

# LIGHTS!

THE JOURNAL OF LIGHTING FOR  
ENTERTAINMENT & ARCHITECTURE

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## **TOYAH – EMOTION AND LIGHT**

**USA'S FIRST BLACK TV STATION LIT BY STRAND  
'MISS SAIGON' AND DAVID HERSEY**

 Strand Lighting

# LIGHTS!

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## LET THERE BE 'LIGHTS'

**I**t's always an exciting prospect to be present at the launch of a new magazine. But *Lights* is particularly special because it is a magazine which you, as one of our readers, have helped to shape.

So firstly, a very warm welcome to *Lights*. We hope to enjoy a long and happy relationship with you in future.

In some ways *Lights* is very much the 'son of *Strandlight*'. We are still the official publication of Strand Lighting and we are still aimed particularly at you, as a lighting expert, no matter whether you are a seasoned professional lighting engineer or an enthusiastic amateur. We at Strand are still the same people, interested in your news and views as users of our products, and on hand with help and advice.

### SURVEY

You may recall that recently, we conducted a survey to discover if *Strandlight* was hitting the right mark, or if there were ways in which you thought we could improve our service to you.

The result, after analysing your responses and taking a long, hard look at the lighting industry, is *Lights*. In each issue we hope to bring you not only the Strand news and application stories, but also the latest technical information. This will allow you to build up a specialised reference library for future use.

### VIEWS

We will also be bringing you the views of the people who matter — the lighting designers from the worlds of film, stage, TV and music — to learn how they set about their work; and also the stars themselves, to find out how lighting influences their performance.

For Strand, *Lights* will be an exciting new venture. We want you to continue to feel that this is your magazine. If you want to read any special features, tell us and we will bring them to you. If you have any special news of your own relating to Strand lighting, tell us and we will tell the lighting world.

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**Edited, designed and produced by:** Ledger Bennett Communications Group, Haywood House, Lake Street, Leighton Buzzard, Beds., LU7 8RS, England, and printed in England and the United States.

## NEWS IN BRIEF

### ELECTREX 90

New products from Strand Lighting's Architectural Lighting Division will be on show at Electrex 90 (NEC, Birmingham, February 26th — March 2nd).

These will include the Microdimmer series for sophisticated 'scene setting' control of tungsten, fluorescent or inductive lighting loads and Multidim, a plug-in modular dimmer system with remote stations, infra-red and photocell control options.

### HEATHROW PROJECT TAKES OFF

Lighting equipment including a Permum dimmer rack, Tempus desk for a small theatre control, Environ 2 modular dimmers and a special portable outstation, have been installed at Heathrow Penta Hotel's Wessex Ballroom and York Theatre, under a £6,500 contract.

### EUREKA! EUROPA!

Belfast's Europa Hotel has had a low voltage, transformer-fed lighting system installed in its function rooms under a £7,400 contract. The installation includes two Permum dimmer racks plus 36 separate special finish stations.

### MEGA FUTURE FOR MICRODIMMER

Pointing the way ahead for dimmers, a £3000 installation has been completed at a private house in Holland Park, London, to provide Microdimmers for main rooms, to create mood and 'scene' lighting. The low voltage lighting system, can give each room four separate lighting 'looks'.

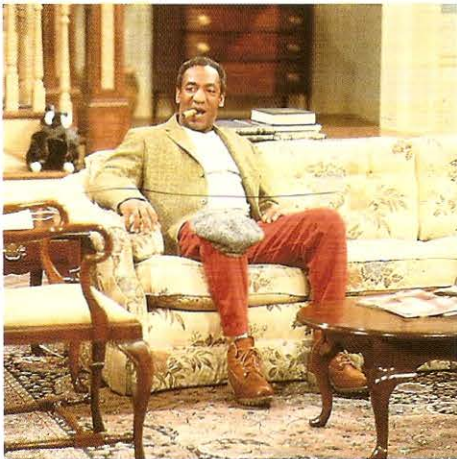
### LIGHTS IN THE CATHEDRAL

A combination of Strand architectural and theatrical lighting has been installed at St George's Roman Catholic Cathedral in Southwark, South London, under an £8,000 contract.

**A TV CABLE NETWORK RUN FOR A SPECIALIST AMERICAN AUDIENCE HAS DISCOVERED THAT...**

# BLACK IS GOLDEN

**W**hen you consider that the highest paid entertainment stars in the United States are black (Bill Cosby, Oprah Winfrey, Eddie Murphy, Michael Jackson), then it seems only natural that a TV station run exclusively to cater for America's 28 million black consumers should be a runaway success.



■ **Bill Cosby...**the most popular and highest-paid man on American TV. Black entertainers attract the biggest audiences and revenue.

And that is exactly what has happened to Black Entertainment Television, founded in 1980 by entrepreneur Robert Johnson as the USA's only black-owned cable TV network.

Since then he has gone from strength to strength, the more so since he very wisely decided to equip his new \$10 million Washington DC studios with Strand Quartzcolour lighting.

The new studios have been made viable following BET's progression from showing an almost exclusive diet of music videos and B-movies to the happy position where the company is now able to afford chat-shows, soap operas, dramas, sports and current events programmes.



Photos: Retna Pictures

## LIGHTING DARKER SKINTONES

*With darker skins some aspects of face lighting become more difficult while others become easier. Character projection in a theatre, dependent upon clear visibility of eyes and teeth, is helped considerably by their contrast with darker skin. But strong contrast between light clothing and dark skin can lose faces.*

*Light absorbed rather than reflected by darker faces may seem a problem but absorbed light brings the bonus of an enriched quality to the skin and underlying bone structure. Maximising gains and minimising losses requires considerable liaison with costume and scene designers, and particular care with angles, textures and diffusion.*

*But the major area for care is filter choice. Blue is dangerous and green lethal, turning black skin to an unbecoming putty. Greens can be avoided but a palette without blue can be very limiting.*

*The technique is to avoid green-blues and opt for those with high red content, eg Chromoid 161, 86, 163 and 93 or Cinelux 461, 465 and 474. Blue toning is injected through heavy backlighting and careful sidelighting, with face neutrals selected from pale warm tints which can with advantage be stronger than is usual for white actors. Consequently with mixed casting a slight warming-up of white actors make-up is usually necessary.*

Francis Reid

**WITH COUNTLESS LIGHTING AWARDS TO HIS CREDIT, 'DISPLACED NEW YORKER', DAVID HERSEY, WHO HAS BEEN BASED IN ENGLAND SINCE THE LATE 1960'S, IS CURRENTLY THE TOAST OF THE LIGHTING WORLD WITH THE HIT WEST END MUSICAL MISS SAIGON. HERE HE EXPLAINS HOW, FOR HIM, LIGHTING A SHOW IS...**



Photos: Rex Features

# ...A VOYAGE OF DISCOVERY

**W**ith a string of hit shows behind him, such as *Evita*, *Cats*, *Les Miserables*, *Starlight Express*, *Chess*, *Carmen* and a clutch of Tony awards for his lighting designs, it comes as a surprise to learn that David Hersey's greatest personal triumph, in his estimation, was not one of the top money-spinners.

'The show which gave me the most pleasure was only a semi-commercial success,' he admits, and that was *Nicholas Nickleby*.

'That was one of the most exciting pieces I have ever had the pleasure of working on. It was the most organic and most fluid design I have ever managed to achieve. It was the kind of thing where lighting is sometimes at its best where you are at your most invisible.'

'I only got a nomination for that but I know in my heart of hearts that it was by far the best thing I have ever done.'

The Hersey production currently drawing most attention is *Miss Saigon*

at the Theatre Royal, Drury Lane, where a mix of lanterns and effects is controlled from a Galaxy 2. Not the least of the talking points is the first use in this country of light curtains.

The musical is a love story set in Saigon in 1975 as the last US troops are preparing to leave. How did he go about designing the lighting?

He explained, 'The process was fairly typical. We had been through several versions and John Napier, the designer, had not quite developed his set ideas. We worked together and negotiated some lighting positions which ultimately became part of the structure.'

'It became clear that in a number of scenes the set would move and flow and would require a rig that was not a conventional kind of fitter rig, which led to using moving lights and motorised light curtains. That is not a show where the lighting is particularly up-front but it developed successfully and I am quite pleased with it.'

How did David go about planning

the lighting for a major production? He explained, 'Well, first of all, you get used to certain kinds of equipment and the hire companies tend to have certain kinds of equipment available. In the end, it's a business and you have to work to a figure and of course each show has its own problems.'

'You make sure you use a fair amount of conventional equipment so you have more money left over for the "toys" if they're required. For example, we had to alter the original design of *Miss Saigon* quite drastically in order to be able to afford the moving lights.'

'In some ways, designing for a major production is a voyage of discovery. There are so many things which have to interact. Ideas can come to you at any point but you have to start by gaining some control over the space so it becomes a kind of physical exercise, achieved in relation to the script — and even that can change dramatically as you go along.'

'I always work to a budget but then

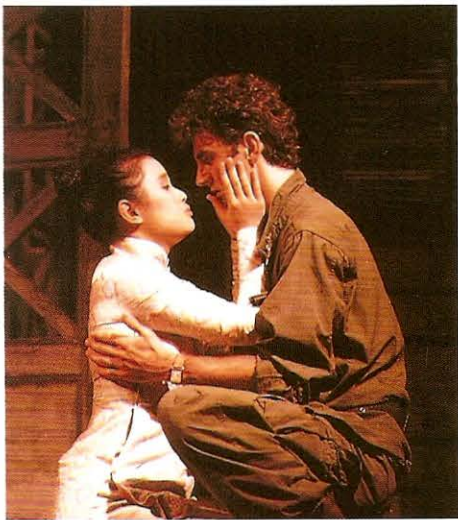
if it doesn't work out I go back and say, "Look, can we do this or not?" and then everything is judged on its merits. But I do try very hard to keep within the budget.'

'What was new about *Miss Saigon* was that we had these four banks of motorised light curtains, so you could have a light curtain anywhere you wanted on the stage, and any colour you wanted. The light curtain has now become a part of the vocabulary and I predict that it will soon become a basic part of the kit.'

Outside the theatre, David is currently working on a theatrical-style lighting design for a new hotel water feature for *The Golden Nugget* in Las Vegas, involving 3000 light fixtures, a steam boiler 'the size of a small bus', three separate dimmers a quarter of a mile apart and an eight-inch gas main.

His wife, Demetra, is currently designing a musical production of *Great Expectations*, for which he has designed the lighting, at Liverpool Playhouse.

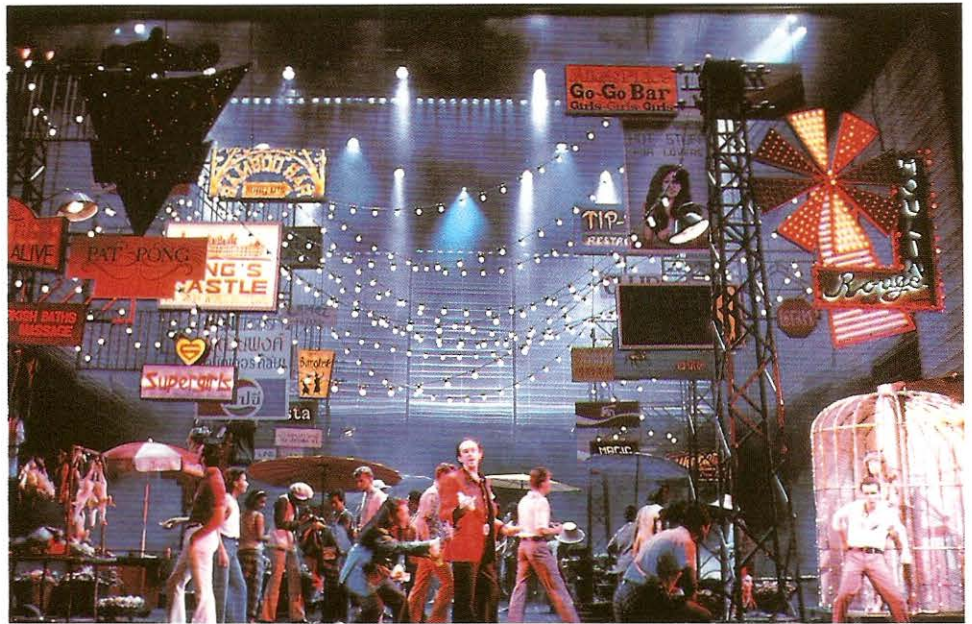
One of the penalties for being in great demand is that family life is cut to a bare minimum. He admitted, 'This year has been a bit of a disaster for that because it has been so hectic. It's a bit like just waving hello in airport lounges and not



seeing too much of the kids. Next year I'm going to take radical steps to improve matters and restore some balance to life.'

David is better placed than many to compare the differences between working in the United States and in Britain as a lighting designer. Apart from the hours (in the UK, from 9 until 11 — in the States from 8 until midnight during a production) there is a completely different way of setting up a theatre for lighting on either side of the Atlantic.

In the United States, theatres are empty when they are taken over for a pro-



duction. Every single item of lighting has to be hired-in for that particular show. One of the results is that lighting design in the States tends to be more rigid, with a designer having to decide prior to hiring the hardware exactly what he will need. In Britain, conversely, designers have more scope and flexibility for experimenting with lighting configurations.

David explained, 'The advantage in the States, because it is so well organised, with every lamp and cable being made up and numbered, is that they can put in a 1000-lamp rig within a couple of days. But the minute you say, "I would like that one moved over to there" — the system does not cope with that at all.'

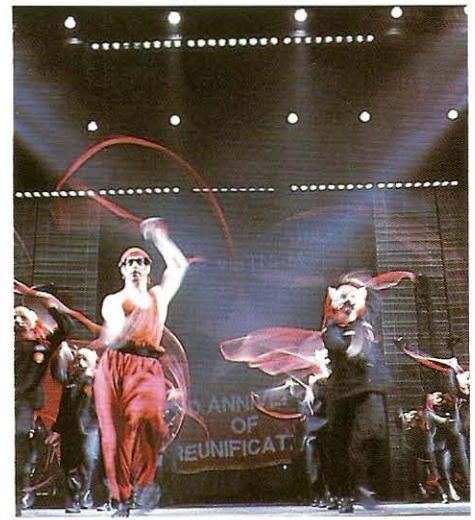
'It's also to do with the system itself. On Broadway it is such anarchy, with every man for himself, and inter-departmental rivalry, that it breeds a certain kind of approach. Often the only way to get things done is to go in and say, "I want this here, and that there, and this is the focus..." and so on, and "that it is so because I say so..." then you will get it done.

'One of the good things about working in Britain is that you do have the luxury of being able to experiment and say "let's try this." This is not because English lighting designers are lazy or don't do their homework but because lighting is a living, breathing thing that finds its life in the theatre in the process of being realised.

'That is why it is so important to have a combination of something which has shape and form, and which is still fluid enough to respond to ideas which are created on stage. To experiment in this way in the American system would be unbelievably expensive.'

He added, 'There is a kind of mystique about American technicians being very, very good and British ones being not so good. This is absolute rubbish. It may have been true once but I think it has changed a lot in the last few years.

'When I came to England in 1968, I wasn't quite sure about it, though. The first fit-up I went to at the 'Old Vic', I thought "everybody's walking in their sleep". Nobody shouted; nobody



rushed. They just carried on with it, and then stopped for tea — but it all happened and came together. There just wasn't a lot of hustle and bustle about it. You just can't get that sort of approach in America.'

Footnote: David's latest West End show is *The Baker's Wife*, by Joseph Stein (of 'Fiddler On The Roof' fame) directed by Trevor Nunn and playing at the Phoenix Theatre, Charing Cross Road.

# GALAXY CONTROL FOR BERLIN'S SPACESHIP



■ With a design resembling a spaceship, Berlin's convention centre is one of the most striking buildings in the world.

Looking like something from a set of *Star Wars*, Berlin's new International Convention Centre has become one of the most striking and best known buildings in the world.

Constructed on an 'island' site, surrounded by motorways, it houses two large auditoria, plus 80 small-to-medium meeting halls with the latest conference facilities, controlled by a central computer. A wide variety of restaurants caters for the many visitors to dinner-dances, civic events, cabaret shows, sports events, motor shows and political events.

The ICC is opposite the 'Berliner Funkturm', where exhibitions of all kinds are staged and where the annual, 'Internationale Funkausstellung' takes place, drawing attention from all round the world.

Changes in lighting needs since the original installation was put in ten years ago meant that Strand was called in last summer to replace the original lighting controls with three Galaxy 3 systems.

The two main auditoria — one,



■ The main auditorium can seat 8,500 people.

seating 8,500 people and the other, 4,500 — both share the same stage area. One hall is fitted with raked seating which can be lifted to reveal a flat floor area, but in doing so, blocks access to one of the control systems, so a third control board is needed at floor level.

Each Galaxy 3 board is capable of controlling any combination of the three spaces. Currently installed are: 308 5kW dimmers and 12 10kW dimmers, although it is intended to increase the number of dimmers by at least 120 over the coming year.

The variety of uses and allocation of stage areas call for special interlock circuits, preventing channels outside selected areas from being switched on and off. This interlock device is also used for house lights and other stage facilities.



■ Galaxy 3 systems control auditorium lighting.

All three control systems are Galaxy 3 Memory systems, which are virtually identical. They are equipped with memory and output panels, channel and control panels, six group masters, 20 preset masters, two theatre playbacks, programmable effects and an Alpha keyboard.

Motion control panels have also been installed, since the ICC intends to install 80 PALS luminaires when funds become available.

Systems are equipped with a dimmer test program, which constantly monitors any dimmer status. Each control room also has its own electrical back-up system via memory back-up. In addition, the old pin patches have been retained, allowing the same inhibit function manually through dimmer patching.

Dimmers manufactured by Strand Lighting GmbH are Andi 5kW closed loop types fitted with Dimmer, Fault Detection circuits. Unlike standard British dimmers, each module is fitted with a local control potentiometer, an output test point, Dim/Non Dim selection switch and asymmetry detection and shutdown.

A video routing push provides a headline on the channel output screen, with an integrated display of current dimmer fault, with the channel number shown in red.

The Galaxy system dimmer and racks, and all auxiliary controls, have been installed and commissioned in a cycle of eight weeks from order to handover and although there are still details to be fine-tuned, the controls have been in use since last August. The full scope of controls will probably only be utilised when the motorised luminaires are installed, including colour change control.

# LIGHTING THE NATIONAL

**N**ext time the stress of lighting appears to be controlling your life, consider the daily problems faced by someone like Peter Radmore, technical manager for lighting and sound at the National Theatre.

From his nerve-centre within the South Bank complex (where some staff who have been there a couple of years have still not fathomed out the maze of corridors, rooms and doorways) he supervises an administrator's nightmare.

The National comprises three separate theatres — the Olivier, seating 1200 people; the Lyttelton, seating 900; and the Cottesloe seating 300. The basis of working is a three-show repertory in each theatre, with occasional interruptions for longer runs.

To manage the lighting for the three theatres and the frequent changes of production and lighting, Peter has a team of 17 people, plus an additional

eight for sound. On the lighting side, eight staff are attached to the Olivier, six to the Lyttelton and three to the Cottesloe, although manning levels for particular performances are below this, to take holidays and days off into account. The various productions can be lit either by one of the in-house staff, or by freelance designers hired-in for the occasion.

The entire lighting operation is dictated by the National's 'bible' — the Rep Leaflet. This gives a spread-sheet view of what is happening (and where), over a six-week period in the National's life. A glance at this will tell the technical staff what they are expected to provide in any area of the theatre complex on any given hour of the day. However, to reach its final version, the Rep Leaflet can go through as many as 45 separate drafts, following close liaison and numerous meetings with all sections of the administration and production staff.

Peter explained, 'It probably sounds more complicated than it is. The fact is we have a pattern of work here which has been operating well over the years and we have the system down to a fine art. This is a matter of necessity. We are in a very expensive business and if we didn't get it right the costs and inconvenience would be enormous.'

He has been with the National since the 'Old Vic' days, joining in 1965 and working up through the ranks as an electrician and then manager.

With the move into the South Bank complex, Richard Pilbrow, through his company Theatre Projects Consultants, introduced the Strand-developed Lightboard for the lighting.

And as Peter Radmore says, 'This was one hell of an innovation at the time. We happened to be the guinea pigs.'

'Over the years we have had an extremely good service from everyone at Strand. About two years ago we had a good deal of trouble with the Lightboard. It had reached the end of its useful life. When the Lightboard was beginning to play up, we did buy two Galaxy back-up systems, which we still have.'

'When we considered replacing the Lightboard, it became obvious, after exhaustive appraisal of available systems, that the Galaxy 2 Premier and the Gemini system, for the Cottesloe, fulfilled both the immediate and the long-term technical and artistic requirements for the Royal National Theatre.'

When the company moved from the 'Old Vic', a fair amount of Strand equipment came with them and since then the bulk of new lighting equipment has been bought-in from Strand.

Maintaining such a large operation also involves considerable training for lighting staff joining the National, but as Peter says, 'Generally we find that if they stay for two years, they will be here a lifetime.'



■ Peter Radmore. 'Exhaustive research' led the National to select Galaxy systems.

## LIGHTING FOR THE NATIONAL:

**Olivier:** Four auditorium bridges and four stalactites used for both auditorium and stage lighting; three lighting slots and three ladders on side walls; follow spots and projection at rear of upper tier; on stage — one row of short lighting boists with height settings and fed electrically from windlasses in grid and a triple back-lighting bar in the form of a bridge at fly floor height between the prosc. walls; 666 circuits with 2.5kW and 5kW dimmers and 70 non-dimmers controlled from Galaxy 2 Premier.

**Lyttelton:** Five auditorium bridges, two sidewall slots, circle front lighting positions. Follow spots and projection at rear of circle. On stage adjustable prosc. lighting bridges and towers, five stage lighting bars, five adjustable side ladders on each side; 450 circuits with 2.5kW and 5kW dimmers, and 60 non-dimmers controlled by Galaxy 2.

**Cottesloe:** Lighting positions on central bridges, on tier fronts and over the end stage areas. 180 dimmers, controlled by a Strand Gemini.

# TOYAH

## CARRYING EMOTION WITH LIGHT



**A**ccording to the ubiquitous (and sometimes outrageous) Toyah Willcox, 'I am never instantly aware of the lighting but there is no doubt that it carries my emotions'. As a stage, film, TV actress and Rock singer she is on the receiving end of theatrical lighting more often than most.

And while good theatrical lighting can help to improve an actor's performance, Toyah has little doubt that second-rate lighting and lack of thought during the lighting of rock venues can ruin a performance for both a band and its audience unnecessarily.

She was speaking at the National Theatre on London's South Bank, where she is currently appearing in an ecologically-sound family show, *Whale*, which runs until February. *Whale* is the factual story, with incidental music, of the international rescue operation mounted in October 1988 to save three grey whales trapped in the Arctic ice.

Taking a break in rehearsals, and while lighting designer Mark Henderson wrestled with the problem of 'Coming to grips with lighting the ice and snow of Alaska', Toyah reflected on the meaning of light to her as an actress.

She explained, 'In the theatre, lighting is designed before you actually come in to rehearse and to be quite honest, I am perfectly happy to work around that.'

'I did *A Midsummer Night's Dream* in Birmingham last year and the design was by the lighting designer from the Royal Shakespeare Company. His lighting was very, very moody and also very effective.

'We had these massive slow, sensuous sunsets and his lighting probably affected my stage performance more than any other has ever done.'

'The other lighting worth mentioning is Derek Jarman's lighting on *The Tempest*. Again, that was very moody indeed. It all had a blueness to it and you felt as if you were under water. It had a very womb-like quality.'

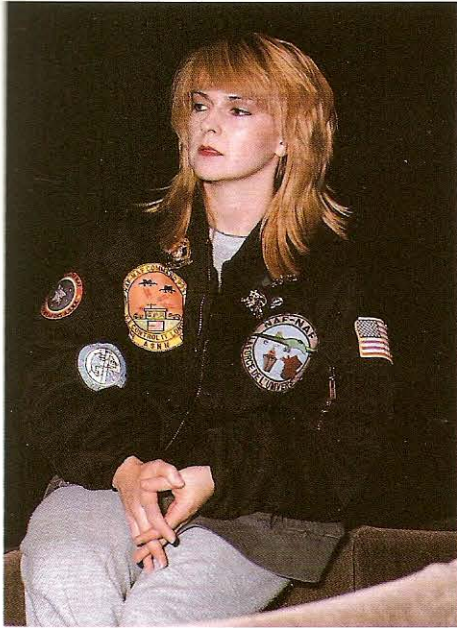
Lighting configurations for a rock concert are very different, she feels, and for these, Toyah makes a point of becoming directly involved — where she can.

But she explained, 'When you are touring with a band you usually get into a town two hours before a show and you don't have your own lighting man, so you have to explain to the resident lighting engineer what you want for each show.'

'In rock venues they tend to use every colour they can, all at once and pulsing at a different time to the music you are playing.'



The worst venue I have ever played was at Nijmegen in Holland. It was a beautiful theatre but the lighting was so bad that we just didn't want to perform. It moved either too fast or too slowly, so you were never in the right mood and never felt contained with the audience.



**IN ROCK VENUES THEY TEND TO USE EVERY COLOUR THEY CAN, ALL AT ONCE AND PULSING AT A DIFFERENT TIME TO THE MUSIC YOU ARE PLAYING.**

Toyah added, 'I think lighting has to help the audience's concentration and to bridge the performance with the audience. It has to have a subliminal quality.

'I know that when I go to see a show I am never instantly aware of the lighting but there is no doubt that it carries my emotions. It is very subconscious and terribly important.

'Lighting is not something I take for granted at all, but I do expect lighting men to be professional enough to sense my performance and to work without my comment. I would never expect to tell a lighting man how to do his job.

'The difference with a rock performance is that you are working to a set of rules totally outside theatre.

'Outside touring, with a rock performance I would sit down with the lighting designer and design the show with him. Because I have written the music and the lyrics I do know the lighting that I will want for a show.

'I tend to move a great deal so it is very important to me that when I move a hand, for example, the lights will respond accordingly. That is a major part

of the performance. Generally, with a rock performance, the relationship I will have with the lights is the same type of relationship I would expect to have on stage with another actor. You are working together very closely.

'I think the lighting man needs to have a good sense of timing, since he is not cued by words but by sound. The audience has to be drawn to its feet by the lighting. The lighting in a concert is similar to the spoken word in a script.'

Her current play, since it involves a great deal of action taking place in the Alaskan Arctic, had as one of its main problems, the difficulty of coping with excessive glare from what is basically a white background.

Another hurdle Toyah and the rest of the cast have had to overcome is the enormous amount of "homework" involved in reading-up on the whale incident and, most importantly, the cultural background to the Inuit people of the Arctic. This research has included a cultural lecture by an expert but, thankfully, did not include visiting the frozen north.



**I KNOW THAT WHEN I GO TO SEE A SHOW I AM NEVER INSTANTLY AWARE OF THE LIGHTING BUT THERE IS NO DOUBT THAT IT CARRIES MY EMOTIONS.**

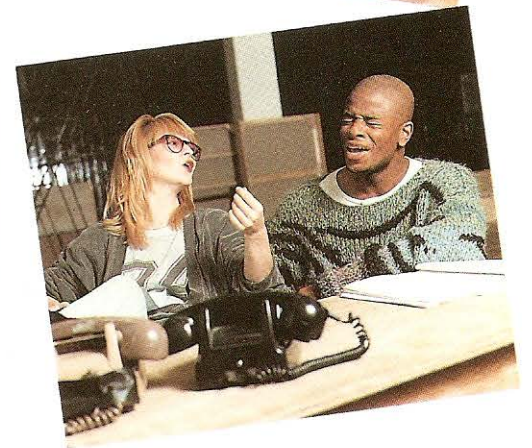
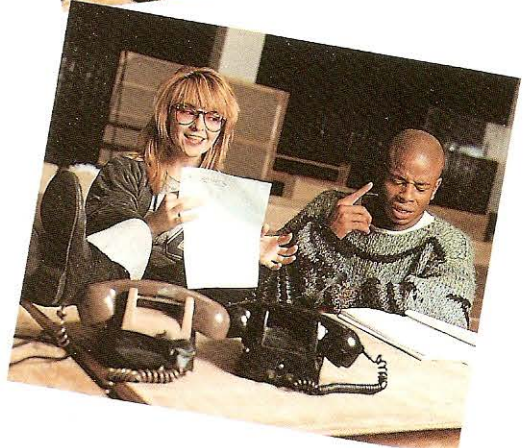
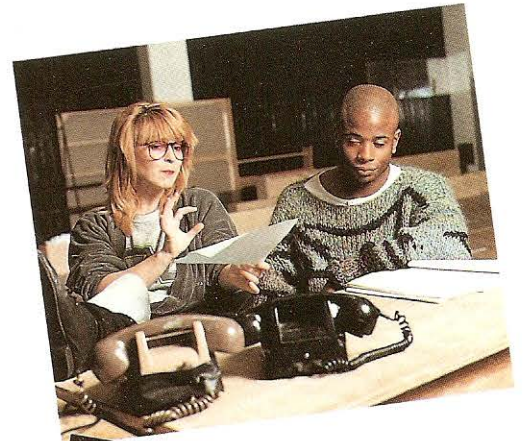
'I don't think I could cope with the cold weather. It's not for me,' Toyah confessed.

She explained, 'Whale is the story of the coming together of many elements from different backgrounds for a common purpose — rescuing the whales before the ice closed in on them. It tells how Western people, the Communists

and the Inuit people all worked together.

'There is music in the show but it is based on the Inuit music. Their bridge to the spiritual world is the drum and they sing as a group, with a very percussive type of vocal sound.'

■ Rehearsing *Whale* with fellow actor Basil Isaac.



Toyah is due to release an album next year, *Sunday All Over The World*, made with her husband, guitarist Robert Fripp. So would Inuit-style music be appearing on her records?

'I have already used the throaty, rhythmical sounds that the Inuit use but I must say I really came upon them by chance before I knew much about the Inuit. I do enjoy their singing, though, because it comes from the soul.'

# NEW PRODUCTS

## THE NEW BUZZ WORD FOR ARCHITECTURAL LIGHTING IS...

### HILITE

**B**ridging the considerable gap between the lighting needs of theatre and architecture is a new addition to the Strand range — HILITE.

Based on our successful Minim series, HILITE employs new developments in compact discharge lamp technology to create an energy efficient solution for architectural situations requiring the facilities of a theatre spotlight, yet combined with the long life of commercial lamps.

This makes HILITE perfectly suited to such applications as lighting shopping malls, atria, exhibition halls, hotel foyers — and any other large public circulation spaces.

HILITE uses a compact 150W single-ended metal halide lamp similar in size to an equivalent 500W RSE 18 or M40 but needing only a fraction of the power.

### FINESSE

## A BETTER CLASS OF DIMMER

**L**ow voltage tungsten halogen lamps have become established favourites on the architectural lighting scene in recent years, with their intense white light and associated sparkle making them ideal for use in spotlights, downlights and desk lamps.

However, one difficulty associated with their use has been the absence of a suitable professional grade dimmer to give them more flexibility.

Now we have come up with the answer — the Finesse dimmer, a

purpose-designed dimmer for low voltage halogen lighting systems which meets the demands of both specifiers and installers.

Its main features are:

- It is the first dimmer designed specifically for control of transformer-fed loads up to 1KVA.
- It offers a 'soft start' capability to bring lamp filaments on gently to reduce thermal shock.
- A built-in detection circuit monitors output waveform.
- Built-in economy features allow average lamp life to be doubled.

Operation is simple. A switch selects on or off and the dimmed level is set by a smooth-acting rotary knob. The fascia is retained magnetically, eliminating the need for exposed fixing screws.



■ Finesse dimmer for low voltage.

### GEMINI 2 PLUS

## A STAR ATTRACTION

**F**urther improvements have been made to the Gemini 2, taking it to the forefront of technology. In its new guise as the Gemini 2 Plus, it now has:

- Increased capacity from 240 to 360 channels.
- Output for a second full colour VDU.
- System memory capacity has been doubled.
- Ability to transmit a Remote Go command to PALS PC controller.
- A Non Dim option in the electronic patch.

The console, used for the control of theatrical and television lighting, is completely self-contained, with the control surface housed in a low profile metal chassis-style for table-top operation, or for recess into control room desk furniture.

### PARSCAN 2

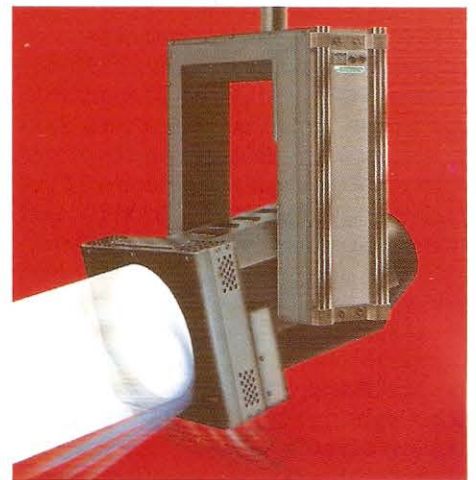
## THE STORY CONTINUES.

**I**ntroduced and extremely well received at trade shows this year in the US, Parscan 2 is the first redesign of our line of high performance automated fixtures, completed by the R&D firm of Associates & Ferren.

The major improvements in the new redesign are noise reduction, removal of line voltage from inside the yoke, greater reliability and ease of repair. From the designer's view, added key features include coordinated movement, wider speed ranges and 360° of travel in the pan axis.

Selective component choice and advanced mechanical design have reduced the noise of the unit 30 db at maximum speed. At slower speeds, operating sound is barely perceivable while standing next to the unit. Like Parscan, Parscan 2 also does not need fans for cooling, so when the fixture is not moving, no sound is generated.

All electronics are now powered by the outboard power supply box, removing the need for any line level voltages inside the yoke. This allows for one version that can be sold world wide. For touring applications where voltages may vary by site, voltage is selected at the power supply rather than on each unit, for speed and ease of adjustment.



■ Parscan 2 improved.

Several operating features have been added to enable designers to achieve better dynamic designs.

With its high reliability and low maintenance, its quiet coordinated moves and wide range of speed capabilities, Parscan 2 is ideally suited as a workhorse fixture for studios, theatres, and concerts where dynamic lighting designs are desired.

# THROWING LIGHT ON ANIMAL FARM

## MIKE ROBERTSON EXPLAINS THE THINKING BEHIND MERCHISTON SCHOOLS' PRODUCTION OF THE ORWELL CLASSIC

**A**nimal Farm was one of the productions to be put on in our recently built theatre. The show itself is a strange mixture of light hearted songs and comic moments combined with overtones, such as Communism. So the approach to the production was that it was a musical with serious overtones.

It was staged on essentially five different areas. The stage was supposed to be the barn, half of the apron was a yard, the other half was a house and there were two main yard areas in front of and to the side of the apron.

There was very little scenery to compete with. The barn and the yards were littered with bales of hay and except the odd window frame that was the scenery. So my first thought as to lighting was: should I make the lighting abstract or realistic? I ended up somewhere between the two.

I gave the barn coverage from four 1kW Fresnels on the inside proscenium bar to light upstage, and used four wide angle profiles just in front of the proscenium to light downstage.

One of the specials which was common to both apron and stage was a wash in middle blue to give the action a freezing effect. For this, we used four 500W floodlights again on the inside proscenium bar to do the stage. To achieve this effect on the apron we used two medium angle 1kW profiles at a low angle, on the FOH booms.

Another special onstage was an area lit in blood red for a conspiracy scene. Here we simply used two 500W lanterns on the FOH booms lighting a little spot on stage on the prompt side. This was also toplit by a good old Pattern 23. All of these lanterns were coloured in Chromoid 164 (medium red).

I had decided eight weeks before the production, in our first production meeting that I would hire a couple of Parcans to give two strong shafts of light onto the stage from the OP wings. This was to give a sort of sunlight through windows effect. One of the lanterns we set to skim the back wall,

which looked good. They were coloured in Chromoid 150 (pale yellow). These Parcans had medium angle lamps in them but on reflection I think narrow angle would have been better.

My first reaction to the hay bales appearing on stage was — 'What a damn nuisance, for access to the grid'. But after that, I was quite inspired by them, as they picked up my wide use of straws, apricots and ambers nicely.

Then I thought I would light them in break-up gobos with broken colour. I used small break-ups with straw/yellow/green/light blue/and light red gels. The effect of this on the hay was quite breathtaking.

I used it first as a 'nice pattern' but soon extended its use to form the basis of a tranquil, abstract concept during one of the songs. I liked it so much that

I hung two Minim 23's on the FOH bar to light down into the audience but this time with just pea green and straw gels. This was to extend the onstage concept as well as give me a 'mood setting' intermediate house lighting state.

To light the yard half of the apron we used four 1kW PC's on the FOH bar. Our FOH bar is very depressing to work with, as it is hung at quite a low angle, so light from it onto the apron or stage is at a near horizontal, making lighting on the apron look bland.

To compensate for this problem, I tend in most productions to use different colours on either side, to try and sculpt the actors more.

The largest of the yard areas was yard A. We lit this with two 1kW PC's again on the FOH bar, and a 500W floodlight at the bottom of the OP boom lighting in.

The other yards were in front of the apron, and were all lit together using three 500W Fresnels with light yellow gels. Finally, to light the house, I just used 1 500W Fresnel with no gel, as it was not a valuable acting area and did not merit a 1kW.

The production was great to light with little resources and the results were pleasing. It was very different to the kind of lighting I usually design for Merchiston musicals. There wasn't even a trace of surprise pink!



Photo: Merchiston Castle School, Edinburgh

# CANADA - THROWS LIGHT ON ITS CULTURE



Photo: J P Camus

**F**or the first time in the country's history, Canada's Museum of Civilization opened its door to the general public on July 1st — following a considerable contribution by Strand Lighting.

Located in Ottawa, the nation's capital, the \$300 million building represents a major advance in museum design.

Strand's most extensive work was in the 35,000 sq ft Arts and Traditions Hall, which showcases the multicultural aspects of Canadian culture and history.

Exhibition designer-in-charge of the Hall, Jean Pierre Camus ('JP'), made an extensive study of all available lighting techniques for museums.

The design, with its large structures holding AV equipment, historical reproductions and actual artefacts, demanded a unique solution. Theatrical luminaires offered the best approach, giving him the precision and control he needed to create a dramatic visual presentation. Enter Strand Lighting!

Past experience led JP to call Strand Lighting and his nearest representative, Servispec of Montreal. Over the next few months, the design evolved into a series of static and moving light displays which interacted with AV equipment and the central computer control for the museum.

Particular exhibits with light sensitive materials required precise light levels and several were so sensitive it was judged that these could only be illuminated when someone was

actually in front of the exhibit.

The challenge then was to find a lighting control that would do all of these things and still fit the museum's budget.

The choice to resolve the challenges? Lightboard M and CD80 24x1.2kW dimmer packs. The packs were installed directly into the exhibits themselves connected via multiplex control lines to the various control consoles.

Three Lightboard M consoles and 13 CD 80 dimmer packs (312 dimmers) were needed to manage the project. All the consoles were tied to the building computer system via the function key inputs. Function key commands to 'start' the exhibits at the beginning of the day and go to a 'night' setting at the end of the day were written. In addition, a myriad of cues were written to provide fixed and cycling lighting effects throughout the exhibit space.

Of particular note were those sensitive exhibits which could only be illuminated when a visitor was actually present at the display. A special motion detector and timer circuit was designed and developed by Servispec with the assistance of Strand Lighting to interface with the remote submaster inputs of the Lightboard M consoles. Whenever someone was 'sensed' standing in front of the exhibit the display lighting cue on the submaster would fade up.

Client: Canadian Museum of Civilization.  
 Architect: Douglas Cardinal.  
 Designer for Arts and Traditions Hall: JP Camus.  
 Special Design Consultants: Sceno Plus, Montreal.

## AFTER THE DINOSAURS...

Following the huge success of the Dinosaurs from China Exhibition at the National Museum of Wales in Cardiff during 1987/88, the Museum is planning another major exhibition — this time at its centre in Llanberis, North Wales, Amgueddfa'r Gogledd.

Once again Light Relief have been asked to interpret and design the lighting and the sound for the exhibition entitled Power of Wales. Light Relief's Technical services manager, Mark Satchell, and his team duly descended on Llanberis at the beginning of July to start the preparatory work.

Recently the National Museum, Cardiff saw the opening of Robes of the Realm, an exhibition presented by Ede and Ravenscroft in the original 'Dinosaur' Exhibition Hall. The lighting was re-designed by Light Relief to show off the splendour of the impressive ceremonial robes in the exhibition, including the Queen Mother's Coronation robes and the ceremonial robes of the Prince of Wales in his office as Chancellor of the University of Wales.



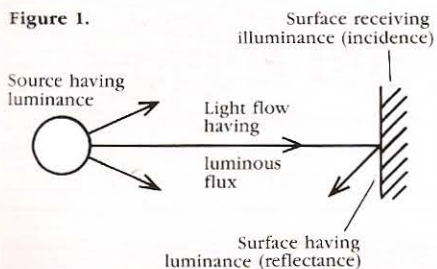
Current projects include lighting and sound for music festivals, a firework display and installation of drama and video studios for a new college.

*More technical information, help and advice. That was the clear message sent back by our readers in response to our survey. But how to accomplish this when the knowledge and experience of our readers ranges from student to experienced professional designers, engineers and technicians? And where interests vary from Theatre to Television, Motion Picture and Architectural Lighting. Our solution is to include a regular technical background feature to augment the reports of lighting applications and news of new equipment — and where better to begin, than with light itself.*

# THE MEANING OF LIGHT

## THE LANGUAGE OF LIGHT

**L**ighting, regarded by some as an intriguing blend of art and science, possesses its own vocabulary, used to describe the lighting system shown in Fig.1.



The terms most commonly employed can be summarised as follows.

- **Luminous Flux** is the output of a bare lamp, measured in lumens.
- **Luminous Intensity** is the output of the luminaire measured in candelas.
- Dividing the candela output by the square of the distance in metres gives the **illuminance**.
- **Illuminance** is the amount of light falling on a subject measured in Lux.
- **Luminance** is the amount of light reflected or brightness of the subject

surface measured in candelas per square metre.

The light that a source emits is termed its **luminous flux** and is measured in **Lumens**. A lumen is defined such that a point source of light, of one candela intensity, radiating uniformly in all directions emits  $4\pi$  lumens. Section 6 of *The Strandbook* reveals a staggering range of lamp lumen 'packages' from a modest 5000 lumens, for a 300W M38, to a massive 1,100,000 lumens, for a 12kW HMI! This figure, for an individual lamp is the total output measured by integrating or summing the luminous flux output over all directions emitted.

Lamps are used in housings referred to as luminaires. A luminaire is an assembly providing mechanical support and electrical connection to the lamp and incorporates a means of controlling the light emitted by the lamp. It will also comply with appropriate standards for electrical safety. Whilst the output of a luminaire may have any area, simplifications become available if it is small enough such that it can be treated as a **point source** and thus it may be considered to have a single luminous intensity for each direction.

A luminaire at a distance of several metres can usually be considered a point source of light. Thus calculations on luminaire output may be simply made (using only distance and intensity) provided that the distance is at least ten times the source size. Calibration of luminaire intensity is normally made at a distance of 10 metres.

If we now direct our source towards a surface, then the luminous flux (light) causes a certain amount of **illumina-**

**tion** of that surface, termed **illuminance**. The illuminance caused by 1 lumen uniformly on 1 square metre is defined as **1 Lux** in the SI system\*, alternatively **1 Foot-candles** for 1 lumen falling on 1 square foot.

If we refer to the luminaire sections of *The Strandbook* we find figures of illuminance quoted at selected distances from the luminaire. We will also note that illuminance reduces in proportion to the square of the distance from the source to the surface; generally referred to as the inverse square law.

For fixed lighting installations recommended illuminances for a wide variety of applications are published by professional bodies such as the CIBSE in Britain or the IES in America, and are appropriate to particular visual tasks or work place situations being lit.

Whilst a certain amount of light may be incident on a surface its brightness, known as **luminance**, is dependent on the proportion of light reflected, governed by that surface's **reflectance**. Reflectance can range from 0 (perfect black) to 1 (perfect white).

A **Reflectance Factor** is commonly employed when evaluating contributions of light reflected from walls, ceiling and floors in addition to direct light, when calculating illuminance at the **working plane**. Most surfaces may be considered matt such that their luminance is independent of the angle of viewing. Surfaces with specular properties will preferentially reflect light, a phenomenon utilised in reflector design in luminaires.

\*SI is the International Systems of Unit of Measurement.

\*The Strandbook offer — see page 15.

## TERMS, DEFINITIONS AND CONVERSIONS

The lamp is a source of light whose 'brightness' is known as **luminous intensity**, once more familiarly measured in candle power, but now in **Candelas** (cd). Whilst an ideal light source would radiate evenly in all directions, when the light source cannot be considered as an homogeneous whole, then its intensity is described appropriate to the area under consideration. Thus the term **Luminance** is introduced as the intensity per unit area of a body's surface and is measured in **Candelas per square metre** ( $\text{cd}/\text{m}^2$ ) or old units such as **Foot-Lamberts**.

**Luminous Intensity:** The unit of measurement is given by the luminous intensity of a plane, black body surface of 1 square centimetre area heated to  $2045^\circ\text{K}$  — the solidification point of platinum — which is defined to have an intensity of 60 candelas.

**Luminous Flux:** A **Lumen** is the luminous flux emitted by a uniform point source of 1 candela intensity in 1 steradian. A steradian is the solid angle subtended at the centre of a sphere of unit radius by one square unit area on the surface. The total luminous flux thus emitted by the source is  $4\pi$  lumens.

**Illuminance:** The illuminance caused by 1 lumen on 1 square metre is defined as **1 Lux**.

**Luminance:**  $\text{Luminance} (\text{cd}/\text{m}^2) = \frac{\text{Illuminance (lux)} \times \text{Reflectance}}{\pi}$

$$\text{Lux} = \frac{\text{Candelas}}{\text{Distance}^2 (\text{m})} \qquad \text{Foot Candles} = \frac{\text{Candelas}}{\text{Distance}^2 (\text{ft})}$$

**Inverse Square Law:** If a luminaire gives an illuminance of  $L_1$  Lux at distance  $D_1$  metres, then it will give illuminance  $L_2$  at distance  $D_2$ , (assuming linear beam divergence).

$$\text{Thus } L_2 = \frac{L_1 \times D_1^2}{D_2^2}$$

**Conversion Factors (SI Units to Imperial).**

1 candela per sq. metre ( $\text{cd}/\text{m}^2$ ) = 0.2919 Foot-Lamberts (fl)

1 candela per sq. metre ( $\text{cd}/\text{m}^2$ ) =  $\pi$  Apostilb (asb).

1 Lux = 0.0929 Foot candles (fc).

Thus Lux =  $10.76 \times \text{Foot-candles}$  and Foot-candles =  $0.0929 \times \text{Lux}$ .

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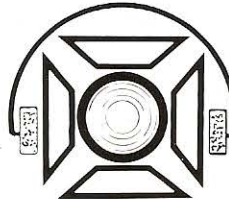
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# 'ANXIOUS FOR TO SHINE IN THE HIGH AESTHETIC LINE'

**M**ention the names 'Gilbert and Sullivan' to most people and they can immediately recall a snatch or two of operetta. This is due in no small part to the likes of the D'oyly Carte Opera Company, who have recently finished a successful run of *The Mikado* at their home base, the Savoy Theatre.

But how many people know, one wonders, just how important the D'oyly Carte Company has been to the theatre lighting industry in general, and Strand Lighting in particular?

The 60th anniversary has just been celebrated of our installation of a new lighting system at the Savoy Theatre, during reconstruction of the building.

Last month marked the 108th an-

niversary — also at the Savoy Theatre — of the first time in history when a theatre was fully lit by electric light. The main strand (pun intended) linking these events was the D'oyly Carte Company who took the honour of being the first to perform in such modern surroundings on December 28th 1881 with a performance of Gilbert and Sullivan's *Patience*.

The trade journal 'The Electrician' reported at that time, 'The thanks of playgoers must be given to R D'oyly Carte for the enterprise he has shown in adopting this cool and wholesome luminant to light his new Savoy Theatre.'

This was all made possible by Joseph Swan's 'incandescent lamp', patented by Edison and popularly attributed to him.

Altogether, 1158 lamps were used to light the Savoy Theatre and Swan was later hailed as 'the real father of electric stage lighting.'

Incidentally, dimming control at that time was said to have been by way of 'a resistance of open spiral coils of iron wire' to obtain graduations of light.

During the 1929 reconstruction, the Strand board included some liquid pots for variable load circuits and Dutch resistance dimmers to most circuits.

Continuing our association with the Savoy, by 1960 we were back at the theatre to replace the 52 dimmer ways of 1929 with 120 resistances and transformers remotely controlled from a standard Strand CD console. Today the Savoy uses a Duet 2 console.

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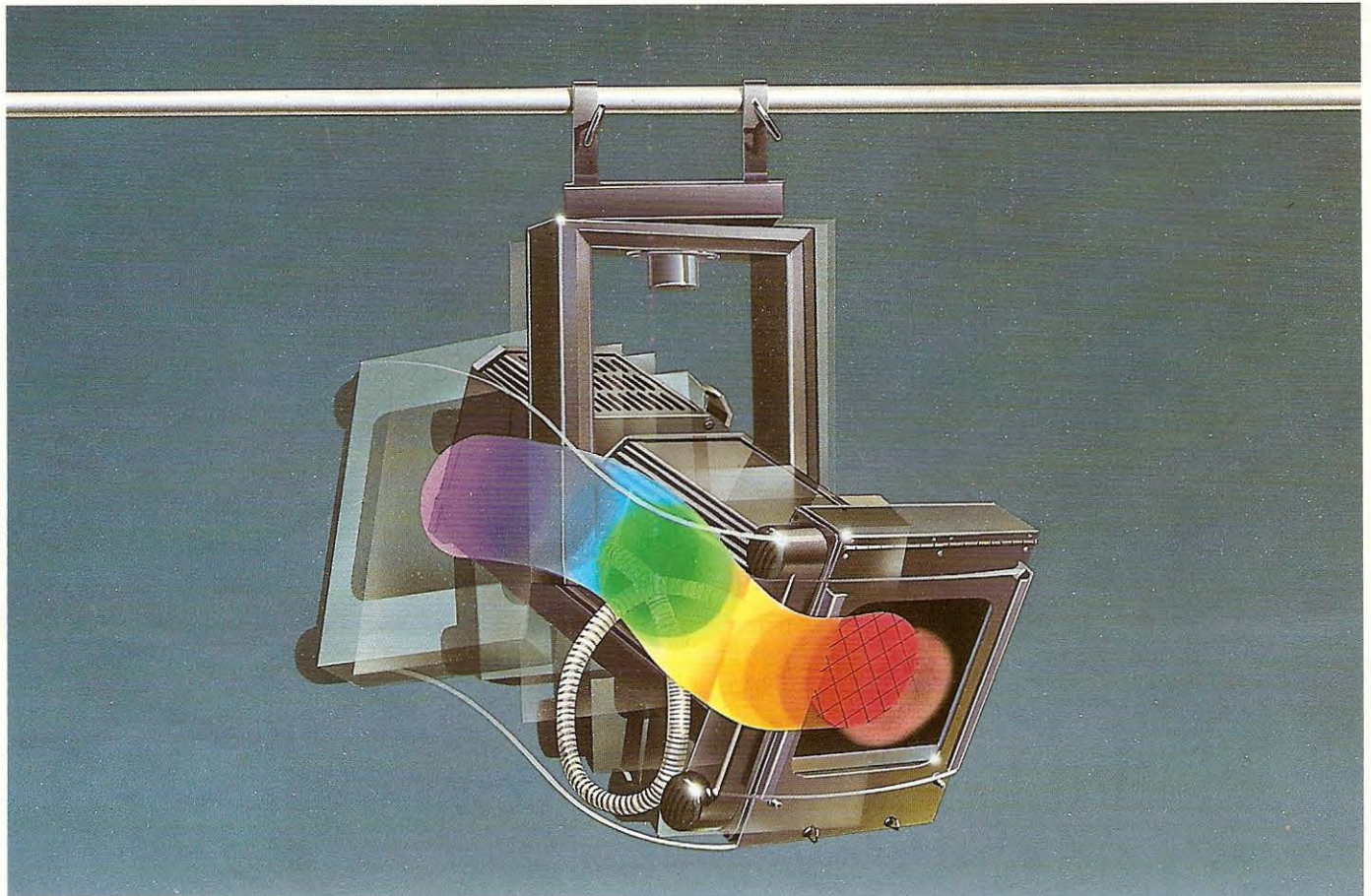
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# Strand technology moves further ahead...



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PALS is the latest in a long line of Strand innovations. For more than 75 years, Strand Lighting has maintained a continually high level of investment in research and

development. Every year, we introduce increasingly sophisticated and reliable products — from follow spots for schools and halls to dimmers and controls for theatres, film and T.V. studios.

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