

# LIGHTING EQUIPMENT NEWS

JANUARY 1992

## Energy saving in the City

Companies in The City of London are being encouraged to make their lighting systems more energy-efficient by a new scheme, launched with the support of the Corporation of London.

London Electricity and the Lighting Industry Federation have

joined together to launch the Lighting Energy Save Scheme (LESS).

London Electricity's Energy Management Team is offering to undertake a subsidised survey of premises, to include a lighting audit. It will produce a full report with recommendations of what is needed to make the installation more efficient and effective, and an assessment of the likely savings.

Each survey is offered for a special fixed price of £150 plus VAT, and is exclusive to companies in the City. The offer applies for six months.



London's Albert Bridge has a new lighting scheme which cuts energy consumption by over 60%, and will also reduce maintenance costs substantially. The original installation consisted of 240V festoon lighting with 15W lamps for the main suspension chains, with PAR 38 and PAR 56 floodlights to the towers and 85W fluorescents lighting the parapets. The total installed load was about 100kW.

The main festoon lighting has been replaced by the Lumisphere low voltage system which incorporates 12V 5W tungsten halogen capsule lamps contained within weatherproof plastic globes. Lampholders and cables are contained within a UPVC trunking system which is attached to the bridge by stainless steel bands.

The PAR lamps have been replaced with Philips white SON and HF colour 83 fittings, and the parapet lighting has been replaced with Philips' Rennes luminaires using 50W HF lamps. The light sources were chosen to complement the colour scheme. The total installed load has been reduced to approximately 39kW, with relamping at two yearly intervals.

## UK launch

Emergi-Lite, the world's largest emergency power and lighting manufacturers, launched into the UK market at the recent Electrical Products '91 exhibition.

The company, part of the American Kaufel Group, acquired

West Yorkshire based Plasmold Safety Systems in September and now plans to 'revolutionize the emergency lighting product range', says group chairman Bruce Kaufman.

The three main product areas are emergency lighting, fire detection units and battery care and management systems, and these will form the basis of Emergi-Lite's development in the UK.

## Seeking uniformity of explosion protection

The Electrical Equipment Certification Management Board is trying to bring some uniformity to EC certification bodies in the explosion protection field.

In its annual report the EECS says conformity assurance is not widely practised in the EC and there are widely differing ways in which the various countries interpret the requirements of EC Directives.

The Board has been pressing the Health and Safety Executive to pursue the issue at government level.



## Covering up

Throughout its twenty-five year history *Lighting Equipment News* has only had four changes in cover style, although there was a major change of format in 1976 from the oversized A4 size with which it started off life to the tabloid paper we know today. The plain blue and white

cover soon attracted advertising, and the most obvious change, brought about by advances in print technology, is that we are now able to use colour on almost every page - a very great advantage when you think of the nature of the lit environment, which can only be shown accurately in colour.

Leafing back through the pages to the early years of the magazine shows just how much

more sophisticated the lighting industry has become. We hope our coverage has followed suit and that we are providing the information needed by our ever-increasing numbers of readers.

Thank you for your support over the first twenty-five years of our publication. We look forward to a continuing dialogue in the next quarter century of our existence.

## In brief...

● MBM Plastics, supplier to major lighting companies and a member of the David Webster group, has appointed Brian Rushbrook as managing director. His predecessor, Alec Millington remains on the board in an advisory capacity.

● Electrak International is supplying fluorescent fittings and tube profile to provide ambient lighting in one of the buildings at the Great Ormond Street Hospital. The building is being redeveloped following the successful Wishing Well Appeal which raised over £54 million.

● Moorlite Electrical has issued photometric data in disk form for its fluorescent luminaires. It is available on 5¼ and 3½ disks in the common format recommended in CIBSE Technical Memorandum 14.

## HIGH FREQUENCY ELECTRONIC CONTROL EQUIPMENT



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# DIARY

## JANUARY

8-10

**An introduction to lighting design.** Three-day course for those with little or no formal lighting education. Held by Institute of Environmental Engineering, South Bank Polytechnic, London. Details from the director, 071-928 8989.

9-14

**Salon du Luminaire, Paris.** Details from Promosalons 071-221 3660.

14

**Visual and aesthetic appreciation.** Evening meeting in Nottingham organised by East Midlands region of CIBSE. Details from J G Bettison, 0629 580000.

16-17

**Interior lighting design.** Two-day course in London held by the

Institute of Environmental Engineering, South Bank Polytechnic, London. Details from the director of the Centre, 071-928 8989.

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**Young lighters of the year.** Finalists' lecture and presentation evening in London. Details from CIBSE, 081-675 5211.

**Lighting basics 3: lighting design calculations.** One-day seminar at University of Manchester arranged by the Mid Career College. Details from 0223 880016.

**Computer simulation for building services engineers.** Evening meeting at the University of Strathclyde arranged by the Scottish region of CIBSE. Details from D W Corden, 041-332 3326.

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**Integration of building services into interior design.** Evening meeting in Kettering arranged by East Midlands region of CIBSE.

Details from J G Bettison, 0629 580000.

27

**Interior lighting design practice.** One-day seminar in London arranged by the Mid Career College. Details from 0223 880016.

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**Lighting controls in offices and shops.** One-day seminar in London held by the Mid Career College. Details from 0223 880016.

**Energy matters.** Evening meeting in Birmingham organised by CIBSE West Midlands region. Details from A J Singleton, 021-706 5511.

30

**Leisure lighting.** Evening meeting held by Preston centre of CIBSE north west region. Details from L Daniels, 061-248 7272.

# NEWS

## Lightfair, USA

Lightfair International will take place at the Jacob Javits convention centre in New York City from 6-8 May. Over 73% of the exhibition space is reported to be already sold.

The associated conference programme will have four themes: professional development; residential and commercial design; energy issues, and globalisation. A special five-hour tutorial will advise delegates on *How to market your design firm's services abroad*.

The event is sponsored by the Illuminating Engineering Society of North America and the International Association of Lighting Designers.

Further details are available from Carole Carley at the organisers, AMC Tradeshows, 240 Peachtree Street, NW, Suite 2200, Atlanta, Ga 30303, USA.

# CIBSE



The Chartered Institution of Building Services Engineers

## Manchester to host national lighting conference

Every second year, usually in the week before Easter, CIBSE Lighting Division holds a residential conference somewhere out of London. Canterbury, Warwick, Nottingham and Cambridge have entertained us in the past, but in 1992 the venue will be Manchester at the newly opened Manchester Conference Centre on the UMIST campus from 5-8 April. This is a fitting location because the division's chairman for the year, Alan Wilson, is a fervent Mancunian.

The following details are a preview of the programme, mostly already confirmed, but in some cases still under discussion.

The main programme will run for three days from Monday to Wednesday but, as at the last two conferences, delegates are invited to arrive at leisure on the Sunday afternoon and attend a special international session. The topic to be discussed by a distinguished team is recent and proposed changes to the methods of specifying illuminance. Following a buffet supper the evening will end with an illustrated lecture entitled *Manchester Illuminated*, by local expert John Archer MA, RIBA.

On the Monday morning, the conference proper will begin with an address by the president of the CIE, Robin Aldworth, who is also a past chairman of the Lighting Division and a well known national and international lighting authority.

The rest of the morning is devoted to three papers on lighting and architecture, with a review of the lighting at the new Japanese Kansai airport, new ideas on church lighting, and the role of daylighting, described by distinguished international speakers.

Monday afternoon begins with a session of workshops offering delegates participation in either visualisation, scheme appraisal or modern luminaire design, in small groups and under expert leadership. The idea has been tried before, but this time we are enlarging the scope and not running a parallel lecture session. Papers on various aspects of exterior lighting follow and the day will end with an opportunity to visit the display of poster papers.

Tuesday sessions deal with interior lighting, education, the latest on computers, research reports and new thoughts on photometry with the familiar names of Bob Bean, Bob Bell, Bob Venning, Joe Lynes, David Pritchard, Peter Boyce and Anthony Slater among the authors.

Wednesday morning will be devoted to papers on lamps and luminaires with Philips, GE Thorn and Tridonic as the major contributors.

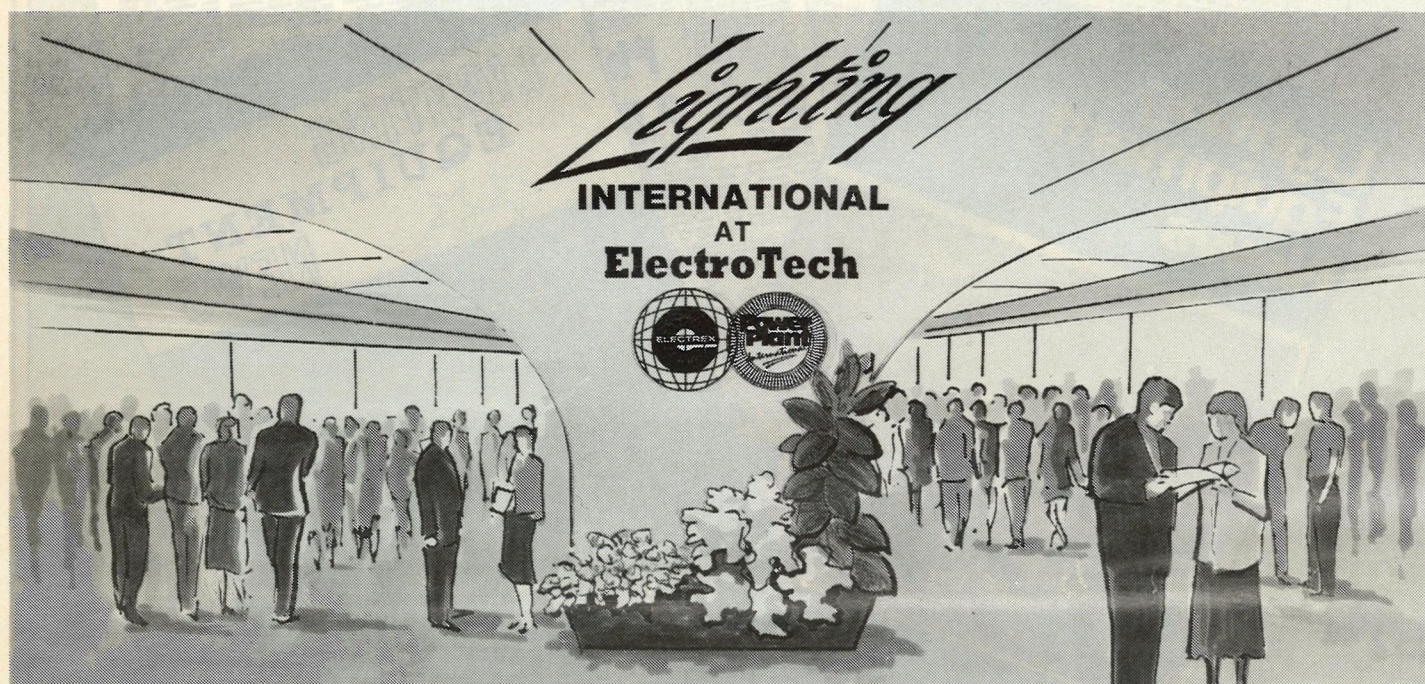
Finally, on Wednesday afternoon, a strong selection of papers on daylighting will round off the conference. These will include comparative case studies of lighting for two sports halls, research reports on the influence of external obstructions, an application of prismatic control panels, factors affecting the appreciation of luminance distribution, and evaluation of modelling.

In association with the conference a small exhibition is being arranged to give manufacturers and other commercial organisations a chance to display their latest products and ideas, many of which, we expect, will have been described in the conference papers. The exhibition will be open only to conference delegates.

Delegates to the National Lighting Conference have come to expect a high standard of accommodation and the new Manchester Conference Centre should please the sternest critic. Standard rooms offer high quality en-suite accommodation. For the more demanding there are four star, hotel style executive rooms.

Full conference details and registration fees are available now from Karen Phillips at CIBSE Member Services Department on 081-675 5211. Prices, although inevitably higher than 1990, have been held close to inflationary increases.

**Bob Anderson, Chairman,  
CIBSE National Lighting Conference Committee**



## A SPECIAL WELCOME AWAITS YOU

at the largest and most comprehensive display of new developments and technology from the electrotechnical and power supply industries. Incorporating Electrex and Power Plant International, ElectroTech '92 also includes 'Environmental Solutions', 'The Energy Show', 'ElectroTransport' and in Hall 5, 'Lighting International'...

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West Horsley Surrey KT24 6DZ · Phone 0483 222888  
Fax 0483 224321



# GE unveils its European marketing strategy

Because GE's rapid expansion in lamp making in Europe has been achieved by acquisition, the company had a problem; the problem of a divided corporate identity.

This problem was solved by bringing together a few weeks ago 300 European wholesalers and specifiers. They came from countries as far apart as Finland and Portugal to a meeting in Geneva where the new marketing strategy for Europe was explained.

In addition, some of its latest lamp technology was demonstrated.

GE Lighting, an affiliate of the General Electric Company of the USA, bought a controlling interest in Tungsram, Hungary, two years ago; then one year later it acquired a majority holding in the lamp making side of Thorn Lighting, creating GE Thorn Lamps Ltd.

This increased its share of the European lamp market from an estimated 2% to around 18-20%. But, it left the problem of a clutch of different brand names: GE, Tungsram and Thorn.

The majority of the lamps is being integrated into the GE brand with new colour coded packaging carrying the GE monogram. The coding scheme will differentiate performance levels. GLS lamps for the commercial and industrial markets will be in yellow and blue packaging; what are described as "industry standard" products will be in blue and grey, while high technology lamps with superior performance will have maroon and grey packaging. The Mazda brand name for the retail market is not affected.

This new branding policy took effect in mainland Europe from November. In the UK, the introduction of GE branded lamps is scheduled to start early in 1992.

However, the integration of GE Thorn and GE Tungsram companies in the UK will take a little longer – until mid 1992.

Re-structuring the UK business will also include refocusing the sales force into two groups. A specialist team selling to original equipment manufacturers will be formed from the current expertise within GE Tungsram and the present GE Thorn sales force will develop the wholesale and consumer distribution channel.

Across Europe, GE Lighting now provides local sales expertise in 15 countries.

## State of the art

Drawing on its USA experience of distribution, in mid 1992 a state-of-the-art distribution centre will be opened in Northampton with fully automated storage and retrieval systems. All distribution systems will be linked to the multi-lingual sales/order processing system being installed throughout the business.

A central stocking point has also been established in Vienna for the manufacturing base in south eastern Europe.

A pan-European catalogue of 250 pages has been produced and



A view of the GE presentation to a specially invited audience of 300 in Geneva.



Low voltage lamps with GE's new Constant Color coating.

is being translated into eight languages. Unfortunately this starts by saying that Edison invented the first practical incandescent light bulb, which is rather aggravating for British customers. Will the USA never give Joseph Swan his due?

## Commitment

At the Geneva meeting the company emphasised its commitment to its customers in Europe, saying that it was investing for the long term and wanted to share its technical and management skills. By the end of 1991 it had invested \$550 million in the European lighting industry, which included spending on new lamp making plant.

All its manufacturing plants in Europe are now operating to ISO9000 quality standard.

## New product developments

It was announced at the meeting that GE's MR16, low voltage, tungsten halogen, dichroic lamps called Precise had been improved by the use of Constant Color coating on the reflectors.

The layers of this coating are

oxides that will not degrade, the company states, even in high temperatures or a caustic environment. Consequently, 100% reflectance and consistent light colour are maintained over the full life of the lamp. Because of this development, GE is now claiming an average life of 5000hr for its 50W lamp.

Demonstrated also was a miniature xenon metal halide lamp rated at 60W which is being developed for use in fibre optic lighting applications. Not only does it give an exceptionally high light output, but it operates on an electronic power supply in a very small housing.

The demonstration model was operating at 120V, but research is in hand to produce a 240V version.

Thin film coating technique is being used on energy saving, elliptical, tungsten halogen lamps on sale in the USA. In these Halogen-IR lamps, 46 layers of coating on the bulb reflect infrared radiation back onto the filament and thereby enable a lamp rated at only 60W to produce the same amount of useable light as

does a 150W PAR lamp. Again, this is only available in a 120V version, but GE says it expects to have a 240V model in about two years.

GE is investing considerable resources in research into induction lamps which will give dramatic increases in efficiency and longer life. However, it appears to be about two years behind Philips in this respect.

## The future

William Woodburn, vice president, worldwide marketing and product management for lighting, said that he summarised the future for lamps as the four Cs: compact; with colour approaching that of sunlight; low cost (including less costly to dispose of), and giving better control of the light to focus it more precisely onto the subject.

Market research among GE's wholesaler customers – it has not done any consumer research in Europe – showed a demand for compact sources that are energy saving and produce whiter light.

To the above lists, GE adds longer life.

The company's expansion policy is first to protect its new position and then to go forward with new products.

It is now number three in lamp making in Europe and its goal is to make GE the number one brand. It believes only businesses that are number one or number two in their market can win in the increasingly competitive global arena.

General Electric, the parent company, consists of 13 core businesses, of which lighting is one. It claims to be the world's tenth largest company in terms of revenue and its profits have increased for 47 consecutive quarters. In 1990 it spent a total of \$4.3 billion on research and development.

# COMMENT

## Taking stock

A good business regularly takes note of its resources and ensures it is using them in the best possible way. Twenty five years on, what were we asked to do when *LEN* was launched, and to what extent have we succeeded in our aims?

In the first instance, the lighting industry asked us to provide a channel of communication between themselves and their customers, in terms of enabling the specifier to find out what was new in the market and how he should use it. Our recent readership survey showed a continuing demand for such new product and applications stories, which have remained central to the journal. In fact, improved print technology coupled with a greater awareness of press relations within the industry as a whole have tended to ensure more complete, effectively illustrated and rapid coverage.

One great change over this period has been the increased appreciation of the value of lighting, which this journal prides itself it has had some hand in fostering. Retail outlets were among the first to realise its importance in attracting the potential customer into a shop, the essential prelude to him making a purchase. Recently, increasing concern for energy saving has made many manufacturers and a proportion of office managers more aware of the need for a good quality, well designed lighting installation, to be costed over the predicted lifespan of the building.

A new trend may also be detected, although currently somewhat masked by the economic climate. Predicted manpower shortages for the end of the century have made progressive employers very conscious of the need to attract and keep skilled staff by providing attractive working conditions. High quality lighting forms a key element in any such package.

Where we, together with the industry, have to a massive extent failed is in persuading the domestic customer that money spent on lighting can do more than most other investments both to boost his quality of life and, in the long term, to save him money.

The other enormous change is in the industry's perception of our market. A quarter of a century ago the traditional British markets were in the former spheres of colonial influence – the British Commonwealth and the wider Sterling Area. Now we are on the point of forming a small part of a single market of 320 million people with among the highest levels of purchasing power in the world. This presents us with the greatest opportunity of the century – although those in the rearguard might well regard it as its greatest threat.

One thing appears clear. The next twenty five years look set to be at least as exciting as the period which has just ended, and we at *LEN* look forward to the challenge of championing the lighting industry's interests into the year 2000 and beyond.

## LIGHTING EQUIPMENT NEWS

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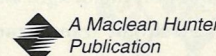
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# NEWS

## Pegasus lights way for Fitzgerald

Fitzgerald Lighting has chosen Pegasus Senior software to give it control of all parts of the business from raw materials, through to production, invoicing and payroll.

The system runs on a Novell Netware 2.2 network which is linked to work stations in all the company's offices. A British Telecom Kilostream link is used to form a single nationwide network that can be controlled from head office.

All areas of the company use the Pegasus system to manage its costs and accounting procedures quickly and efficiently. The centralised network means head office can identify potential inefficiencies and have functional control of the business.

## Energy efficient survey

The Centre for the Analysis and Dissemination of Demonstrated Energy Technologies (CADDET) has published a new report on energy efficient lighting projects around the world.

The report, 'Energy efficient lighting in commercial buildings' covers all main components of lighting systems. Seventeen demonstration projects on ten sites in five different countries are cited as case study material.

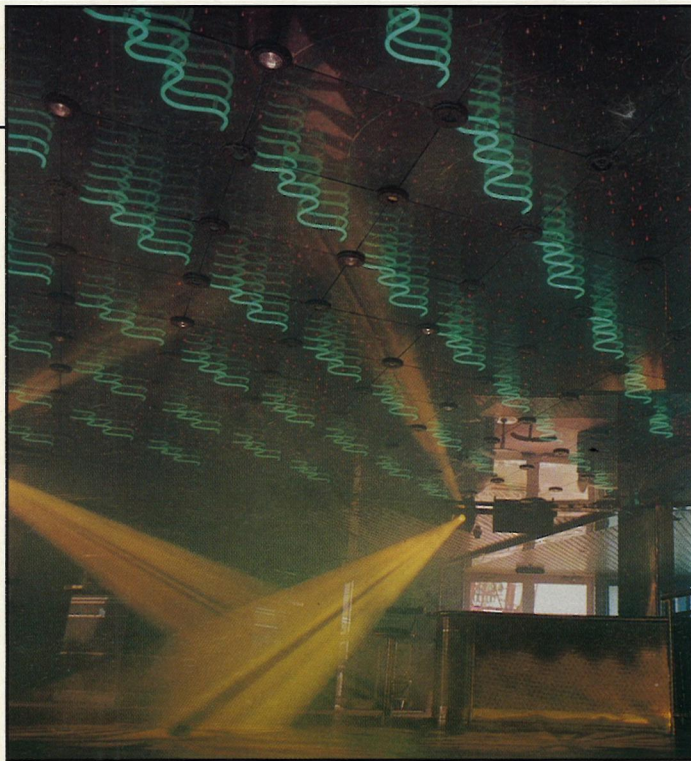
Copies of the report are available from Richard Shock, ETSU Harwell, Didcot, Oxford OX11 0RA, price £17.50.

## All at sea

The world's biggest cruise liner, Royal Caribbean's Monarch of the Seas, is fitted with two state-of-the-art discotheques which include lighting systems designed by Wynne Willson, Gottelier, and manufactured by Partyline.

The main disco, called 'Ain't Misbehavin', features a huge infinity ceiling which contains the effect lighting as part of the structure rather than an appendage. The result is an expanse of mirror suspended on specially designed and fully functional low voltage MR16 downlighters.

The dance area features fibre optics and edge lit material



embedded in the dance floor. Colour sources were 24 High End Colopro projectors.

Youngsters at the disco can play with some elements of the lighting, including unique robotic

lights, called Caterpillars, which squiggle a PAR36 lamp around, under remote or joystick control.

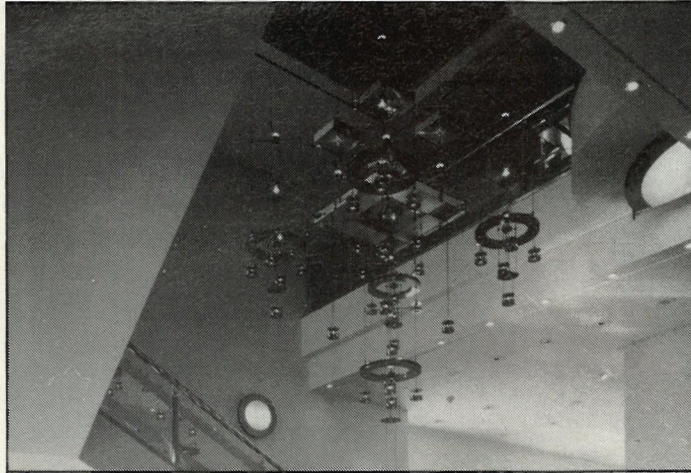
Lighting control in both discotheques is provided by Zero 88 Lighting.

## Sheffield chandelier

The main feature chandelier in the refurbished Sheffield Lyceum uses fixtures and fittings from Electrolite's New Line 12 range of low voltage cable systems.

The system includes five different types of fittings which can be located up to 15m from the transformer. New brackets and transformers were designed to complete the system.

Electrolite also designed and manufactured special wall and ceiling fittings in black chrome.



## Energy efficiency drive

Companies in Avon and Somerset are to become signatories of the energy efficiency 'Making a Corporate Commitment' campaign.

Energy Minister, David Heathcoat-Amory, emphasised the government's commitment to energy efficiency and stressed the link between global warming and domestic, public and commercial and industrial energy consumption.

"The production and use of energy is a major cause of damage to the environment," he stressed "and I believe energy

efficiency is one of the most cost-effective ways of tackling the problems of global warming: The activities of commerce and industry are currently responsible for over half of this country's carbon dioxide emissions - the main contributor to global warming."

The campaign, 'Making a Corporate Commitment' aimed to encourage the country's top management to give a higher priority to responsible energy management.

Companies were invited to sign a declaration of commitment to establish an effective system of energy management which would both benefit the organisation, and show it was conscious of its environmental and social responsibilities.

## Lighting in concert

Lighting products from Switzerland, the USA and the UK were used in the rebirth of the Concert Hall in Blackheath, south London.

The hall had fallen into a near derelict state and its future was far from certain. But after renovation work it is a building to be proud of once more.

P4 supplied all the lighting required, within a tight time scale and budget. Performance lighting

is controlled by a 48 channel DMX system and can be changed to suit concert, drama or opera.

The lighting bars are designed for quick and simple repositioning into the body of the hall for chamber music performances.

House lights are controlled by a microprocessor based programmable lighting control, allowing access from several locations. They can also be linked into the performance lighting. Exit and emergency lighting is provided by a central battery system.

## Guide to IP codes

The Electrical Installation Equipment Manufacturers' Association has published *A guide to the IP codes for enclosures*. The guide simplifies the requirements for enclosure protection detailed in

IEC 529: 1989 (second edition) and includes some typical examples applied to products in the EIEMA sector.

The Guide is available from EIEMA at 8 Leicester Street, London WC2H 7BN - price £5.50.

## Low Voltage-High Performance.



Even the most modern and attractive low voltage tungsten halogen fitting or system is only as good as the components it uses. And there is no more vital component for the Designer than the transformer.

With Sylvania's new Digital Electronic Controller you are assured one of probably the most reliable and safest transformer equipment on the market.

And as one of the world's major lighting companies, who better to apply the knowledge and resources of state of the art lamp technology on the design, and production of an advanced electronic transformer than Sylvania?

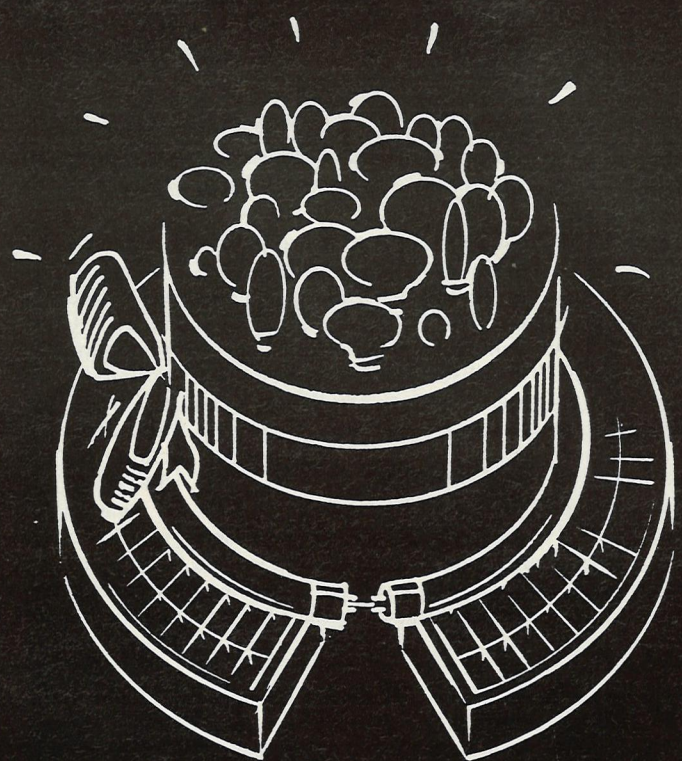
Key to its design is the fully digital technology with no moving parts. That means total reliability for transforming any European mains supply voltage into a stabilised 12 volt output within one compact unit.

*You will not find a higher performer anywhere on the circuit.*

# SYLVANIA

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## Congratulations to LEN on twenty five years of sheer brilliance



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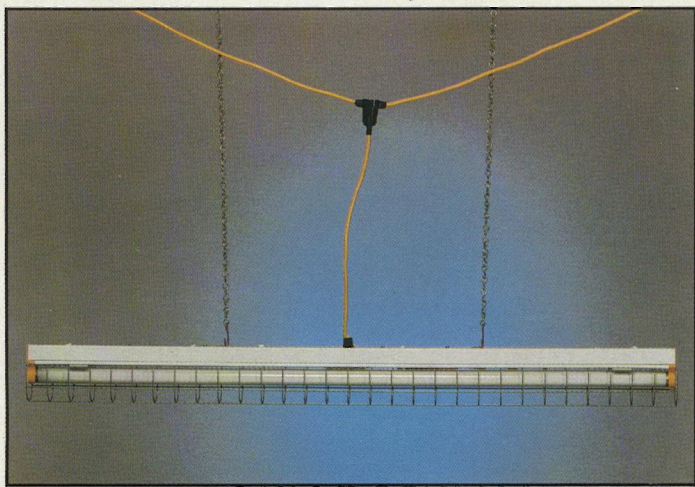
# NEW PRODUCTS

## Temporary fluorescent system

Blakley Electrics has launched Flori-Stoon, a 110V temporary fluorescent lighting system.

Flori-Stoon is a dedicated system that provides a safe method of electrical supply to fluorescent fittings and reduces the overall cost of installation by eliminating on-site wiring of fittings.

The system consists of 100m lengths of 1.5mm<sup>2</sup> three-core cable with a special three-pin outlet moulded in place at 5, 7 or 10m spacings. The fluorescent fit-



tings are factory wired with an input lead which has a specially moulded-on three-pin plug. Among other advantages, the potential for recovering fittings at the end of a contract is increased.

Although the initial cost of installing a temporary fluorescent

lighting scheme is greater than a tungsten festoon system, the benefits in terms of reduced energy and maintenance costs, as well as vastly improved illumination are stated to make the investment cost effective.

Reader Service No 151

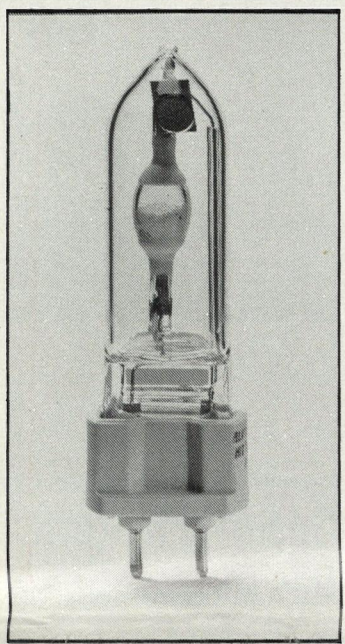
## Metal halide lamp gives increased light

BLV has a 75W single-ended, clear, tubular metal halide lamp with a G12 ceramic base. This is the first of a range called Topspot.

Designed to operate on readily available control gear, it produces 70 lumens per watt with a colour temperature of 3000K.

These compact lamps have an overall length of 100mm and a diameter of 27mm. They can be used in any mounting position and are stated to have stable colour characteristics.

A feature of this lamp is that the arc runs axially down the centre of the bulb, with a light centre length of 56mm. This is claimed to give an increase of light inten-



sity from any reflector of up to 30%.

Reader Service No 152

## Control desk for small venues

The Light Conductor from Optron Digital Systems is a multi-function lighting control desk and programmer suitable for small theatres and schools, and with another built-in mode can also be used for disco effects. The price is under £800.

This compact, 16-channel unit is battery powered. Sequences, either pre-set or user defined, can be run singly or in various combinations, all triggered either manually, by time, or by sound-to-light.

A Help key can be used to display the desk's instruction book on the four-line x 20 character liquid crystal display.

A printer is supplied as standard, for lighting data listings.

Reader Service No 154

## Dual system for airports

Crouse-Hinds Airport Lighting, USA, is now marketing combined red and white obstruction lighting systems.

Dual red and white systems are

offered for airport applications where white strobes may be objectionable for night-time operation. They consist of red beacons and side lights.

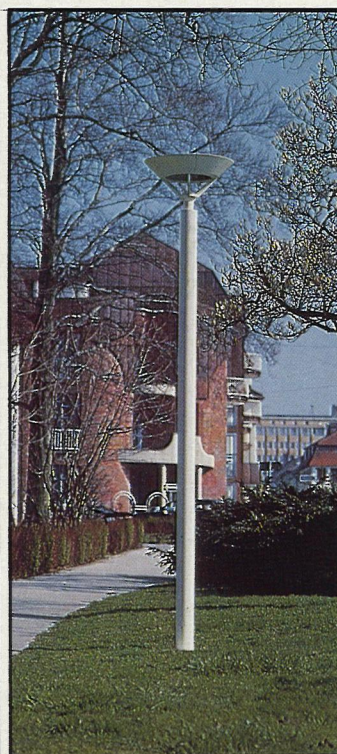
Controls, alarm relays and power supplies may be located in a common enclosure mounted separately.

Reader Service No 156

## Amenity lighting with choice of lamps

New designs have been added to Concord's Bega range of outdoor lighting to provide amenity, forecourt and precinct lighting.

The luminaire illustrated uses either, 80W or 125W mercury or twin PLC 18W compact fluores-



cent lamps and includes a glare control in the form of a white louvred cylinder.

It is available on columns up to 4000mm high.

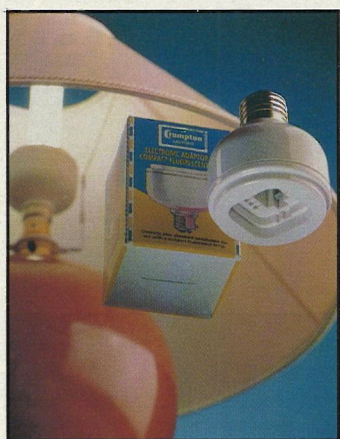
Reader Service No 153

## Adaptor for compact lamps

A lightweight electronic adaptor from Crompton Lighting, enables either single or double, PL type compact fluorescent lamps to be used with standard lampholders in domestic and commercial lighting fittings.

Compact and weighing only 80g, the adaptors fit easily into commercial and domestic uplights, downlights, table lamps and wall and pendant fittings.

The adaptors are supplied in



either bayonet cap or Edison screw versions and are available in 5W, 7W, 9W and 11W ratings. There are also 10W and 13W ratings for PLC type lamps.

With an operating life of about 24 000 hours, these electronic adaptors reduce maintenance costs and give flicker-free starting throughout their lifespan.

Reader Service No 158



## Metal halide floodlight

A range of precision-engineered metal halide floodlight projectors has been launched by Light Years.

The cast aluminium housings are finished in black anti-corrosive epoxy powder coating. These wide beam floodlights are ingress protection rated IP55 and use either 70W, 250W or 400W lamps.

All three sizes of projector have integral multi-tapped control gear and detachable anti-glare black louvres. They can be used for uplighting, downlighting or wallwashing in shopping malls and sports buildings, as well as for floodlighting monuments and architectural features.

Reader Service No 159

## Circular ceiling luminaire

UFO is a circular luminaire for flush mounting on wall or ceiling. Made in Italy, it is available from UK distributor Lumino.

A black metallic base and curved sandblasted glass diffuser make it suitable for many types of interior. There are versions for incandescent or compact fluorescent light sources and also an integral emergency option.

Reader Service No 160

# LIF LINE

## New approach

The bulk if not all of the legislation coming forward that affects the lighting community now stems from Brussels rather than Westminster. The reason for this is the drive to complete the single economic market and the social contract. This is to be done by a new approach to law making.

Gone are the days when draft Directives were knocking about in Brussels for years on end. Now a Directive can be conceived and born within nine months – not too different from humans!

The essence of the new approach is that Directives can go through on majority voting and are written in terms of broad principles. In some instances interpretative documents are then drawn up by committees in Brussels setting out the essential requirements.

Once these documents are approved and published in the official journal of the EC, mandates can be issued to CENELEC or CEN for European norms to be drafted.

Meanwhile, national governments are implementing the legislation. In the UK this involves placing a statutory instrument before the House and if no MP objects within 14 days, that instrument becomes law. But again the chances are that it will be drafted in broad terms and the detail will be set out in a code of practice.

This is probably an over-simplification of the procedures, but it does show how important it is to have your ear to the ground, or at least to have someone who has their ear to the ground.

For example, the legislation affecting lighting which is currently up and running is:

- ☐ The Construction Product Directive (CPD) with five interpretative documents;
- ☐ The Work Place Directive;
- ☐ The VDU Directive;
- ☐ The Draft Sign Directive;
- ☐ The Electro-magnetic (EMC) Directive;
- ☐ The CE Mark Regulation.

All of these provide business opportunities as well as a few hurdles and the Lighting Industry Federation is advising its manufacturing members on how to tackle these.

LIF is also currently considering how it could provide a similar service for specifiers who are in the front line, answering queries on the 'phone from the client about something he has heard on the grapevine, or thinks he saw on TV, or read in the press about an EC Directive on Office Lighting.

The subject of EC legislation affecting lighting applications will be one of the subjects under discussion at a series of seminars being organised by LIF to coincide with the Lightshow exhibition at Earls Court from 26-29 January. These seminars are intended to keep lighting professionals and specifiers up-to-date with the opportunities arising from the new Directives and to offer an opportunity for a technological update and information exchange.

With a line into the EC and UK drafting of the legislation and playing an active role in CENELEC, LIF is well placed to lead the uninitiated through the shifting sands to the promised land – i.e. a single European market.

A. Leweson or S. Dowsey at the Lighting Industries Federation can provide further details of the Lightshow seminars.

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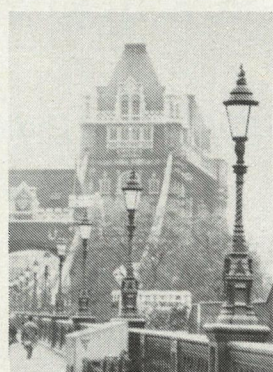
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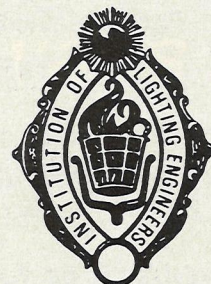
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Reader Service No. 6



# NEW PRODUCTS

## Stylish emergency light

Sirius is a modern wall light from GFC Lighting that is available as a self-contained maintained emergency light, or in a mains only version.

It uses either a 28W or 38W 2D compact fluorescent lamp between toughened, sandblasted glass discs, with a square, aluminium front plate.

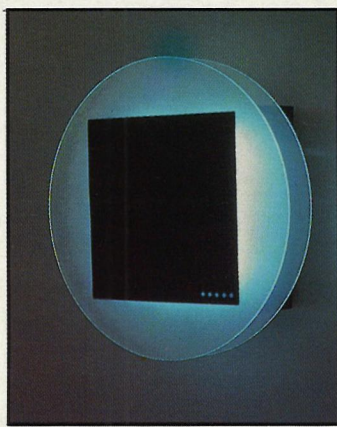
The ballast is housed in a separate compartment to provide a

thermal barrier between control gear and batteries.

Another feature is that the emergency luminaire is fitted with the Klik mounting system for easy installation and demounting. This is an optional extra on the mains only version.

The Arlen electronic Pulse-starter is also incorporated to increase lamp life.

**Reader Service No 161**

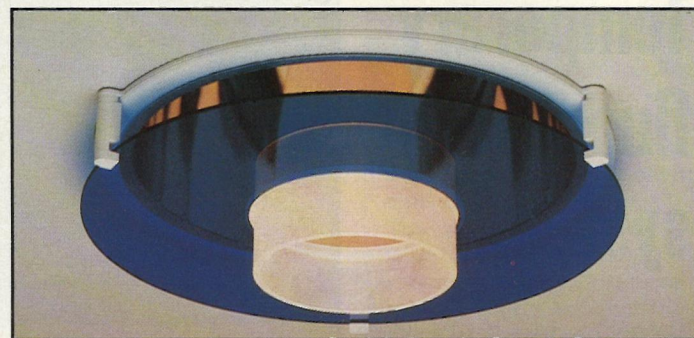


## New slant on downlights

Staff Lighting has introduced a range of decorative accessories for its standard recessed downlights.

These discs of clear, patterned, frosted or blue glass suspended beneath the downlight, with the optional addition of a central glass ring or cone.

The design exploits the interplay between light and glass, making the luminaires decorative



objects.

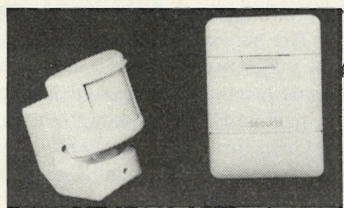
The accessories are designed to fit the majority of Staff's recessed downlights, including

compact fluorescent, White SON and metal halide and are easily removable for maintenance.

**Reader Service No 163**

## Multi-headed security system

Securis Products has developed a modular sensor system for the security lighting market. It handles up to five independent infra-red sensor heads. Connection between controller and sensors is



via low voltage four-core cable.

A concealed rotary control adjusts the length of time the

lighting stays on once it has been activated. There is also a manual override.

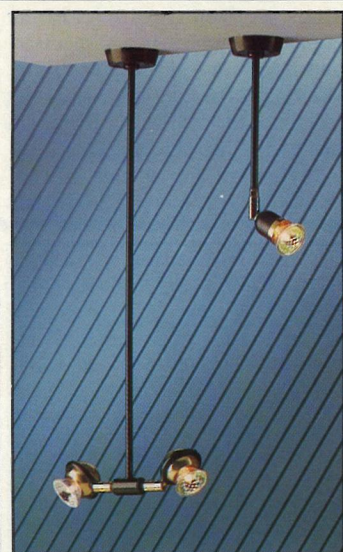
Detector heads are mounted on ball jointed stalks which are screw locked in the desired position. A photo-cell prevents operation during daylight hours.

Range claimed is 10m when the detector is mounted at 2.2m.

**Reader Service No 162**

## LV pendant spotlights

A range of interchangeable, low voltage, pendant luminaires for task and accent lighting has been launched by Light Years. It consists of four miniature spot-



lights, Cyrus, Rega, Conique and Hanley, which can be mounted singly or in pairs on pendant rods either 200mm, 400mm or 600mm long.

The fittings rotate through 360° horizontally and 90° vertically. Two different spotlights on the same stem, or four different spotlights on two stems offer extra design flexibility for display effects in the same area, and installation costs are lower.

Cyrus (left) and Hanley (right) accept up to 50W dichroic reflector lamps in a choice of beam angles ranging from pinpoint to wide angle highlighting. The reflector rim stands forward from the housing for easy relamping.

Rega takes an M32 capsule lamp and has a faceted reflector with an 18° beam spread built into the luminaire, while the hammered reflector of Conique has a slightly wider, 20° beam spread.

The pendant rods are available in a choice of black, white, brass or chromium finishes to complement the spotlights.

**Reader Service No 164**

## Security lantern has automatic walk test

An automatic security light for the domestic market is available from Smiths Industries Environmental Controls.

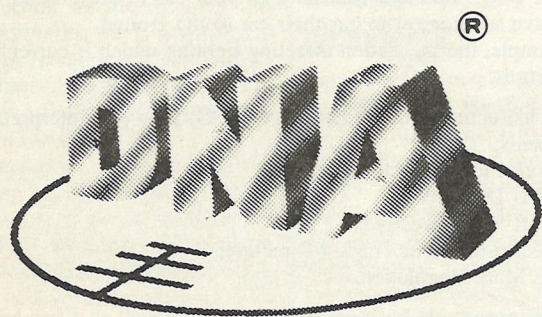
The SL041 sensor coach style lantern incorporates a passive infra-red sensor to detect the presence of anyone entering its

range, which is adjustable up to 10m through 90°. The sensor is easily rotated to the best position to protect the property.

A built-in photocell prevents daylight operation, although a 45-second walk test period is automatically allowed whenever the light is switched on. During this period only, the light can be triggered during daylight to allow the field adjustment to be verified.

This automatic test feature makes it ideal for DIY installation.

**Reader Service No 165**



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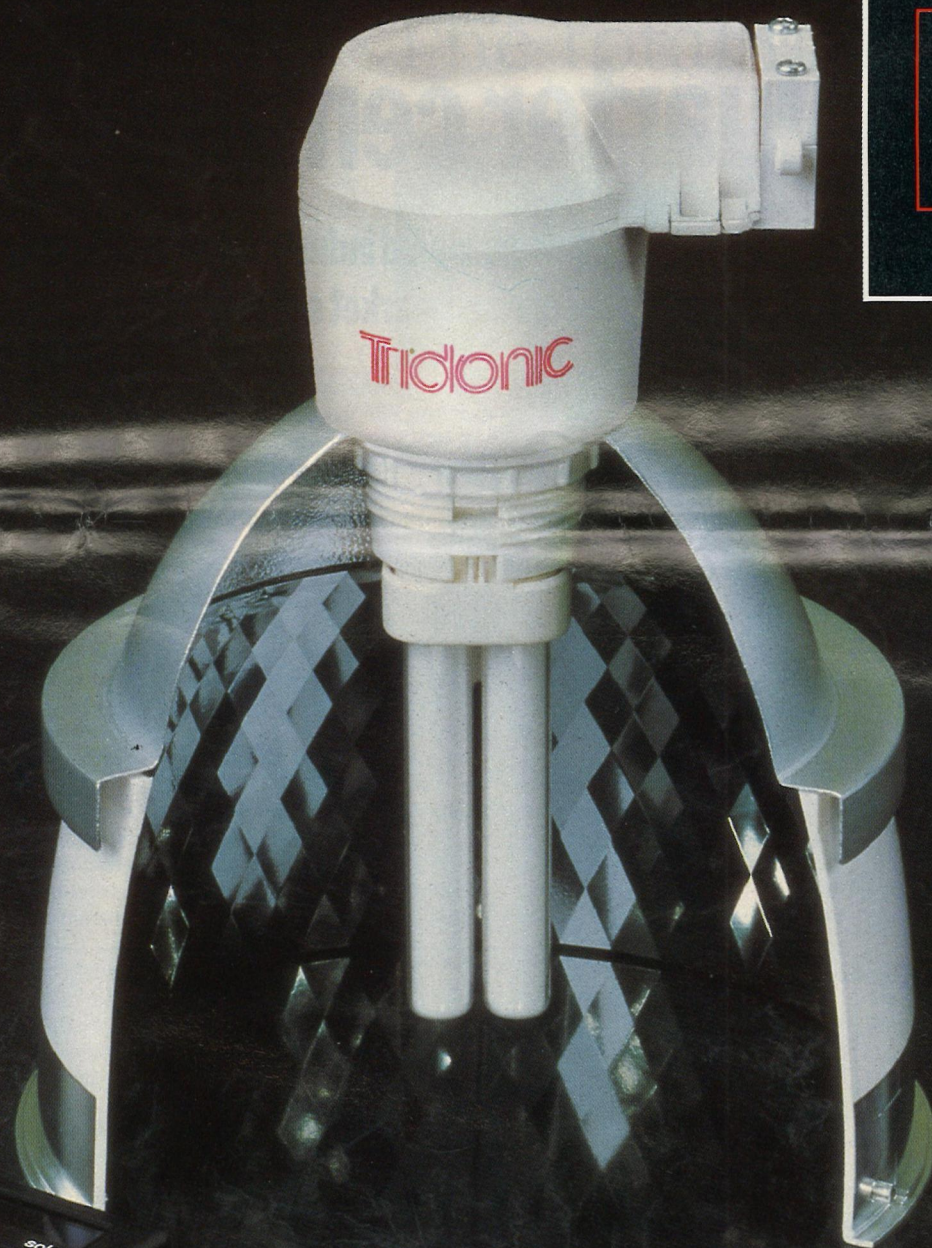
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# The origin of *LEN*

When we launched *Lighting Equipment News* in 1967 there were many misconceptions about the lighting industry. It was often considered as a small, somewhat disorganised industry, largely dominated by three of four major firms, more concerned with price fixing than with technical development. Our investigations soon showed that this was a very misleading picture.

In fact, we found that the industry already had an annual turnover in excess of £100 million and, although lamp manufacture was mainly in the hands of a few major international companies, there was a surprisingly large number of independent medium-sized firms making industrial and commercial lighting fittings and a flourishing number of smaller firms on the domestic and decorative side.

The industry was very well organised with active trade associations covering the different sectors of the industry, and an active professional body, the Illuminating Engineering Society, covering technical developments and lighting standards, which published a very sound monthly journal, 'Light & Lighting' – although the membership of the society was largely confined to members of the lighting industry itself.

It became apparent to us that the industry was somewhat inward-looking and was hiding its light under a bushel and, despite the efforts of the various trade associations – and particularly the then, British Lighting Council – lighting was still the Cinderella of the building services field.

It was not that there was a shortage of good techniques, light sources and equipment to meet different lighting applications, but that information on the subject was not being presented to the wide range of specifiers and users of this equipment, such as architects, consulting engineers, contractors, local and public authorities, industrial and commercial building operators. We ourselves were surprised at the size of the potential market for this equipment which was not being reached.

As a result of this lack of communication, although many outstanding lighting installations had been and were being carried out at that time, many less special installations tended to be minimal in character, with little consideration for aesthetic appeal, proper illumination levels, quality of light, safety standards or economic performance. It was still an age of 'bare battenry' in all too many cases.

As a result of our investigation we decided to launch *Lighting Equipment News*, not as just another journal in an overcrowded field, but to fill what seemed to us to be a genuine and vital gap – namely, to bring news of new lighting methods and equipment to a large and mainly uninformed potential user readership.

The last twenty-five years have seen great advances in lighting standards and in the equipment to meet these standards, and although there is still room for further improvements, there is obviously a much greater awareness of the need for good and adequate lighting for all purposes than there was a quarter of a century ago. We like to think that we have contributed in some small measure to this improved situation.

Colin Troup  
formerly Managing Editor *Lighting Equipment News*

## The first 25 years

January 1967 saw the first issue of a new publication, *Lighting Equipment News* launched by Colin Troup, Managing Director of Troup Publications, with a stated purpose, 'to develop and foster improved lighting standards'. At that point no other publication existed to further this aim in a wider commercial sense, apart from 'Light and Lighting', the official journal of the Illuminating Engineering Society, which circulated in the main among members of the society and was, therefore, confined to a readership within the lighting industry itself.

*Lighting Equipment News* started life with a circulation of 8000 and a readership which included architects, designers, consulting engineers, contractors, wholesalers and indeed the end-users of lighting. Twenty-five years on, circulation has increased to 14 000 plus, including a modest but significant readership overseas. Advertisers came to realise that here was a publication concerned exclusively with all aspects of lighting, covering the commercial, industrial, public and domestic lighting business, read by potential buyers and specifiers.

The original 'king-size A4' style changed in 1976, following acquisition by Maclean Hunter, to newspaper format with a further facelift in 1985, but editorial content has remained consistent and, hopefully, faithful to the original concept of fostering improved lighting standards, with news, features and articles of interest to the diverse range of readers.

Most of the original trade and professional bodies which held sway in 1967 have gone – replaced by more streamlined organisations, more in tune with today's faster changing needs. Many readers will also remember two or three lighting publications – modesty prevents us from mentioning their titles – which were launched in competition with us but foundered because of lack of direction or know-how, and their inability to deliver what the readers (and advertisers) required.

Significant and far-reaching changes in the make-up of the industry have taken place since we started publishing 25 years ago. Famous names have disappeared. Take-overs and re-alignment have produced new, now equally famous names, in light source and equipment manufacture. As with any modern industry, investment and ownership of the larger organisations is often multinational. All of these changes and developments are reported faithfully and – we hope – accurately by *LEN*.

And the next 25 years? Closer links with Europe would seem to be inevitable. But financial and technological advance from America and the Far East are already with us too. New firms with new products will continue to emerge, to be reported by *LEN*, with an ever-growing emphasis on energy conservation and design. Even now it is not always fully appreciated that the lighting load on any building or public area can be a significant percentage of the total power consumption... but we are beating the drum again.

We expect to be around for the next quarter of a century, still beating the drum on behalf of the lighting business and continuing to foster improved lighting standards.

John Bull, Publisher *Lighting Equipment News*



The multi-coloured floodlighting installation at Brighton's Royal Pavilion, was a major point of interest in the early 1970s.

## Quarter century review

Lighting is a technologically led industry characterised by increasingly specialised market sectors.

The launch year of *LEN*, 1967, saw the first lighting contract on a British motorway. This covered the six miles of the M4 between London and Heathrow Airport, which was lit by 140W high pressure sodium lamps.

Two years later, in 1969, the first UK football match was televised in colour – a Wolves v Spurs match from Wolves' Molineux Park ground. The installation used 1kW mercury iodide floodlamps.

The 1970s saw the first appearance of integrated lighting, heating and ventilation ceiling systems; and of the first low tungsten halogen lamps for display lighting. On a much smaller

scale, photographic flash cubes were on sale from 1970.

Not only buildings but also vehicles benefited from improved light sources: the sealed beam twin filament tungsten halogen car headlamp was introduced in 1971.

The 1972-1973 energy crisis and three-day week, together with the subsequent rapid increase in energy costs gave new impetus to the development of energy-saving light sources.

In 1974 SON-TD floodlighting was introduced, and 250W MBI fittings and lamps heralded a new era in shop and office lighting.

1975 saw the introduction of the 25mm diameter krypton filled fluorescent tube. The increased

surface brightness of this lamp compared with the 38mm lamp, standard until that time, stimulated reflector design.

Further advances were made in high pressure sodium in 1976: 150W and 70W SON lamps were introduced.

Four years later triphosphor lamps arrived on the market, a spin-off from colour television technology. Triphosphor technology was also necessary for the development of the compact fluorescent lamp, the first direct substitute for the GLS lamp. Although much more expensive than the lamp they replaced, compact fluorescents last 8 to 10 times as long and consume only a quarter the amount of energy.

Low voltage tungsten halogen lamps with dichroic coatings started to make an impact in display lighting from about 1982. Although originally designed as cool lamps to protect valuable or perishable display items, a feature of their subsequent development has been an extension of their use for purely decorative purposes.

### High frequency

From about 1984 high frequency electronic ballasts have become generally available for fluorescent and other lamps. Some problems with reliability in their early days have long been cancelled out by the advantages of high frequency operation: energy saving, instant start and flicker free operation. Daylight linking and constant lux schemes enable lighting levels to remain constant between cleaning and relamping cycles. Light output regulation means that installations can be used with outputs varying between 10% and 100% of the designed levels, and in some cases it is possible to dim down as far as 1%, opening new possibilities for permanent safety

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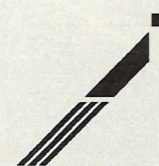
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Small is beautiful – from bulky spotlights in a Newcastle travel agents office (1972 vintage) to a low voltage display system 1980s style for a fashion shop.



Luminous ceilings were a hallmark of the 1970s, especially for upmarket office buildings.

lighting in factories and public buildings.

1990 saw the pilot production of the D1 high intensity gas discharge lamp for motor vehicles. These discharge light sources are brighter and give a whiter light

output than the halogen lamps they replace. More light is focussed on the road ahead and immediately to the side of the vehicle, providing improved driver comfort and increased safety. The use of these lamps

will need legislation in individual countries, but should lead to a significant reduction in the size of headlamp units, which should reduce the height of the front of motor cars. The lamps have the added advantages of increased

efficiency and five times the lamp life of more conventional light sources.

Last year also saw the introduction of the electrodeless lamp by both Philips and Japanese lamp manufacturer Matsushita.

Until now, lamp life has been limited by the life of the electrodes. For their new lamp Philips claim a lamp life of over 60 000 hours – the foreseeable lifespan of the electronic components. The opportunities this

advance offers not only for lamps in positions which make maintenance and relamping costly but for incorporating lamps into building elements as a permanent feature have yet to be fully explored.

Ruminating on the contribution that *Lighting Equipment News* has made to the UK lighting community since 1966 evokes, for me, several images of the paper.

*LEN* as the established trade magazine – essential reading if you want to keep up-to-date on lighting products and their applications. *LEN* presenting a mirror image of ourselves within the industry, in good times and bad. *LEN* as the journal with a good 'feel' for the general health of the industry, and caring about it. *LEN* as the survivor among the trade press, fighting off virtually all newcomers in recent times, and emerging the stronger for it. *LEN* as the remorseless imposer of deadlines that for a large chunk of those first 25 years I have been ruled by, at least once a month, as a contributor in a succession of roles! And lastly, *LEN* the great unphotocopiable (because of its size), and seemingly unrepentantly so!

As a 'contributor', initially of press releases, then of LIF Lines, and latterly of CIBSE Lighting Division columns, I've been closer to *LEN* than to any other comparable magazine for almost 20 of those 25 years. In my opinion, it is no exaggeration to suggest that, as the voice of the UK lighting industry, *LEN* serves its particular market sector conscientiously, informatively, sympathetically, and with the wellbeing of the industry at heart. Long may it continue to do so!

Karl Pike  
Secretary, CIBSE Lighting Division

In 1967 how did the design fraternity, let alone the lighting industry, manage before the multi-mirrored dichroic lamp – the engineers, before the compact fluorescent. The glorious PAR 35, 25W 5.5 volt, was probably the most sophisticated low voltage lamp available and provided some drama appropriate to the time.

I remember electrical contractors thinking PAR 38 and capsule lamps were 'horrendously expensive'. British Home Stores said they would never sell track and sports – and then proceeding to develop a comprehensive and commercially successful lighting department, a leader during the '80s. My – haven't we come a long way.

One of those 'good old days' of the 70s. Concord was pitching for the Regent Street Christmas lights. A prototype was duly made – a 5 foot yellow sphere in cellulose acetate – in our modest Victorian workshop with standard doors. The maintenance man did a splendid demolition job on an entire wall – extricating the great yellow bubble.

Janet Turner  
Design director, Concord

The last quarter of a century has seen tremendous developments in the field of artificial lighting. Throughout that period *LEN* has regularly arrived on the desks of manufacturers, specifiers and users to ensure that they have been kept up to date with the results of the technical revolution that started when Joseph Swan demonstrated his first filament lamp in Newcastle in 1879.

The basic tool of the lighting engineer, the lamp, is familiar to us all but never has there been such a wide variety of lamp types available for his use. The design of the luminaires themselves has kept pace with lamp developments and it is the computer which has ensured that every lumen of light is used in the way the designer intended.

It is perhaps what has followed in the wake of these twenty-five years of development that has been most significant for the lighting industry as a whole. The community has become increasingly aware of what the lighting profession has to offer it in terms of economy, aesthetics and efficiency wherever darkness detracts from the business, social and relaxation activities of today's modern life styles.

The next twenty-five years promise to be just as exciting and I look forward to *LEN* bringing the latest news to lighting professionals throughout that period. Congratulations on your first quarter century. The next has now started and your readers are hungry for news!

Graham Channon,  
President of the Institution of Lighting Engineers

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Past

Twenty-five years – what a lot can change in that time. I was just ten years old when *LEN* first appeared. My lighting designs hadn't really taken off at that point and the *Interior Lighting Code* was unfortunately not on my junior school's reading list. Eventually the fateful day did arrive when I was introduced to that august document – September 1978. I had just graduated from university and joined Ove Arup in London. In my very first week a project engineer that I was working for said, 'Do you know about lighting design? No? Oh well, here is a book that will explain it all.' It was the 'new' 1977 Code and after a few weeks' coaching in lighting design, I was hooked on the subject. I rapidly concluded that there was little romance about designing standby generator schemes and artistic talent is all but wasted on the layout of switch boards. But lighting – well, that was a completely different thing!

The other book that I encountered in those early days was the *LIF Guide to Interior Lighting*. A

# Twenty-five years of codes, guides and floppy disks

Lighting has come of age. **Paul Ruffles**, of Buro Happold, surveys the past and future development of lighting codes and standards, and their effect on installation design.

simple but straightforward document that has been many people's introduction to lighting design. As time went by I found all sorts of strange and interesting documents to keep up my developing interest

– Monograph 9 on maintenance factors, TR 15 on multiple criteria design and the wide-ranging scope of *Lighting Research and Technology*. As you can see I was a glutton for punishment.

When I was first asked on to the Lighting Division Technical Committee in the mid-eighties I had just missed the review of the 1984 Code. Time has passed since then and I have become chairman of that committee. As I write this article, at the end of November, I have just chaired the all-day review of the draft of the next edition of the Code – due to reach you at the end of 1992. So, from the 1977 Code influencing my development in lighting design, the world has now turned full circle and my lighting design experience has been able in a small way to influence the code. An unusual form of recycling perhaps, but one that I hope proves beneficial.

One area that caused some frustration and not a little complaint was the change from the old maintenance factor of the 1977 Code to light loss factor in the 1984 Code. This was part of an international change in the way we define illumination. This has recently started to change to yet another system of specification known as maintenance factor – same name different definition. One interesting reflection on the lighting community is that some people hadn't noticed the change before the name changed back again!

## Present

At present, the lighting standards across Europe and internationally are being scrutinised. In Europe a number of CEN and CENELEC working groups are meeting to look at ways of standardising lighting design levels and approaches. The CIE is also looking to revise its own lighting guide. This will rapidly be adopted as an ISO standard, which will in turn have an influence on the lighting guides and codes around the world.

Being halfway through the revision of our own *Interior Lighting Code*, we have to tread cautiously. The first draft, having been reviewed by the Technical Committee, is now going out to external comment. We still have one or two little areas in doubt – mainly caused by those CEN and CIE committees sitting at present.

The other area that will cause some debate is the question of tolerance. Should the quoted design illuminance figures be an absolute minimum or should a tolerance be allowed? If it is, will we have unscrupulous designers exploiting this tolerance and designing to the bottom of the range? Or, at the other end of the spectrum, will we have to deal

with the client who is willing to sue the designer for 'only' achieving a lighting level of 492 lux instead of the 500 lux specified? Surely this 'discrepancy' should be allowable? But then what about 487 lux? or 472 lux? Where do you stop?

What about the other guides we produce? Well the Teaching Spaces Guide was launched in the summer and seems to be selling



Paul Ruffles.

well. Perhaps in a few years' time we can look forward to sitting in lecture rooms where the lighting is controllable and does not flicker! The Outdoor Environment Guide is due in the near future. This is a guide that is sorely needed. Our night-time lit environment must be improved. There are still too many of our local authority engineers who seem only to consider cost and crude energy figures when 'designing' street lighting. I always find it



Information on lighting design available from CIBSE.

strange that while most councils are actively spending money in replacing their low pressure sodium lighting with high pressure, there are others who are putting new low pressure installations into our towns and cities. I once heard this described, at a meeting of the RIBA, as an act of environmental vandalism. When you consider the amount of money spent by the parks department on plants and flowers to improve our visual environment it seems quite extraordinary that the engineers are allowed to 'spray' them orange at night.

Other guides are also in hand. The Office Lighting Guide should reach you during the summer. Office lighting standards are fairly well known, but there is still plenty of room for improvement. Looking a little further ahead to the end of 1992 we have new editions of the Libraries Guide and the Museums and Art Galleries Guide to look forward to. Both are being extensively revised and updated. Work in hand also includes a rewrite of the Building and Civil Engineering Sites Guide, a new Retail Lighting Guide and a new Calculations Guide. When Europe has made its mind up we will also replace TM12 with a full lighting guide for designing emergency lighting systems.

## Future

Time for the crystal ball. Predicting the next 25 months is difficult enough in lighting – predicting the next 25 years is almost impossible. But I will make some predictions about the future of lighting and lighting design.

First the easy bits: codes and standards. Within a few years we will have first European standards and then worldwide standards or norms for lighting design. I do not think they will differ fundamentally from our current thinking. We will also have, eventually, one internationally agreed method of glare calculation and specification – although I fear we will have to endure one 'adapta-

tion stage' where there are two internationally agreed methods running in parallel.

The presentation of the design guides will inevitably change. Although I am sure that we will still be publishing good old print on paper books, we will also be publishing the guides on CD-ROM or other computer usable media. Already there is a set of lighting guides produced by the Hull School of Architecture that uses a Hypertext system to allow you to browse around within their lighting guide. As you read you merely have to click the mouse on one of the highlighted words in the text to go off to another related page of information. If the exact definition of the candela has slipped your mind for a moment then not to worry, just click on the word and up pops a box with the definition in it.

Perhaps, when you look through a future computer edition of the Office Lighting Guide, you will be able to call up a few actual office schemes to look at; perhaps even read the designers' comments or search for schemes with certain characteristics. You may even be able to 'fly' around the schemes or listen to what the critics think of a scheme. All is possible, it just depends on the future computer powers and the cost per megabyte.

As to the future of designers themselves, perhaps that to an extent is dependent on the powers of the computer? I do not see a complete shift to computer based design, but more emphasis in that direction is inevitable. There will always be the 'traditional' designers who will design marvellous schemes based on experience and intuition, or a 'feeling' that something is right. There will also be more and more designers moving over to designing and presenting their designs on the computer. Which scheme will be better? I am afraid, like now, it is not so much the tools that the designer uses but how they are used and how the results are interpreted that counts.

**Changes.** Of course. Compared with 1967, lighting today is about half the size, twice as efficient and costs ten times as much.

In those days we had diffusers. Today, we have compact lamps, low-brightness louvres, and LG3.

In those days we had some characters around, as well. Today? Today, we have computers on every desk and we spend most of our time planning office lighting so that there won't be any glare on the screens.

It sometimes makes me wonder how one of the truly great characters of those days – a very prominent architect and a Knight of the realm no less – would have reacted to it all. His idea of lighting was candelabras – with real candles.

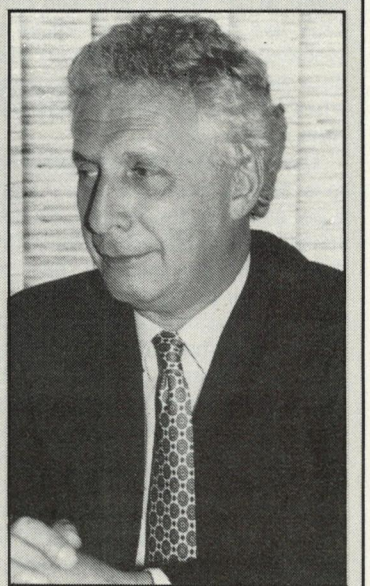
Stylish, of course. But hardly cost effective. And the health and safety implications!

We first encountered this awesomely individual view when we were quoting for the lighting in a national newspaper building.

Severely practical batten fittings won the day, complete with 8 foot fluorescents. But I still occasionally get a mental picture of the mighty presses thundering under a host of wildly swaying candelabras casting Faustian shadows in every direction.

No doubt we still have eccentrics around today. But I never seem to meet any.

Or maybe I'm getting old – and eccentric.



Len Levinson,  
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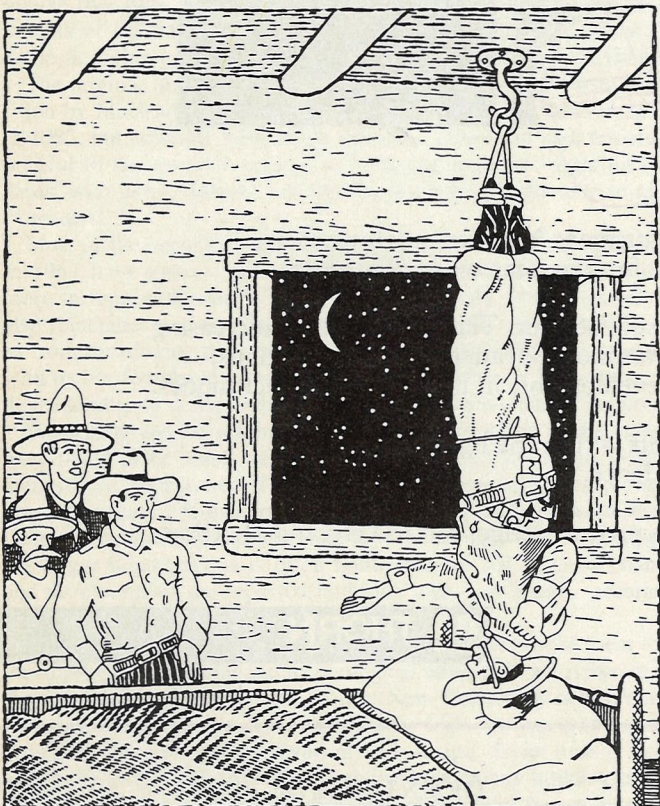
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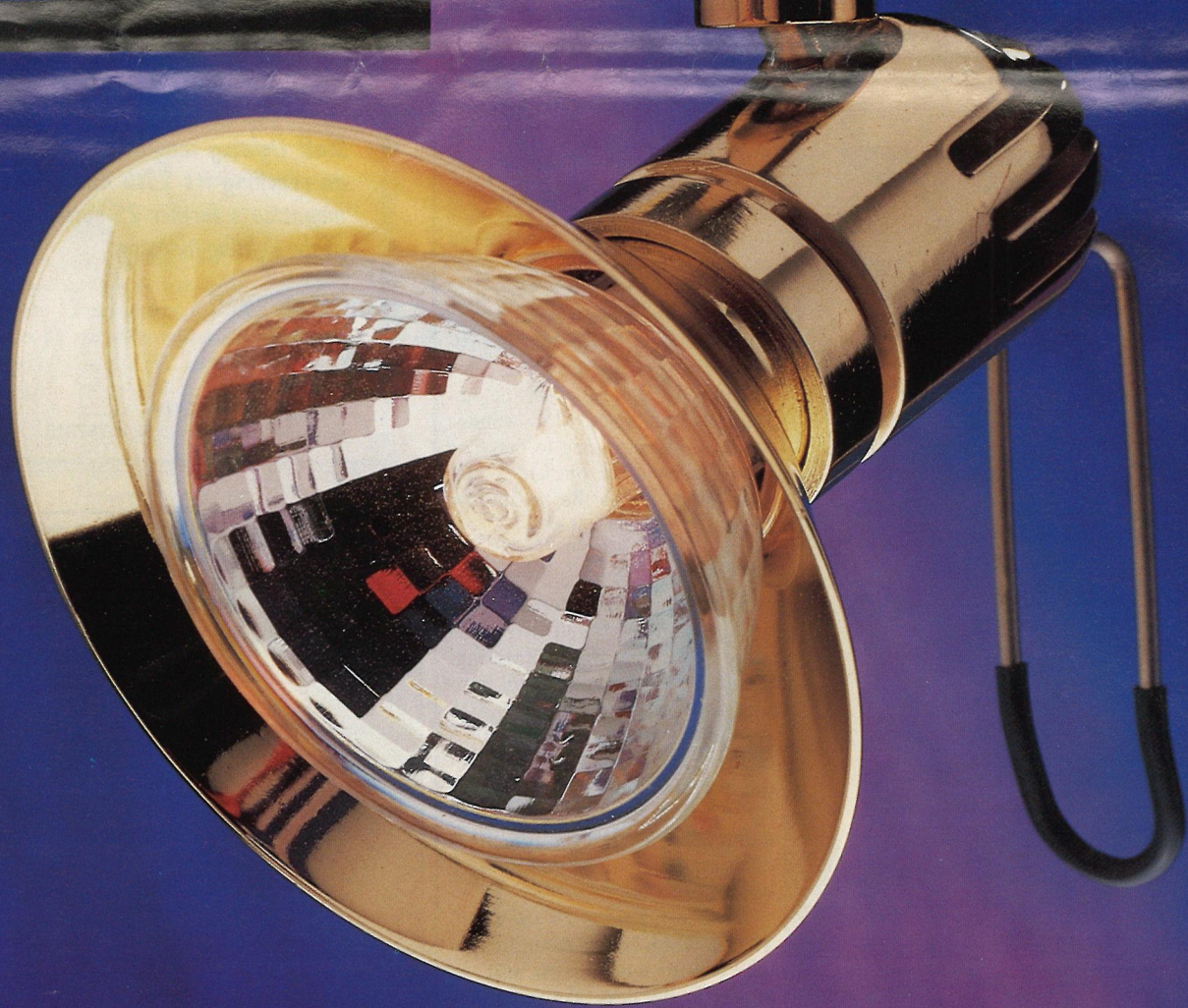
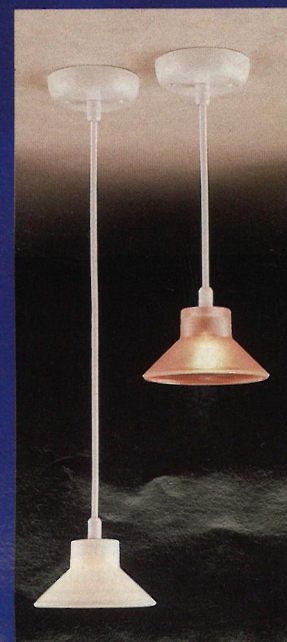


HAVING CONGRATULATED LEN ON 25 YEARS, THE EDISON HALO BOYS COULD ONLY LOOK ON AND OFFER SYMPATHY TO THOSE WHO HAD NOT

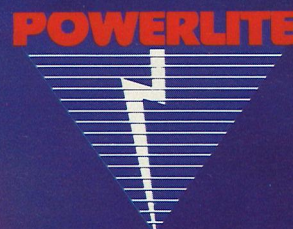
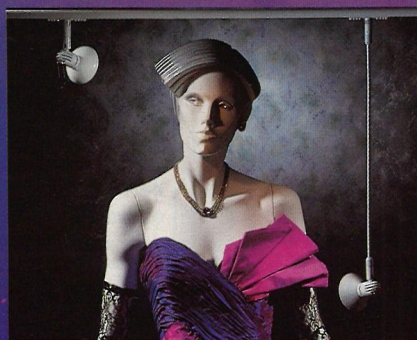
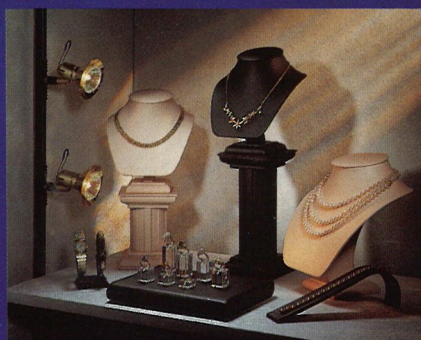


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From electricity at a penny a unit to the age of the personal computer. *John Baker*, of the Electricity Association, looks back over twenty-five years of development in the lighting industry.

# Then and now

**T**wenty-five years ago, the twenty-five years to come seemed like a lifetime. Today, twenty-five years ago is but yesterday. A lot and little has happened.

Then, the lighting industry had two trade bodies, ELFA, the Electric Light Fittings Association, and ELIC, the Electric Lamp Industry Council, not to mention its offshoot ELSO, the Electric Lamp Statistical Office. The interests of these two bodies, together with those of the electricity supply industry, the Electrical Wholesalers' Federation and the Electrical Contractors Associations of both England and Scotland were promoted by the British Lighting Council usually just known as the BLC.

The BLC had evolved from the ELMA (Electric Lighting Manufacturers Association) Lighting Service Bureau which used to live in 2 Savoy Hill – a not unknown address. The BLC, however, had its main premises in Brettenham House, at the Strand end of Waterloo Bridge in London, although it also maintained regional engineers in Glasgow and Manchester. In Brettenham House could be found displays and demonstrations of all the latest lighting equipment and applications. Through its doors streamed members of the public

seeking ideas on home lighting, architects investigating integrated environmental design; industrialists with visual inspection problems; and, for all, the BLC had practical help and advice.

Many of the companies supporting the BLC at that time have either submerged their identities or folded, but their reputations still linger on. Names such as Atlas, Ekco, Falks, Hailwood and Ackroyd, Mazda, Rotaflex and Troughton and Young are just a few of those prominent in the BLC's exhibition catalogues.

## Publications

Another BLC activity was the production of a range of publications dealing with topical subjects and applications. The Offices Shops and Railway Premises Act of 1963 had required lighting standards defined as 'sufficient and suitable'. The BLC produced an explanatory brochure setting out the standards contained in the current edition of the IES Code and offering these as an interpretation. Subsequently they assisted the Department of Employment in the production of an official guide to the act, which appeared in 1968.

Contributions to all the media, including the first issue of *LEN*, on any lighting topic was a BLC speciality. Application guides to

shops, hotels and restaurants, offices and industry also appeared, together with the standard work on light sources called, simply, 'Lamps'. But probably the most enduring publication of its kind is the Interior Lighting Design Handbook, which has been, and still is, a standard textbook on design calculations for students and practitioners throughout the world.

The BLC was not the only source of lighting information, however. Most major manufacturers had showrooms in central London and many had similar premises in other major cities. Today, most showrooms are out of London although a few are to be found in the London Business Centre.

At the start of this quarter century, when *LEN* first appeared:

□ Energy could be had by industry at around one old penny (1d) a unit and an abundant supply could be offered for what was thought to be the foreseeable future.

□ The English weather had dampened early enthusiasm for son et lumière, and productions at the Tower of London and Hampton Court were already a memory.

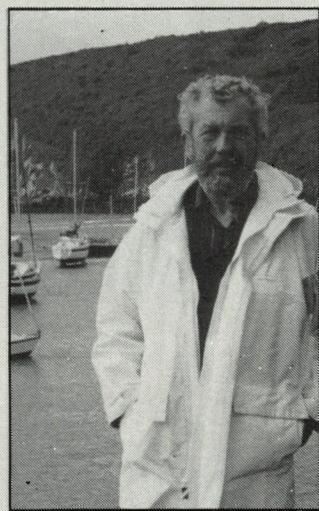
□ Light source technology was making rapid strides. High

Lighting hasn't changed – or has it? Twenty five years is one score years and five – sounds horrendous in terms of time – but how quickly time flies by.

My Company, 'Last Brothers', started its life at the same time as *Lighting Equipment News* and both have advanced in quality, ideas and aims. But has lighting changed? We can still buy lamp 'bulbs' – GLS, BC and ES to the more learned. Still very popular and 'an institution'. But what a great advance in discharge lamps and their usage. The recent explosion in uplighting uses both types, but uplighting was used in Victorian – maybe earlier – times. Later I recall their use for the London Underground Railway escalators. Interior floodlighting has arrived and great advancements in exterior floodlighting all help to enhance our nocturnal hours.

For my part, lighting hasn't changed over my 45 years in the industry and I still find the same considerable enthusiasm and dedication among my colleagues and clients.

**Ken Last, Chairman,  
LB Lighting**



pressure sodium and metal halide lamps had just appeared and linear tungsten halogen lamps were firmly established as a floodlighting source. (It is interesting to note that today's application of halogen lamps to domestic cooking was predated by nearly thirty years when an egg was fried on the front glass of a 1kW floodlight in an early demonstration.)

□ The dichroic coating technique rejoined in the name of multi-layer interference coatings and was used as a reflector or a colour filter on the 150W PAR 38 lamp.

With so many of today's lighting tools already available, just what has changed? The most noticeable is the use of computers to aid lighting calculation and, to some extent, design. Twenty-five years ago the slide rule was every engineer's computer and many of the calculations regarded as routine today could not have been attempted. The 'pocket' calculator was just appearing and I remember gazing in awe at a Canon Palmtronic 4 function calculator priced at £220 – remember 1968 prices!

In light sources the changes have been evolutionary rather than revolutionary. The early SON lamps had uncertain lives until sealing techniques were improved, but have developed into high output and good colour rendering types.

Metal halide lamps failed to live up to their early promise and spent several years in the doldrums, only in the last five years starting to regain ground; the single and double ended low wattage lamps, now beginning to make an impression on the market. Whatever happened to the tin indium lamp?

## No change

Is it heresy to say that nothing much has happened to luminaires? Air handling, dimming, mirror reflectors, photocell control and high frequency operation were all available a quarter of a century ago. True, the high frequency was only 400Hz – and often more trouble that it was worth – but at least the principles of more efficient operation were known.

After the panics of the early 1970s, when many thought that the world would run out of energy in the next 20 years, most people settled down to accepting that it would just become steadily more expensive. For most lighting people the rising cost of energy made little impact. Already being in the habit of showing the user the most efficient way of achieving the end result, the cost of energy merely shifted the balance between initial purchase and operating costs, and made the user a little more ready to accept more expensive, but more efficient, lighting solutions.

What has made an impact is the possible environmental consequence of energy production.

The need for energy conservation has, therefore, become more pressing and has resulted in the most significant change in lighting developments. Ever since Joseph Swan invented the filament lamp in 1879 the drive had been to produce more and more light for a given quantity of energy. One hundred years later the emphasis has changed to using less and less energy to produce a given amount of light.

## Energy saving

This has led to the compact fluorescent lamp becoming a replacement for many filament lamps, using around a third of the energy for the equivalent light output. The fluorescent lamp has even become its own replacement with the 80W being replaced by the 65W which in turn has been superseded by the 58W and now by lamps operating on low loss high frequency electronic ballasts at around 50W. All this has occurred without significant differences in light output, in fact, the latest phosphors have even produced an increase.

When the first issue of *LEN* appeared, many doubted whether it could survive the competition

with 'Light and Lighting', the journal of the IES. In fact the competition never existed. *LEN* majored on equipment – types, availability, performance and, almost incidentally, on its application. Light and Lighting featured applications supported by technical articles on design and calculations, and only incidentally on equipment, so the two were largely complementary.

Sadly, Light and Lighting is no longer with us, although Electrical Design is an effective substitute, and *LEN* has expanded its applications coverage from the annual special issue to regular features.

It is claimed that progress is made in three stages. First, the breakthrough that launches the new technology; second, the development that refines the breakthrough into a practical proposition; and third, the consolidation of that technology in the marketplace while waiting for the next breakthrough.

In hindsight, the last twenty-five years have been occupied by the second and third stages. I am looking forward to the *LEN* coverage when the first stage comes round again.

**Staff Lighting congratulates Lighting Equipment News on reaching its 25th Anniversary and wishes the magazine a further 25 successful years as the voice of the lighting industry.**

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Lighting Equipment News, January 1992



**Jim Greenhill**, manager of the Thorn Lighting standards engineering department for most of this period and **Robin Aldworth**, technical executive with Thorn Lighting and President of the CIE, review the major international standardisation activities for lighting products and lighting application design since *LEN* was first published.

# The international scene 1967-1992

**T**he past quarter century has been momentous for worldwide standardisation in the lighting industry. Since 1967 we have seen the development of many types of light source, eg metal halide, high pressure sodium, low voltage halogen, and even the popular low pressure fluorescent tube has its newer higher efficacy 'slim line' versions. There are also fluorescent tubes specially suited for operation at high frequency resulting in higher efficacy and reduced flicker, and the 'compact' fluorescent lamps in various shapes have enabled novel and exciting designs of fittings to be evolved – a far cry from the long straight tubes.

It was clearly important to ensure interchangeability and compatibility between lamps from different manufacturers throughout the world, and to this end international committees of experts have met at frequent intervals to prepare international standards (specifications). In an ideal world, the formal standardisation of dimensions, means of connection and operating characteristics should be achieved before new lamps appear on the market, but the timescale involved in publishing standards caused commercial problems. However, good co-operation between international lamp manufacturers ensures informal agreement on essential data at an early stage to enable market launch of the new lamps and their auxiliaries, while full details are finalised for the international standard.

## Working groups

These standards are produced by technical committees of the International Electrotechnical Commission (IEC) which usually meet every two or three years, but to expedite matters the detailed work is undertaken by 'working groups' of experts, from manufacturers, national test houses and user organisations, which meet two or three times a year. These experts draft standards, not only for the lamps, but also for the necessary auxiliaries and accessories. These include ballasts for discharge lamps and fluorescent tubes, DC supplied electronic ballasts for operation from batteries,

starting devices ranging from the humble glow starter to high voltage ignitors for rapid restarting of high pressure discharge lamps and lampholders or lamp caps which require precision gauges to ensure interchangeability.

The wide variety of light sources which has been developed since 1967 gives the user a remarkable choice in terms of colour, light output, efficacy, life and shape. But imagine the chaos there would be without standardisation.

Turning now to lighting fittings, the past 25 years have again seen a great expansion in standardisation. In 1967 there were only two international standards for electrical lighting fittings, namely IEC Publication 162 covering tubular fluorescent lamp fittings for AC supplies up to 250V (50 or 60Hz), and CEE Publication 25 covering incandescent lamp fittings for domestic use. The CEE was a European organisation of national test houses which has discontinued the preparation of standards in favour of the IEC.

In the past quarter century the IEC Technical Committee and its working groups of experts have produced IEC Publication 598 which is a multipart standard covering a wide range of lighting fitting types based on their particular applications: fixed general purpose; portable; floodlights; emergency lighting. Incidentally, the international term for lighting fittings is 'luminaires' a French-sounding word actually introduced by the USA where it is seldom used! IEC 598 in two main sections – Part 1: General Requirements and Tests, and Part 2 which is divided into sections for the particular applications of luminaires. These sections are numbered 1-22, but only 15 of the sections are used at present.

It is important to remember that IEC 598 is a safety standard intended to ensure that luminaires do not cause hazards to people (or animals) due to electric shock, high temperatures or mechanical faults. Also luminaires should not cause fires! Thus, IEC 598 is particularly relevant to compliance with national/international safety regulations. For example, the European Community has a directive, with which all member

states must comply, requiring electrical equipment to be 'safe'. Such a vague requirement could lead to different interpretations of details between test houses in different countries, but compliance with IEC 598 is deemed to satisfy the EEC low-voltage directive and there should be few problems of interpretation between the various authorities using this international standard.

To check compliance with the requirements of IEC 598 it was necessary to develop special testing equipment and techniques such as those for the ingress of dust, the 'artificial rain' machine, the lamp shattering tests for safety shields, and the tests for flammable materials. There are even standard test fingers (jointed like human fingers) to check that openings in luminaires do not give access to live parts.

## Safety standard

Much of this test equipment together with the testing procedures is specified in the IEC 598 standard, and because some of the tests are necessarily protracted they may involve the use of automated programming and monitoring equipment. Because it is a safety standard, IEC 598 does not generally include the performance requirement that a luminaire shall provide light. This may seem paradoxical, but light output of the incorporated lamp is covered by the appropriate lamp specification and the question of the light output of the complete luminaire is left to the claims made by the manufacturer. An exception to this general rule is that for emergency lighting luminaires. Here, a photometric performance requirement is required, because in this case the provision of light is considered to be a safety aspect.

So, in the last 25 years we have seen great advances in the international standardisation of lamps and luminaires, together with auxiliaries and accessories such as lampholders. Clearly this will continue to benefit movement of such products between countries and it is of particular importance when compliance with safety regulations is involved.

While the IEC concentrated on the all important safety aspects of lighting products the Commission Internationale de l'Éclairage (CIE) covered the fundamental issues of vision and measurement as well as the practical aspects of lighting design and application.

In 1967 the CIE had been operating for 54 years and had expert committees working to obtain international agreement on daylight, interior and exterior electric lighting, calculation methods, recommendations for illuminance, glare, colour rendering and standardisation of photometry, spectrophotometry and radiometry. At the meeting held in Washington, that year, the burning issues were 'Lighting for people' and 'Minimisation of energy use', which

still have a familiar ring today.

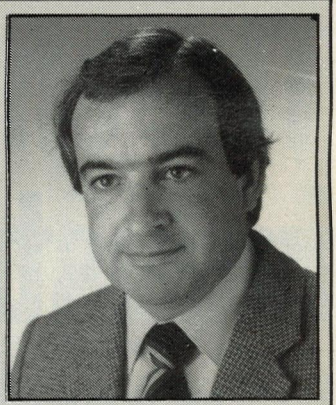
This fact, should not be interpreted as indicating a lack of progress. On the contrary, the 25 year-old decision of CIE to publish international technical reports, recommendations and guides, rather than bury its work in the proceedings of its four yearly meetings has led to enormous strides in our understanding of these subjects and the level of international standardisation which now exists. Not all readers of *LEN* will have personal copies of the CIE publications, but these have been used as the basic references for national codes of practice, such as the CIBSE Code for Interior Lighting.

It was not until 1975, when the CIE session was held in London, that *LEN* started to acknowledge the existence of these international activities in lighting, but since then it has made up for eight years of tardiness by regularly reporting on CIE activities.

More recently, the EEC Directives on such issues as the workplace, VDUs and building products, have prompted the joint European Standards Institution (CEN) to start work on harmonised European lighting design standards. Much of this work has been made easier by the fact that earlier CIE activity has already achieved a substantial level of agreement between the various national lighting design standards. This has also been assisted by improvements in liaison between CIE and the IEC and the International Standards Organisation (ISO), both of which now recognise the CIE as the international standardisation body in all light and lighting matters.

The problem with all standards-making is that technology, equipment development and application design techniques never stand

In the last fifteen years the keynote of the entire industry has been changed. If one maps the previous earlier 20 years' life was peaceful and uneventful. Meanwhile products and markets have changed dramatically and in a short space of time with the introduction of new products in compact fluorescent, metal halide low wattage and T8 fluorescent. *LEN* has played a key role in helping professional lighting users to understand and profit from change.



Looking from 'outside the UK', as I have lived and worked in Europe these last eleven years, I am struck by several industry milestones. First, the complete reorganisation of the profession and educational systems is leading to a new breed of lighting professional, equal to any in Europe, with a wider understanding of the overall role of lighting in buildings. Secondly, the industry is much more dynamic in terms of the growth of new hi-tech specialised and successful lighting fitting and consultancy companies which did not exist ten years ago, and many of these are run by friends and colleagues from earlier days. Thirdly the lamp industry has been and is going through a period of change, mainly resulting from a process of companies addressing the single European market and refocussing on strength areas, which will result in stronger and more competitive businesses and a better offering to the market.

After close to twenty years in the lighting business I look forward every month to reading *LEN* like seeing a familiar friend to keep up with many names and companies to maintain my close attachment to the UK lighting business.

Peter Lees, GTE Sylvania, Geneva.

still. New work in both the international and European standardisation bodies has been prompted, for example, by the introduction of electronic ballasts and the intelligent control of installations which they make possible. Other changes which act as a spur for new standards include the specification of 'maintained' rather than 'service' illuminance and the visual effects of their designs. The IEC definition of safety is also being extended by new EEC directives on electromagnetic compatibility (EMC) and the CE mark, which have instigated a

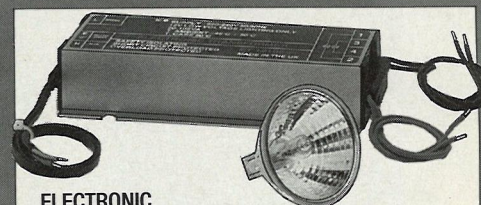
flurry of new work in IEC, CEN and CENELEC.

There is one other international activity which must be mentioned, especially as it is a contemporary of *LEN*. The first LUX Europa Conference was held in Strasbourg in 1969. Since then this four-yearly gathering of lighting specialists and users has met in various European cities. As *LEN* has already reported, the seventh Lux Europa Conference will be held in Edinburgh in 1993.

And for the editor of *LEN* all this promises plenty of copy for the next quarter century.

# RAM

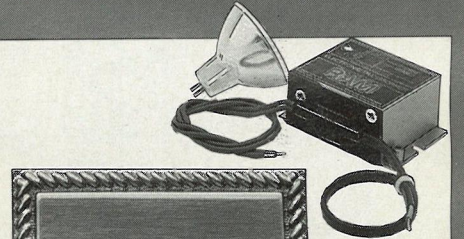
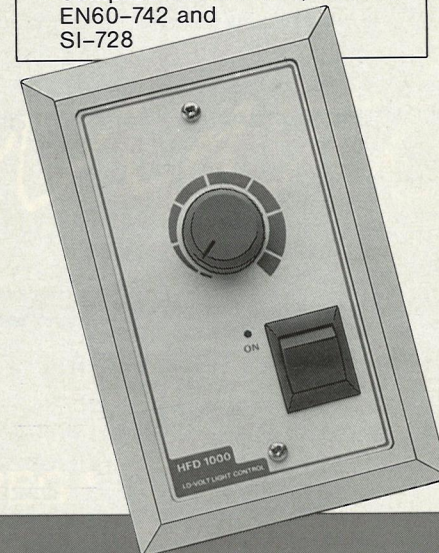
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A MEMBER OF THE AIR MOVEMENT GROUP

My most vivid memory of the past 25 years is not when the latest of the many MDs following the Rank takeover of Strand Electric – and after a mere six weeks there – invited me to resign; but in 1971 when thinking up the best way to control 240 dimmers for the new stage lighting installation in the Royal Shakespeare Company at Stratford-upon-Avon. As my ideas flowed and were tried out, I was amazed how the young engineer instead of groaning aloud, followed by much re-wiring and soldering, simply said "OK" and, but an hour or so later, has the mod incorporated. This was, of course, my first encounter with software programs after a lifetime of hardware. Systems with dimmer memory were familiar by then; but this was the very first time memory was the basis of the lighting control system itself!

Fred Bentham,  
formerly of Strand Lighting



# The changing industry

The business environment the lighting sector operates in has altered considerably over the past quarter century. Ernest Magog, of the Lighting Industry Federation, traces five key issues over this period

Twenty-five years – a time-span of importance that permits us to see events and change in perspective! In looking back over the period covering the years of my involvement in the industry and the Federation records of previous years, I am conscious of the rapid rate of change in both technical and economic senses.

Any company or industry has responsibilities to:

- ☐ its customers and markets served;
- ☐ shareholders and owners;
- ☐ its staff and employees;
- ☐ its industry and trading partners;
- ☐ the community in which it operates.

Successful companies and industries are those that effectively discharge these responsibilities and respond quickly to the changing business environment and changing customer needs.

Reviewing the changes in the business environment (both economic and technical) and the way in which our industry has responded to the challenge and

Element	Consumption use in Western Europe (tons/annum)	Use in gas discharge lamps (tons/annum)	Gas discharge lamps (% of total)
Mercury	2 400	5.2	0.2
Antimony	18 000	4.5	0.025
Berium	90 000	18.0	0.020
Cadmium	7100	–	–
Indium	22	1.0	4.5
Lead	1 700 000	10.0	0.001
Strontium	10 000	100.0	1.0
Thallium	5.5	0.003	0.055
Thorium	26	0.02	0.075
Vanadium	10 000	0.09	0.009
Yttrium	130	34.0	26.0
Rare earths	9 100	9.0	0.1

Table. Use of ecologically relevant elements contained in discharge lamps, compared with total consumption in Europe.

opportunities presented I am particularly conscious of five 'headline' issues.

**Energy:** the influence of energy and environmental issues on development and application.

**Lamps:** rapid technical development and globalisation of the lamp industry.

**Electronics:** increasing influence of electronics on lamps, gear, controls and lighting provision.

**Lighting standards:** increasing demand for better quality

lighting.

**Communication:** communication within the lighting community and between the industry and lighting users.

Over the issue of energy I believe our industry has a record of which it can be particularly proud. Within just days of the onset of the 1973 oil crisis, during a period of power cuts and occasionally 'office work by candlelight' some members of the Federation were placing notices in the press advising industry on how to save energy while maintaining lighting standards!

## Responsible reaction

The lighting industry as a whole responded to the energy crisis quickly and in a responsible and professional manner. Individual members and the Federation issued comprehensive information dealing with the energy and cost saving aspects of lighting – permitting the industry's customers to save energy, save money and, often, improve their lighting standards.

The industry cooperation with other bodies such as the Department of Energy, was well structured and the LIF initiative in setting up the Energy Management in Lighting Awards Scheme (EMILAS) proved particularly

successful. This scheme was, I think the first formal award scheme set up to promote good energy management and has an outstanding record of savings achieved over the years.

Interestingly, at the time of writing this article, another scheme has just been announced – The Lighting Energy Save Scheme – a joint initiative by The Corporation of London, London Electricity and the Lighting Industry Federation. This scheme particularly promotes responsible energy management in the City of London.

The year 1979 marked the centenary of the incandescent lamp and it is interesting to remind ourselves of the words of Thomas Alva Edison in 1879, "We will make electric light so cheap that only the rich will be able to burn candles."

Although the lighting industry has a continuing history of development and improving the efficiency of light sources, the pressure of the energy situation in terms of both future availability and cost accelerated the programmes for light source development throughout the lamp industry internationally.

In parallel with consumer concern in respect of energy use, there has been increasing attention to environmental issues generally – the ongoing availability of resources and the environmental relevance of materials used in industry.

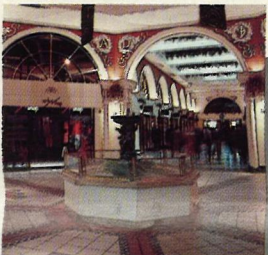
Our industry employs significant technical resources to ensure that the content and manufacturing processes used meet all relevant environmental requirements. Two notable achievements in this area have been the reduction in use of mercury by some 50% and the virtual elimination of cadmium from the phosphors used in discharge lamps.

The use of ecologically relevant elements in discharge lamps compared in total consumption in Europe is shown in the table.

Within the lamp industry we



HOTELS



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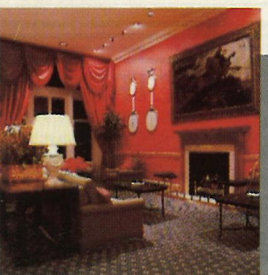
HOTEL RESTAURANTS



RESTAURANTS



LEISURE



DOMESTIC

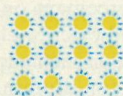
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THE ORIGINATORS TO THE COMMUNICATORS



have seen a rapid rate of technical development and the increasing use of high technology lamp types in the interest of higher efficiency. The message is clear – high technology light sources reduce electricity use and cost to the consumer.

The change of course has had consequences for the structure of the lamp manufacturing business – essentially a globalisation of the lamp industry.

The development race involves very high research and development costs. Equally, the investment in production plant and facilities for the high technology lamp types is very high. These costs can only be sustained by players with a very large market on a worldwide scale.

The consequence of these technical developments and economic pressures has resulted in a major restructuring of the lamp industry internationally: a few large high technology companies undertaking the major manufacture with perhaps some smaller companies

dealing with specialist niches for low technology specialist lamp types.

Perhaps one area of change that has had increasing effect in the lighting industry is the development of electronics. We have seen the growing influence of electronics in lamp operation, control gear, control systems and techniques for the near automatic regulation of complete lighting installations.

### High frequency

During the last few years we have seen the introduction of high frequency fluorescent lighting offering benefit in terms of efficiency, visual comfort and ease of control/regulation.

Interestingly, an article in the magazine *Light and Lighting* back in 1957 discussed the benefits of high frequency operation of fluorescent lamps although at that time the need for a special high frequency electricity supply serving the building was envisaged.

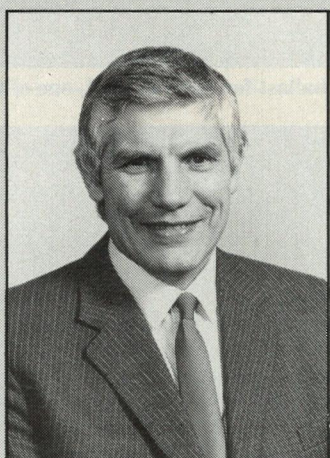
Developments in the field of electronics have made high frequency lamp operation readily available today.

The use of electronics in lighting is growing very fast and is likely to be a major part of lighting provision in the years ahead.

Over the 25-year period we have seen interesting changes in lighting standards. In the sixties we could look back over a period of progressive increase in lighting levels used or recommended in standards.

In the seventies this changed – the focus was on energy saving, and perhaps the maintenance of rather more basic standards in illumination levels. Certainly some of the trends in commercial areas in the sixties towards high illuminance standards of 1000, 1500 or 2000 lux were subject to rethinking.

The last few years have seen a growth of interest in better quality lighting (although I would leave a definition of 'better quality lighting' to the experts).



Hamish Bryce  
Chief executive,  
Thorn Lighting

**Lighting is an essential part of man's environment and today everyone is benefitting from advanced technology and more sophisticated solutions.**

There is greater employee comfort in offices from low luminance electronic fittings, a reduced incidence of crime from more and better outdoor lighting, and increased night-time use of sports facilities, from more effective flood lighting. Our industry caters for the Green movement by saving energy – particularly with the use of electronics in lighting.

Among the other changes we are experiencing are pan-European trade, design and build contracts, electronic data interfaces, and new methods of distribution.

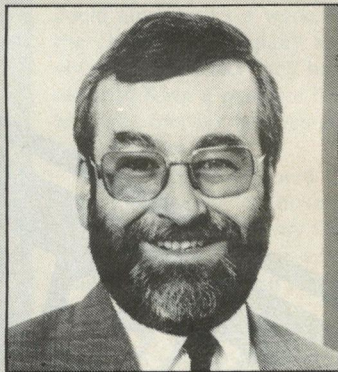
The need to communicate such progress remains as important now as it was twenty-five years ago, and here I believe *LEN* performs a valuable service by keeping us all informed on the latest developments, while encouraging us to participate in, and be proud, of the industry's achievements. The magazine has adapted over the years as the needs of the industry have changed, and I look forward to many years informative reading. I am, therefore, delighted to have this opportunity to send my best wishes to *LEN* on this notable date in its history.

**My own time in lighting almost goes back as far as *LEN*'s and my main memory of those days was that the paper was very much the employment broker for the industry.**

Most lighting companies were taking people on in the late sixties and *LEN* was avidly read by all the salesmen and sales engineers to find out where the best jobs were and who was paying the highest salaries.

I think *LEN* has always been the paper for the lighting industry, about the lighting industry, and its comments on lighting innovations and the latest installations are keenly digested.

Lighting has changed a great deal in 25 years but the one constant has always been the kind of people who seem to have an interest in lighting and make their living from it. This undoubtedly is a friendly industry (much more so than many) and in congratulating *LEN*, on their silver jubilee I hope that the friendship within lighting continues to flourish for the next 25 years.



Andrew Osmond,  
Managing director,  
Western European Sales  
GE Lighting

Certainly people seem to be looking for improved environmental conditions and, albeit very slowly, the contribution that lighting can make is being increasingly recognised.

Poor or inappropriate lighting systems have become the subject of more complaint (with sick building syndrome etc) and the need for correct lighting systems for changing working conditions (such as VDT office areas) is becoming better understood.

The Federation initiatives such as the introduction of the National Lighting Awards Scheme and the Better Lighting at Work campaign are making some contribution towards better lighting.

### Customer relations

One area that the lighting community does need to address is that of communication with the user of lighting. It is true today – as it was true 25 years ago – that lighting and its benefits are little understood and appreciated by most users of lighting.

I heard someone at a recent lunch express the view that the

lighting industry comprised an incestuous bunch of technical experts all talking to each other but providing little in the way of understandable information to its customers.

Be that as it may, I think it is fair to say that the lay person does not have easy access to much clear practical guidance on good lighting for either home or workplace. Most books and publications on the subject tend to have a high technical content (and are far from being an easy read) or are somewhat superficial and of little practical help.

This is a pity for the industry – there is a massive latent market for improved lighting on energy/cost saving/environmental improvement grounds, but this market cannot be exploited if the consumer has a limited understanding or awareness of the benefits of our industry's new and improved products.

During the present recession – and also during those in the 70s and 80s – the lighting industry turnover suffered in line with the depressed construction industry output. Development of this

latent market for improvement of lighting could at times of construction industry downturn make a major contribution to our own industry's well being.

### Success story

There have of course been some notable successes and progress. I think particularly of the Parliamentary Group activity, the Light Up the Roads campaign and the impressive Light Up the Thames Scheme in the 1970s. I am delighted with the increasing co-operation between the Lighting Association (formerly the DLA) and LIF in a number of areas.

The main point in looking back is to see more clearly into the future – we all experience some feelings of sadness in times of rapid change, and cannot help but regret the reduced British owned lamp-making activity and the disappearance of once famous names.

The future though, to me, looks exciting. A fit industry, fascinating technical progress, and the new European dimension.

Surely we may look forward with confidence.

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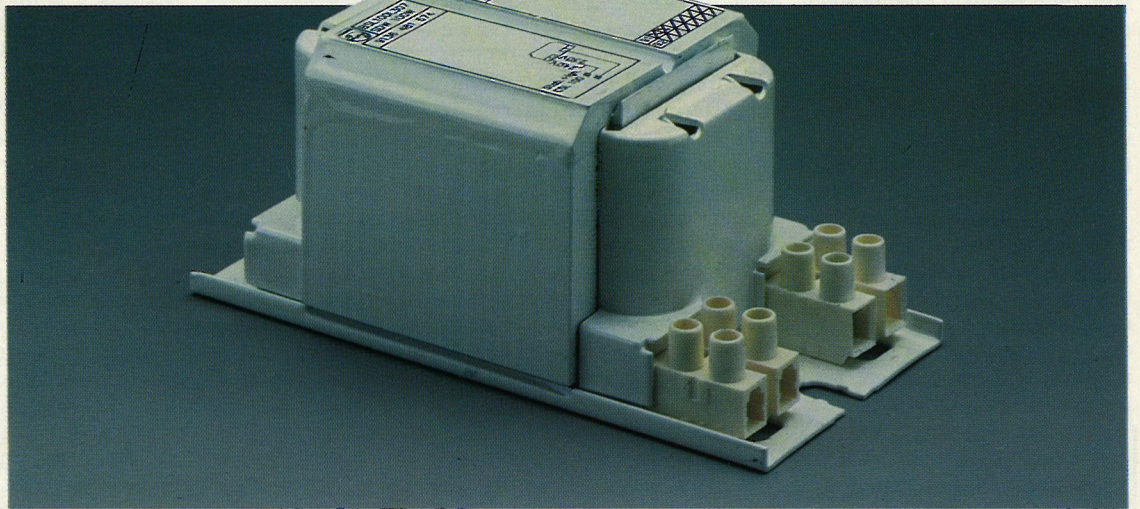
## **SAVE 1 WATT AND EARN A FREE BALLAST**

This page of LEN features two products ostensibly at the extremes of lighting. The new High-tech QL Lamp System and in this spot, low wattage HID ballasts. However, each in its own different way, is state of the art.

Philips basic HID ballasts use hi-tech engineering for wild winding the copper coils on high speed production lines. Then matching the copper with quality iron laminates produces not only a workmanlike ballast, but importantly for the user, a low wattage dissipation circuit. And for, say, a ten year life of a ballast, a simple 1w dissipation advantage over an alternative pays for a second low wattage ballast by electricity savings.

The new Philips basic HID ballast range is also mechanically sound, has low hum and the same fixing centres as the established, encapsulated rynite range. It's a matter of continued high quality, as you would expect from a BS5750 licensed factory.

And of course, coming from a major lampmaker, compatibility is assured for luminaire makers, gear tray manufacturers and end users. The new basic HID Ballast range is limited to wattages up to 125w in SON, White SON, SOX Metal Halide and Mercury Lamps . . . at the moment . . .



The basic ballast for 100w SDWT, one of the new range

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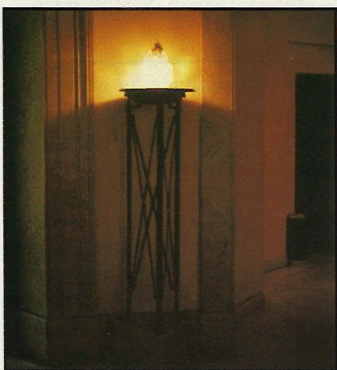
# Thomas Edison's dog

## - or 25 years and still barking

## - or 'that's not a bad idea Rover'

**Mike Morrison, of Edison Halo, takes a light-hearted look at recent lighting history.**

There is a science fiction story by, I think, Kurt Vonnegut that explains why so few people come up with great ideas and inventions. Evidently, man is not the most intelligent species on earth, it turns out that we are surpassed in every way by our best friend the dog! They are so intelligent that they have realised that by a little simple deception they can curl up and take it easy in front of the fire while leaving man to work and worry on their behalf.



The original uplighter?

Occasionally there is either an extra strong bond between dog and man, or perhaps the dog is slightly more intelligent than average and it realises that life would be even easier if it passes on one or two great ideas to its provider. So you see that we owe our livelihood – and the existence of *LEN* – to Thomas Edison's dog.

He was obviously a beast of considerable brain, realising that with extra working hours provided by electric light Edison



State of the art lighting – or fruit bowl?

would be able to perfect even more inventions resulting in an even more comfortable life.

The American dog clearly had a better understanding of sales and marketing than the dog that belonged to Swan, the British inventor of the light bulb. It is a sad fact that Swan had a working lamp before Edison but, as so often happens, the idea was fully developed and exploited by someone else.

I am not personally old enough to remember the lighting industry

25 years ago but I did visit a couple of high security twilight homes to talk to some of the retired 'greats' to see if they could remember back that far. I can report that the major feature of the lighting market 25 years ago seems to have been a distinct lack of choice.

The fluorescent tube was, as they say, barely more than a tremble in lamp engineer's kneecap. This new lamp could be seen burning in buildings all night because, or so rumour had it, when you switched on a fluorescent lamp the starting of it consumed marginally less energy than that required to send a man to the moon. It was of course untrue, but I distinctly remember stumbling about in the dark in the kitchen when very young indeed, because we had already turned off the fluorescent tube for the evening.

### All lit up

It wasn't too long after this that, because of this reluctance to switch off and on again, whole office buildings were left lit up all night. As the lights were on and producing heat, someone then had the diverting idea of putting in sufficient light fittings to heat the building. Thus, was born the first fully integrated lighting/heating system – and it is no coincidence that the first large installation of its kind was once owned by a regional electricity company. They, of course, had sufficient access to cheap electricity to make the system work. The cost of the sunglasses for the staff was never really taken into account with these installations, but you

could always spot a worker from the electricity company as they always looked like they had just returned from a package holiday in Spain, sporting both sunglasses and a healthy tan.

My sources explained that a lighting scheme, in those days, was a comparatively easy thing to produce. Lamp choice was either tungsten or fluorescent (with perhaps the odd mercury lamp thrown in to make people look really ill) and illuminance levels in something called foot-candles were split roughly into three bands: dim (tungsten), bright and flickering (fluorescent) and very bright and flickering (lots of fluorescents).

### On with the tube

The big problem arose when you wanted to create a lighting scheme for a pub or the new-fangled discotheques. The big breakthrough here was, evidently, coloured tubes of transparent plastic which you slipped over a white fluorescent tube to colour the light. This revolutionary concept when connected to a bank of mechanically operated micro switches would flash the fluorescent tubes on and off providing a wonderfully exciting environment in which to drink alcohol and talk to the opposite sex.

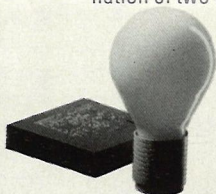
It wasn't too long before the invention of the transistor and its incorporation into a device that would switch the fluorescent tubes on and off in time with the music, thus improving the atmosphere beyond all recognition, further increasing the sales of alcohol and making it much easier to talk to the opposite sex.

The choice of lamps available to the early lighting engineers was both limited and easy to remember. Tungsten lamps were available in either single coil or the luxurious and much more expensive coiled coil version. The difference (whatever it was) made the latter eminently suitable for lighting royal and general upper class areas. The PAR38 lamp was either available in 100W or 150W, with a simple choice between spot and flood.

If you were eccentric enough to require a coloured lamp then it was possible to take your box of clear lamps to specialist compa-

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*Because light is life*

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**PHILIPS**

Reader Service No. 25



Soon after arriving in my office on the tower of the State Secretariat of Johore (affectionately known locally as 'the Kremlin'), news of the death of the Sultan reached us and, in readiness for making a public announcement, the staff changed into official mourning dress – all in white (with a white band on a black velvet cap for the Muslims and black armbands for Christians and Buddhists).

Befitting the sad occasion, the sky darkened and a tumultuous tropical storm struck. Amid torrential rain, thunder rolled about our tower and one particularly vivid flash of lightning struck the building, cutting off the electricity supply.

First thoughts were for passengers in the lift from which came a hammering of fists. It took some ten minutes to organise the winching of the lift-car down to the next floor level. By then the hammering had ceased and a Malay official and I, having used an emergency key to the lift door, hastened to bend over the sole occupant who had fainted to the floor of the car.

By the glow of the red emergency lighting we ensured that the unconscious visitor (a local countryman) was breathing and as the two of us put our arms under him, his eyes opened wide. For a moment he stared at our faces peering so closely down at him and then he recognised our newly-assumed formal dress, illuminated the eerie lighting.

Bewildered, he asked where he was and, before I could stop him, my companion replied: 'You are safe with me; I am the Keeper of Muslim Graves and Cemeteries. Whereupon the unfortunate man fell back again in horror and fainted once more.

Fortunately at that moment the electricity supply, and lighting was restored to normal as was, in due course, our victim – who refused ever again to enter our offices!

Dr R A Callow,  
(formerly government architect in Malaysia)



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Reader Service No. 27

nies who would dip then in high temperature colour lacquers and then bake them to harden off the coating.

It was only when the tungsten halogen lamp came along that things started to get more complicated for the humble incandescent source. PAR38 lamps changed wattage abruptly, extra beam widths were added and, by some stroke of marketing genius, coloured versions were listed in the manufacturer's catalogue and were readily available.

### The right track

It was about this time that track was invented somewhere in America. The concept of plugging a spotlight into a piece of aluminium and plastic extrusion without electrocuting yourself was both novel and practical. Display lighting had arrived with a vengeance and customers bought the product with the ferocity of sharks feeding on unfortunate holidaymakers around offshore California.

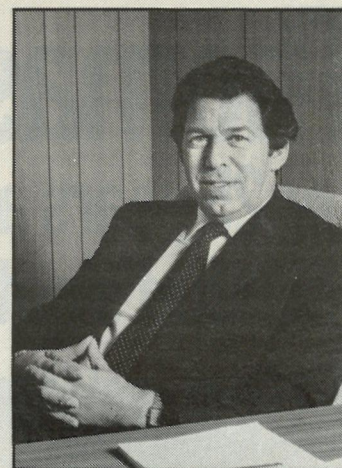
The zimmer frames began to rattle ominously when people remembered 'the good old days' when manufacturers and distributors had to virtually ration products in order to satisfy some of their customers some of the time. One inmate had to be sedated when he remembered the time that he placed a forward order for stock some four months ahead.

Everybody installed track; 150W

Looking back, I'm sure of one thing. When I read the first issue of *LEN*, I was 25 years younger. It was large magazine format, whereas my personal format in those days was rather smaller than now. Since then, its pages have charted my progress to the launching of *Light Years* seven years ago. And they have done the same for everybody of note, every company, in the industry.

There can be few journals closer to its chosen industry than *LEN*. It faithfully records the lighting scene and keeps its editorial finger on the pulse. Right now, that pulse is erratic but the patient is in a stable condition and it will survive – just about. One will find individual names in the obituaries but never the industry.

Delve into the *LEN* files and there are reminders that lighting has faced tough times before. When it comes through the present lot, many company names will sadly be gone for ever. New names, however, are beginning to emerge, and will continue to do so – and whatever we all make of the future will be taken down by *LEN* and used as evidence when its 50th birthday comes round!



**John Barnett,**  
Director, *Light Years*.

PAR38 lamps were everywhere, and on any square inch of ceiling not covered with track it became the fashion to use a recessed black baffle downlight also using a PAR38. Then it happened.

Someone was moving an old slide projector when he tripped over a piece of track that had been installed in the floor to provide upward wall washing. The projector crashed to the ground and burst open spilling out (miraculously in one piece) a small 12 volt lamp. Edison's dog must have been passing because, before you could say 'miniature tungsten halogen low voltage lamp', someone had produced a downlight so small that you could cram four times as many into a

ceiling to produce an effect that the customer really liked.

Low voltage lighting had arrived, and with it came even more choice. Lighting engineers really had to know their stuff in order to specify this kind of equipment correctly, and contractors needed to make enormous leaps in installation practice in order to install the equipment without burning down the building two or three weeks after it had opened.

### Heavy metal

It was about now that my geriatric raconteurs had to turn in for the night swathed in electric blankets and calmed by Horlicks. It was pleasant to hear their stories

this lamp but also by the fact that foot-candles were out and lux were in (perhaps luxes would sound better, even if incorrect).

New developments continue to arrive with mind-numbing frequency. There are now more types of fluorescent tube than you can shake a stick at and certain large chains even have special versions made to suit their particular lighting requirements. Low voltage lamps multiply with rabbit-like efficiency and metal halide lamps have become single ended and produce a pleasing colour that do not have customers rushing to health farms because they look so ill under the original version.

Uplighters arrived just in time to save the bacon of the computer room manager who had usually tried all possible solutions to the problem of lighting his display screens including the aforementioned coloured plastic tubes! The trouser leg distribution came and went in favour of the batwing distribution, this latter being produced by frighteningly efficient fluorescent tubes powered by electronic and not wire wound ballasts.

### New lamps for old

(Does anyone know why man has been able to develop a device that reliably reproduces sound from a silver disc using a miniature laser whilst singularly failing to conquer the problem of a reliable electronic transformer?)

I often wonder where it will all end. It seems that just as there can be no more obvious developments of any particular technique or product, along comes something completely new. Fibre optics light the Egyptian Hall in Harrods and there is now a new lamp on the market that doesn't have any filament and seems to produce light, almost forever, by induction.

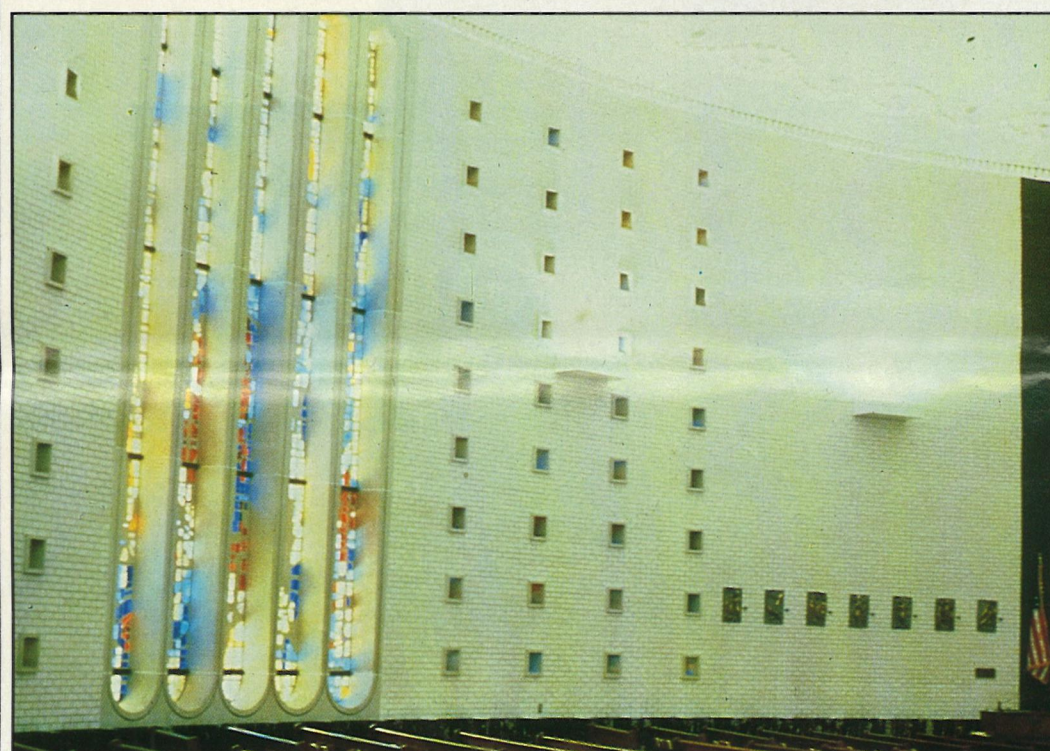
It is certainly becoming more and more difficult to stay abreast of all these developments. That's where we come to the point of this short review. One of the few constants in the past 25 years has been *Lighting Equipment News* with its regular reporting of developments both strange and startling. Well done *LEN* for the past 25 years, and a big 'woof' to you Rover, wherever you are. We all look forward to your next invention!

### Uplighters were used in surprising places.

about bayonet cap fluorescent tubes and water cooled light fittings, but I did not need their input any more.

I, myself, distinctly remember the arrival of the metal halide lamp and its early and startling use in shop windows. Of course, the technology was not completely perfect as the only colour available was so far away from warm and pleasant that it even made the deluxe MBF lamp look inviting.

Lighting levels in shop windows rocketed, aided not only by



# R

RECESSED LIGHTING

## 25 YEARS OF LEN

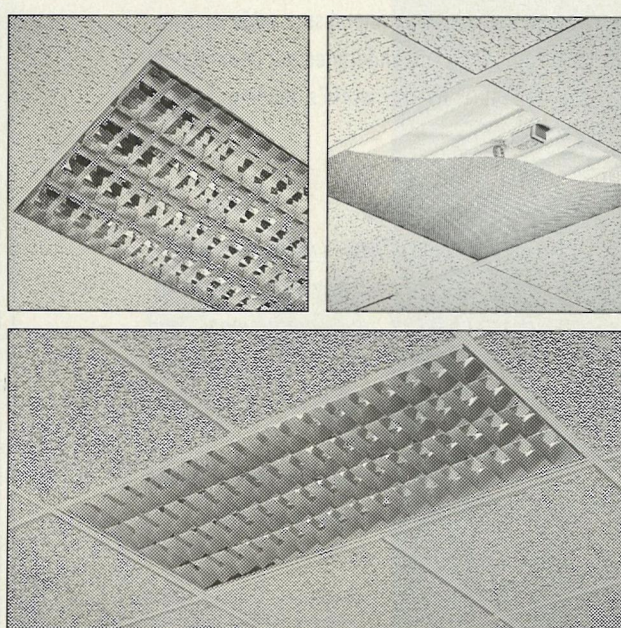
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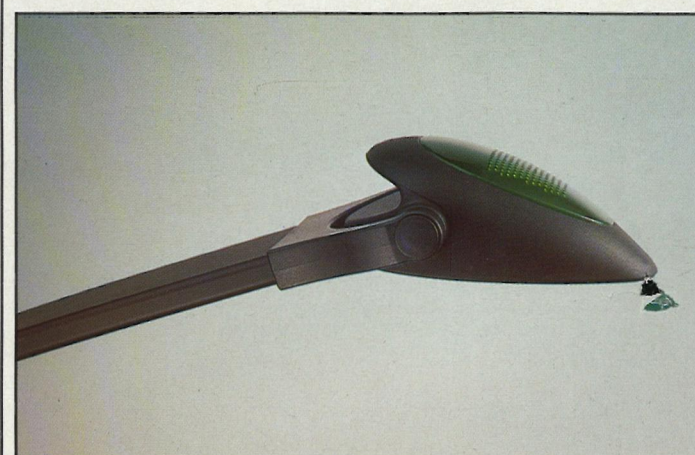
- Trimod and Fremod - available with dimming, emergency and electronic ballasts.
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Desk lamp by car designer Bertone.



# Lighting research under threat?

Research and development are the life blood of an industry.

**Bob Bell** argues that the volume of lighting research needs stepping up.

**T**wenty-five years ago I was in a uncomfortably hot room which was about the size of a typical double bedroom. It was full of racks of thermionic valves and relays. My host explained, 'We dare not turn it off, when we try to switch it back on all the valves will blow.'

This, was the first actual computer I had ever seen. It had less power, less accuracy and far less reliability than the small credit card calculator I now have in my diary.

In fairness, they had replaced it a few years earlier with a new mainframe. But it illustrates the fact that in the last 25 years a major factor has been the rapid advance in affordable computing power. A quarter century ago you had made it as a lighting designer if you had your own Meare circular slide rule calculator (still useful). Now lighting engineers get withdrawal symptoms if their lighting computer is out of action.

It also highlights the problem of defining when a technological event occurs. Textbooks may quote Babbage's differential engine or the colossus as 'firsts', but this decade will be remembered as the dawn of computing.

There is no single date when a technological or research development is born. Most things evolve, at first slowly as the different ideas and developments combine and then suddenly when the technology becomes viable commercially and is widely adopted.

Twenty-five years ago, two new publications emerged. *LEN* was born and, the decision was taken to replace the Transactions of the Illuminating Engineering Society with Lighting Research & Technology. *LRandT* publishes 4 issues a year and has about 5 papers in each issue. According to my calculator, in an article of this size, I can afford three words on each paper!

What follows is, therefore, just a random walk through some of the research highlights and curiosities of the last 25 years.

## Calculations

When the 'Lumen Method' was developed by Harrison and Anderson in 1920 it was a major breakthrough. You calculated the room ratio, looked up three numbers in a table, multiplied them by three coefficients of utilisation for the luminaire, added them up, and - hey presto - you had a utilisation factor. The alternative was laborious point by point calculations (no electronic calculators).

Data was based on a 14% working plane reflectance. Lots of reasons were given for this unusual choice of number, usually along the lines that this was scientifically determined. Actually the truth was much more simple.

Harrison and Anderson could not calculate the interreflected light - they didn't know how. Instead they did measurements in a real room with adjustable walls. The floor was 14%, so that is what they used.

When TR2, the British Zonal Method, was published in 1961, the interreflected light tables were calculated (still with 14% floor), but the designer was still expected to calculate his UF. As the first edition of *LEN* rolled off the press 25 years ago, a rapid evolution was already taking place. Manufacturers had realised that they could make the calculation less tedious (and encourage use of their products) if they used their new computers to produce UF tables. This fuelled research into calculation and design methods.

For the last 25 years we have survived on a diet of UF tables. This may or may not have been a good thing. As the calculations became easier, so more and more people found that they could do them; unfortunately without realising that there was more to lighting design. Make it foolproof and

fools will use it.

At roughly the same time, manufacturers started to develop their point by point programs. This coincided in 1968 with the publication of TR11 which enabled the calculations of direct illuminance from linear sources. Although he denies it, much of the credit goes to Dr Bean for this.

The programs were crude by modern standards, giving output in tabular form or as crude shadings. Most worked only on direct light or made very basic assumptions about interreflected light. To support the new publication, some manufacturers published aspect factors for their fittings, to permit hand calculations.

In 1970 the transfer factor method was developed for dealing with interreflected light. This was a more logical way of handling the maths rather than a breakthrough. But, unlike the previous methods, it **assumed the use of a computer**. It was this approach that was eventually adopted in TM5 which replaced TR2.

Most of these changes were invisible to the user of UF tables, but they improved accuracy and enabled calculation methods to develop into the programs of today.

When the Sinclair ZX81 appeared, Thorn Lighting issued a program which would calculate quantities and illuminances on the working plane, walls and ceiling. For many in lighting this was their first experience of 'personal computing' or of lighting software.

## Program

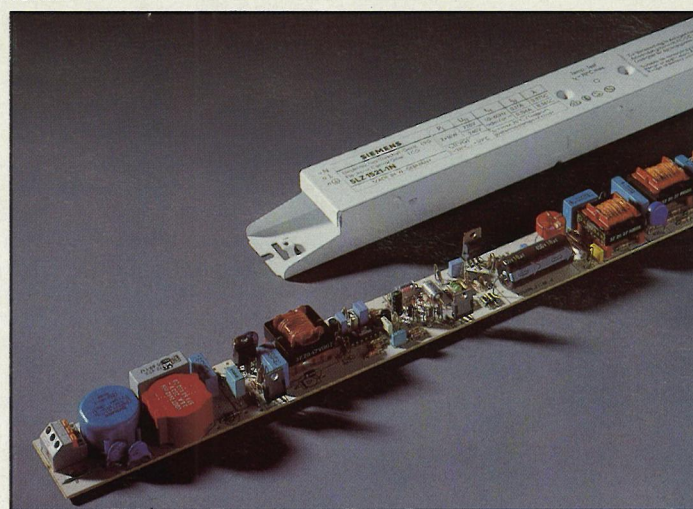
Now almost every major lighting company offers some sort of lighting program to its customers as an incentive to specify its products. As with the lumen method, this encourages the false belief that there is little more to lighting design.

The frontier of this research is at the development of 'visualisations' of the interior. The goal is to take CAD information about a space, then calculate the lighting effects, including reflections and obstructions, and produce a realistic perspective view of the final room.

Impressive commercial programs, such as Lumen Micro, exist which can do this. But the main developments are with lighting companies such as Zumtobel, Philips, Toshiba, and Thorn EMI research who can fund it. The problem is not the mathematics, but the vast number of calculations which must be performed and the immense difficulty of specifying all the information needed to create the detail of a real room.

This work is, in turn, stimulating research into how our perception of a picture of a room differs from our perception of the room.

As processing gets faster and cheaper it will be possible to generate the images in real time (rather than wait 30 minutes). We could then put on a headset which



Modern electronic control gear - getting the cost down and the reliability up has been a major achievement in the past 25 years.

concepts were being discussed: contrast rendering factor (CRF) and equivalent sphere illuminance (ESI).

The first quantity measured the loss in contrast caused by veiling reflections in the detail of a task. The second (from the USA) replaced conventional illuminance with an illuminance which gave equivalent visible performance.

For example, if the lighting reduced the contrast of the task by 20%, then it had a CRF=0.8. This loss in visual performance was equivalent to reducing the lighting from 500 lux to 30 lux, so the ESI was described as 30 lux. This was all much more 'scientific' than offending zones - you could measure these things.

Thanks to the work of Boyce, Slater, Crisp and others, the concept of ESI was deemed impractical and put into the UK dustbin, but CRF was retained as a quality measure. Much work was done to

would display a binocular full field view of the room which would move as we move our head. So-called virtual realism. The question is not can we do the research, but who will pay for it.

A quarter century ago, we had Mears calculators, artists' impressions, and the longhand luminance design methods of giants like Waldram. All are still useful, although only the Mears calculator was 'user friendly'. Now, at the touch of a few keys, anyone can generate copious computer plots of an area and, for a few pounds more, get a 3D picture of the result.

It would be nice to think that our knowledge of good lighting had kept pace with this...it would be nice.

## Lighting knowledge

Not everyone was obsessed with the working plane, 25 years ago, Lynes, Burt, Cuttle and Jackson were expanding their work on the flow of light into buildings. Borrowing from concepts of field theory, they used the idea of vector illumination (not new) to indicate the flow of light in a space, and scalar illumination to give its magnitude.

Despite being conceptually demanding, this work dramatically increased awareness that horizontal illuminance was a limited tool.

The most obvious result was the inclusion of recommended vector/scalar ratios for interiors. A significant feature of every code in the last 25 years has been a set of photographs of a model head showing the relationship between the flow of light and strength of modelling.

Less well known was the work by Peter Jay and others. This attempted to get some order into all the lighting criteria. It led directly to the current set of balanced recommendations in the code and to the development of the multiple criterion design method.

The MCD method never really took off. It has too much luggage in the form of a clumsy glare method. However its IR charts (developed from the work of Lynes and Cuttle) were a breakthrough. Easy to understand. Without them, the new illuminance recommendations about the wall/task, ceiling/task and vector/scalar ratios could not really be used.

If Superman had not been a mild-mannered reporter, but a lighting researcher, then his name would have been Peter Boyce, not Clark Kent. It is impossible to do justice to the vast array of fundamental research work into vision and human factors that Peter has done over the last 25 years.

This sort of work is very difficult to do and gets little publicity. Many lighting professionals are unaware of how these results have been built into our lighting recommendations and those of the CIE. A few examples may give the reader a better idea.

Pick up any lighting textbook and you will probably find advice

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Reader Service No. 29

**LEN's 25 years' contribution to the lighting industry is to be congratulated. It has long been recognised as our own 'mag'. Eagerly looked for, for innovations in the industry; information on installations that have gone well; or even who's on the move.**

**To a degree, LEN has followed the industry's progress over 25 years. That is to say, it has closely followed a typical life cycle - achievements, coupled with happiness and tears.**

**The technical achievements in the industry are particularly to be applauded. The advent of the T8 tube, HID sources, improvement in colour rendition and choice of wattage - so that individuals no longer look as though they are dead or dying, as they did under the older light sources - high frequency ballasts, low wattage tungsten halogen sources: the tools for a lighting designer are endless.**

**Perhaps the downside is the culture of cheapest is best. With no UK profits to plough back into research and development on lighting, so we have to look to other shores for much of our R and D. Twenty-five years ago a designer didn't need to look at foreign equipment to solve his problems.**

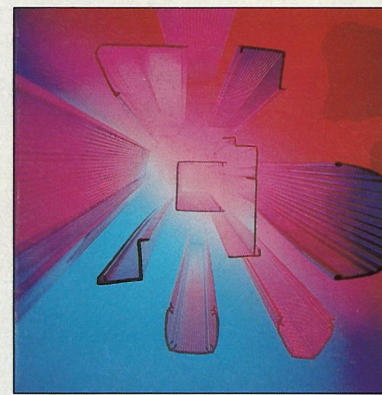
**However, under the auspices of CIBSE, our codes are second to none and the academic connection is improving all the time.**

**I often feel the lighting industry is a close knit collection of likeable rogues. Finishing fourth in a recent national league of alcohol intake was some achievement.**

**May LEN continue to guide us, advise us, or even just be there!**

**Eric Maddock,  
YRM Engineers.**

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establish how it behaved and what was a sensible approach. CRF is now part of our vocabulary and an important quality factor.

Another example is the research into security lighting. Boyce, Baker and Lyons have, between them, provided a very solid set of rules for good security lighting based upon their research. Boyce and Rea, in 1990, published clear results linking vertical illuminance to detection and recognition of intruders at various distances.

A staggering mass of research work into human visual performance has helped to form our current set of standards. It is difficult to know where this will come from in the future. Such work no longer emerges from Capenhurst and the excellent team at the BRE now provides the bulk of this type of research.

### The office revolution

A paperless office which still has the average office worker processing 16 000 pages a year isn't much of a revolution. Recent research shows that over 41% of office workers complain about

headaches and eyestrain caused by their office lighting. The figures are worst among VDU users. Yet the VDU is not a monster: two out of three say it has made their job more interesting and less tedious.

When Technical Memorandum No 6 on the lighting of visual displays was published in 1981, it combined a mass of research findings into one useful and practical document. Suddenly the VDU environment was to be treated differently.

All commercial luminaire manufacturers realised that here was a growth market and responded. Indirect lighting and VDU optics became key products.

Now Lighting Guide 3 has superseded TM6 and we have three categories of VDU downlighter optics. These are now being specified, but, sadly, the excessive specification of category 1 suggests that the document is not being read.

At the end of 1992 the story reaches an important milestone as the EEC directive on the use of visual displays passes into UK law. Employers will have to

analyse every work station and report and act on the results.

There is an office revolution, but it is a rebellion against the office environment. Bit by bit, research information has been building up which shows how workers respond to their visual environment. In the UK, a team headed by Bob Bean studied hundreds of workers and their offices. As a result the first model to predict worker's opinions about their lighting was developed. Philips are carrying out similar research.

The emphasis in many EC work place directives is on how workers react to their environment. Workers must not be subjected to stress by their environment. Developers are already showing interest in methods which will predict the likely acceptability of buildings to their occupants and it is clear that the next 25 years of research will have to deal with more of the human issues.

### Electronics and controls

Electronics for controlling lighting have been around for a long

time, but it is only in the last 25 years that they have become affordable. This is a cart and horse problem. High volumes are needed to get low costs, and low costs are needed to get high volumes.

The R&D in this field has concentrated on achieving high reliability with low costs. Usually this means fewer components. Research in this area tends not to be published for fear of giving away secrets. There isn't a major lighting manufacturer who does not see this as a major area for the future.

The first awakenings, were in the form of new electronic starters for fluorescent lamps. Now we have electronic ballasts as standard products in batten fittings. Some can even vary the output from 10% to 100%. Twenty five years ago, these things could be done – but not without cost.

In the late 1960s, an ideal approach to lighting was PSALI. In this the lighting was varied to supplement available daylight. The main snag was cost. Now it is affordable thanks to the research and development into

ballasts and control systems.

But it is no good developing such controls if you cannot predict the savings they will achieve. Hunt and others at the BRE studied daylight and the behaviour of occupants. As a result, it became possible to predict such things as the probability of occupants switching on lights and the energy savings that could be obtained with automatic dimming or switching controls linked to daylight. Easy to use, the results are now in the code.

In the late 1980s, Arnold Wilkins published his research into high frequency lighting. It showed that a small percentage of the population suffered very badly from headaches and eyestrain caused by mains modulation of light. High frequency lighting reduced the total number of headache and eyestrain reports by a factor of 2.

Research into these areas will progress as the cost of controls falls.

### Lamps

Research and development in the field of lamp technology is also a slow process determined by market forces as much as anything else.

Calcium halophosphate remained the king of fluorescent lamp phosphors for many years, until very efficient rare earth phosphors were developed, for use in colour televisions. Incorrectly called 'rare' earth they were not so much rare as very expensive to manufacture. Virtually every lamp manufacturer realised that they could use these to make a very efficient lamp with good colour. But who would pay the price?

Philips took the plunge and the rest is history. Thanks probably to Osram, these triphosphor lamps are really four phosphor lamps. They decided to reduce the amount of expensive phosphor by first putting a

thin halophosphate onto the glass. It cut the cost and improved the quality. Now phosphor technology has further improved and 'super-deluxe' lamps exist with even better colour rendering.

In a similar, 'will they pay for it' manner, the compact fluorescent lamp was developed. It needed these new phosphors to be practical and some very clever research and development into glass technology to get the compact shapes.

Metal halide technology, coupled with alumina arc tube technology will probably be a major area of development. Link this to the very sophisticated control mechanisms that are now available and a new generation of lamps is possible in the future – possibly with instant start.

### Conclusion

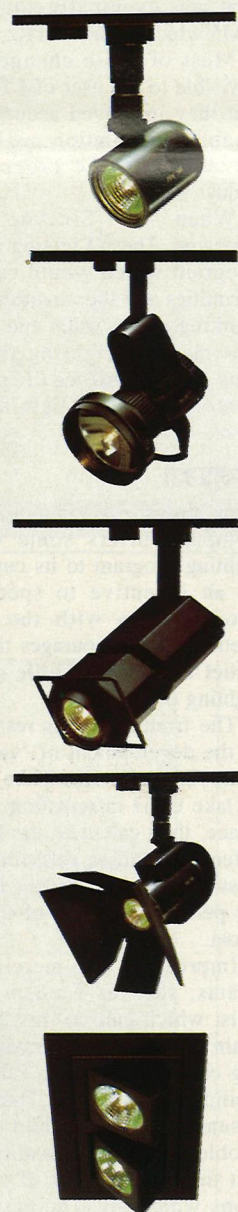
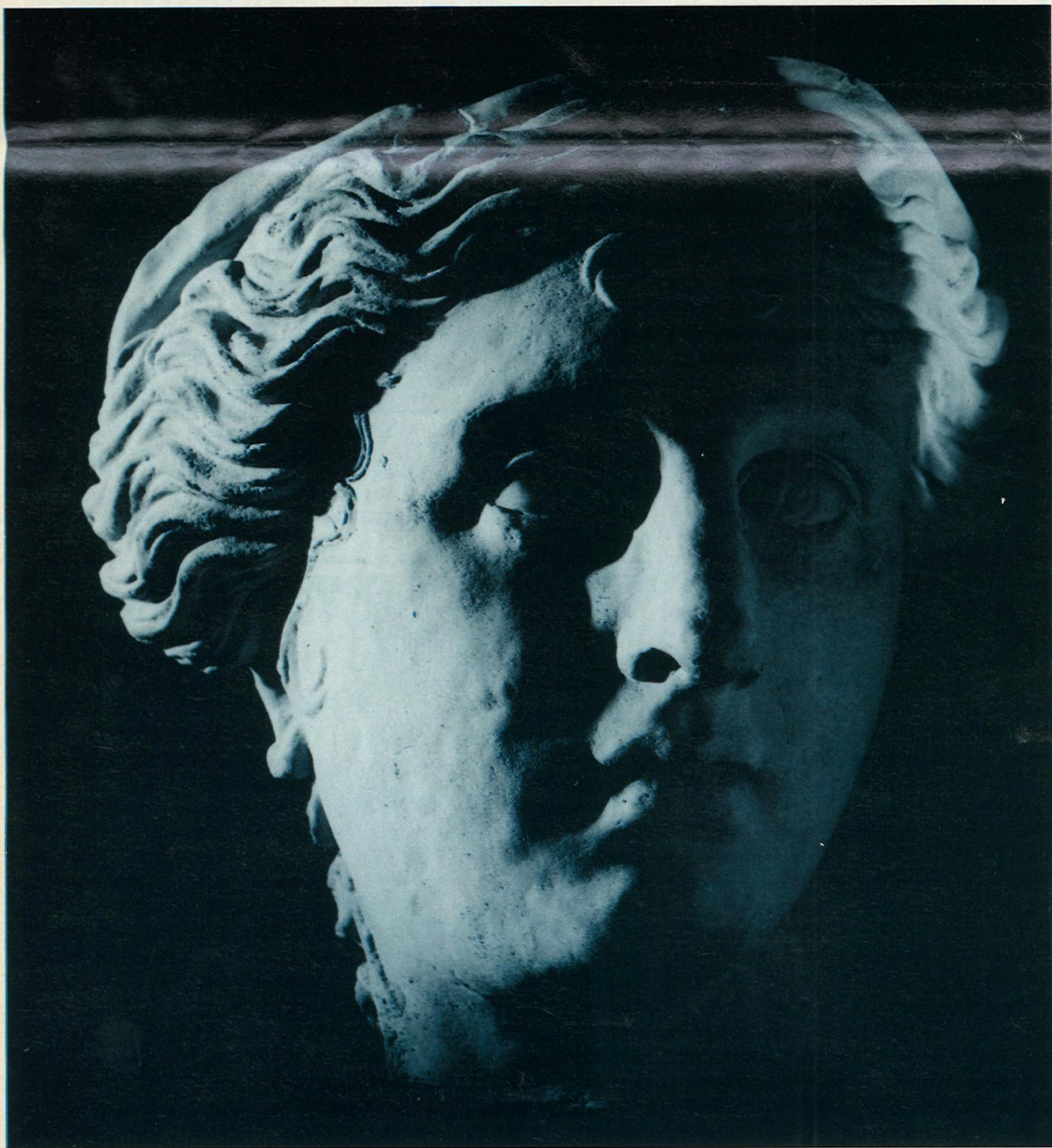
The most notable thing about this random walk in lighting research is not the variety of work I have covered, but the vast mass of work I have ignored.

I have not covered the excellent research into amenity lighting or lighting and crime. These are well reported – and something had to be left out. Much of the last 25 years' research is gathering dust. The rest emerges in codes, guides or as products or services.

I have my favourites of course. One I like which I also believe could have a profound effect on human suffering was 'Lighting and perceived guilt' by Aspinall and Dewar. It showed that lighting did influence opinions about the guilt or innocence of an individual.

Twenty-five years ago the quantity and quality of research in lighting was excellent. Now, despite improved facilities, the stream seems to be reducing to a trickle. I hope that the value of research will be restored and a lot more new names will appear in the research field to be added alongside the famous ones.

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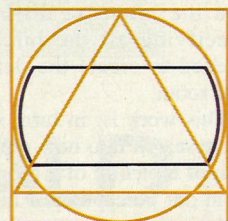
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Reader Service No. 31

Happy Birthday *LEN*. Coincidentally the life-time of *LEN* spans most of my career in lighting, so in a way it marks a milestone for me too. When *LEN* was first published I was helping to establish the BSI Lighting Test Laboratory at Hemel Hempstead. There were no European Standards then, but at about that time the early luminaire standards were being written. Remember BS 3820 and BS 1788?

Twenty-five years ago lighting, from my point of view, was still very much an engineering subject, the Illuminating Engineering Society provided the professional focus and people qualified mainly through electrical engineering with an endorsement in illuminating engineering. This was often earned from the Borough Polytechnic – later named the Polytechnic of the South Bank. One of the benefits of the lighting profession in those days was the range of disciplines that people came from. These included vision experts, physicists and electrical engineers; it also included a small number of architects – a mix of people who fashioned lighting at that time.

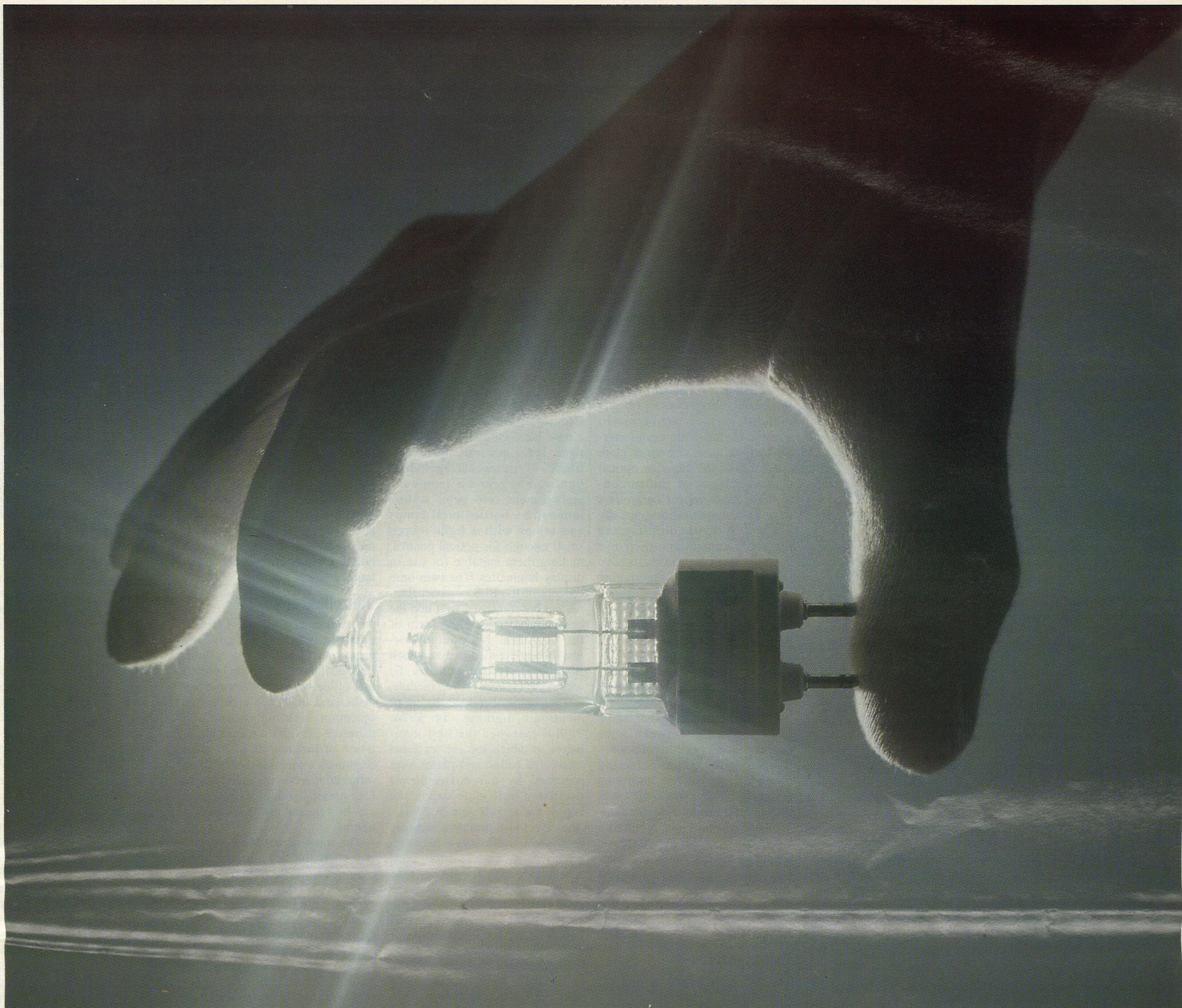
The lighting profession always claims to embrace both the art and science of the subject, but at that time it seemed to me that there was more science than art. It is interesting that now there seems to be a greater interest in the subjective aspect of lighting. Perhaps this is due to a development of knowledge in this field. Alternatively, it may be due to the increase in specialist design practices, where often there is someone who has worked in theatre lighting. In America, the lighting design practices, often provide a design service covering both architectural and theatre lighting. Is this the way lighting will develop here?

If lighting does develop in this way it will provide a healthy mix of skills and opportunities from which lighting will benefit. This will mean there will be an even greater need for education possibilities where people can study lighting in an holistic way, and the Masters' course currently offered at University College London will be just one of a number.

Over the last twenty-five years *LEN* has done a grand job in keeping us informed about lighting matters, perhaps it is now time for it to blossom into a journal covering the architectural, entertainment and engineering aspects of lighting; to shrug off the newspaper image, and become 'the' European lighting journal covering the art and science of lighting for the next twenty-five years.

David Loe,  
Bartlett School,  
University College London.





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*Compact metal halides*



**GE Thorn**

*A genius for light*

Reader Service No. 32



# Twenty-five turbulent years

The latest in energy saving lamps – the PLCE range.

**Mike Goodwin, managing director of Philips Lighting Ltd looks at the extraordinary pace of development in the commercial sector of the industry over the past quarter century, and examines what could be an exciting future.**

The launch of *Lighting Equipment News* coincided with what was to be the most turbulent, innovative and productive period in the 100-year history of electric lighting. Before the sixties, the incentive for rapid product development simply wasn't there. The low cost, convenience of use and superb quality light of the tungsten filament lamp gave it an unassailable position in a marketplace that was not in the slightest energy conscious.

Fluorescent lighting was regarded as downmarket and harsh so that, in general, sales of fluorescent luminaires only attracted volume at the bottom end of the market. It is true to say that the research and development functions of the major lighting manufacturers had the potential to provide better, more cost-effective lighting products all along; it was simply that the demand did not exist.

## Increased competition

The first hint of change came in 1968, when the Second Monopolies Commission abolished retail price maintenance creating a new competitive environment. The shake-up led to our adoption of the now familiar net trade price structure. But, of course, the major challenge came with the 1972-3 oil crisis and the memorable three-day week, followed by swingeing increases in energy costs and a massive government campaign to save energy on moral rather than cost-saving grounds.

That campaign petered out for a variety of reasons, but led to a growing realisation by users of all

energy, and in particular lighting, that the bottom-line figure on a tender to install was, and always had been, a relatively small part of the true cost of providing light. The far greater significance of the cost of the energy the installation would use in its lifetime, and the cost of maintaining it to provide its design lumen output, began to be appreciated by our customers, and a new market was opened for higher-value products that could be shown to repay their increased capital cost from energy and maintenance savings over a realistically short period of use.

Moreover, by shifting the emphasis of the government's campaign from moral to cost-saving grounds, the 'better lighting at lower cost' message continued to survive on its own until it was augmented by today's 'green' issues. Lighting that saves energy is, of course, intrinsically 'green'. It has been calculated that a nationwide change from GLS to compact fluorescent lighting would enable five gas power stations to be shut down. The industry seized the opportunity the energy crisis provided, and turned the worst recession it had ever known into an opportunity to change the face of lighting forever. Lighting development has continued unabated, and the future for the industry looks bright indeed.

In 1975, the T8 (26mm diameter) krypton-filled fluorescent lamp came on the market. Its benefits to the user are that it uses around 8% less energy than a T12 (38mm) lamp of equivalent light output and is easier to store and transport. The T8 lamp turned out to be an even more significant

development, because the increased brightness of its reduced surface area created demand for luminaire manufacturers to look more closely at glare control, and the superior optical characteristics of mirror controllers. Since mirror controllers have light output ratios generally superior to plastic diffusers and prismatic controllers, their use could in itself be shown to have an energy payback of their higher capital cost. Attractive luminaires previously associated with the boardroom began to find their way into the general office.

The T8 lamp was quickly followed by another, even more pivotal development – the 80 series triphosphor lamp. Conventional halophosphate lamps show a direct trade-off between light quality and energy consumption – the higher the colour rendering index, the lower the luminous efficacy. This trade-off was undoubtedly responsible for fluorescent lighting's old reputation for harshness. The lighting trade regarded the high-efficacy 'factory' white lamp as its standard stock item; deluxe lamps such as Softone 32 were only used for special applications where colour was critical.

## Triphosphors

The 80 series lamps, a spin-off from colour TV technology, use a mix of rare earth phosphors radiating strongly at the wavelengths of the primary colours of the spectrum. The result is a white light with a colour rendering index in the deluxe class, combined with a luminous efficacy better than the best halophosphate 'factory' lamp of relatively poor colour rendering. With the abolition of the quality/energy-effective trade-off, the days of better lighting at lower cost had arrived, an added bonus being improved lumen maintenance – triphosphors stay brighter longer than halophosphates, reducing relamping costs and again, showing a sensible payback time of capital invested in relamping.

Hard on the heels of the new phosphors came what was perhaps the most significant lighting development of the seventies – the world's first viable replacement for the GLS lamp. The concept was simple – a miniaturised fluorescent lamp with triphosphor coating, folded to fit inside an envelope little larger than the filament lamp it replaced, with miniaturised iron-cored ballast and glow switch starter concealed in the shoulder above the lamp cap. This lamp, our SL compact fluorescent, is considerably more expensive to buy than the GLS lamp it directly replaces. But it lasts around ten times as long, and needs only one quarter the energy to produce the same amount of light. With customers now educated to look at the true cost of providing light rather than the capital cost of a lighting installation, it was easy to prove the SL more than halved the



cost of lighting, and the lamp was readily marketable.

The compact fluorescent quickly outgrew its role in the commercial market simply as a GLS replacement and has become a new lamp category in its own right. Types now exist for a multitude of purposes, including lightweight gearless lamps for embodiment into new, stylish luminaires, horticultural lamps and lamps with a light source small enough for optical control, making them suitable for use in display luminaires. The twin-limb concept of the PLS compact fluorescent has translated well into the commercial field in the form of the new PLL high-output-for-length single-ended lamps, which for the first time actually fit within the 600mm ceiling module.

The eighties heralded the era of electronic lighting. In 1984, Philips launched the first luminaires in which the conventional iron-cored ballast and starter were replaced by a rectifier/power oscillator unit which runs the lamps, not at 50Hz but at 28kHz. The effect is a dramatic increase in luminous efficacy; a high-frequency luminaire which consumes up to 30% less energy than an equivalent 50Hz luminaire to produce the same amount of light. Another most exciting spin-off benefit is the total eradication of mains 'flicker' – the slight ripple in light output that occurs with every 50Hz light source as the lamp current falls to zero twice in every cycle of the supply frequency. HF light is completely steady. Moreover, both switching life and lumen maintenance of lamps is improved.

Together, these benefits give incredibly fast payback of the small cost premium of the HF 'ballast'. Philips' strategy was to market the new luminaires in reduced-wattage versions, so that customers could enjoy immediate energy-saving benefits from one-for-one replacement of existing luminaires. Initially, HF operation was offered on top-of-range products, but the concept was so successful that high-frequency ballasts quickly became an option throughout the range, including on the simplest batten types.

In common with the application of electronics in other industries, HF lighting has led to an explosion of developments which are almost monthly, leading to further reduction of ownership of commercial lighting. The latest being HFR (high-frequency operation with light output regulation) in which the light output of a luminaire can be regulated down to 10% of maximum in an amazingly energy-effective manner. It is this development that has really opened the door to the space-age lighting management systems of today.

## Constant lux

Because HFR can be controlled by a light sensor, daylight linking is possible – a system in which artificial and natural light work together to save energy by providing constant lux levels on the work plane until natural daylight

takes over completely. Constant lux schemes maintain the same lighting levels on the working plane between cleaning and relamping cycles, eliminating the need for overdesign in schemes designed to the new CIBSE recommendations involving light loss factor. Infra-red control of lighting is becoming widely used; the replacement of vertical wiring to wall switches by battery-operated handsets not only increasing the flexibility of utilisation of a building but also reducing installation costs.

## Office flexibility

An exciting application of HFR is seen in Philips' Ergovision ergonomic lighting for cellular offices. This accepts the concept that office workers perform many tasks, and that each task has an optimum lighting 'scene'. It therefore provides a mixed installation of luminaires of variable brightness under the control of an infra-red handset on which any of four preset lighting environments can be selected at the touch of a button.

The most recent innovation is induction lighting, in which the life-limiting factor of a lamp – the electrode – is dispensed with altogether, the discharge being induced magnetically. The Philips QL range not only produces the light quality associated with high-frequency triphosphor lighting, but has a conservative life expectancy of 60 000 hours. Its application in luminaires that are hard to reach or expensive to maintain (for example, in tunnel bores and hazardous areas) will provide major cost advantages to users.

To look to the future, it is helpful to review the state of the industry today. Volume sales are tending to shift upmarket, and there is no doubt that this is due not only to pressures from the 'green' lobby for better lighting at lower energy cost, but also to increased activity from lighting consultants together with a higher proportion of design-and-install work by leading contractors. Today, lighting development is limited by the ingenuity of R & D departments and the ability of new products to achieve volume sales in an increasingly technical market rather than by product price. No industry could look for a better green light.

We can expect to see an increasing number of compact fluorescents, particularly the latest electronic versions, eroding GLS sales, and the day may well come when the GLS lamp becomes obsolete. Electronic control of lighting is still in its infancy, and we can expect its use to grow to the point that 50Hz fluorescent lighting also becomes obsolete, probably by the end of this decade. By then, electronic control will be in widespread use for all manner of HID light sources.

The drive to save energy and to use environmentally friendly materials will continue. We can expect to see an increasing number of miniaturised light sources, controlled by electronics, in the

compact fluorescent and HID categories. In addition, improvements to halogen – both low and mains voltage – will add to better lighting performance at reduced cost.

All of these will tend to give smaller and more optically accurate luminaires. Moreover, we shall see further interesting use of fibre optics for light distribution.

The application of electronic controls for lighting will grow in the 1990s to a point where 50Hz fluorescent lighting will be obsolete.

Office technology will continue to increase, with both cellular and open-plan offices under the control of centralised energy management systems. Daylight linking and local control will be by means of proximity detector rather than switching. And we can also expect to see high-technology luminaires developed for the commercial sector penetrating more and more into the domestic market, bringing with them energy-saving light sources such as halogen, compact fluorescent and even HID.

It is clear that the technology for commercial lighting is becoming increasingly more integrated by the 1990s and the disciplines of optics, electronics and lamp technology will be totally independent. Demands on manufacturing industry to manage this balance will require a far-sighted approach if we are not to be confronted with disjointed proliferation and an industry which is characterised by the latest "gee whizz" idea rather than integrated technological development. While there will always be room for specialism and niche marketing, the major markets will be increasingly influenced by these manufacturers who can bring clear-sighted order to progress.

More will be required of the other participants in the specification and distribution professions. The growing awareness by users of lighting of performance and the cost of ownership, coupled with the requirements of total quality management as encompassed by the requirements of ISO 9000, will mean a shift in performance by these participants. The specification industry will be judged increasingly on the technical specification using the latest technology together with the likely lifespan of the system (rather than the products) and the cost of ownership up to the obsolescence date.

## Closer ties

Specifiers who can make these judgements, and give sound advice both technical and financial, will be the leaders. To do this manufacturers and specifiers must form far closer ties, particularly in the area of technical as well as financial trends.

In some parts of the world the electrical distributor has assumed with success the role of a seller as well as a distributor. To do this much, emphasis has been placed on training of personnel to give a fair degree of knowledge of applications. Some have even set up lighting product/marketing departments.

Accepting that distributors prosper when their suppliers and their customers see added value, the future will demand a higher level of productivity in the selling of the integrated lighting story by the distributor. To do this we expect to see a shift in the manufacturer-distributor relationship from buying to selling and in the area of value added, activities characterised by the new lighting technologies.

Profits for the user will come from lower cost of ownership – and for manufacturers and distributors from value not price.

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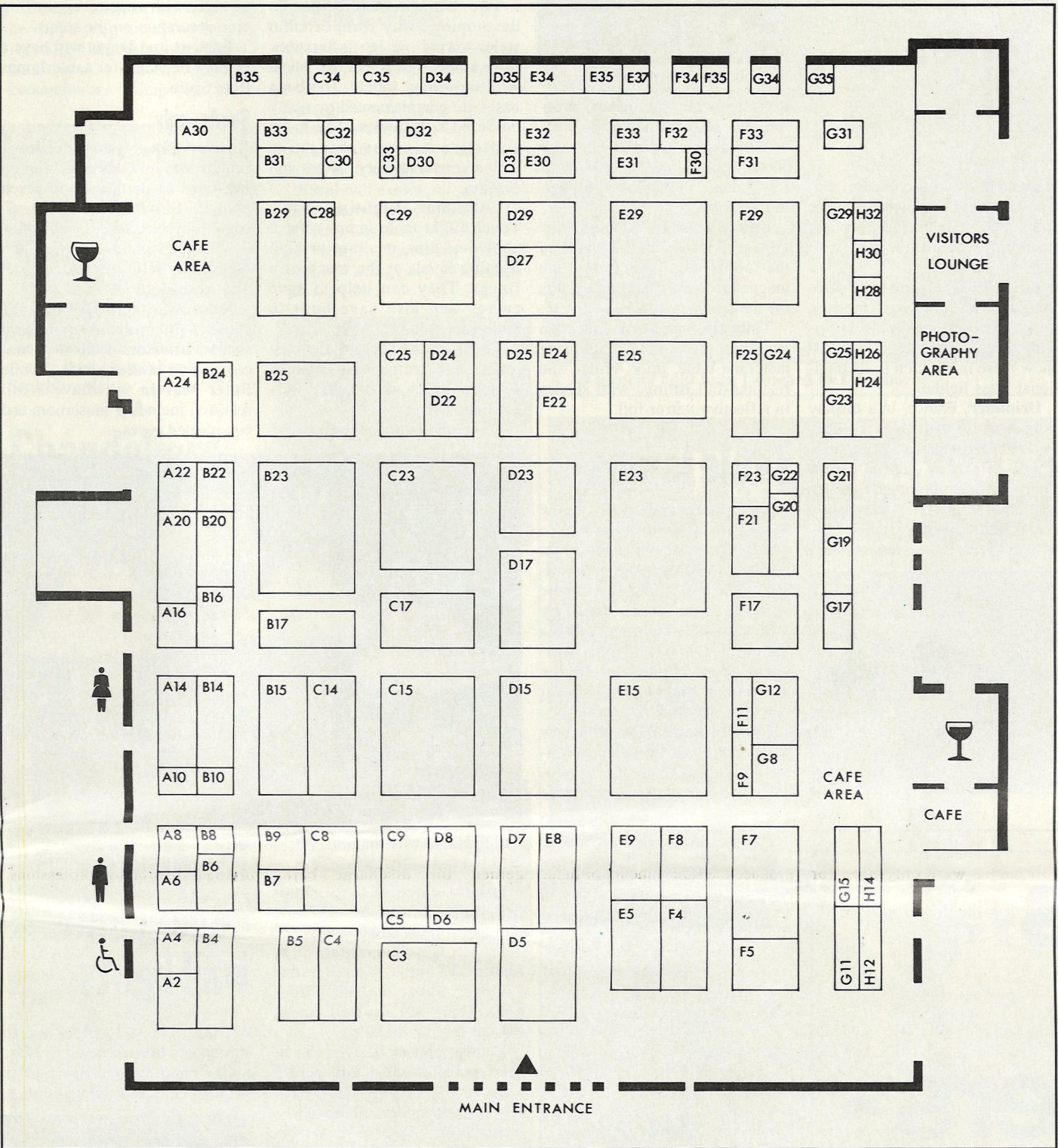
You may think that such a man was a ghost – if you look hard enough you could find such a ghost as your *Silent Partner*.

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# Lightshow '92



Plan of Lightshow at Earls Court 2

Company	Stand No	Company	Stand No
Mackwell Electronics Ltd	H20	Carlos Remes Lighting Company	F25
Maclamp (UK) Ltd	D35	RoChamp Ltd	C8
Madison Design	F9	Russell Electrics Ltd	C29
Peter Martin Lighting Design Ltd	D32	C Sandberg & Son Ltd	E15
Massive UK Ltd	E23	Saville E S Ltd	E8
Micromark	B23	Searchlight Electric Ltd	C15
J H Miller & Sons Ltd	D29	Second Edition Ltd	B17
W Moorcroft Plc	E22	J Segal (Electrical) Co Ltd	F21
Morgan Knight Design	C30	The Silk Gate Collection	D6
Neptune Shades	B31	Silver Lynx Products	F4
Noma Lites Ltd	H18	Simon & Simon Lampshades	H28
Noral Ltd	A14	Ltd	
Osram Ltd	D25	S Smith (Electrical Fittings) Ltd	F33
P L M C Ltd	F17	Smithbrook Lighting Ltd	H30
P M Lighting Ltd	A6	Speights Ltd	C4
Panorama Lighting Ltd	B6	Squire Lighting Ltd	B33
Park Rose Ltd	F11	Starlite (Chandeliers) Ltd	B29
J & M Parker Ltd	H32	Straits Trading Co Ltd	G29
Petitot S A	A8	Synchron PSB	G15
Philips Lighting Ltd	G24	Tally Ho Lighting Co	E31
Piggery Pottery Ltd	G20	Helen Thomas Ltd	G23
C & H Powell Meopham Ltd	G8	Vectase Plc	D8
J N Preedy Ltd	C28	Vitrea (Merchants) Ltd	E5
Professional Interior Designer	E35	D M Walker (Lighting) Ltd	F7
Quality Lighting Design	H24	Walker Picton Mfg Ltd	F7
R V Lamps Ltd	A20	West One Ltd	G31

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STAND E9

Company	Stand No	Company	Stand No
Abstracta Construction Ltd	B8	Elstead Lighting Ltd	E34
Aimby International Ltd	G12	Encon Industries Inc	E30
Arden Manufacturing (B'ham) Ltd	B7	Epoc (UK) Ltd	B11
Autumn Shades Ltd	C33	Fantasia Ceiling Fans Ltd	B9
BAF Industries Ltd	F30	Fantastic Lighting Ltd	F5
B C Metalcrafts Ltd	F23	Firstlight Products Ltd	D17
B S I Standards	F35	Fitzgerald Lighting Ltd	D34
B S I Testing	F34	Florence (UK) Ltd	B4
Bartlett & Doyle Elec Services	G21	Fowler Pottery	H26
Bayda Bros & Co Ltd	C25	Franklite Ltd	F8
L M Beasley & Co Ltd	C35	G E Thorn Lamps Ltd	E29
Belgravia Arts Ltd	B10	Gibson Lighting Ltd	C23
Bito	B5	Giftware & Jewellery Insurance Services	G35
The British Crystal Lighting Co	B15	Gold Crest Lampshades Ltd	C9
British Electric Lamps Ltd	D30	Golden Peacock Overseas	E33
Cameo Shades	B16	Pvt Ltd	
CIBSE	G34	Gregory's Ltd	A10
CIMC	D31	R Hamilton & Co Ltd	C14
L J Cannell & Co Ltd	A22	Hannah Lampshades Ltd	C5
Carlsen Lighting Ltd	G25	Holophane Europe Ltd	C17
Carramar Lighting Ltd	C34	Homeguard UK Ltd	A2
Chambers International Ltd	B22	David Hunt Lighting Ltd	D27
The Chinese Collection	B14	I M I Reeves	G19
Classical Creamware Ltd	F32	Illuminotecnica	E37
Collingwood VLM Ltd	E32	Impex (Glassware) Ltd	D23
County Shades Ltd	D15	Import Development Ltd	D7
Cresswell Lighting Ltd	B25	Interiors 1900	A4
Crompton Lighting	B35	Shirley James Ltd	A16
Danlers Ltd	G22	Jeremy & Co Lampshades Ltd	B24
Martin Dannell & Co Ltd	F31	Konstsmide UK Ltd	E9
Dar Lighting Ltd	F29	K V T Agencies	C32
Daveen Mfg Co Ltd	H16	Leyris Lighting Ltd	E24
Deknadt Lighting Ltd	B20	Lighting Assoc Business Centre	C3
The Denby Pottery Co Ltd	G17	London Trend Lighting Co Ltd	A30
Drimmer S A	E25	Loxton Lighting Ltd	A24
Electroplast GmbH	D24	Lui's Collection	D22



# New venue and new products for Lightshow

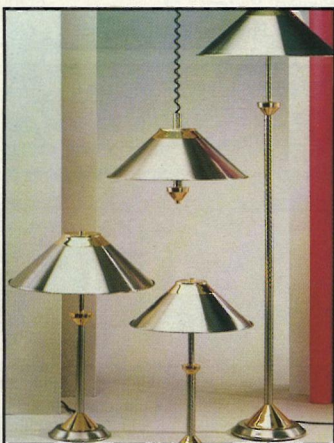
**L**ightshow, now in its 28th year, is being held at London's new Earls Court 2 exhibition hall from January 26-29. The new venue enables the show to be held on one floor with improved facilities for visitors.

Some 130 companies will be showing their new ranges for the year ahead. As well as domestic and contract lighting, there will be a number of stands showing outdoor and commercial ranges.

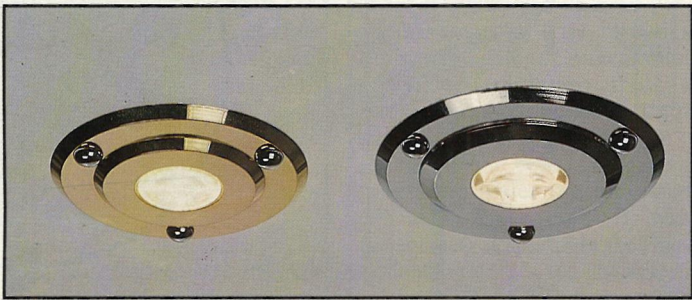
The following preview concentrates on new products. A plan of the hall and list of exhibitors' stand numbers is included to help you to plan your visit.

## Modern designs

**Firstlight** will be displaying modern ranges, including new waterproof lights for bathrooms, showers and saunas. These recessed, low voltage lights have a 12mm thick safety lens with a



A range of modern lighting to be shown by Tally Ho.



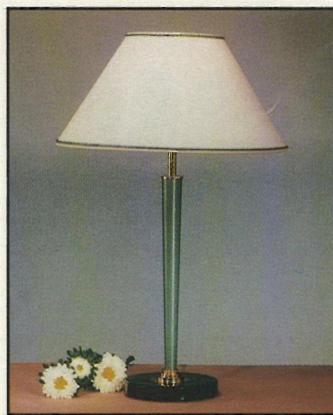
Firstlight's bathroom lights.

circular bezel in a choice of finishes. Other ranges seen will be spotlights, uplights and matching pendant, table, floor and wall lights.

**Franklite** is now distributor for Le Dauphin range of modern metal and ceramic table lamps and floor standards, and will show these in addition to its traditional brass lighting.

**Drimmer**, France, will display ranges in co-ordinated colours and themes such as St Petersburg, Houston and Oxford. There will also be tungsten halogen ceiling, floor and desk lights.

**Deknudt**, Belgium, will show new chandeliers, table and stan-



A table lamp from Deknudt.

dard lights and its unusual tungsten halogen floor lamps.

**Maclamp**, now owned by Metalform, has added to its range low voltage spotlights with plug-in transformers.

**Bito** will also be exhibiting low voltage lighting, in the shape of the further developed Long-Line magnetic display lighting system for the contract market.

**Tally Ho** promises a collection of 32 new designs, including matching table, floor, bridge and rise-and-fall fittings with shades in reflective mirror foil.

## Table lamps

**Franz Feeberger** will show Madison table lamps from France with abstract shapes and vibrant colours. The Cosi range has variations on the candlestick theme with tall, slim lamps topped by pleated shades. Tipi range, with a theme of colourful Indian wigwams, is for children, while the half-moon shapes of the Koni range are suitable as nightlights.

**Morgan Knight Design**, a new partnership, will display a contemporary interpretation of neo-classical and art deco style table



A new model from Morgan Knight Design.

lamps combining decorative wood veneers, black lacquer detailing and brass fittings.

**Cresswell** stand will exhibit table lamps and pendants with muted weathered finishes with South American influences, modern ideas with tropical overtones, and traditional Victorian stories. There will also be an oriental collection.

**Import Development** will have black lacquer lamps from the province of Fukien; while **The Straits Trading Company** will show carved porcelain bases and embossed 'tapestry' porcelain bases.

As well as oriental lamps, **Carlos Remes** will display Decoupage, a new range of table lamps incorporating lacquered paper.

**The Chinese Collection** is developing away from oriental styles towards design inspirations from around the world that blend with furnishing trends. The lamp bases are complemented by richly coloured silk shades. The brass collection has been changed to include contemporary shapes and finishes.

**Carramar Lighting Pty's** Touch Light table lamps offer a choice of dim, medium or high lighting levels at the touch of a finger. They can help to save energy and also have built in radio suppression.

**The London Trend Co** will introduce lamp base touch-switches which give three different light settings.

**Daveen Manufacturing** has



Ceiling Fans

AT THE 1992 LIGHTSHOW  
EARLS COURT

STAND B9

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marble, with rosette or trailing vine decoration on the stems.

**Bartlett and Doyle** will have a display of alabaster table lamps from Spain.

## Shades only

**Beasley** plans two additional ranges of soft shades: Peggy Rock and Lantern, each in seven colours. **Shirley James** (previously Horrocks Shades) will show new fabric, handmade styles, and **Neptune** will introduce soft pleated shades.

From **Bito** there will be anti-static foil, pleated and hard shades. **Interiors 1900** will concentrate on beaded shades, while **Peter Martin** will have a full selection including mushroom and box pleated types.



Table lamps with sponge printed bases, by Park Rose.

created a range of table lamps using silk flowers arranged on plinths, with matching shades.

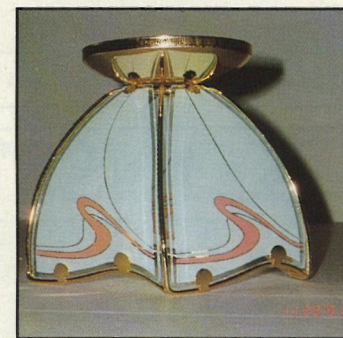
French table lamps shown by **Helen Thomas** will include Limoges, cloisonné and Vienne glass. There will also be Chinese, oil and ceramic models.

English pottery designs can be seen on the stands of **Moorcroft**, who will have new Cluny and Rain Forest models, **Denby**, who will show Regency Green, Viceroy and Damask ranges, and **Park Rose** where there will be a new approach to co-ordinated products decorated with sponge printing. **Saville's** pottery in Staffordshire has a new collection of bottle green, blue and burgundy bases with contrasting shades.

**West One's** brass candlestick lamps have been extended. The barley twist model, for example, can be stained either verdigris or terracotta. **Lui's Collection** of candlestick lamps will be in colours such as red or green

## Pendant, ceiling and wall lights

**PLMC** says it is planning to introduce a host of new products: ceiling multi-halogen lights, glass panelled pendants and wall lights,



Glass panelled ceiling light from PLMC.

and a range of 'design' paper lanterns.

**Cameo Shades** will show new products including flexi-panel pendants with matching accessories.

**David Hunt Lighting** will display new ideas for wall lights, pendants, and table lamps.

**Speights** will promote its cast brass ceiling fittings and wall lights, flush glass ceiling fittings, recessed lighting and picture lights.

Hand carved lighting fittings in wood will be displayed by **S Smith**, including pendants, wall lights, table lamps and floor standards.

**Squire Lighting** has added new wooden pendants and table lamps in finishes including liming, wash-overs and hand painting.

Alabaster wall mounted uplights and table lamps will be on the **Panorama Lighting** stand,

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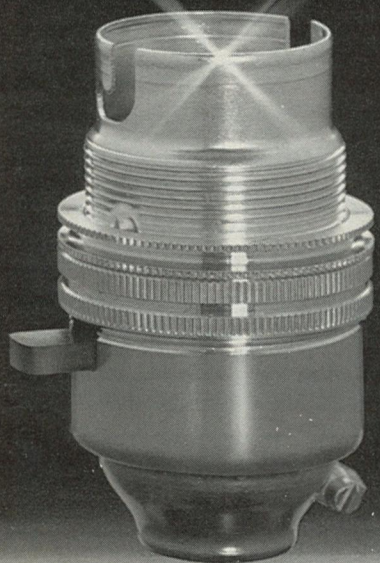
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Candlestick lamps with decorated stems from Lui's Collection.



also a range of plaster wall mounted uplights.

**Dar Lighting** has two new ranges of picture lights in polished and antique brass.

The Monarch 52 five-bladed remotely controlled fan is one of the new models in the de luxe range from **Fantasia Ceiling Fans**. Other models and finishes will be shown with co-ordinated on-fan lighting.

**Encon Industries, USA** will be displaying an assortment of lighting fittings to go with its traditional, transitional and contemporary ceiling fans.

tional and contemporary crystal lighting from Czechoslovakia will be illustrated on the **Vitreia** stand.

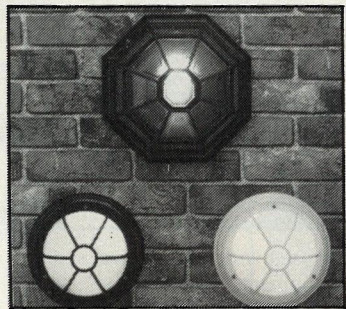
**Searchlight Electric** will be displaying chandeliers, table lamps, wall brackets and floor standards.

## Outdoor domestic

There will be over 100 new fittings on the enlarged **Micromark** stand, including outdoor and garden lights and a new range of commercial lighting.

**Homeguard** will be introducing ideas in security lighting.

**Noral** will exhibit its traditional and modern lanterns, including the Compact Line range. There are 14 new designs, including bollards using low energy compact fluorescent lamps.



Outdoor luminaires from Micromark.

## Commercial luminaires

**Holophane** will exhibit energy efficient lighting for industrial,



A 2D security light to be launched by GE Thorn.

commercial and architectural use. On show will be exterior lighting called Park Lane and a new range of Vanguard luminaires, using 175W-400W mercury lamps, with polycarbonate enclosures, designed for the food industry.

The Parkpack, Primalume range and lower wattage Prism-packette outdoor luminaires will be on the stand.

**Fitzgerald Lighting** has extended its range to include surface and recessed modules, emergency lighting and floodlighting. A domestic light pack with prismatic and opal diffusers will be launched.

**Mackwell Electronics** will display its emergency lighting components and examples of completed luminaire conversion projects. New low profile modules will be on show and there will also be electronic transformers.

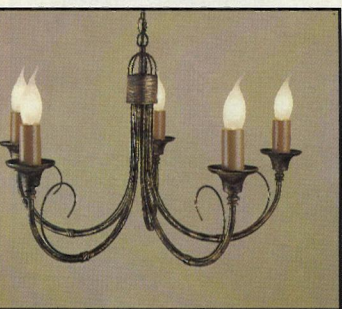
Over 100 new fittings will be on the **Micromark** stand, including a range of commercial lighting, a dozen decorative ranges and additional outdoor lights.

**COLLINGWOOD  
STAND E32  
ACCESSORIES**

## Lamps

**Philips Lighting** will show its modern light sources and control equipment, in particular the QL induction lamp. There will also be the latest in compact discharge lamps, halogen low and high voltage capsules, dichroic and aluminium reflector lamps, and all the compact fluorescent range.

**Crompton's** electronic adaptor for compact fluorescent lamps will be on display. Designed to convert most GLS-type luminaires into energy efficient fittings, the plug-in adaptor is suitable for both commercial and domestic use. It will be part of an



A new iron chandelier by Smithbrook.

## Chandeliers

A new range of British made iron lighting will be on display on the **Smithbrook** stand, including chandeliers and original designs of iron wall lights and pendants.

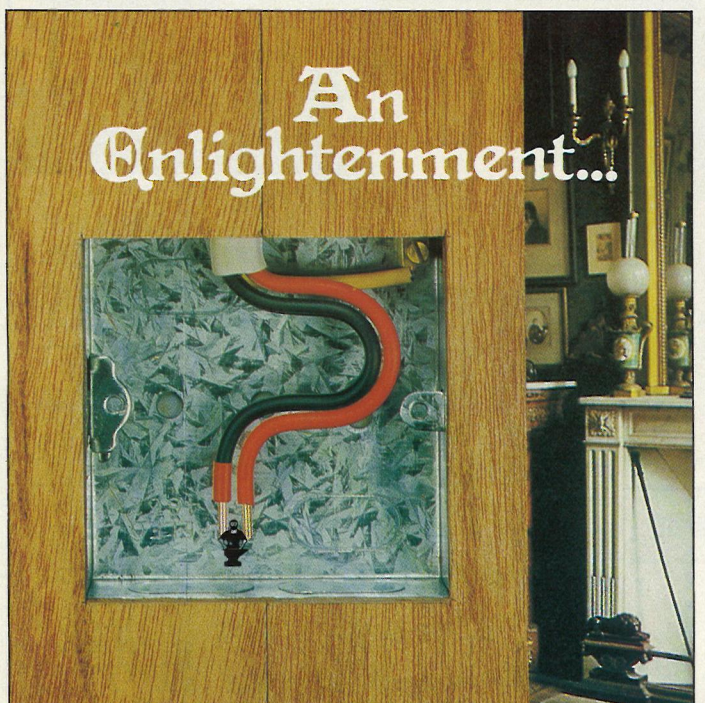
**British Crystal Lighting** will be showing several new models as well as its current ranges of full lead crystal table lamps and chandeliers.

**Starlite (Chandeliers)** will exhibit a blend of traditional and new designs in crystal.

The extensive variety of tradi-



One of Searchlight's chandeliers.



...visit Stand C14 at Lightshow '92  
and discover what is missing

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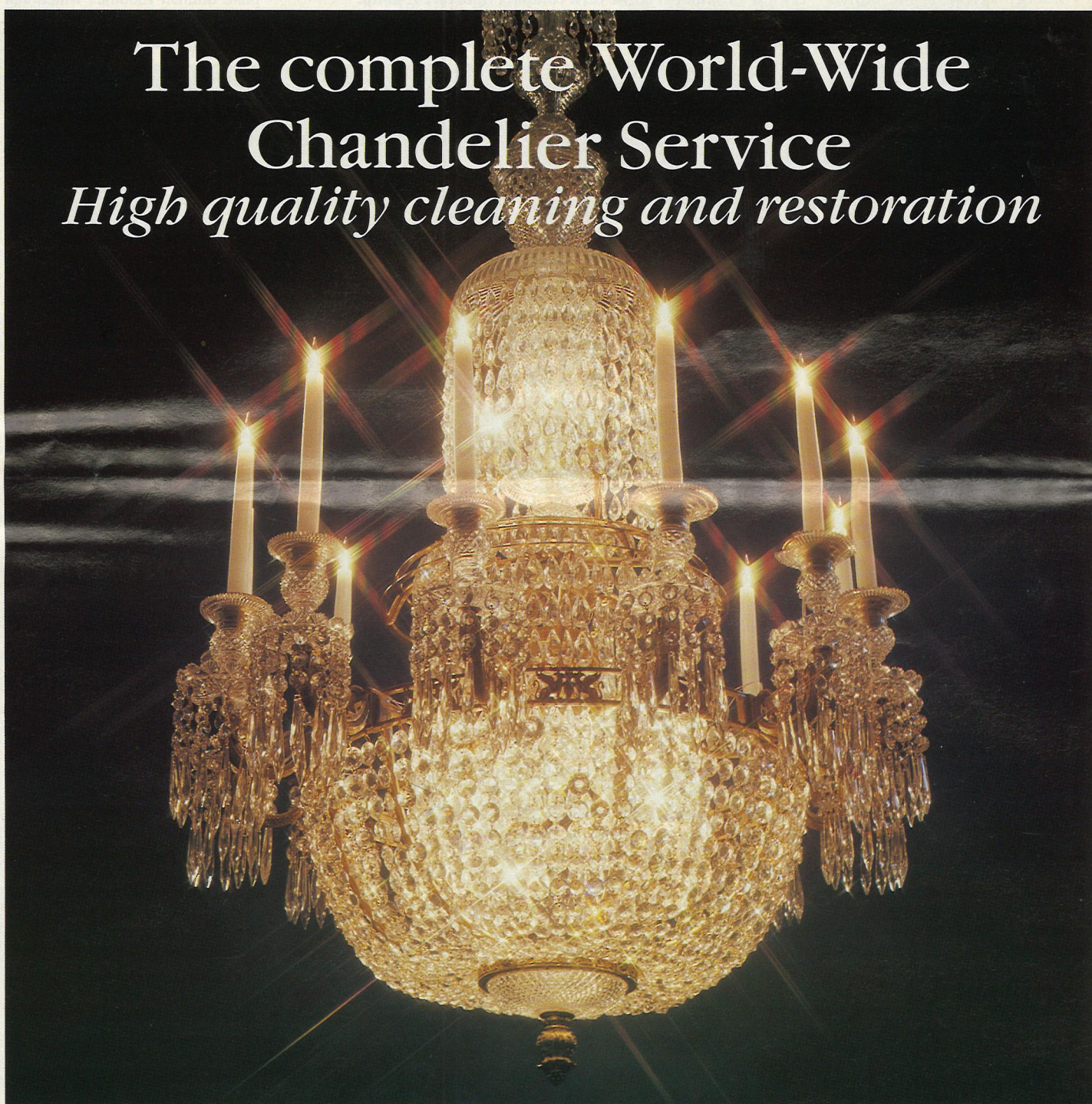
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Reader Service No. 38

Page 25



energy saving theme including low voltage lamps with their own transformers.

The Craft Light range, which simulates daylight, has been extended for the benefit of artists and craftworkers.

**British Electric Lamps** has added a family of long life incandescent commercial lamps to its range.

**Osram** will be showing its new range of smaller compact fluorescent Dulux EL lamps. The reduction in size of the 15W and 20W, and new 23W version has been achieved by combining three fluorescent tubes instead of two.

A flat compact lamp, the Dulux F, will be shown.

**Bellalux** lamps will be launched, offering three hints of colour to match home decor and create a relaxed mood, as part of Osram's expansion in the retail sector.

This year there will be one stand for **GE Lighting** which will combine consumer products from Mazda brand and commercial and industrial lamps from GE, GE Thorn and GE Tungsram.

Energy saving is the Mazda



Osram's Dulux EL triple turn compact fluorescent lamp.

theme with the launch of an ES version of the 2D lamp.

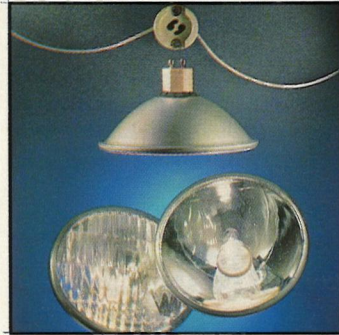
There will be a new 2D fitting in the security lighting range, called Twilight.

Among new products will be the Fluoropar energy saving lamp, Twist and Lock described as the first user friendly mirror lamp and SON Classique, a new range of colour corrected high pressure sodium lamps.

## Ancillary products

**BAF Industries** will launch a range of porcelain wall light switches that includes floral motifs to complement door furniture. On show also will be special finishes on dimmers and sockets.

**Hamilton Litestat** will unveil three products: a dolly switch for traditional interiors, a lighting control unit using digital technology, and the next generation of plate dimmer modules which can



GE Lighting's twist-and-lock 100mm sealed lamps.



Brass pushbar lampholders from Golden Peakock.



be used with other manufacturers' equipment.

Other products include tubular lighting with round, triangular or octagonal cross section, and Linea Contrasto electrical accessories with cast brass front plates.

**IMI Reeves** will be offering its lampholders pre-wired. There will be a display of brass, brass plated steel, porcelain and phenolic lampholders in a range of types.

**Simon & Simon** will display lampshade frames and gimbals.

**Noma Lites** will feature its Christmas lighting sets for 1992, including Stardust, Winter Crystal and Chameleon.

**Danlers** will show its elec-

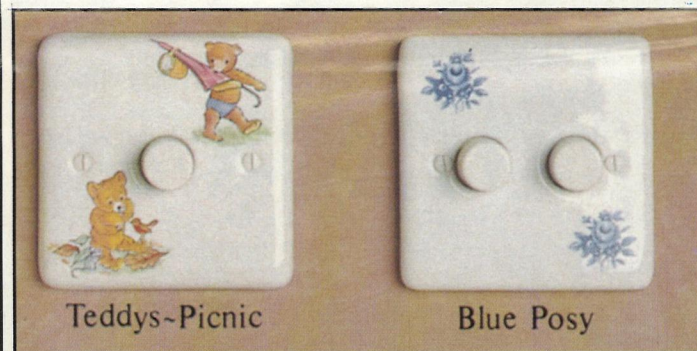
**Christmas lights for 1992 by Noma Lites.**

tronic switches including photocell, occupancy and infra-red.

The ceiling mounted controls can be installed using a simple plug and socket system.

**Collingwood VLM** will be displaying lampholders, brass castings, rise-and-fall fittings, decorative glassware, switches, dimmers and transformers.

**Golden Peakock** has improved the cord-grip in its pushbar lampholder and will display this as part of its extended range of brass and ceramic lampholders.



Light switches with porcelain front plates, from BAF Industries.



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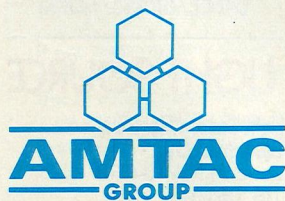
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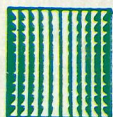


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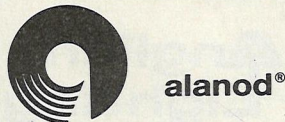
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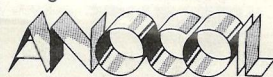
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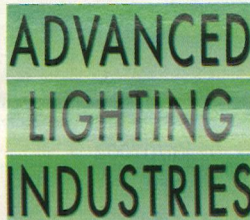


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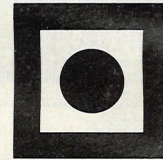
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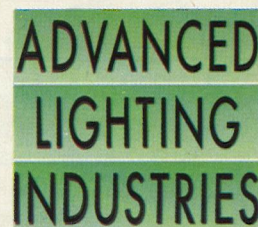
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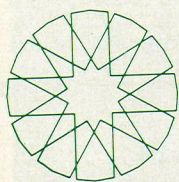
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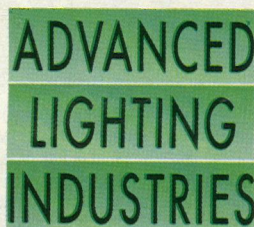


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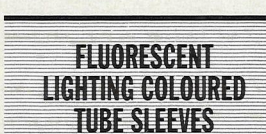
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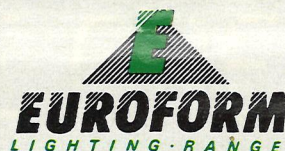


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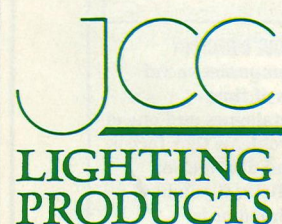
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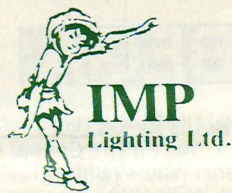


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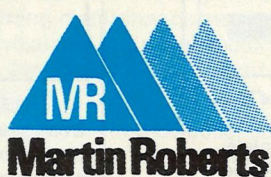
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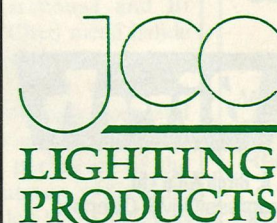
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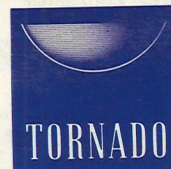
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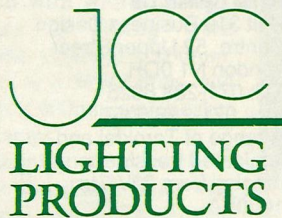
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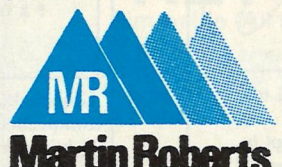
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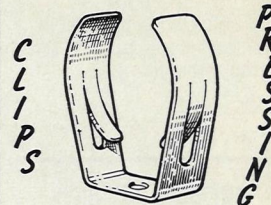


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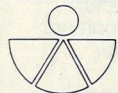


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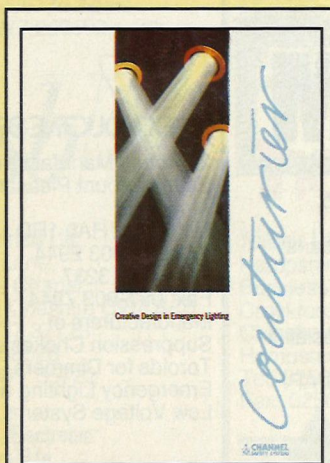
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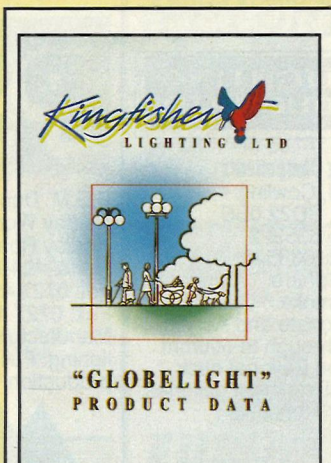
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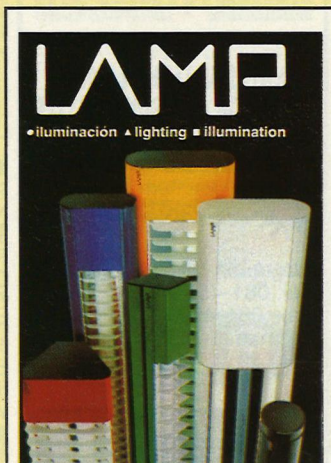
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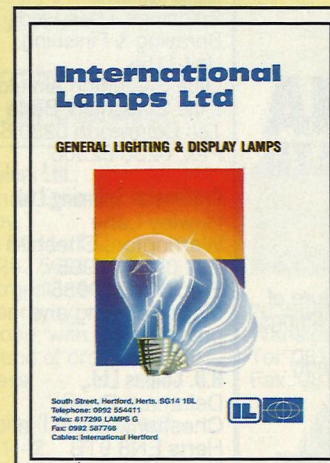
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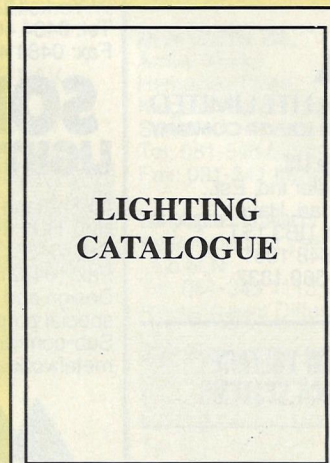
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## Lightshow — is this the right approach?

From remarks contained in your November Comment it is clear that you are highly aware of the need for a credible UK contract lighting exhibition. However, speaking from the point of view of a company within the LIF, I feel that the LIFline published in the same issue is a misrepresentation of the opinions of the majority of the membership.

I cannot see the rationale of attempting to broaden Lightshow from 'domestic/decorative through to the technical/commercial sector' because I do not believe that the UK lighting market is structured in such a way as to benefit from it. 'A complete overview of the industry' will not necessarily be of interest as the LA and the LIF wish to attract two entirely different classes of visitor: the retail buyer and the professional specifier respectively. Comparisons with Hanover and other key European exhibitions are misguided because the quality of product, stand and exhibition are all superior to those seen in the UK.

### Dissimilar sectors

I cannot accept the contention that 'the definitions and types of lighting for decorative and commercial lighting are becoming increasingly blurred', because the criteria for selection are so dissimilar. It is unlikely that architects and designers who are reluctant to visit mainstream exhibitions will make the effort to attend a show which is so unfocused in its aims. From the tone of this piece it appears that the quantity of visitors and numbers of fittings sold ranks more highly with its author than the quality of either.

It is all very well to put together a seminar programme to attempt to attract architects, quantity surveyors and other specifiers, but if Lightshow fails to win the support of the majority of the commercial manufacturers, the programme is unlikely to be a sufficient draw. The lighting industry does not just revolve around the three large lamp manufacturers; a broader view point of the future of the commercial lighting industry in the UK is required.

### Radical changes

Finally, we LIF members cannot assume that the Lighting Association membership are going to welcome the radical changes which will be required to Lightshow if it is going to be of any value to commercial lighting manufacturers. Lightshow has been devised to service the LA's members' needs, and superimposing a different set of requirements will not necessarily lead to an acceptable compromise. It would be interesting to know if the LA membership accept the point of view contained with the LIFline and if they are clearer about its underlying rationale than myself and some of the other members.

I look forward to an open discussion in your journal.

**Jon Butler**  
Managing Director  
Staff Lighting

## Light electric

Southern Electric's new electrical department store in Guildford is the company's first venture away from the high street. Design consultancy, Fitch RS, were appointed to transform an 800 sq m shed into an electrical superstore which would offer an unrivalled range and quality of electrical products.

As with all shops of this type, lighting can present problems, often generating the atmosphere of a football pitch rather than the more intimate environment required by consumers making major purchasing decisions.

Hitech Lighting was called in to supply the complete lighting package. Computer aided design enabled them to produce detailed plans to ensure that the lighting concept would be technically appropriate. The brief took into account the need to make white goods appear sparkling white, while ensuring the accurate colour rendering of other goods.

A central atrium was created within the warehouse and lit using Hitech's Circo metal halide downlights with 70W double ended lamps. These were also used in the entrance area and selectively in window displays.

Around the perimeter of the atrium, and above individual departments, a low level bulkhead was constructed onto which was mounted a continuous run of low voltage track, some 70m in all, utilising Compact spotlights on extension rods.

These were supplied in a combination of black and white and,

to minimise running costs, were fitted with integral reflectors to facilitate the use of capsule lamps.

Surface mounted compact spotlights were used on a suspended raft, to light a special product feature area. A second raft, placed over the cash and information area, uses D100 downlights with chrome bezels.

Ambient light is supplied by recessed modular fluorescent fittings fitted with white louvres. Two sizes of fitting were installed: the 1200mm x 600mm, which takes 4 x 36W lamps, and the 600mm x 600mm which takes 4 x 18W lamps.

Other display areas were lit with D500 downlights fitted with 50W dichroic lamps. These were carefully positioned above particular display areas and their ability



to rotate through 360° and tilt from horizontal to vertical ensured maximum flexibility.

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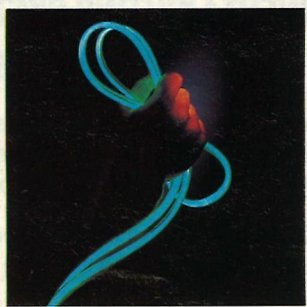
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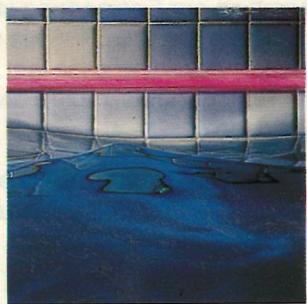
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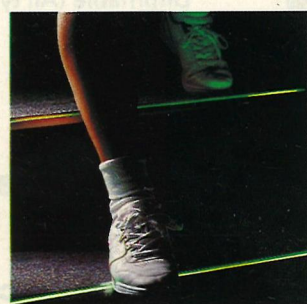
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## LIGHTING EQUIPMENT NEWS

### Canon strikes gold

A display of pulsing lights, computer-programmed to create wave-like effects over a glossy gold ceiling, is the key feature of the new Canon showroom in Piccadilly. Light 'cycling' is also linked to the lighting of the circular pods used to display the equipment; and the display area is outlined with a thin red neon strip, the corporate colour.

The new showroom is located in a grade II listed building, which precluded structural alterations and the use of exterior display techniques. So, a theatrical interior lighting treatment was chosen to enliven the neutral colours of the equipment on show, and attract attention after dusk.

Various lighting techniques are used for the ground floor showroom, basement offices and meeting rooms, to delineate function and mood. High pressure sodium uplights and metal halide downlights from Edison Halo and tungsten halogen wall-mounted uplights from Crescent Lighting, provide the ambient lighting for the ground floor; 70W SON uplights highlight the showroom's entrance and the staircase to the basement meeting rooms. White, extruded aluminium, tulip-shaped fittings are mounted on poles to match adjacent handrails.

Twenty-five Edison Halo high intensity discharge downlights provide primary lighting of the central display areas. These fully-recessed luminaires incorporate a double-ended 150W metal halide lamp.

Accent lighting is provided by low-voltage downlights linked to an Electrosonic System 12 light-



ing control unit. This enables the low-voltage lamps to be run at 95% of capacity and considerably extends their lamp life. Lighting levels range from 750 lux for general illumination up to 2000 lux for effect lighting.

Lighting the basement area is a combination of fluorescent (both linear and compact), low-volt recessed downlights, track-mounted spotlights; and recessed HID lighting.

As the landlord would not allow any drilling into the main structure during working hours, a structural frame system was devised and bolted to the structure of the building outside working hours.

All air-conditioning ductwork, sprinklers, cabling, lighting and the suspended ceiling were attached to this, without disturbing other tenants. The subframe also spread the load of the equipment across the ceiling, thus overcoming loading constraints and easing the difficulty of accommodating a mass of equipment in a ceiling void which varies between a metre and a few millimetres in depth.

### IN YOUR NEXT ISSUE

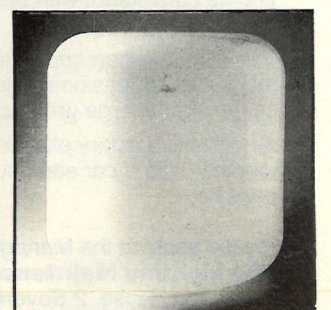
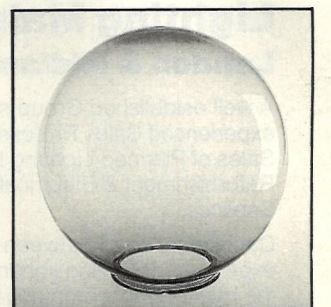
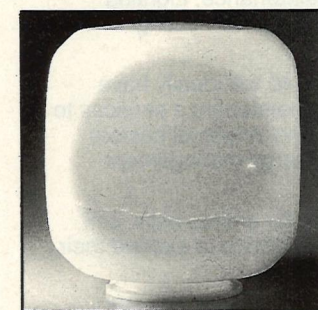
The February issue of *Lighting Equipment News* takes a look at display lighting in the non-commercial fields of museum and gallery lighting.

Low voltage has long been one

of the most popular display lighting tools, largely because of the quality of light and the compact size of the fittings. But this high performance equipment must be correctly and safely used. We consider how.

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