It can also be quite bulky, when you take into account the PC and any interface to the lighting system. However, the physical size could be reduced by integrating the speech directly into a desk.

Speech recognition gives a real alternative to using a handset for remote-control of lighting, but at present its limitations of accuracy and speed of response would limit it to use for setting-up and rehearsing lighting, not for live performance use. It could reach its full potential when interfaced directly into a lighting control desk, so that all the file storage and other functions could be accessed by voice. This would allow you to almost completely set up a show from the floor using voice input.

And it need not be limited to lighting control. Any application which has a need to be remotely controlled or is very intensive on hands and eyes could have a voice controlled input on it.

But perhaps the most interesting pointer is what people said when seeing the system at PLASA. A few were curious, and their expressions turned from scepticism to amusement and delight when the lights responded to our words. Many people, particularly those from theatres, wanted one immediately. But perhaps the most enthusiastic of all was the man who declared it "the most exciting thing he'd seen for years".

## Classifying Recognition Systems

### 1. Continuous or isolated speech

Systems vary in the separation required between words. The simplest systems use isolated word recognition, where you must pause for 100-250ms after each word. This is relatively easy to recognise but the user finds it unnatural and it slows the rate at which speech can be processed. Continuous speech recognition systems let you speak at your normal speed making them the fastest to use, but the most difficult to recognise. Connected word recognition provides a compromise between the two: you do not have to pause but must pronounce and stress each word clearly.

### 2. Speaker dependent or independent

Systems must also be able to adapt to a wide variety of different accents and pronunciations if they are to be generally useful. Speaker dependent systems need to be trained by each individual user, but can then perform well. Speaker-independent systems are trained by a large number of people who are not necessarily the system's users, and will recognise almost anyone, but they are less accurate than speaker-dependent systems and often have a very limited vocabulary.

### 3 Recognition technique used

A number of techniques are used in speech recognition. They all require the recogniser to be trained by one or more people. They range from pattern matching, which matches the frequency and amplitude variations of the received sounds with the trained words and chooses the closest match, to the very complex Neural Networks.

## LETTERS

Dear Editor,

### VIEWPOINT, NOVEMBER 1992

Despite risking rebuff due to being one of the previous generation to which he refers, I cannot leave Robert Halliday's 'viewpoint' of November '92 unanswered.

Firstly, it must be acknowledged that already there are several versions of PC-based systems around, Show Cad for instance, and one produced in Adelaide called Aladdin, which like Charlie Richmond's Command Cue, uses an Amiga. This latter sells for not a great deal more than the standard Amiga with the appropriate peripherals. Of its kind it is powerful, and in computer terms user friendly. So, in a sense, one can agree with the premise that cheap, reliable PC-based lighting controls are available.

But all this misses the point. The same line of thinking could be used to argue that cheap readily-available synthesisers are reliable, can be operated by school age persons, hence can replace the 'previous generation' of musical instruments. After all, violins for instance, cost a lot of money, and suffer from broken strings or cracked glue joints. Few in the musical world would however, agree to forgo the playing of real instruments.

Good lighting operation is not just 'recording a large set of numbers and playing them back'. Apart from the inevitable unpredictability of live performance (which is half the reason the industry survives at all) many shows are one or two night stands worked 'on the fly', and all require the board operator to play the cues as part of the performance.

This requires a control system which is closer to a musical instrument than to a computer - which is obviously what inspired Fred Bentham in designing the original Light Console, and is

equally obviously not recognised by Mr. Halliday - unless he is writing tongue in cheek, which unfortunately is unlikely to be the case. The very fact that more and more new consoles keep appearing must be a response to the demands of operators and technical managers - I am sure that Celco for instance, did not dream up a new and more expensive system just for the hell of it. Although sadly I have not yet seen the Aviator, just reading the technical description shows that real operators must have helped to specify the type of hands-on facilities needed. It was the same process which some 13 years ago led to the original Galaxy control, with operator satisfaction well in mind.

Nothing like the same satisfaction can ever be obtained from punching a keyboard or pushing a hapless mouse. And as for plan drawing on Autolight, this may well appeal to the draftsmen amongst us, and certainly has its uses, but it is still barking up the wrong tree. It is - what we all see - pictures that matter, not graphic or numeric representations. So if you must use borrowed new technology, then work towards a pictorial touch

screen which directly controls colour intensity and direction. Only in rehearsal or planning though - for every performance, one must work by looking at the stage, and manipulating the lights in harmony with the performers - being part of the show and NOT just 'playing back numbers'.

I think Richard Pilbrow should meet Mr Halliday (as the latter so desired in another article), and explain to him a little more of the facts and emotions of show business.

D C Irving  
Entertech Pty, Australia

### LET'S HEAR FROM YOU!

Do you have anything to say on what you read in L+SI, or indeed about the industry in general? If you do, then write to us enclosing your letter or Viewpoint:

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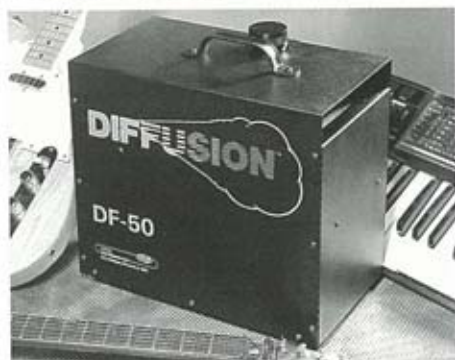


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# EQUIPMENT *News*

## Cracked Vapour from M & M



Available for the first time in Europe is the new compact DF-50 Diffusion Fogger, a small, but powerful cracked vapour system.

Unlike any other cracked oil machine currently available, the DF-50 actually cracks the vapour to provide a much finer, safer diffusion effect without leaving an oily residue on floors or equipment. The DF-50 weighs only 16 kilos (35lbs) and measures just 31 x 36 x 23cm (12" x 14" x 8"), so it can be transported readily both onstage as well as between gigs, taking up very little storage space.

M & M Lighting has been appointed the sole distributor for the EC and has had full electrical and chemical safety tests carried out in the UK. It also conforms to all American health and safety legislation, say the company.

The DF-50 runs on 220v and is designed to be turned on some hours before a concert and left to run continuously throughout the event, giving exactly the same effect as the much larger cracked oil machines, say M & M. One quart of fluid gives 16 hours running time, and the full capacity of half a gallon gives approximately over 32 hours. The only maintenance required is a check every 24 hours and the unit comes with a full one year parts and labour warranty.

Full technical information and copies of the safety test results are available from M & M Lighting in London, telephone 071-284 2504.

## Vestax Mixers

Vestax have introduced a new mixing controller. Based on the functions of PMC-40, the PMC-41 contains various important features including rotary volume controls instead of sliding input faders, which allow for ultra fine tuning in the mix, matching line inputs, gain controls fitted to each channel, curve adjusting controls, rotary cross faders for cutting or mixing between similar records and EQ controls, two band versions of which are fitted to each channel.

Also from Vestax, the PMC-09 is a new 19" rack mounting mobile DJ mixer which features multi-input faders with a total of nine inputs, an independent two channel mic section, transformer buttons, a detachable crossfader, a stereo cue system and a 5 band stereo GEQ.

For further details contact Vestax in Haselmere, telephone (0428) 653117.

## Carlsbro PA/Mixer Amp



The CDX 8-2 300 is the latest addition to Carlsbro's new generation of PA/Mixer amps. Featuring eight channels powered by 150 watts per side in stereo, the CDX 8-2 has a 128 programme digital reverb, digital echo, and 9-band graphic equalization with routing to input and FX stages. An auxiliary channel with full stereo and 3-band EQ for tape and CD players, is also provided. Other features include an anti feedback monitor control, 60mm level faders throughout all channels, pan control in input and FX stages, plus LED bargraph indicators.

For details contact Carlsbro Electronics in Kirkby In Ashfield, telephone (0623) 753902.

## Trackspot Add-ons



Lightwave Research and High End Systems are extending the capabilities of the Trackspot luminaire by introducing the Trackspot Special Analog Controller.

The new controller is rack mountable and needs no AC power feed; power is drawn from the fixture through a single eight-conductor low voltage cable. The Trackspot Special Analog Controller has 32 programs and features program scan, mirror pause, auto advance, and master intensity control. A built-in self-test diagnostic route ensures proper functioning before operating begins. To create more animated effects the controller's Audio mode can be linked with the condenser microphone located on the Trackspot fixture.

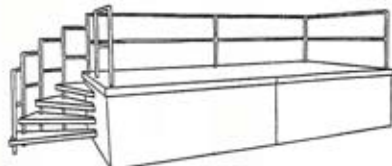
For more information contact High End Systems in Austin, Texas, telephone 512 836-2242 or in the UK, Lightfactor Sales on 081-575 5566.

## Canford Extends Product Range

A number of new products have recently been added to the Canford range and these include a mains distribution unit, which is a 12 way unit in a 1U rack case, a main inrush limiter to reduce or eliminate potentially large current surges, a modular raised flooring system comprising a rigid PVC base frame which latches with adjacent frames to provide a secure base structure and a Sabine feedback exterminator which does just as it says and exterminates feedback.

For further details contact Canford Audio in Washington (UK), telephone 091-415 0205.

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## Soundcraft Launch Spirit Folio



The latest addition to the growing range of Spirit consoles from Soundcraft is Spirit Folio. Available in three frame sizes 10/2, 12/2 and 12/2 rackmount, Folio is targeted as a PA mixer for gigging bands, small venues, such as pubs and clubs and conferencing. High quality mic inputs (129dBu EIN), balanced inputs and a dynamic range of 108dBu (10/2 frame), also make Folio suitable for direct to DAT location recordings.

Unlike many small mixers, every input and both master outs have 60mm linear faders. In addition, every mono channel includes a mic input with 48VDC phantom power, 3 band EQ with a swept mid section, and a High Pass Filter as standard. There is full provision for outboard gear with two full feature stereo inputs available on all frame sizes. These can be used as effects returns or for stereo sources such as keyboards. Two Aux sends may drive effects units but Aux 1 is also switchable pre-fader from the master section to create musician's foldback mixes.

For recording, Folio includes dedicated monitor outs, an oscillator and a two track return which may also be used as a separate stereo input. A 12 segment bargraph meter is available for monitoring signals going to tape.

For more information contact Soundcraft in Potters Bar, telephone (0707) 665000.

## Firebox Flicker

The Firebox from Stageboxes is a small portable unit that produces a realistic fire flicker effect. The unit is used in conjunction with red/orange lamps and the 1kW capacity of Firebox allows additional effects lighting to be used if required.

The unit is simply inserted between the switchboard circuit outlet (or any mains outlet) and the effect fire. The output level varies between full brightness and a lower limit set by the 'depth of flicker' control. The output is continuously varied between these levels to produce a realistic fire effect.

Further details are available from Stageboxes, 113 Lamb Hall Road, Longwood, Huddersfield HD3 3TH.

## MKH Times Five

Sennheiser has expanded its MKH range of studio condenser microphones with the new variable polar pattern MKH 80. With five switchable directional characteristics the MKH 80 combines the unrivalled performance of the MKH series with all the advantages of a multi-purpose microphone, according to the company. The five switchable patterns are omnidirectional, wide angled cardioid, supercardioid and figure of eight. Features include broad-band directional properties within a wide angle area, low noise performance, wide range of modulation and high dynamic range.

For details telephone Sennheiser in High Wycombe on (0628) 850811.

## PIC Launch Switchable Amplifiers

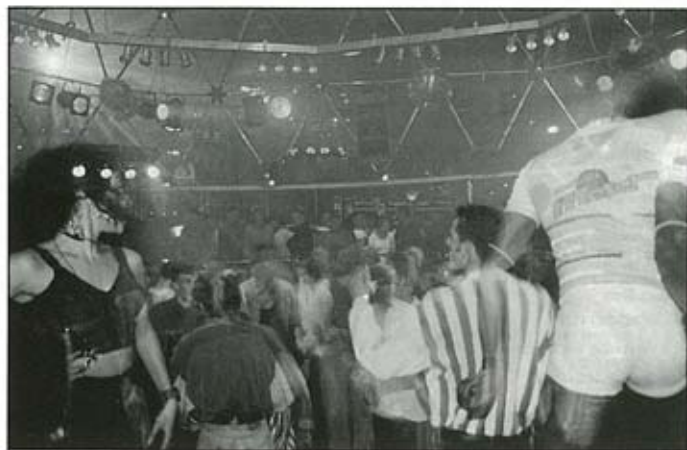
PIC Systems have promised a Frankfurt launch of their switchable DC/AC range of high powered amplifiers - up to 1600W in total. The launch is a 'first' for PIC Systems in an area of electronics which has only recently been possible due to new semi-conductor technology.

Its uses, as requested by PIC's customers, are for emergency PA back-up, with negligible switchover time and low quiescent current. It is suited for everything from the smallest factory to the largest stadium. Monitoring/status supervising is available.

PIC has already proved that they are capable of designing and manufacturing reliable high powered amplifiers with their PSA range. For more details contact PIC Systems in Bristol, telephone (0272) 790376.

## Cedar De-Clicker

HHB Communications have released the Cedar CD 1De Clicker. The unit is the first real-time De Clicker which offers processing power previously only available in computer systems, say HHB. Intended for natural sound restoration, recordings can be restored without altering the integrity of the original material. For details contact HHB in London on 081-960 2144.



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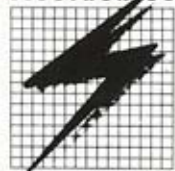
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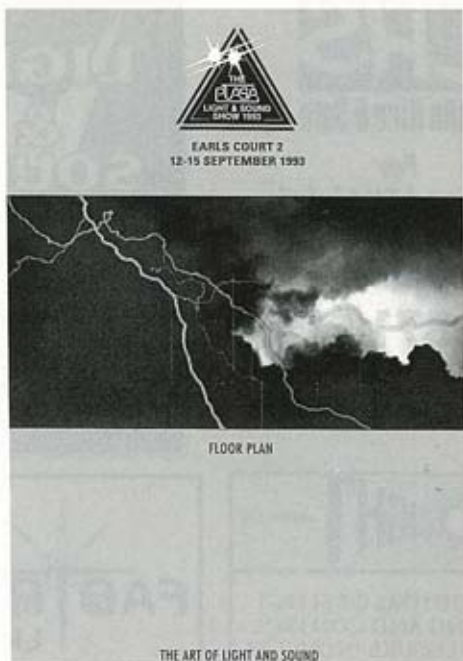
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# VIEWPOINT

## An L+SI World Exclusive Nuclear Power for Entertainment?

*The possibility isn't as far-fetched as you might initially think. L+SI was provided with this exclusive basic information by scientist member of the EDF team, Jean-Paul Billoquet. John Offord reports.*

The development of a semi-portable nuclear power supply based on using the large amount of spent fuel rods from ageing Magnox stations in the UK and France has been under research for many years, but until recently sensible cost savings in real terms have not proved to be of sufficiently high a level to encourage a major impetus for continued project development. Coupled with the inevitable environmental safeguards, both real and imaginary, many quite promising concepts haven't gone further than the drawing board stage.

During 1992, however, and under the strictest security, a specialist team from the French nuclear industry working within EDF (Electricité de France) have been testing a system in a recently closed playhouse in the east of the country (for obvious reasons the exact location can't be divulged).

The system involved is expected to be capable of generating 3000 kilowatts of power, enough for any large theatre or even a major rock concert. It weighs in at around 16 tonnes, which includes its protective lead shield, and the unit has been disguised as a 30 cubic metre waste skip in an attempt to prevent recognition by environmentalists or terrorists.

The cooling system is an AGR type, using liquid nitrogen at a temperature of -196 degrees Centigrade to control the huge amount of heat produced by the small reactor core. This nitrogen is circulated through a heat exchanger system to remove the heat and recycle the nitrogen. The first main advantage of the system, apart from the production of electrical power, is the provision of heat for the theatre.

There is a very interesting third reason for testing the system within an entertainment complex, and why this research is being carried out in such an environment. It may also prove to be the 'add-on' benefit that scientists have been looking for.

The use of a gas analyser at the output side of the cooling system will enable some of the nitrogen to be directed into a cylinder held under vacuum, in the order of 10-12 pascal, where an amount of inert gas such as argon or neon will be injected and an ion generator used to produce a stream of ion particles which will cause the gas mixture in the vacuum to fluoresce. The amount of the various gasses can be adjusted by the analyser to produce a whole spectrum of colour. The system also has the potential to produce the most dramatic effects that could be harnessed for all types of use in the entertainment lighting industry.

It is estimated that some working equipment pieces could be near to prototype stage within six years, but the next phase of research, which has

limited funding, will involve long discussions with manufacturers from within the industry so that the team can fully understand future requirements and get the maximum results from the new sources available. They will be looking to these manufacturers to become fully knowledgeable about the processes and take on the design and tooling required for what will essentially be a major conceptual shake-up in equipment thinking.

Safety aspects of using such a system will of course need careful consideration; in the UK it will be the HSE Nuclear Inspectorate who will licence any site, and the operatives will need to be classified radiation workers. But the system is self-contained and will need little or no maintenance, all the time being under the control of the elected authority for the country concerned, once location and transport for the recharging of the fuel cells has been documented and agreed. It has been estimated that each system will use up to 30 spent fuel rods every five years, and the emission of radioactive material would be kept well within the current guidelines laid down by the National Radiological Protection Board. The lead shield involved will be around 400 millimetres thick.

Some of the research costs to date have been borne by the French Ministry of Culture who gave

permission for use of the present test venue, and it is interesting to note that it is from this creative background that developments have reached the present exciting stage.

Apart from the scope for new forms in lighting and effects there are many highly practical advantages, in addition to the obvious cost savings. The need for standby generators and emergency lighting will disappear and to a large extent maintenance will be a thing of the past.

We can't tell you much about capital cost at this stage. The best indication we can give you is that, at least in France, EDF will keep full control over all systems and install at minimal costs with the government owned body charging on an annual lease basis over a minimum of five years.

As we see it, the major problem will be persuading venues or show organisers to employ any nuclear based system on principle, with natural fear of a largely unknown phenomenon playing the biggest role. However, if the scientists come up with new and amazing effects, then it may well be the artistic and creative decision makers who will force the system to be used.

Our guess is that you'll see the first spectacular trial 'nuclear show' just on the turn of the century. L+SI has reserved exclusive reporting rights, and will be arranging coach/hotel packages.

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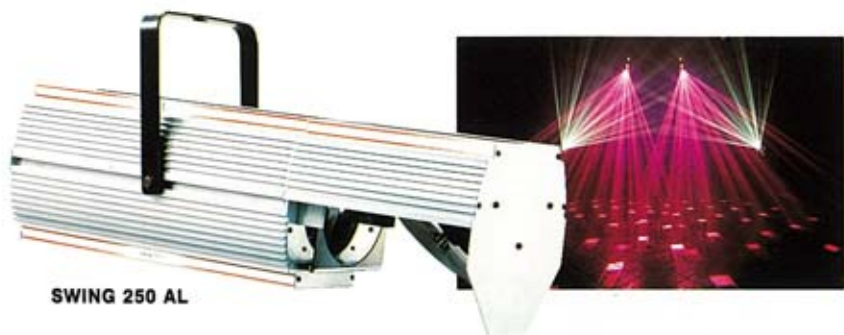
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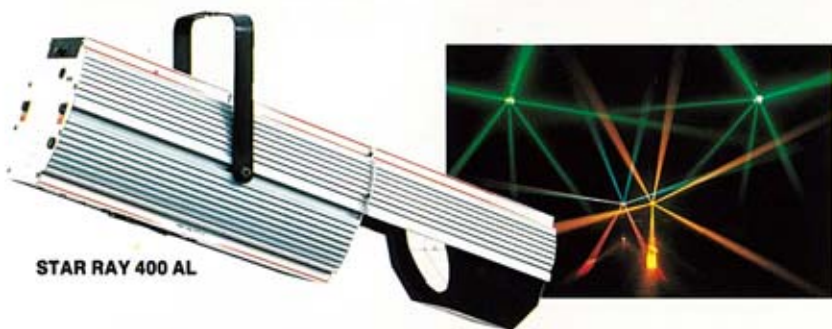
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