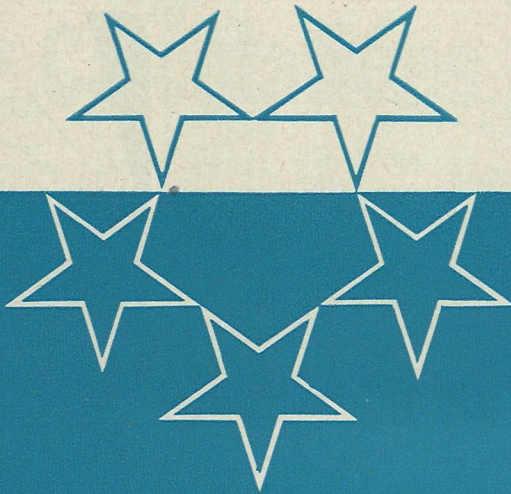


vol 1 no 3

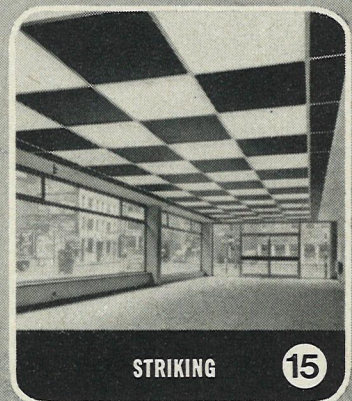
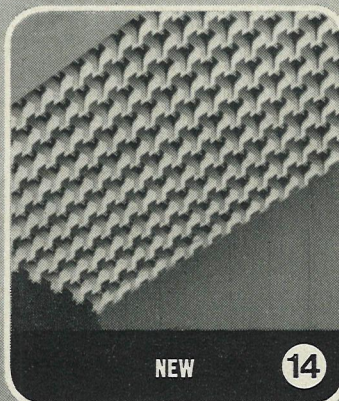
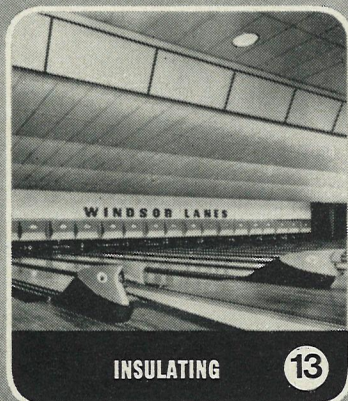
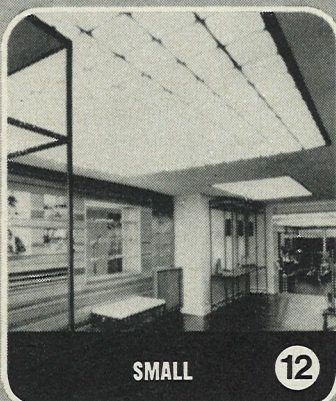
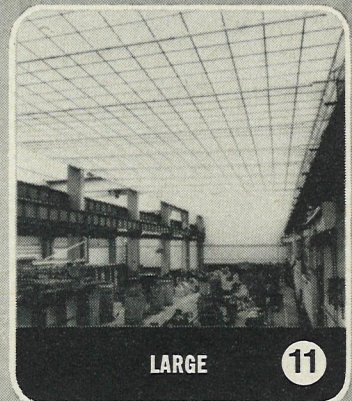
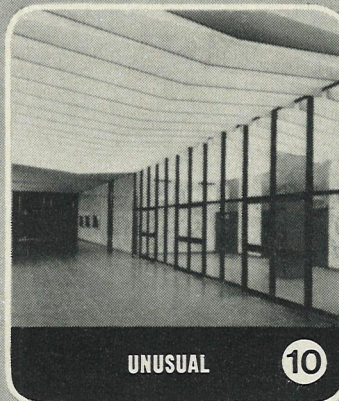
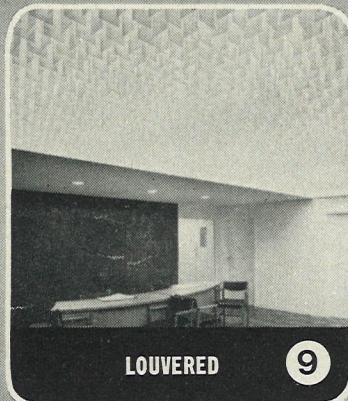
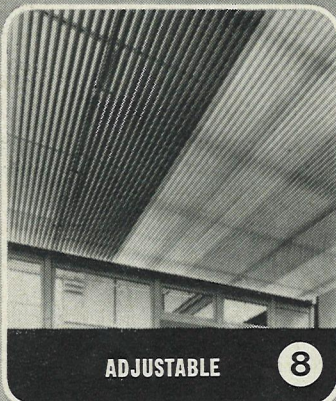
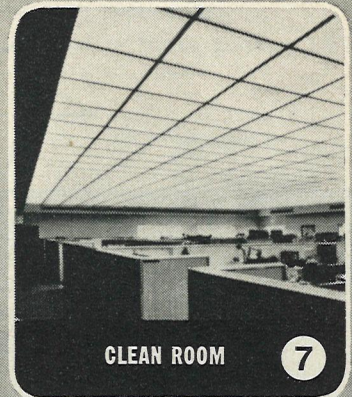
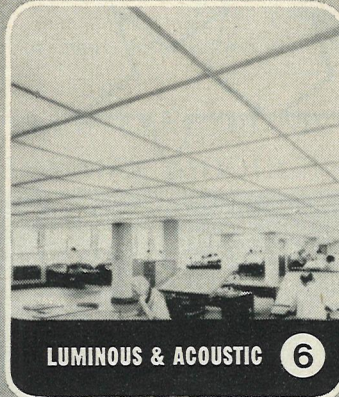
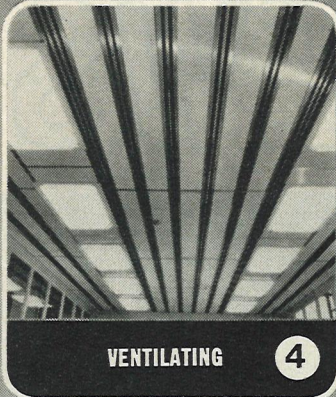
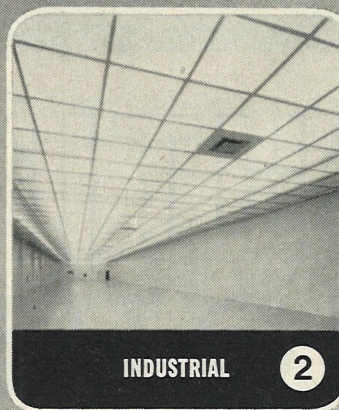
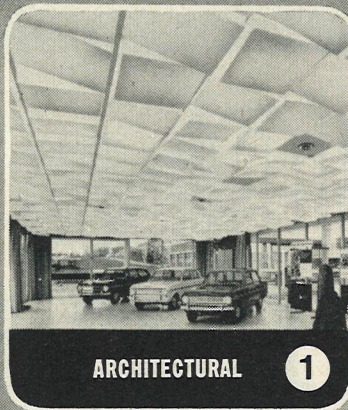
LIGHTING EQUIPMENT NEWS



March 1967

a Troup Publication

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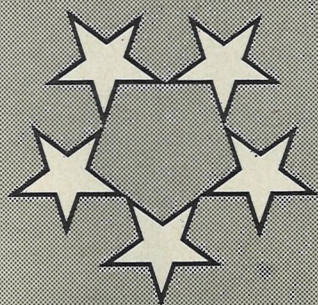
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LIGHTING EQUIPMENT NEWS

Lighting Calculations

THE advantage of launching a journal in a new field is that one can survey the general scene and take a somewhat more dispassionate look at current practice in the field, than when one becomes immersed in it and accepts without question its standards and procedures. Inevitably, in the initial state there is a tendency to use as a yardstick the practices followed in allied fields.

Compared with the heating and ventilating fields, for example, the terminology used and the design procedures adopted (or those that are recommended for adoption) seem distinctly complicated and somewhat confusing. Whilst we accept that to qualified lighting engineers this is not so, we wonder whether the apparent complications of the subject may not deter the users of lighting equipment and others concerned from getting to closer grips with lighting calculations.

The present terminology and procedures would appear to have been developed from photometric practice and whilst they are no doubt entirely appropriate to a study of the science of photometry and illumination, we wonder whether they are best suited to the actual practice of lighting as such.

In heating there are only two basic units, the unit of heat, the British Thermal Unit or Btu, and the unit of temperature, either the degree Fahrenheit or Centigrade, but in lighting there are the unit of luminous intensity, the candela, the unit of luminous flux, the lumen, the unit of illumination, expressed in lumens per square foot (or more neatly in the metric system in lux), and the unit of luminance, expressed (differently) in foot-lamberts. In addition, one has to cope with coefficients of utilisation, room indices, reflection factors, flux fractions, upward and downward light output ratios, luminous areas, BZ numbers and glare indexes, etc.

Current Methods

At the present time, the lumen method of calculating the number and size of lighting fittings for a given installation is commonly employed, coupled with a calculation of the glare index. For those familiar with the subject this presents no undue problem and the recent introduction of the two lighting calculators described in our January issue considerably eases the actual calculations. However, there is a move towards the luminance method of lighting design and this considerably complicates the procedures.

Faced with these difficulties, there is undoubtedly a tendency on the part of the less knowledgeable installer of lighting fittings to rely on empirical methods and rules-of-thumb through ignorance of basic lighting principles and procedures. There exists firstly, therefore, an urgent need for the education of all concerned with lighting installations in the correct design methods, and this need is, of course, recognised by the British Lighting Council, who are doing invaluable work in this direction.

We wonder, however, whether there is any case for the simplification of lighting terminology and procedures to perhaps make them more understandable to the non-scientific or less technical user of lighting equipment, whilst reserving the more sophisticated methods for expert application in conditions where these are necessary.

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MARCH, 1967

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LIGHTING EQUIPMENT NEWS

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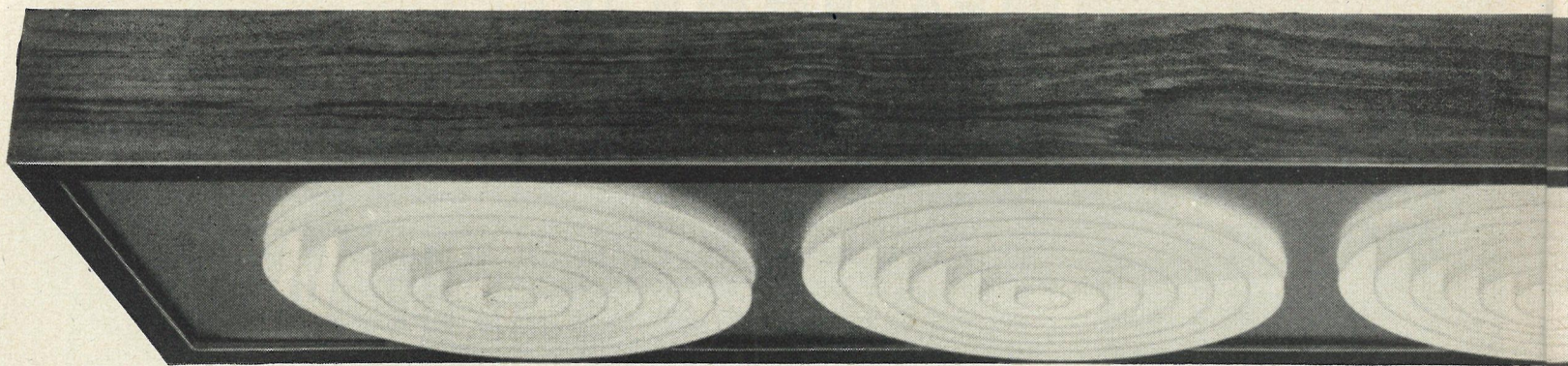
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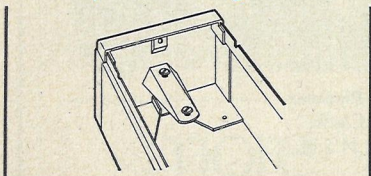
LIGHTING EQUIPMENT NEWS is a controlled circulation journal, and is sent free of charge each month to qualified readers, i.e., those concerned in an executive capacity with the design, specification, purchase, installation, operation, maintenance, distribution and sale of lamps, lighting fittings and accessories of all types for the lighting of domestic, industrial, commercial and public buildings, including display, street and specialised out-door lighting.



Osram-GEC's brilliant new

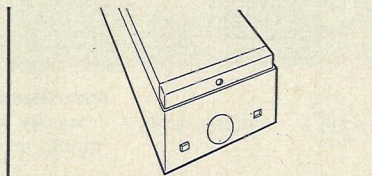
Behind the pretty faces (33 and reflectors) are the cut running and maintenance with new crisp styling to give lighting at

$\frac{3}{4}$ " conduit entry provided in each end-plate with conduit clamping screw for ease of assembly and good earth continuity. Polypropylene wiring channel protects through cables.

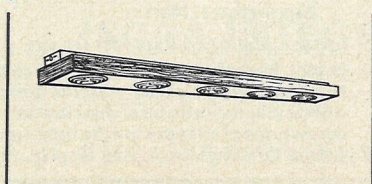
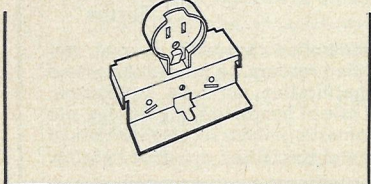


Exclusive new spring-loaded bi-pin holder with wiping contacts ensures clean, positive electrical contact.

Exclusive die-cast end-plates for rigid lampholder mounting, with positive keying to give accurate register for in-line continuous mounting without difficulty.



Revolutionary tray attachments in real teak veneer or white melamine decorative laminate with five new diffusing panels.



WHY THE NEW 103 LINE IS SUCH

103 LINE — a new approach to fluorescent lighting

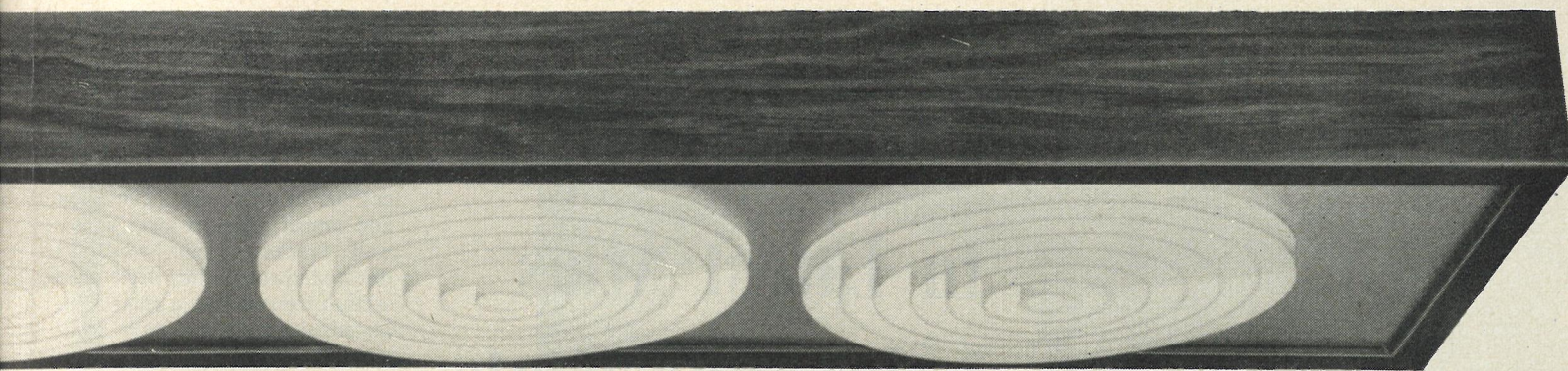
103 LINE is a big step forward. It offers a complete family of fittings suitable for every commercial use, from factory to boutique. The diffusers and reflectors include many designs completely new in concept. They represent an entirely new approach to the possibilities of fluorescent lighting.

New design for channels

Osram-GEC went right back to basics in planning the 103 LINE. The result is a new channel design which is better fitted to the job. It makes fixing and maintenance easier. The strong steel channel is finished to a very high standard in white acrylic paint to give greater resistance to damage and yellowing than ordinary stove enamel. Die-cast end-plates are used to give extra rigidity and have interlocking keyways to make accurate continuous mounting simpler.

New Bi-pin Holder makes tube replacement easy and safe, ensures reliable contact

One important feature of 103 LINE is the wiping contact in the



103 LINE

**exclusive channels, diffusers
important features that
costs and combine reliability
you better, more efficient
lower cost.**

AN IMPORTANT DEVELOPMENT IN FLUORESCENT LIGHTING

new spring-loaded bi-pin holder. This wiping contact "scrapes" the tube pin to ensure clean positive contact. All troubles associated with poor contact are eliminated. This holder, combined with another new feature—high quality GEC intermediate section, polyester-filled control gear—ensures correct tube performance, low-loss, cool, silent, trouble-free operation.

Switch or switchless — Three lampholder positions

103 LINE is available either switch or switchless, in 4 ft (40w), 5 ft (65w), and 8 ft (125w) channels. The 8 ft size is available also in 85w switchless version. In addition to the normal single and twin lampholder arrangement, there is a wide spaced version of the twin tube type with lampholders on either side of the channel. When used with the wider diffusers, this allows shallow close-to-the-ceiling mounting with improved optical performance and better overall appearance.

Teak Veneer and circular louvers

Among the many diffusers and reflectors unique to 103 LINE are some that completely revolutionise previous thinking on

fluorescent lighting. Most notable is an entirely new type of fluorescent diffuser incorporating 5 concentric circular louvers set in a satin aluminium panel supported by a teak veneer frame. This elegant pattern marries with circular tungsten fittings and makes it ideal for use in shops, hotels and restaurants. The teak veneer tray which won't warp is another interesting innovation. As an alternative, the tray is also offered with white melamine decorative laminate finish. These trays carry varied and original diffusing panels—prismatic low brightness, minicell louvers, opal plastic with unusual circular apertures. In addition to these unique attachments there is a full range of trough reflectors and 4 ft, 5 ft and 8 ft opal and prismatic diffusers.

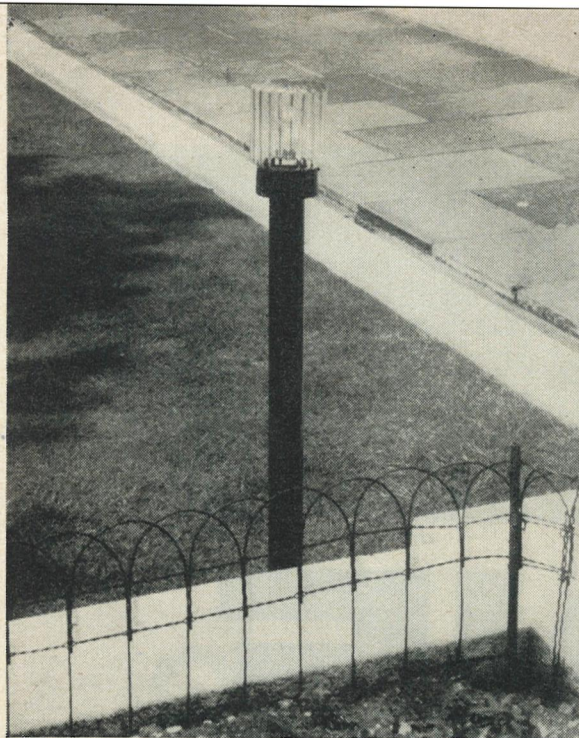
It pays to see it's Osram-GEC

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Original Techniques In Latest Atlas Incandescents



Patio light in clear ribbed glass on four foot high bollard

ATLAS LIGHTING LTD showed four new ranges of incandescent light fittings on their stand (J.1) at the recent Liteshow, Olympia. Included in these displays was the most attractive "Link-Lite" range using "edge lighting", the "Patio" range, a decorative range of outdoor amenity lighting fittings, the "Chelsea" and the "Modern" range of fittings including the crystal glassware.

Newest tungsten fitting was the

"Link-Lite" (designed by Charles Kenrick for Atlas) which introduced a highly original and remarkably effective lighting technique. Using a variety of finned crystal styrene diffusers around an incandescent lamp, the "Link-Lite" made most attractive use of edge lighting. As the light from the lamp shone through the diffuser, the edges of the fins were strongly highlighted in a pleasing and unusual way forming a deco-

orative pattern that surrounded the fitting. By inverting some or all of the fins different regular or irregular patterns could be achieved.

For suspension, the range was fitted with a contrasting chrome cylinder and a black cable. The "Link-Lite" is available in a single or three-way pendant or as a close-ceiling mounted unit.

Price of a single pendant unit complete with 100W clear lamp is £4 10s. 3d. plus 14s. 9d. purchase tax.

Another new range was the "Patio"—a series of three outdoor amenity lighting fittings. The three fittings comprised the Canopy, the Bollard and the Wall Mounted version — each available with either a clear ribbed or an opal glass. The fittings are completely weatherproof and supply adequate light for entrances, paths or general amenity lighting. A 4 ft bollard of 2 in o.d. for the bollard light, finished primed only, is also available.

The range of crystal glassware has been extended by the addition of new glasses. All the crystal fittings in the "Modern" range

are available for pendant, close ceiling or wall bracket mounting.

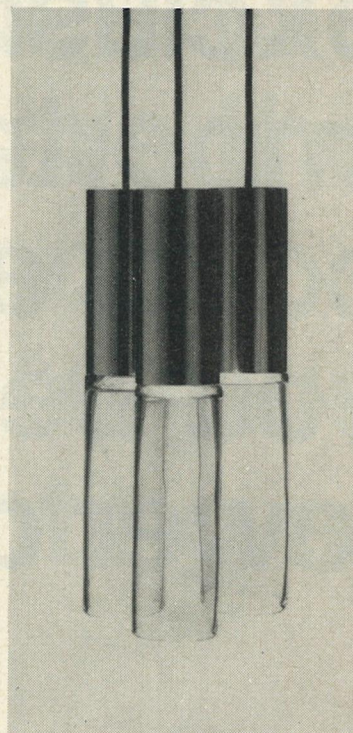
Dramatic Effects

The "Chelsea" range of hand-wrought glass lighting fittings has been extended and now includes colours of clear, ruby, cinnamon and amber together with a new wall bracket. Light which is directed through the thick glass section from within a chromium-plated sleeve dramatically highlights the form and colour.

Other equipment shown included the very popular "Arrow-slim" fluorescent fittings plus the range of diffusers, the versatile "Minipack" miniature fluorescent and the famous "Modern" range of decorative light fittings.

For more information on these new ranges please complete Reader Service Form quoting reference number LEN 168

Light directed through the thick glass sections from within the chromium plated sleeves dramatically highlights the form and colour of this three-way pendant in the Chelsea range



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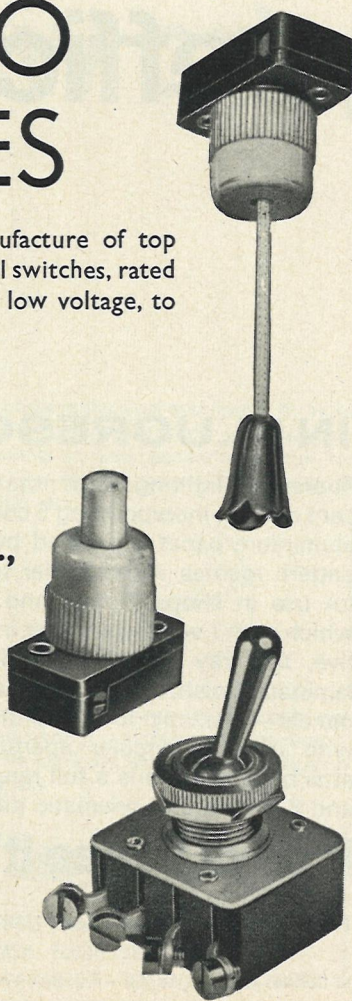
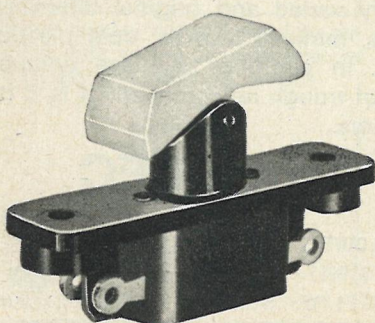
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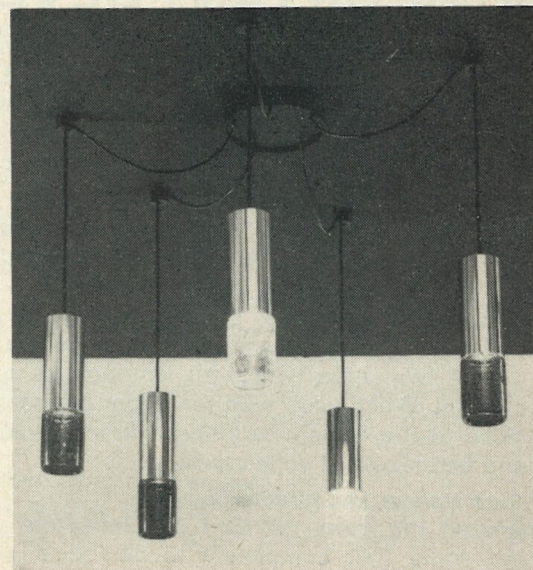
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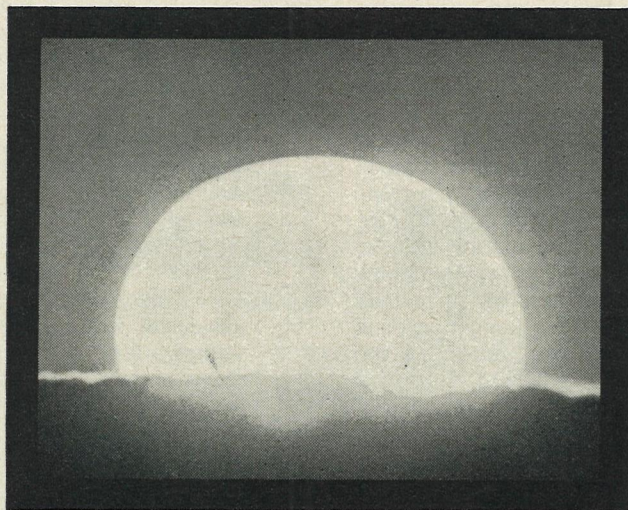
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This five-way random looped pendant with clear crystal and ruby glasses is part of the Chelsea range of domestic and commercial light fittings

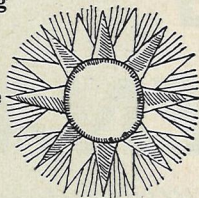




There goes our biggest competitor

If the sun ever got around to working a twenty-four hour day, we would be in trouble. As things are we're doing very well.

Every evening when the sun finishes for the day more and more people turn to Atlas to give them light. So every day the people at Atlas are involved in making sure they get that light.



The sun gets by simply by turning out an awful lot of light. But people ask much more of Atlas than they ask of the sun. They ask not just for a lot of light, but for lots of different types of light for lots of different situations.

Lights for bedrooms and boardrooms, highways and railways, airfields and playing fields. Spotlights, floodlights, bright lights, soft lights, small lights, big lights. It goes on and on, individual people with individual needs in lighting. Needs that can only be met by intelligent research and design. And it's in research and design that Atlas comes out tops. Here are three examples that show you just what we mean.

The first fitting is one from the Atlas Atlantic fluorescent range of fittings which have proved so popular in industry and commerce. The

Atlantic range consists of one basic spine with a huge choice of diffusers and reflectors. From factories to office blocks the versatile Atlantic will fill the bill. There are single tube, double and 4-tube patterns, 4ft., 5ft., 6ft. and 8ft. long—making the Atlantic range the most versatile of its kind.

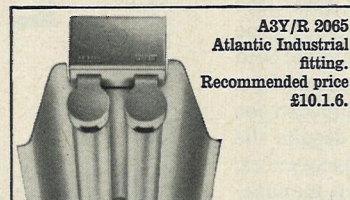
The introduction of the tungsten halogen lamp has enabled Atlas to forge ahead in the field of floodlighting. The completely weather-proof floodlight illustrated is specifically designed to meet outdoor floodlighting needs. The tungsten halogen lamp allows the floodlight to be only half the size of conventional fittings, at the same time giving increased performance.

When you notice a display, but don't notice the lights that light the display, then the lights are probably Atlas. The small spotlight illustrated is designed as a compact spot with a narrow high-intensity beam, ideally suited for highlighting display points unobtrusively and cheaply.



These three fittings are typical of Atlas. If you would like further information on any of them, please write to us and we will be pleased to supply it. Meanwhile, keep your eye on the sun, after the New Year

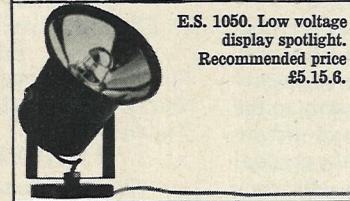
he's going to have to put in a little extra time each day, just to keep ahead of Atlas.



A3Y/R 2065
Atlantic Industrial
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Recommended price
£10.1.6.



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Tungsten halogen
floodlight
completely
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for exterior use.
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atlas lighting



Atlas Lighting Limited. A British Lighting Industries Limited Company, Thorn House, Upper Saint Martin's Lane, London, WC2. Telephone: TEMple Bar 2444 (Telex: Thorn London 21521)

Atlas design keeps Atlas ahead

RECENT years have seen a growth in the awareness of the importance of maintaining lighting installations systematically and this trend has heralded the advent of the specialist company whose sole activity is one designed to supply a skilled, efficient and economic service to cater for this demand from industry and commerce.

Modern sophisticated lighting systems, often consisting of an endless variety of fittings and enclosures, perspex dishes, grid type diffusers, etc., designed for a wide range of fluorescent tubes from 18 in up to 8 ft 0 in in length, with varying wattages from 15 watt-125 watt, together with all the associated control gear, are a far cry from early tungsten lamps—plastic coolicon shade—metal R.L.M. reflector age, where the only attention necessary was to change the lamp when it burnt out and perhaps occasionally wipe the dust and dirt off of the reflector. Obviously, no special techniques were required and this simple task could be performed by the unskilled labourer if necessary. No special skills were required other than the commonsense to switch off the circuit before changing the lamps—and the ability to climb a pair of steps without getting giddy.

Current Situation

The situation today presents a very different picture and whilst a number of unenlightened managements still imagine that the archaic method tolerated in the last decade will still suffice, and that their costly investment in a modern lighting system can be allowed to deteriorate despite the resulting disastrous consequences, modern and enlightened management will realise that the task now calls for specialist treatment vital to their business and of top priority in order to project the substantial initial capital expenditure and ever increasing running costs associated with their lighting system.

Lighting schemes that are neglected after installation—however well designed—will very quickly lose efficiency due primarily to the accumulation of dust and dirt on lamps and fixtures and the gradual deterioration of lamp efficiency (light delivery). These factors together with the rapid burn out of lamps towards the end of their average lamp life will result in a reduction of light delivery by as much as 50% or more. This in effect will increase electricity costs and pro rata, the cost of Unit consumed—half the electricity bills therefore being for light lost. Further financial loss will be sustained due to a reduction in production or sales—which, from the industrial point of view, is directly related to the ability of the worker to see quickly and accurately the task to be per-

formed. And from the commercial viewpoint, it is well known that a bright and welcoming interior is essential for maintaining and increasing turn-over in stores and shops. Absenteeism caused by astigmatism of the eye in various forms—due almost wholly to bad lighting conditions form, according to many responsible authorities, the biggest single cause of absenteeism, resulting in a loss in the gross national product of many millions of pounds per year. The human eye is regarded in this context as the most important and expensive “tool of production” and should be recognised as such.

Planned Lighting Maintenance therefore, is a service vital to the Nation's efforts to increase productivity and represents a key factor in achieving this objective.

Planned Lighting Maintenance is now accepted as being a necessity and must not be considered a luxury or an after-thought or of minor significance in company planning for increased productivity and sales:—a factor the Managing Director will place high on his list of priorities.

It should be noted that emphasis has been placed on the phrase “Planned Lighting Maintenance”

- (3) Have I the skilled personnel experienced in handling and cleaning properly the different metals, plastics, and other materials found in the particular fittings involved?
- (4) Have I the electricians skilled in fluorescent lighting circuitry, able to analyse quickly any fault in control gear—and able to effect replacements quickly and accurately?
- (5) How many of the above personnel will I require to complete the work in the shortest practical time—without interfering with my production or sales?
- (6) What type of access equipment and how many items will I require?
- (7) What are the best cleaning materials—and which product should I use on what type of material?
- (8) How will we clean—in situ—or by removing enclosures?
- (9) Will I need special baths or cleaning machines—if so what size and type?
- (10) Does my company carry stocks, or can stocks be carried, of all the different types of control gear, chokes, condensers, starters, holders,

etc., that will be required?

- (11) When can the work be carried out?
- (12) Are there facilities for storing a quantity of lamps—and methods of disposing of old lamps when renewed?

These twelve questions represent a formidable analysis of the essential problems and requirements that need to be resolved when considering the application of such a scheme. Very few of the thousands of individual manufacturing and commercial companies operating in the U.K. today will be able to satisfy adequately all of these requirements or even—one or two—within the framework of their present set-up.

Existing Maintenance Schemes

Even where an existing maintenance department is operating, it is extremely difficult to integrate this new responsibility into existing work schedules and virtually impossible to execute in accordance with pre-arranged schedules. The preparation and pre-planning will take time and cost money. Additional labour may be required for use—whilst actually engaged on this work—but difficult to utilise fully between times,

LIGHTING MAINTENANCE

and to be effective this service must be on a regular basis and must embrace three distinct functions:

- (1) Regular cleaning of lamps and fixtures.
- (2) Group replacement of fluorescent tubes at predetermined intervals.
- (3) Repairs to faulty control gear.

Twelve Questions

The Maintenance Officer considering the implementation of such a scheme will need to satisfy himself on the following points:

- (1) Which is the scheme best suited to my particular requirements?
- (2) Have I men on my staff capable of studying this problem from the skilled technician's point of view and who are able to advise me of the cleaning and lamp changing frequency required. And from the commercial aspect the *exact* cost involved per annum?

Assuming the answer is yes:

Simons arm vehicle for high level maintenance





A point always important to consider when thinking of employing a lighting maintenance organization is its regularity of visits. A fleet of vans this size ensures that, geographically, large areas can be covered and fittings maintained at the agreed intervals

and therefore uneconomic. The job will require organising and supervising by a responsible executive, and so on.

The Alternative

What then is the alternative—How does one “buy” a lighting

which are to be achieved.

If a contract is drawn up the specialist company will:

- (1) Provide sufficient skilled labour to execute the work quickly and efficiently, and at times convenient to the

ance contractor is the complete answer to the twelve questions posed above. He will take over the problem and provide a comprehensive and economic service smoothly, economically and efficiently.

By H. Botten

The Lighting Maintenance Co. Ltd.

HOW AND WHERE TO BUY

maintenance service?

The answer now is, simply, by enlisting the aid of the specialist lighting maintenance contractor. The professional lighting maintenance company will offer the following services.

Pre-Planning Stage:

- (1) Carry out a comprehensive survey of the whole of the installation however extensive this may be.
- (2) Prepare accurate schedules indicating full details of the number, type, size, etc., of the installed lamps and fittings.
- (3) Prepare alternative schemes for cleaning and lamp replacement tailored to suit each individual company.
- (4) Present a comprehensive specification detailing the standard of work intended and conditions on which the schemes are based.
- (5) Submit firm prices for alternative schemes if required.
- (6) Prepare cost analysis showing clearly the proven benefits

activities of the client.

- (2) Provide all cleaning materials and mechanical equipment that may be required.
- (3) Be equipped with adequate up-to-date access equipment to enable access to any fitting no matter what the situation or height.
- (4) Supply and install replacement lamps as required; be able to store them and dispose of all old lamps.
- (5) Carry large stocks of control gears and repair items etc., in order to effect prompt emergency repairs.
- (6) Prepare work schedule programmes and supervise and organise a complete programme.

The professional maintenance contractor will:

- (a) Operate a fleet of maintenance vehicles fully equipped for transport of plant and equipment from site to site.
- (b) Provide full protection against loss through accident.

In short, the lighting main-

tenance contractor is the complete answer to the twelve questions posed above. He will take over the problem and provide a comprehensive and economic service smoothly, economically and efficiently.

Contracts are usually prepared to cover a period of two or three years, and can be extremely flexible regarding inclusions. Repairs to faulty fittings for example can either be included on an all-in guarantee basis or they can be dealt with as a separate item.

Considerable savings in administration costs are achieved and the customer is able to budget for this item in advance. The choice of a company to whom one should hand over this responsibility should be the subject of considerable and careful thought. It may be trite to say that “You get what you pay for” but this is true of purchasing a lighting maintenance service just as with any other commodity.

Quality of service will vary from company to company. There are a number of general cleaning organisations who are willing to undertake the cleaning of fittings and will occasionally supply and install lamps as an adjunct to their main cleaning

business. These companies may offer what appears to be a cheaper price for cleaning only lamps and fittings but these people are required to work on expensive, sometimes fragile equipment. The type of labour employed is usually experienced only in window and floor cleaning and consequently can, and do, cause considerable damage necessitating the employment of an electrician to follow up and make good, often at considerable cost.

Security Risk

In addition, this labour is frequently casual or self employed and may offer a very bad security risk. The reputable contractor will use only skilled electrical labour on this work and will guarantee to leave all lights in working order. The specialist lighting maintenance contractor will also have an electrical engineering background and will invariably have an established staff of responsible operatives who can be trusted to work in stores and shops where security is of prime importance; men who require virtually no supervision.

The difference in price is usually reflected in these considerations together with the general standard of service offered.

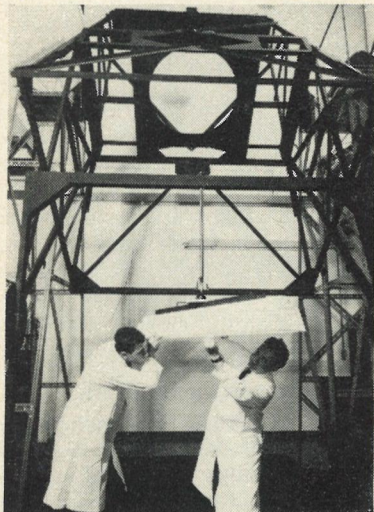
Summary

To sum up, therefore, when choosing a contractor, the following questions must be asked and affirmatively answered:

- (1) Does the company specialise in this field.
- (2) Employ competent electricians and staff familiar with the expensive and complicated equipment on which they will be required to work.
- (3) Prove successful operations over a number of years.
- (4) Offer good references and provide a genuine list of well-known companies spread over a good cross-section of industry and commerce.
- (5) Provide adequate insurance cover.

Providing one receives the foregoing assurances it is reasonably certain that the service received will be good and that the prices quoted will be competitive and show dividends. The contractor's existing clients will have proved that this is a worthwhile service, in other words, the proof of this particular “pudding” is in the eating.

The experience of the writer's own firm, responsible for this service to some of the largest and best known companies in the country, is that this particular recipe has proved eminently digestible and is increasing in general acceptance whenever Managements decide to “chew over the problem”. **LEN 200**



Beam photometer used for measuring the intensity distribution of larger lighting fittings.

The Photometric and Lighting Equipment Laboratory of the British Standards Institution is situated at the Hemel Hempstead Test Centre of the B.S.I. It is the only large independent photometric laboratory in the country, and was opened in October, 1963 to meet an urgent need for photometric test facilities to be made available to the lighting industry, particularly for smaller manufacturers who lacked the necessary test equipment. The Laboratory was initiated following an approach to the B.S.I. by the Electric Light Fittings Association during 1962. In addition, the publication of British Standard, I.E.C. and C.E.E. specifications for lighting fittings was imminent. These called for elaborate tests to prove the thermal, mechanical and electrical safety of such equipment. (For convenience these items are grouped under the general heading of "Environmental" tests.) At this time, also, discussions were well advanced in the expectation of Great Britain entering the European Common Market and a nationally recognised independent Test House would meet the requirements of the C.E.E. reciprocal test agreements.

Test Service

It was to provide a test service to industry, including development testing, to meet all the above specifications together with the provision of photometric data needed for catalogue purposes to cover the I.E.S. Code and I.E.S. Technical Report No. 2, that the laboratory was instituted by the B.S.I. The laboratory is under the control of Mr. H. F. Stephenson, B.Sc.(Eng), M.J.E.E., F.I.E.S.

During 1964 the testing of certain vehicle lights and reflex reflectors was undertaken on behalf of the Ministry of Transport. This was to meet the requirements of the "E" schemes

which cover Approval Marking to Regulations 1, 3 and 5 of the Economic Commission for Europe so that manufacturers can export approved items to those European countries which apply these regulations. The Ministry of Transport as the competent authority in the United Kingdom designated the B.S.I. Test Centre for Official testing purposes. In addition to the above functions the laboratory facilities are utilised in testing to various B.S.I. Certification Mark Schemes.

Future Expansion

For the future, expansion into other fields of photometric and cognate test work will be governed only by the specific needs of industry. Provided sufficient support is forthcoming for any particular project, the Test Centre is prepared to install the necessary equipment. The results of all tests made are confidential as between the B.S.I. and the client. The client may, however, make use of the results and/or Test Certificates, if any, subject to certain restrictions. All tests are made subject to the General Regulations of the Test Centre contained in Test Leaflet No. 1, a copy of which is available from the centre on request.

The laboratory is housed in a separate new building 60 ft square divided into two to form the Photometric and the Environmental laboratory. It is of single storey construction with a ceiling height of 14 ft except at one end of the photometric laboratory, where a height of 28 ft has been provided to accommodate the large distribution photometer. The present layout of the laboratories and equipment is shown in the accompanying plan.

Photometric Equipment.—The laboratory is equipped to measure the light distribution from all types of conventional lighting equipment including also vehicle lights and reflex reflectors. Luminance measurements, bench photometry and the calibration

THIRD IN A SERIES OF ARTICLES ON ORGANISATIONS WITHIN THE LIGHTING INDUSTRY DESCRIBING THE ACTIVITIES OF THE PHOTOMETRIC AND LIGHTING EQUIPMENT LABORATORY OF THE HEMEL HEMPSTEAD CENTRE OF THE BRITISH STANDARDS INSTITUTION

of photometers are undertaken.

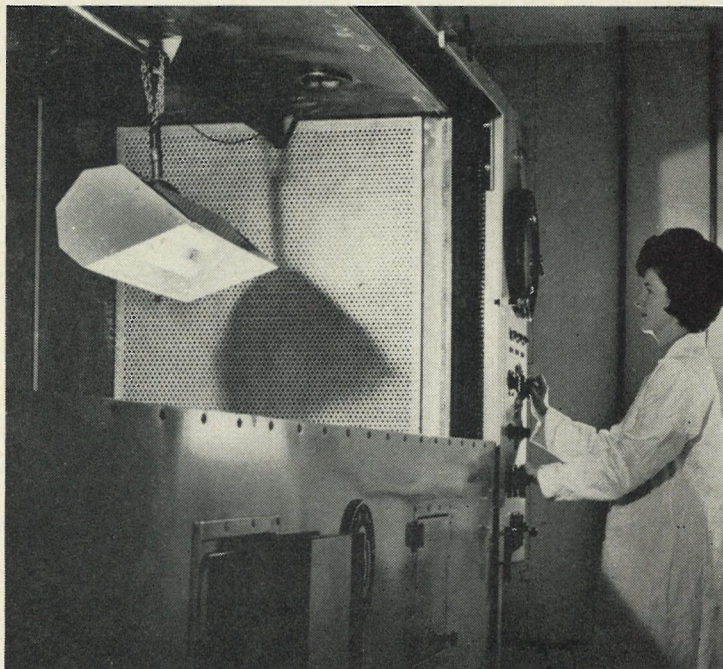
A two mirror intensity distribution photometer will accept all lighting fittings of up to 2 ft in lighting length, 3 ft overall

length, and which are suitable for measurement within its range of test distances, which may be varied between 12 ft and 38 ft. Pendant, ceiling mounted, side entry or post-top fittings are measured on this photometer.

Fittings having a lighting length exceeding 2 ft and up to 6 ft long by 3 ft wide can be measured on a large intensity distribution photometer. This includes most designs using tubular fluorescent lamps and the higher wattage sodium street lanterns.

The design has a fixed test distance of 20 ft which is adequate for measurements to commercial accuracy on the larger fittings using 5 ft tubular fluorescent lamps. This temporary beam photometer which was built by the laboratory will shortly be replaced by a permanent larger single mirror instrument capable of accepting fittings up to 9 ft in length, and will have a test distance variable between 20 ft and 50 ft.

A 14 ft side photometric integrator of cubical form is available and is used mainly for compara-



A road sign lighting lantern being tested in the humidity cabinet.

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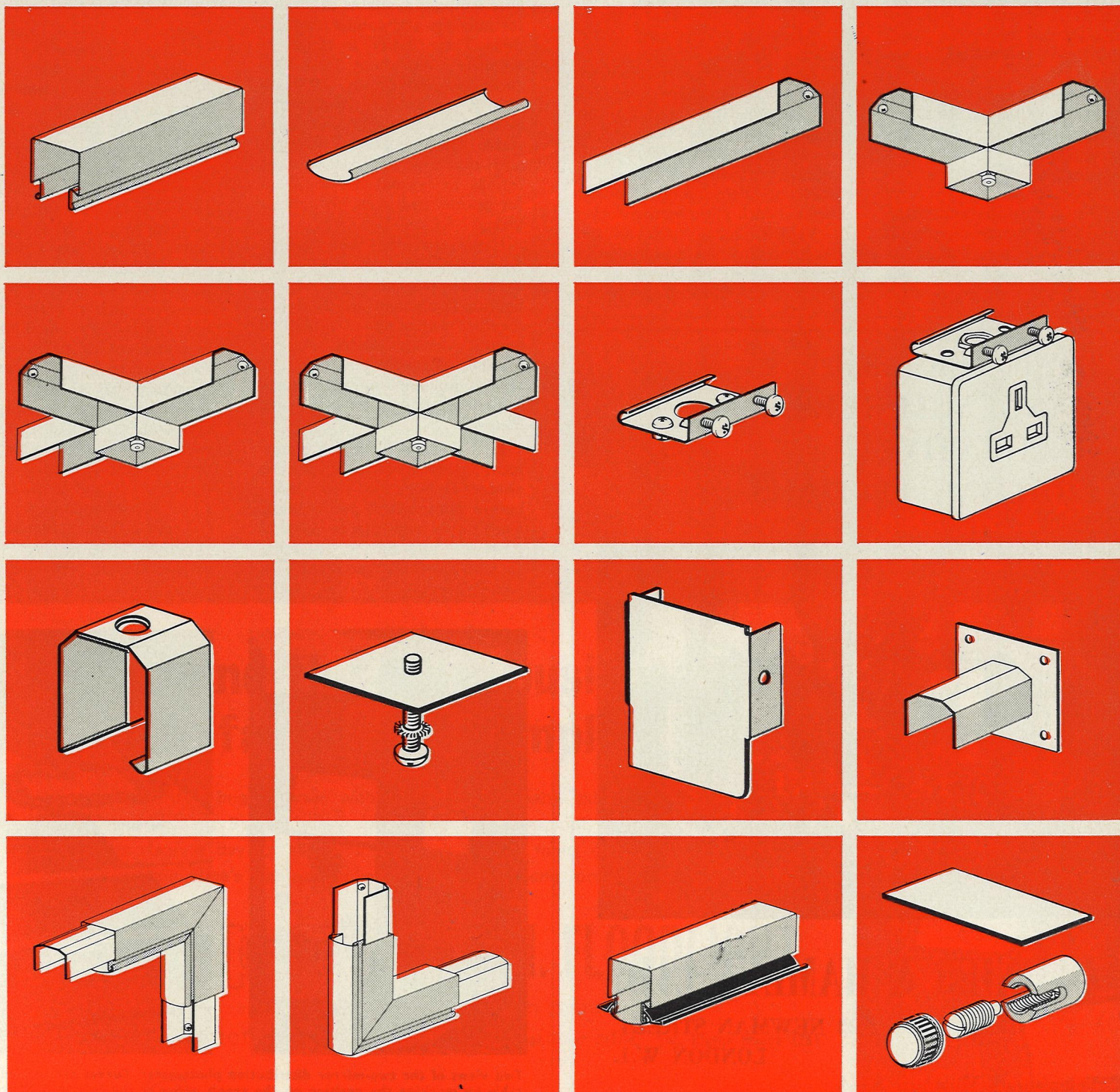
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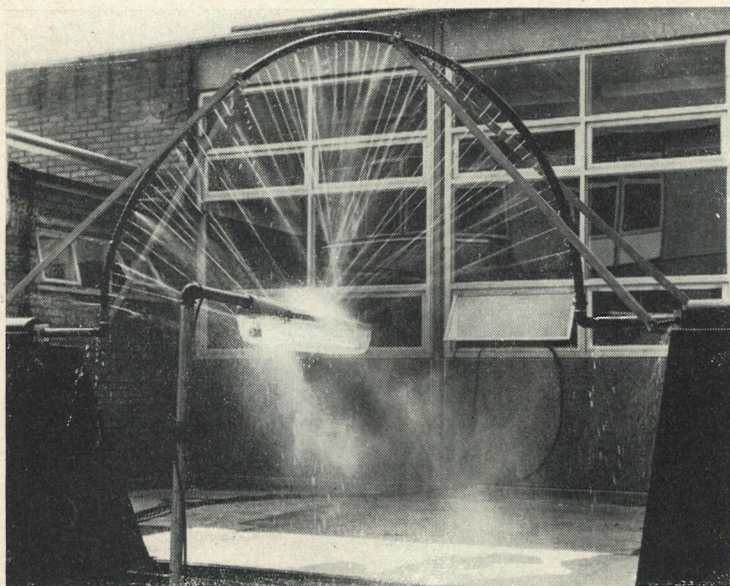
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Rainproof tests are carried out on this outside apparatus

tive total light output measurements. Fittings of up to about 8 ft in length can be accommodated.

A specially made large goniometer turntable is used for floodlights and vehicle headlights and measurements are made over a test distance of 82 ft. The goniometer will accept floodlights of up to 3 ft in diameter and angles may be set on the dividing heads to one minute of arc. This equipment is also used in testing headlights to Regulation 1 of

the "E" scheme and has the required test distance of 25 metres (82 ft).

An 18 ft long photometric bench with ancillary apparatus is available. It is used for calibrating visual or photoelectric luminance and illumination photometers, transmission measurements on filters and other conventional bench photometric work.

Vehicle lights such as tail, stop and direction indicator lamps are measured effectively at infinity on a collimated lens photo-

meter. A small but precise goniometer is used and the light directed along the photometer bench on which the collimating lens—photocell system is mounted.

Reflex reflectors for vehicles and other retro-reflecting devices are measured on a special photometer based on an instrument designed at the Road Research Laboratory. Reflex devices of up to 9½ in dia. can be accommodated. The C.I.L. value is measured and the colour checked by using an ancillary colorimeter developed by the B.S.I. laboratory. This equipment is used to certify compliance with Regulation 3 of the "E" scheme and with B.S. 2515.

Calibration

A comprehensive set of reference lamps is available calibrated for intensity and colour temperature. These cover a range of intensity from about 1 to 3000 candelas and from 2500 to 2900°K in colour temperature. Selected and photometrically stable General Service filament and discharge lamps of most ratings in normal use are kept for photometric tests on lighting fittings.

Calibrated red and amber colour limit filters specially made to match the limits for vehicle lighting equipment are available, together with a set of calibrated neutral density filters. A depolished pot opal reference surface of known luminance factor is used in calibrating luminance meters.

Photoelectric measuring equipment includes barrier layer type photocells for the two distribution photometers and a sensitive, stable and precise general purpose photometer of the vacuum emission type fitted with

a Preston "average eye" liquid filter. This photometer has a readout on a 5-digit digital voltmeter and is used as required on either of the cube, floodlight testing range, photometer bench or vehicle light test apparatus. It can also be used on either of the two distribution photometers.

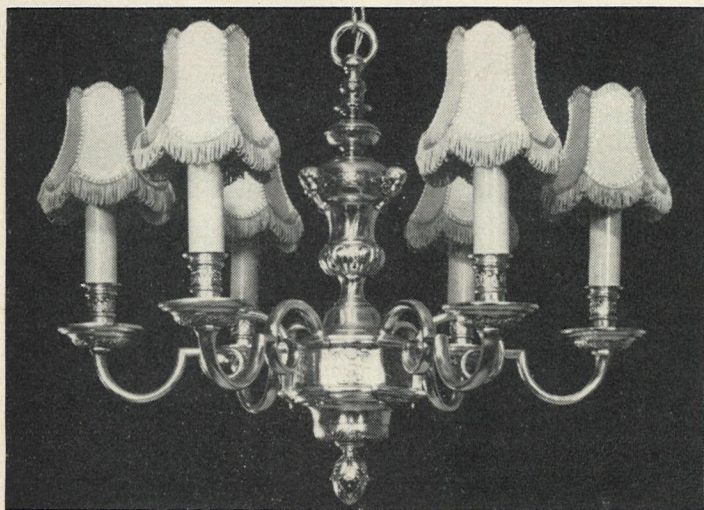
A range of "average set" ballasts for discharge lamps is available. Power supply equipment includes stabilised a.c. of good waveform and a low voltage d.c. supply for vehicle light measurements. All electrical indicating instruments are accurate to ±¼% or better.

This equipment has been designed to check compliance with all the relevant clauses in B.S. 1788 and B.S. 3820 and with minor exceptions those in the C.E.E. and I.E.C. specifications.

A large double walled thermal test enclosure having internal dimensions of 12 ft long by 6 ft high by 6 ft deep is used for thermal testing. This can be divided into two smaller enclosures 4 ft and 8 ft long. Specially selected and calibrated fine gauge thermocouples and potentiometric measuring equipment with 24 ways is available and covers a temperature range of between minus 50°C and plus 500°C. In addition a thermistor type probe instrument is used for some surface temperature measurements and for locating hot spots. To facilitate the measurement of ballast winding temperatures by the increase in resistance method a quick reading bridge is being developed. A temperature controlled room is used for making the endurance test on lighting fittings required by B.S. 3820 and the C.E.E. and I.E.C. specifications.

There is also a humidity and environmental test chamber with a conditioned working space

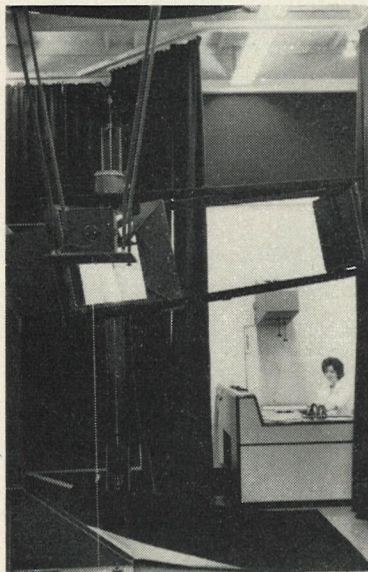
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Two views of the two-mirror distribution photometer. Curves are plotted at the table by marking the position on the graph paper of the spot of light from the galvanometer sited on the wall above.





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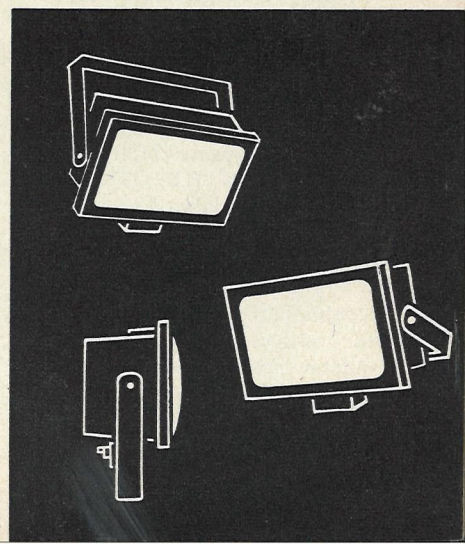
for use with 1500w tungsten iodine lamps

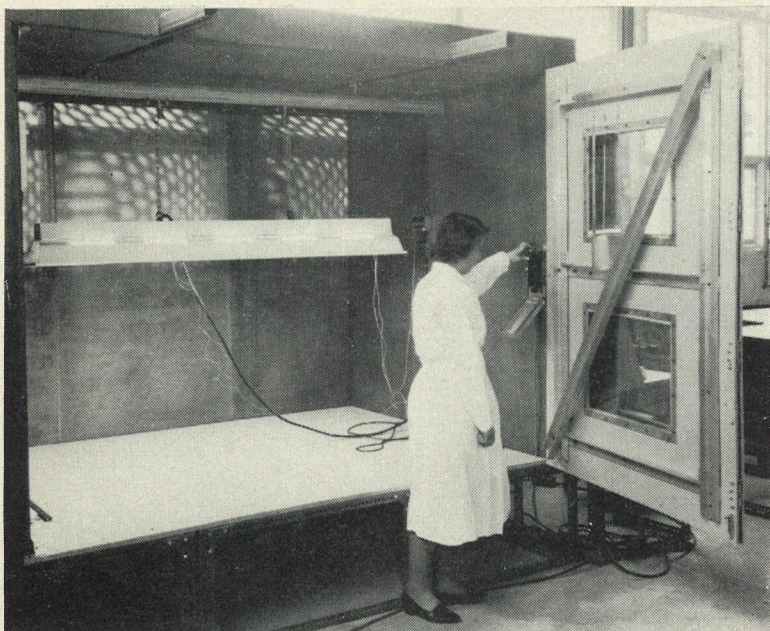
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TIF-67

**"See us at Stand D12,
Lighting Exhibition,
Earls Court, April
25th — May 4th".**





An 8 ft. section in use in the draught-free thermal test enclosure. Thermocouples are connected to terminals within an enclosure screened from radiation by a double wall of polished metal

9 ft long by 3 ft deep by 3 ft high which incorporates facilities for suspending most types of fitting. Test conditions available cover relative humidities of between 40% and about 99%, wet or dry heat up to 70°C and refrigeration down to 0°C. Photometric, thermal and electrical tests can be made on a fitting operating in any of the above environments. The cabinet is installed in a temperature controlled room so that fittings can be given the specified pre-conditioning treatment before test.

Safety Checks

Conventional high voltage flash and insulation resistance test apparatus is available too but for electrical safety. In addition equipment is provided to measure earth continuity resistance, to make tests with the standard test finger, impact apparatus, torque tests on terminal screws and dimensional checks for creepage and clearance distances.

Fitting suspension systems are checked for mechanical safety using a strong and rigid supporting frame attached to the main roof structure, and fittings under test may be suspended from or fixed to the frame as appropriate. Dimensional checks and torque tests on threaded parts are also made.

A rainproof test apparatus to test for enclosures built to the requirements of B.S. 3820 and B.S. 1788 is available. Four semi-circular tubes of different radii are provided and fittings of up to 8 ft 6 in in length can be accommodated. A suitable hose and vertical rain device are available together with a tank for testing watertight fittings.

Dustproof and dust-tight

fittings are tested in a talc dust chamber large enough to accommodate 8 ft fittings. The general design follows that specified in B.S. 3807. Other equipment in the Environmental laboratory is for particular tests applicable to vehicle lights and reflex reflectors. It comprises four test rigs covering corrosion, moisture resistance, dust penetration (cement dust) and vibration tests.

Since its establishment the Photometric and Lighting Equipment Laboratory has been mainly employed on photometric testing work for individual lighting manufacturers, both for development purposes and particularly in order to provide data for catalogue work. The volume of this work, however, has been scarcely sufficient to keep the laboratory fully employed.

However, the introduction of the B.S.I. Certification Mark Scheme (the Kite-mark scheme) for in Group A Street Lanterns made to B.S. 1788 in January, 1966 has meant a considerable increase in the work of the laboratory and also the work of its staff at lighting manufacturers' premises. The contemplated extension of this Kite-mark scheme to Group B Lanterns, when the necessary amendments to B.S. 1788 have been made, is likely to mean a considerable further extension in the activities of the laboratory in this field.

Other Fittings

The British Standards Institution are anxious to extend their work to other types of lighting fittings covered by B.S. 3820, which, at the moment, only covers environmental testing, but is likely to be extended to cover photometric testing in the not

too distant future. With the extension of this Standard to cover both environmental and photometric tests it will then be possible, if general agreement is reached, to extend the Kite-mark scheme to a wide range of lighting fittings.

Extra Costs

It is appreciated, of course, that the initial cost of having other fittings certified for the Kite-mark scheme falls upon the individual manufacturer concerned, and that ultimately these costs will have to be passed on to the customer, something which is not too easy in a competitive market. It is estimated, however, that in the case of street lanterns, the additional cost of the certification scheme is likely to be only between 1 or 2% of the selling price, and it is thought that the users can be persuaded to pay this additional charge for a fitting which has been approved and tested by an independent authority.

At the moment, all testing of lighting fittings, whether for a manufacturers' own purpose or for certification purposes, is voluntary, and the approach must be made by the manufacturer himself to the B.S.I. testing laboratory. The conditions of the test and the terms of payment are agreed and the results remain confidential to the client, unless publication in a suitable form is agreed between the B.S.I. and client.

There is no doubt, that there is an increasing demand, particularly from Government departments and local authorities, for certified equipment of all types, including lighting fittings, and from general users for authenticated data on the performance of lamps and lighting fittings. Whilst at the moment no legislation is contemplated on the

subject, it is likely that this increasing demand will make it virtually compulsory for all manufacturers to comply with British Standards and to have their equipment certified accordingly.

Admittedly, leaving the scheme on a voluntary basis places the more reputable manufacturer at a disadvantage, both in respect of any less scrupulous manufacturer who sells inferior products and also in respect of foreign manufacturers who wish to sell equipment in the U.K. and at a lower price which may not conform to the requirements of the B.S.I. In this respect it would appear that the users of lighting equipment need to be educated on the importance of the compliance of lighting fittings with the relevant British Standards, and the value of the Kite-mark in all cases where this is applicable.

There is further value in the provision of British Standards Institution test certificates in respect of the export of British equipment overseas. Foreign countries are becoming increasingly aware of the importance of higher standards, and in the future British equipment may not be accepted unless it conforms to these standards.

Support Needed

The B.S.I. Photometric and Lighting Equipment Laboratory at Hemel Hempstead was set up on the initiative of the lighting industry and its purpose is to serve this industry. Undoubtedly if the facilities at the laboratory are to be developed and extended, it needs more support from the lighting industry than it has had in the past. The Director of the laboratory would welcome proposals at any time as to how they may be of further assistance, not only to the lighting industry itself, but to other industries.

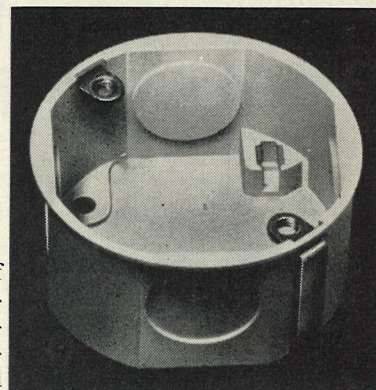
BLACON INSULATED CONDUIT BOX

Reinforced Circular Model

NETTLE Accessories Ltd., of Stockport, have recently introduced an addition to the Blacon all-insulated conduit range—a reinforced circular box. This model (Ref. 9201) has steel strap fixings which take the entire load off the box and suspend the fitting direct from the ceiling. This feature provides a safeguard previously unavailable in all-insulated systems. The box is ivory coloured and has knockouts in the base and sides.

Price and delivery: on application.

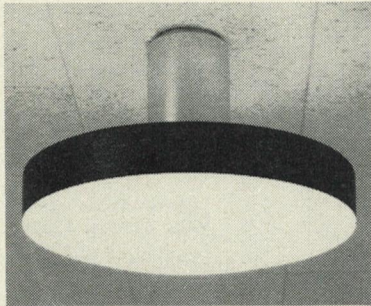
For more information use Reader Service Form quoting LEN 173



ATLAS NOVA RANGE

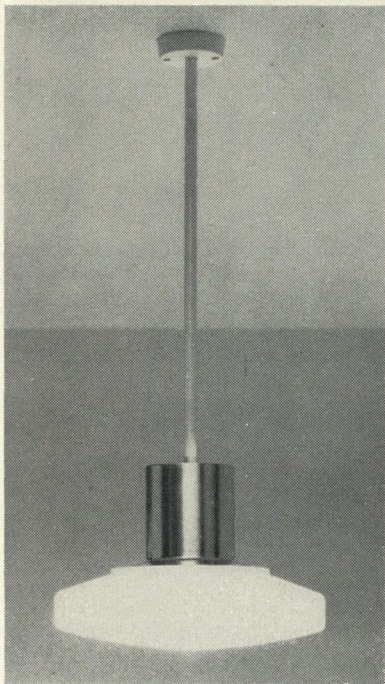
ATLAS LIGHTING have announced the NOVA range of opal glass-ware lighting fittings designed to meet the demand for new and interesting shapes in modern interior design. The NOVA range comprises three basic units, the NF, the MR and the MTC fittings.

The NF fitting is equipped with a shallow satin-etched opal glass 11 in or 15½ in in diameter for 100W and 2×100W lamps respectively. The fitting has a polished satin anodised-aluminium flange cap gallery for close ceiling and suspension mounting, the latter



NF 100 for close ceiling mounting.
Anodised aluminium gallery and satin opal glass.

NF 100 fitting—satin opal glass and white rod.



also using an 18 in white-painted suspension rod and a ceiling plate. For interiors with low ceilings, a lever release gallery enables the fitting to be flush mounted. The NF fittings are also available with a black-painted decorative trim around the circumference of the glass.

The MR fittings are a compact form of lighting presenting an extremely neat appearance where low ceiling heights are encountered. Flush fittings for walls or ceilings, the fittings have concealed metalwork and can be supplied in 100W or 2×100W sizes. The glasses are white flashed opal.

The MTC series comprises white flashed opal glass spheres with a heat-resisting white plastic gallery. Available in three sizes—6, 8 or 10 in diameter for 60W, 100W and 150W lamps, the MTC fittings are suitable for wall as well as ceiling mounting.

For more information use Reader Service Form quoting LEN 174

OSRAM HIGH MAST UNIT

THE Streetlighting Department of Osram-G.E.C., which pioneered high-mast lighting in Great Britain, is now manufacturing its own high-mast unit in this country.

The design of these masts has been carried out in conjunction with Uddeholm Ltd. of Sweden, and is based on their forty years' experience of high-mast production.

G.E.C.'s own high-mast, available in heights ranging from 65 ft to 100 ft has been approved by the Council of Industrial Design.

The shaft will be made from Uddeholm's hot-rolled seamless high tensile chrome molybdenum

steel tube. The base, headframe and contact gear is to Osram's specification.

Mr. R. E. Cavalier, head of Osram Streetlighting said: "This mast is the result of combining the experience of Uddeholm with G.E.C.'s engineering and research facilities. It is an example of co-operation between two large companies in different countries, producing the very best article in the spirit of the E.F.T.A. agreement.

"We intend to obtain export business out of this new development."

For more information use Reader Service Form quoting LEN 175

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OSRAM LAUNCH CRYSTAL RANGE

A NEW range of decorative fittings aimed at providing low-cost luxury in lighting for the home and commercial applications, has been announced by **Osram-G.E.C.** of East Lane, Wembley.

The fittings, named the "Crystal Range", consist of circular crystal glassware married to contrasting satin silver aluminium mountings.

The Crystal fittings have been designed as an integrated range. One of the two basic shapes in the range is available in pendant or ceiling mounted versions, while the other can be supplied as a pendant or wall-bracket unit.

The fittings can be used individually or in groups not only in the home, but also in such commercial locations as hotels restaurants, bars, boutiques, foyers, lounges and reception areas.

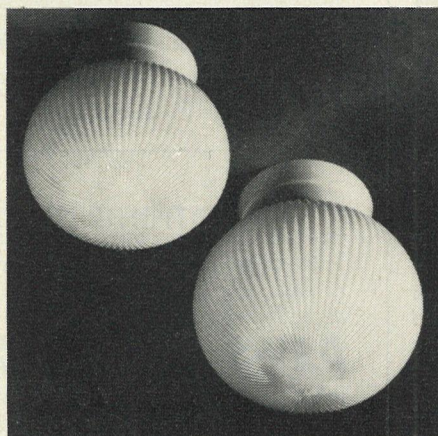
The pendant and wall bracket versions of the more slender fitting (F30201 and F32290 re-

spectively) cost £4 7s. 2d. (inc. P.T.), while the pendant version of the other fitting (F30200) costs £6 7s. 2d. (inc. P.T.), and the ceiling mounted alternative

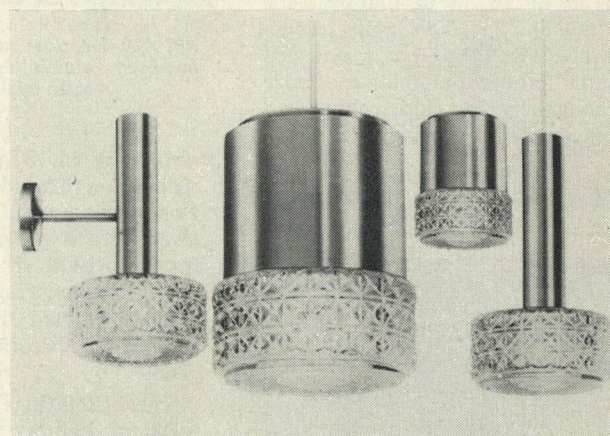
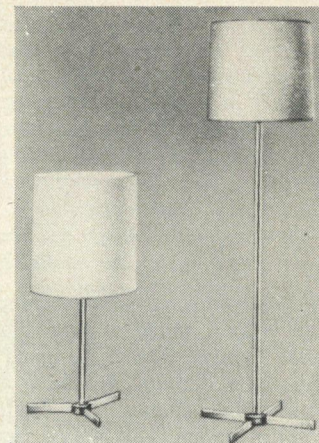
(F36200), £5 16s. 3d. (inc. P.T.).

Fitting F30201, hung in cascade formation in a group of three from an Osram spreader (PC3SC), costs £17 5s. 9d. (inc. P.T.)

(Below, left) 6 in. model F40264 price £1 13s. 1d.
(Below, right) 8 in. alternative F40265 price
£1 19s. 6d.



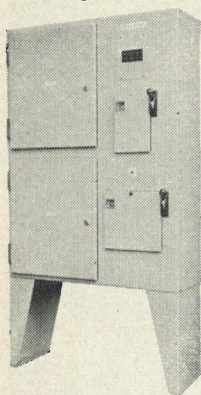
(Above) Table standard F38100, floor standard F39100. (Below) Wall bracket F32290, pendant F30200, ceiling mounted F36200, pendant F3020L.



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- * COMPLETE INSTALLATIONS
- * CONTROL CONSOLES
- * TOWERMASTER RANGE OF TOWERS

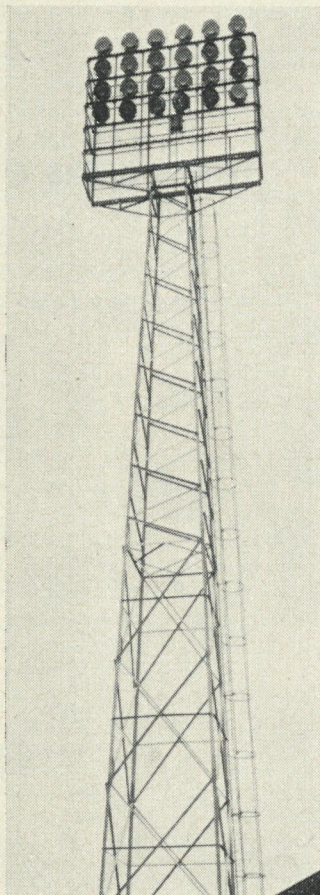
We specialise in planning and installing floodlights for all purposes and in the successful completion of very many different installations we have learned the answers to all the problems involved. Hand your problem to our team of designers and engineers.



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For more information use Reader Service Form quoting LEN 176



complete.

All the fittings will accommodate up to a 100W B.C. lamp, and each pendant is supplied with 4 ft of strain resistant flex.

The base of all the fittings is 6½ in. The height of F30201 and F32290 is 11 in, while F30200 and F36200 are 8½ in.

TWO STANDARDS

In addition to the new Crystal range, Osram are also marketing a new floor and table standard. Each is available with an attractive choice of four easily cleaned shades—real straw, red, green and stone coloured.

The table version (F38100) cost £6 7s. 11d. (inc. P.T.) and is 1 ft 10½ in high with a diameter of 11½ in. The floor standard (F39100) cost 14 guineas (inc. P.T.) and is 5 ft 6 in high with a diameter of 2 ft 9 in.

Both models have switched

lampholders and satin-polished chrome bases. The table version accommodates a 150W B.C. lamp, whilst the floor standard can accommodate a 150W B.C. or even a 200W B.C. lamp.

RIBBED GLASSWARE

Another new fitting designed to meet the need for low-cost lighting in bathrooms, kitchens or cloakrooms, is a ribbed, white opal glass bowl for close-to-the-ceiling fixing.

Two versions are available—a 6 in model (F40264) costing £1 13s. 1d. (inc. P.T.) and an 8 in alternative (F40265) at £1 19s. 6d. (inc. P.T.).

The fittings have a plastic corrosion-proof body sealed to the glass for complete protection against damp atmospheres.

For more information use Reader Service Form quoting LEN 177

E.W.F. GENERAL MEETING

THE Annual General Meeting of the Electrical Wholesalers Federation is being held from 10 a.m. on March 16, 1967, at the Park Lane Hotel, Piccadilly, London, W.1.

The Annual Dinner is also being held on March 16 at the Dorchester Hotel, Park Lane, London, W.1, at 6.30 p.m. for 7 p.m. The principal guest and

principal speaker will be Sir Hugh Weeks, C.M.G., Chairman of the Distributive Trades Economic Development Committee.

Mr. J. O. K. Purdey, President of the Electric Light Fittings Association and Chairman of the British Lighting Council will also be speaking in response to the Toast of "Our Guests".

B.B.I. LIGHTING

Range of Fittings

On Display

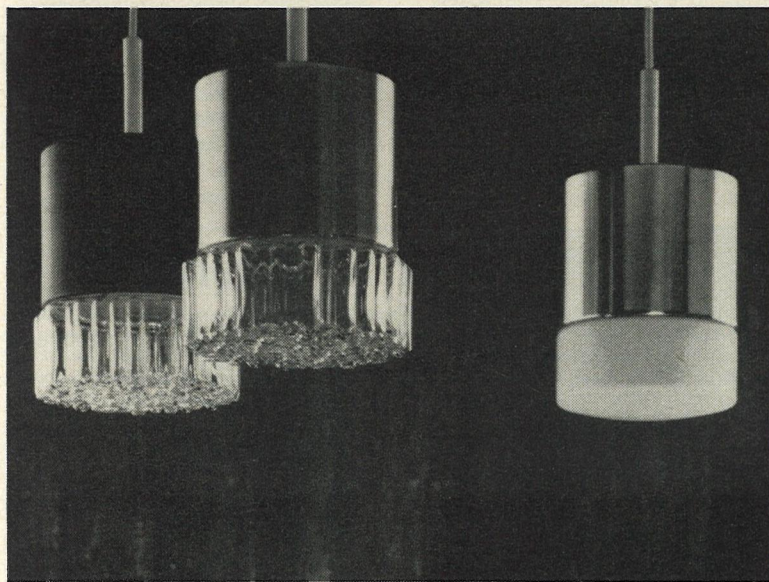
IN THE last few months B.B.I. Lighting have introduced a new and modified range of fittings. This range retains those which were best in the old catalogue and many which are entirely new. New catalogues are available and a special display has been arranged in the London showroom at 48, Albemarle Street, W.1, which is now open.

The "Staff" decorative tungsten lamp fittings embody many new designs and new features. Many of the totally enclosed types are now weatherproof and utilise a screw-neck type of glass, fixing into bodies made from glass fibre reinforced plastic. These fittings are not just utilitarian, but are highly decorative, the largest being a circular glass dish of 19½ in diameter in crystal; housing 3 × 75 watt lamps. Some of the fittings for reflector and PAR spot or flood lamps have been redesigned

are some entirely new designs and some new sizes of established favourites. Two of the new ones are crystal spheres and crystal cylinders. Table lamps of novel design and floor standards with new materials for the shades, including calves skin are also shown; also a study lamp with a 13½ in diameter hemispherical shade.

The "Visolite" range of fluorescent fittings includes the new prismatic recessed module and surface types, also the economy fitting KOL 2/65 with a dust-tight opal diffuser at a reasonable price.

For the first time the complete range of fluorescent weatherproof and waterproof fittings are on show. These include several which are specially suitable for use in cold stores and freezers. New also, are the prismatic diffuser fittings with a mirror re-



B.B.I. Staff-Domino fittings, 5011, 5311 and 5300 for use with lamps of up to 100 watts.

to incorporate a new type of wall fixing and to accommodate the smaller 100 watt lamp. All recessed fittings now have a screwless fixing system which makes installation or removal very simple. In this recessed range are a new series of miniature fittings with a chrome plate only 4½ in square, including a high power, low voltage spot.

Amongst the pendant fittings

reflector to direct the light in the required direction. Some of these are designed for use in gymnasiums and swimming baths.

In all, the fittings shown in the new B.B.I. Lighting catalogues and displayed in the showroom, provide a solution to almost any lighting problem.

For more information use Reader Service Form quoting LEN 178

GO 'SHAVOLITE'

with **LINOLITE** 'SD'
all insulated striplights

SD 5A/SS

SHUTTERED
FOR
SAFETY

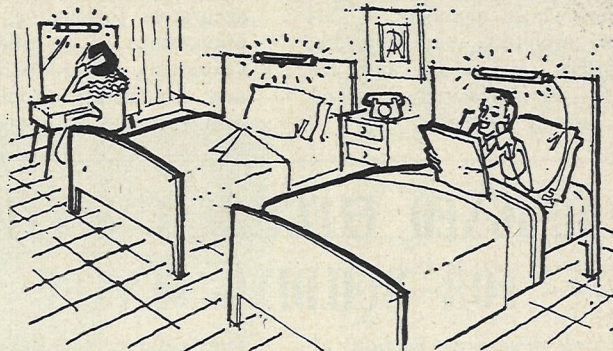
for
comfort
shaving...

away from the bathroom

change this



to this



Linolite at the Ideal Home Exhibition, Olympia.

Stand No. 513 Empire Hall

*Come and see the established favourites
and an entirely new striplight fitting.*

Send for supplies of illustrated leaflets to:—

LINOLITE LIMITED

118 BAKER STREET, LONDON, W.1

Telephone: Welbeck 1159 & 1150

STRONG MOVE TOWARDS INTEGRATION

Lighting as a Component of the Total Environment was the theme of a meeting organised by the B.L.C. when the problems of integrated heating and lighting were considered in the light of current trends

"INTEGRATION", electrically not racially, is the problem currently exercising the minds of Britain's architects, designers and lighting engineers. There is a strong movement to curtail the segregation of the lighting and other services in new buildings. The aim is to integrate all the services of a building to provide an environment which is properly controlled; visually, thermally, structurally and aurally. The importance of this development was reflected in a Design and Industries Association meeting held recently at the newly reconstructed British Lighting Council headquarters—itself an example of a building with co-ordinated lighting and heating services.

"Lighting as a Component of the Total Environment" was the theme of the meeting which was organised by the B.L.C. at the request of the D.I.A. London Region whose members—designers, architects, manufacturers, importers, journalists and retailers—are increasingly involved with lighting problems.

The architectural aspects were discussed by Derek Phillips, A.R.I.B.A., M.C.D., M.Arch., who designed the B.L.C.'s headquarters. John Baker, the B.L.C.'s electric space conditioning specialist, considered the engineering problems. Nearly 100 D.I.A. members were welcomed to the B.L.C. headquarters by the meeting's chairman, A. Wilcock, Director-General of the British Lighting Council.

The techniques of illuminating engineering are sufficiently advanced to enable any effect to be created provided that sufficient money is available, said Mr. Phillips. The interior designer's problem is not so much "how" to achieve a particular visual environment, but rather "what" is wanted visually.

The designer and architect are greatly helped by techniques evolved by lighting engineers for accurately forecasting subjective impressions of an objective environment, said John Baker. But new engineering problems were being created with every archi-

tectural development. Thus has sprung the new concept of Electric Space Conditioning (E.S.C.) which is Mr. Baker's principal concern in his work for B.L.C.

Mr. Wilcock saw the B.L.C. installation as a useful first step in Electric Space Conditioning and one which he hoped would stimulate architects, designers, contractors and lighting engineers to further thought.

BAD LIGHTING A THREAT TO PRODUCTION

THE serious situation recently revealed in the Drop Forging industry, where bad lighting was found by a Ministry of Labour report to be a major stumbling block to efficiency, suggests that bad lighting 'invariably gives rise to a product which is less than the best and furthermore creates a working environment that is not as safe as it should be'. Looked at nationally, it is more than a little worrying that an important component of our industrial fabric should have attempted over the years to carry out its job in 'a state of semidarkness'.

Mr. A. Wilcock, C.Eng., F.I.E.E., F.I.E.S., Director-General of the British Lighting Council, addressing the Electricity Council's Development Conference meeting at Harrogate saw in the Drop Forging industry report disturbing implications for industry and commerce in general.

LITESHOW A SUCCESS

EXHIBITORS at the recent Liteshow '67 have expressed their enthusiasm with the success of the venture.

The British Lighting Council said that good interest had been shown in their stand.

Mr. H. F. Schwimmer of Henk Schwimmer Studios said that there had been more orders at this year's exhibition. Mr. R. Homes of Conelight said that last year's orders had been doubled. Mr. J. C. Clarke of Clarke

(Electrical) Co. Ltd. considered that the show had been better than last year. Particular interest had been shown in the new recessed glass ceiling lights. Mr. R. N. H. Spear of Elliot and Spear had found the show quite satisfactory and intended to exhibit again next year. Mr. H. Nugent of Fenella Lampshades said that the firm had obtained a lot of new customers. Especial interest had been shown in the Lindy Lou washable lampshades.

DESIGNED ELECTRICAL SECTION FOR BUILDING CENTRE

THE new Electrical Section at London's Building Centre has recently been opened. The designers, Clive Hunt and Peter Reading, have used light, shapes and textures to highlight the electrical appliances.

"We wanted to keep people's eyes at the level where the objects are" says Clive Hunt, "and the emphasis stems from them being shapes in silhouette."

Translucent panels of Oroglas, brightly back-lit, set off the display stands and graphic information. Colour panels link exhibits which have a theme in common: pale blue is for air conditioning, yellow for storage fan heaters, green for Electricaire, and so on.

Ceiling and floors are in quiet contrast to the untextured walls.

The ceiling material is grey, sprayed-on Pyrok, a finish also used for the free-standing white display partitions. The floors are riven slate slabs, normally used as wall cladding, but given this imaginative new role by the designers, who won this commission in a limited competition held by the Electricity Council.

The whole layout is flexible, but two areas are particularly intended for temporary displays. An island stand sites kitchen appliances in a stylised domestic environment, and a husky plank-and-scaffold set gives the open-air feel of a building site, showing another aspect of Electricity at Work.

Contractors for the Section were Frederick Sage & Co. Ltd.

Atlas Exports by Hovercraft

A consignment of Atlas Lamps and Fluorescent Tubes being loaded on board a Westland S.R.N 6 Hovercraft at Ramsgate Harbour, Kent, prior to crossing the Channel to France. The cargo was the first ever to be shipped by this new form of transport. [The crossing was an exploratory one in view of the Thorn Group's increasing business with the Common Market countries]



Town and Around



R. L. MacLean



K. C. Lupton



E. Appleton

BRITISH Insulated Callender's Cables Limited announce that Mr. R. L. MacLean, formerly Glasgow Branch Manager, has succeeded as Regional Manager, Scotland, Mr. R. H. Steeds, who has retired. Mr. MacLean is based at Glasgow Branch of which Mr. K. C. Lupton is the new Manager. Both appointments are already effective.

British Insulated Callender's Cables also announce that Mr. E. Appleton has become Manager, Bristol Branch, responsible to the Regional Manager, South Western (Bristol), Mr. R. Fenwick. In addition Mr. R. A. Turpin has been made Manager, Birmingham Branch, responsible to the Regional Manager, Midlands (Birmingham), Mr. A. R. Leith, C.Eng., M.I.E.E.



R. A. Turpin

Mr. G. Whitehead has become Manager, Coventry Depot and Mr. T. P. Lovesey, Representative-in-charge, Gloucester Depot, both responsible to Mr. Turpin.

★ ★ ★

ATLAS Lighting Limited announce the appointment of Mr. I. P. Hamilton as Field Sales Manager, London Eastern Region. He will operate from the company's offices at Edmonton, London, N.18.



I. P. Hamilton

Ian Hamilton, born in 1925, married with one daughter, joined Atlas in 1959 as a Scottish Sales Representative, following war service in the Merchant Navy and subsequent posts with Kelvinator and the Clydesdale Supply Co.

★ ★ ★

A COURSE of six lectures on Calculations in Lighting Design will be given at the Borough Polytechnic, Borough Road, London,

S.E.1, commencing at 6.30 p.m. on Monday, April 10. The course will be organised and supervised by D. C. Pritchard, B.Sc., Dip. M.I.E.S., Senior Lecturer, and J. F. Pickup, Dip. M.I.E.S., Lecturer. A synopsis of the lectures will be sent to those registering for the course.

★ ★ ★

MR. K. R. Dixey has been appointed manager of the Leicester office of AEI Home Sales Division.

Mr. Dixey joined AEI's Birmingham office in 1950 and in 1961 opened a new sales office in Worcester for AEI. He was manager of the Worcester office until 1966 when he moved to the regional sales office at Birmingham as manager, for the Birmingham area.

A side of AEI's business in which Mr. Dixey has always been active throughout his career is the supply of electrics to the machine tool industry.

Mr. L. M. H. Elias, C.Eng., M.I.E.E., has been appointed manager of the Cardiff office of the A.E.I. Home Sales Division.

Mr. Elias joined AEI's Rugby works in 1934 and was on commercial work in the Industrial Sales Department when he joined the Army in 1940. He attained the rank of major and was mentioned in despatches during the campaign in North-West Europe.

Rejoining AEI in 1946, Mr. Elias worked in the Cardiff office until he moved to Leicester in 1955 to establish an AEI sales office there.

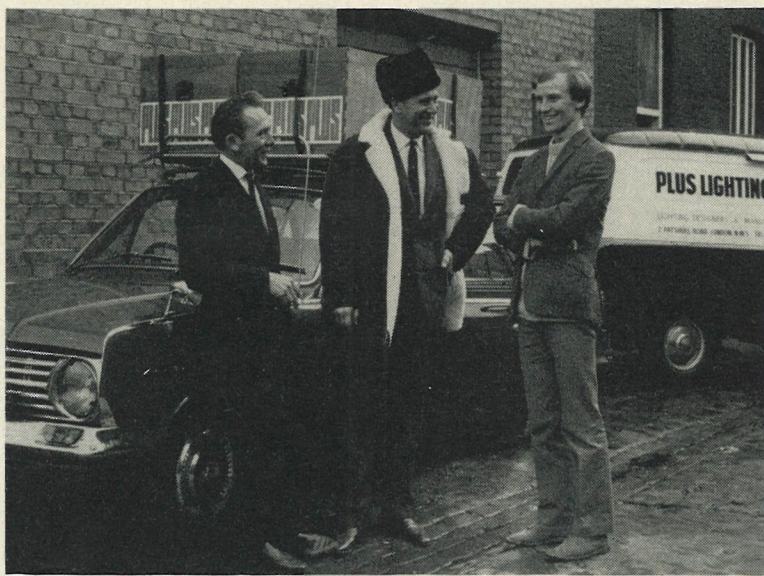
★ ★ ★

JANET TURNER, already well known to the lighting industry as designer of the British Lighting Council's last two Home Lighting exhibitions, has now joined the Council as full-time head of the Home Lighting Section.

For the past five years Mrs. Turner has been design consultant and lighting buyer for the progressive furnishing store of Ebbatts in Croydon. This, she says, has tempered her design abilities with varied experience of the practical problems of the customer. As a mother of a seven-year-old daughter and a three-year-old son, she is not the type of interior designer who recommends lighting fittings and other furnishings which look excellent in room settings but



Janet Turner



Plus Lighting Goes On Tour

Adam Wilson, sales director, Plus Lighting Ltd., accompanied by Brian Stewart, a member of the Plus design team, is seen here leaving for an intensive sales tour which covered northern European countries. Monty Brown, a director of the company, wishes him luck before leaving. The car carried a mobile exhibition of Plus Lighting fittings which was set up in Oslo, Stockholm, Copenhagen, Hamburg, Amsterdam, and Brussels.

which do not survive the onslaught of children.

One of Mrs. Turner's first jobs at the B.L.C. is to co-ordinate plans for Home Lighting Week '67 which will be held from October 30 to November 4 this year.

Another of her important jobs, now in the planning stage, is the B.L.C.'s 1967 Home Lighting Exhibition which will open at the Lancaster Place headquarters in July.

Change of Address

ELECTRICAL Conduits Ltd. have advised us that they have moved from Southampton Street, Leicester, to a new building situated in Morledge Street, only a short distance away from the old premises.

The new building has been specially designed by Frank M. Dewing, A.R.I.B.A., & Associates, and built by the well-known local builders, Messrs. G. Duxbury & Sons Ltd. Of three storey construction, it will enable the firm to carry larger and more varied stocks, under the personal supervision of J. J. Hayman (Branch Manager). Ample car parking and loading facilities are available. The telephone numbers remain the same, Leicester 50945/6.

Pillar of Strength

LIGHTING columns on public highways suffer many fates, but recently a 40 ft. steel column amply demonstrated its strength during an incident at Dudley, in the West Midlands.

On a dual-carriageway a huge boiler, part of an 80-ton load, crashed onto the central reservation and came to rest against the column.

Several people escaped injury in the incident and the column—although badly damaged—did not fall. Pushed over at an angle of 45 degrees, the Stewarts and Lloyds' column still stood—allowing one lane of the carriageway to remain open to the traffic.

LEN 180

Mr. A. C. Sibley

WE REGRET to record the death of Mr. Albert Charles Sibley following an operation in North Middlesex Hospital, Edmonton. Mr. Sibley, who was 62, had been with Atlas Lighting Ltd. for the past 18 years and had been engaged as a special technical representative on selected head office accounts. Prior to joining Atlas, he was in the electrical supply industry and had been an active member of the Association of Supervising Electrical Engineers.

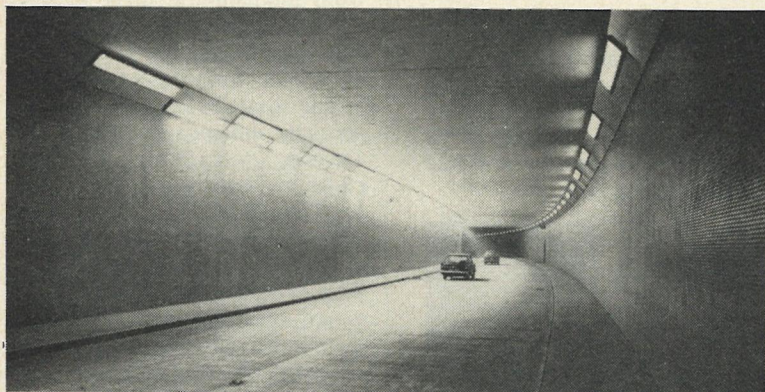
NEW INSTALLATIONS

Leeds Ring Road — Sunken Motorway

LIGHTING and ancillary equipment and installation work worth £128,000 have been provided by **Osram-G.E.C.**'s Streetlighting Department, for the new Stage 1 of the recently opened Leeds Inner Ring Road.

The Ring Road, Britain's first stretch of sunken motorway, cost £2½ million to build. It consists of 3,600 ft of dual carriageway road and a twin bore tunnel section 1,300 ft long.

Both bores of the tunnel are lit by 285 purpose-made cornice lanterns housing 8 ft 125W fluorescent tubes, spaced to allow the insertion of



The Motorway Underpass, showing secondary row of sodium lamps on left

similar lanterns at a later date as traffic flow increases. All are alight by day, and at night, every other lantern is switched off.

An interesting feature of the tunnel lighting is the 68 lanterns containing two 175W sodium lamps installed below the fluorescent lanterns along one wall of the tunnel adjacent to the entrance. These fittings provide an area of high illumination on walls and carriageway during daylight, and prevent a "black hole" effect to drivers entering the tunnels.

All the tunnel lanterns have been robustly designed to withstand "flail" type mechanical washing of the roof and walls.

The lighting of the cutting on the Woodhouse Lane side of the tunnel is by sixty-two 125W fluorescent lanterns—identical to those in the tunnel—mounted just below the crest of the retaining walls.

At either end of the tunnel—at the Woodhouse Lane intersection and at Westgate—Osram's high-mast units have been used for both road and area lighting.

At Westgate end there are three 82 ft masts and two 66 ft masts. The masts are equipped with either four or three lanterns housing 1,000W mercury fluorescent lamps, providing a minimum carriageway illumination of two lumens sq. ft.

The Woodhouse Lane intersection, characterised by varying road levels is, at present, lit by seven 82 ft high masts, each containing four mercury fluorescent lamps. Two more masts will be erected linking the second stage of the road development which will cost £4½ million.

Osram has also supplied 31 supplementary 8 ft 125W fluorescent lighting fittings under the bridges, and three 35 ft high octagonal steel columns and post-top 3 × 400W mercury lanterns for slip road lighting.

Both tunnels are equipped with air pollution measuring equipment and with a G.E.C. (Electronics) Ltd., closed-circuit television (9 cameras) system linked with City Police Headquarters.

All the illuminated road traffic signs on the road were provided by Claudgen Ltd. Included in the 200 exterior and interior illuminated signs are 11 advance direction signs using cold cathode tubes, the signs being recessed into the bridge structures.

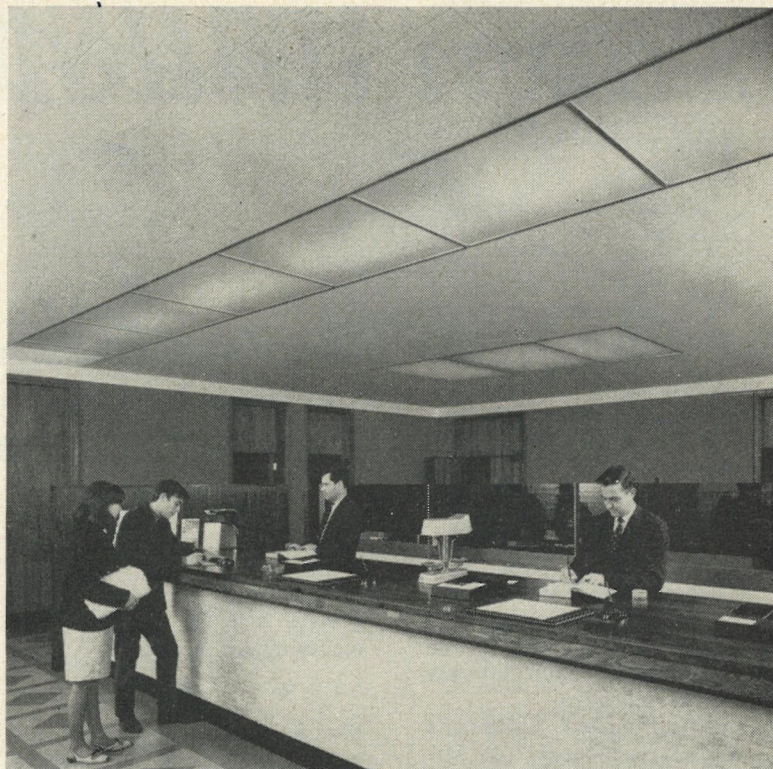
The lighting scheme was under the supervision of Mr. K. J. Goddard, City of Leeds Lighting Engineer, and the lighting consultant was Mr. J. M. Waldram, B.Sc., M.I.E.E., F.I.E.S.

For more information use Reader Service Form quoting LEN 181

Drive-in Bank at Epsom

LIGHTING equipment by **Osram-G.E.C.** has been used to provide effective glare-free illumination throughout the new drive-in branch of Martins Bank, Epsom.

A suspended ceiling in the banking hall incorporates large areas of



Martins drive-in bank at Epsom

"Perspex" panels. Osram modular fittings and fluorescent tubes have been installed in various combinations of 2 ft, 4 ft and 5 ft lengths above the ceiling. This arrangement provides efficient and comfortable lighting.

Recessed modular fittings are incorporated in the suspended ceiling of the manager's office, waiting room, machine room and corridors, using 2 ft, 4 ft and 5 ft Osram white tubes. Strong-rooms, stores and staff rooms are lit by "102" range fluorescent fittings.

Where necessary, localised lighting is provided by recessed tungsten fittings; commercial well-glass and bulkhead fittings are installed in the forecourt, drive and garage. The electrical contractors were F. A. Taylor & Co. of Caterham-on-the-Hill.

For more information use Reader Service Form quoting LEN 182

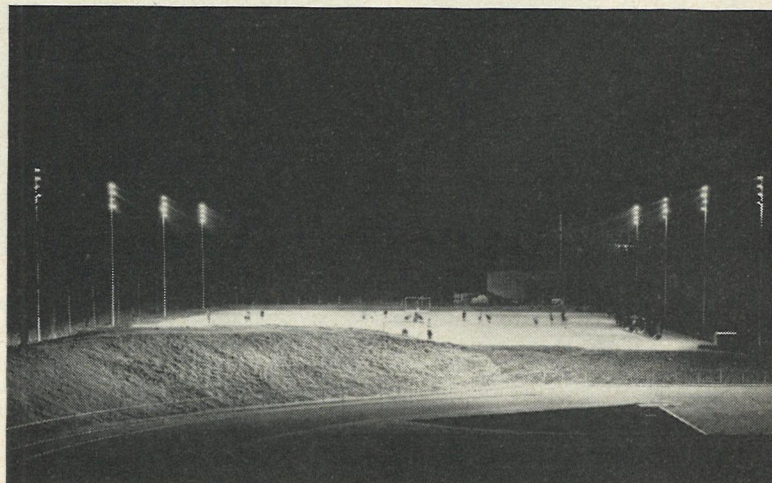
Floodlighting Crawley Sports Centre

AN IMPRESSIVE and versatile floodlighting installation has been made at the Sports Centre now being constructed in Crawley, Sussex, at the instigation of the Urban District Council. The lighting is for the all-weather games area, which is intended for the playing of hockey, tennis, netball, five-a-side football, running practice, and so forth.

The entire scheme is planned to spread over ten years, and the first stage, now completed, also includes a championship-sized covered swimming pool, an athletics arena and running track to international standards, and a central soccer pitch.

Floodlighting for the games area was supplied by **Philips Electrical Ltd.**, and comprises sixty-four tungsten halogen projector lamps each of 2 kilowatt rating. They are mounted in groups of eight on eight ABACUS towers, fifty-five feet high. These are erected, four per side, along two sides of the arena, and the resulting average level of illumination, well diffused, exceeds 20 lumens sq. ft.

A hockey match in progress at the Sports Centre



An even distribution of light has been achieved by the lamp arrangement. Comprising each group of eight fittings there are four narrow beam projectors, three of medium beam, and one of wide beam.

Special facilities of the installation required by the Crawley Engineer's and Surveyor's Department were a means by which the floodlighting could be used to illuminate only one half of the games area, and could also be reduced to low levels when so desired (when wanted for running practice, for instance). Phasing and switching have been so arranged as to fulfil these requirements.

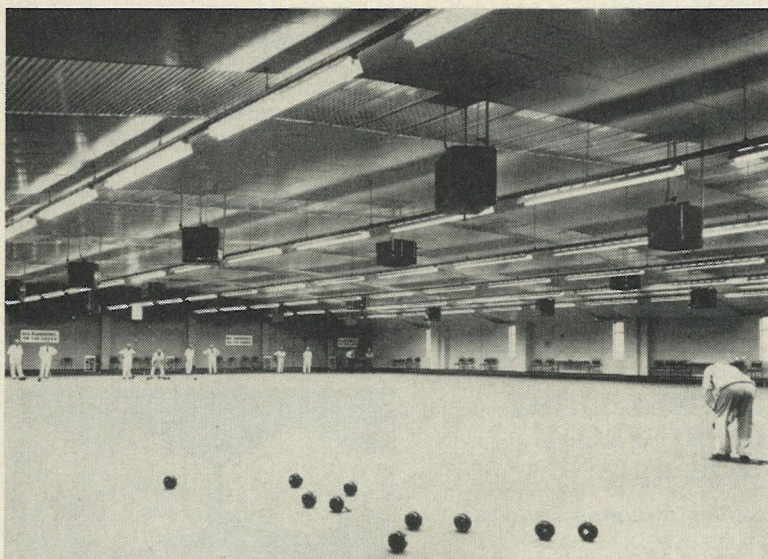
The surface material laid has several interesting characteristics. Known as *NORTEX*, it is of a yellow ochre colour and has a high light-reflecting factor. It drains and dries very quickly and, although firm, will readily accept the spikes of running shoes etc.

For more information use Reader Service Form quoting LEN 183

Maidenhead Bowls Centre

THE DESBOROUGH Indoor Bowls Centre, Maidenhead, which has been lit with 72 fittings from **Osram-G.E.C.**'s Super Jet fluorescent range. The installation consists of six rows of twelve 8 ft fittings, each equipped with an open-ended reflector. The lighting system is mounted on Osram's Topline trunking, and gives an illumination on the rinks of 20 lumen sq. ft. The lighting was designed and installed by S. Evans & Sons Ltd. of Maidenhead.

For more information use Reader Service Form quoting LEN 184

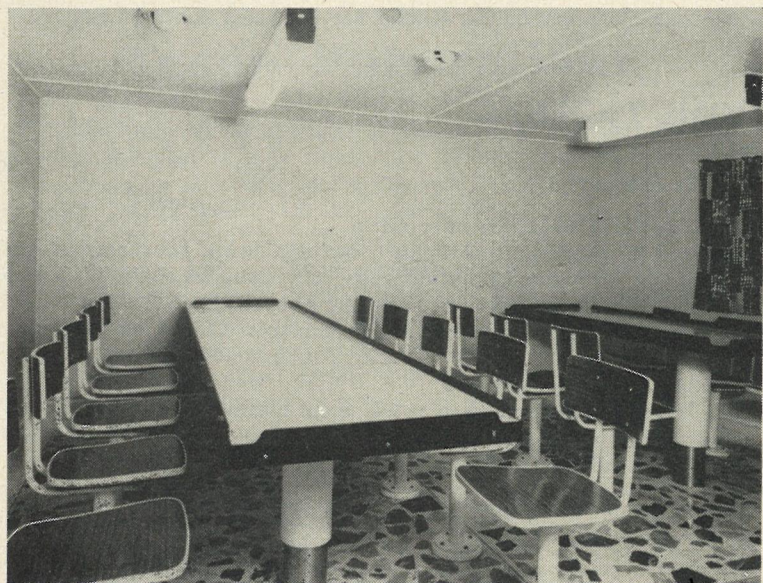


The Desborough Indoor Bowls Centre

Fluorescent lighting for bulk carrier

THESE fluorescent diffuser fittings by **Osram-G.E.C.**, light the crew's mess room of the new bulk carrier "Naess Parkgate" (72,030 tons) built by the Furness Shipbuilding Co. Ltd., for Turnbull Scott & Co. The vessel is 820 ft long and has accommodation for 66 persons. Altogether, Osram have provided 228 specially designed fluorescent fittings for the "Naess Parkgate".

For more information use Reader Service Form quoting LEN 185



Fluorescent fittings in the crew's mess room

Lighting a Paint Works

AT THE Uxbridge, Middlesex works of Trimite Ltd. thousands of gallons of paint are made and despatched each day.

Fittings have been supplied by **A.E.I. Lamp & Lighting Co. Ltd.**

To comply with the industrial flameproof requirements, Mazda 5 ft



Flameproof fittings in the paint works

80 watt flameproof fluorescent fittings have been installed to provide safe and effective lighting for stores, factories, colour matching and despatch departments.

The flameproof fitting is a single ended design with cast aluminium end boxes rigidly supported over the length of the fitting by a steel connecting tube. Control gear is mounted in one end casting and all joints have neoprene gaskets to make the fitting weatherproof and dust-tight.

The fluorescent lamp is protected by a toughened glass cylinder.

For more information use Reader Service Form quoting LEN 186

Truro County Hall

APPROXIMATELY 1,700 TOPMOST fluorescent lighting fittings from **Courtney Pope (Electrical) Ltd.** have been installed in the new Truro County Hall, the majority of which are single 5 ft 65-watt units fitted with square section diffusers.

The illustration shows a typical drawing office area with the fittings mounted at 5 ft centres to the exposed ceiling tees by means of specially



Truro County Hall drawing office area

designed fixing clips. The average level of illumination in the office area is 50 lumens sq. ft., and in the corridors, 25 lumens sq. ft.

The building was designed by the Architect's Dept., Cornwall County Council and the Consulting Engineers were Messrs. Hoare Lea and Partners, Plymouth.

For more information use Reader Service Form quoting LEN 187

MINI SEALED BEAM ADAPTOR

Conversion Unit

A SET of adaptors which allow pre-1966 Austin and Morris "Minis" and post-August 1965 Vauxhall (MK1) Vivas to convert to sealed beam operation, have been produced by **Osram-G.E.C.** Priced at 9s 8d per pair they enable a sealed beam conversion to be carried out in a matter of minutes.

Price: 9s 8d

Delivery: on application.

For more information use Reader Service Form quoting LEN 188

ELECTRONIC LIGHTING DIMMER

Controlled by Photocell

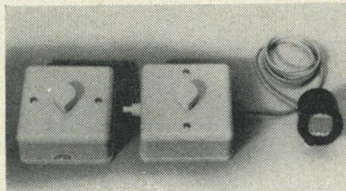
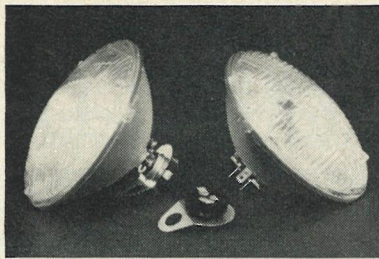
PHOTAIN CONTROLS LTD.

have been successfully marketing their electronic lighting dimmer controls for the past twelve months. They are now launching their new unit, styled Photolite which has the unique feature of controlling the intensity of the artificial light automatically in proportion to the intensity of natural daylight. The Photolite unit consists of a standard MK switch box containing the silicon controlled rectifier dimmer circuit. A separate housing contains a photo-cell and has a bracket and sucker for mounting. It is supplied complete with twelve feet of cable and plug for connecting to the dimmer box. Four Photolite models are available.

Prices: £7 16s to £17.

Delivery: 7 to 10 days.

For more information use Reader Service Form quoting LEN 189



LOW COST ROOF LIGHTS

Easy Installation for Natural Lighting

A SIMPLE, effective and inexpensive method of providing diffused natural lighting through roof structures is now possible using the Dalite system of roof lights introduced by **D. Anderson & Son Ltd.**, of Stretford, Manchester. Advantages of the system are ease of installation, uniform lighting, combination of strength with light weight and thermal insulation value.

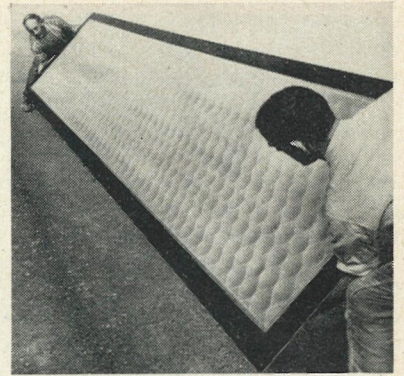
Dalites are large rectangular, 2 in deep units which simply replace sections of a roof structure. They are suitable for all forms of flat or sloping roof construction including concrete, wood, metal decking and particularly strawboard and wood wool panel decks. Standard sizes are for roof openings 4 ft wide by 4 ft, 6 ft, 8 ft, 10 ft and 12 ft long. Other sizes can be supplied.

Units are of cellular twin skin construction moulded from glass reinforced polyester resin. Top and bottom skins are separated by a shallow web of corrugated spacers and joined together to form a rigid, composite unit. The bottom skin is moulded to join the top skin at the perimeter of the unit and extends for 4 3/4 in to form a continuous flange for securing to the roof structure. The units give a flush finish with the roof and do not need curbs or secondary trimming. Light transmission is 60% of natural light, which is refracted in the material to give uniform illumination without glare.

The weight of the units is 2 lb/ft². Dalite complies with the fire provisions of the 1965 Building Regulations and has unrestricted use.

Prices: from 27s 9d to 30s per square foot. Delivery: on application.

For more information use Reader Service Form quoting LEN 191



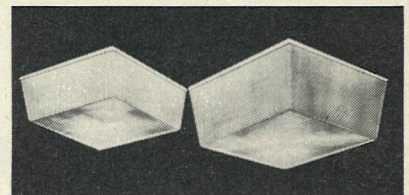
DOUBLE LIGHT CUBIC FROM HOLOPHANE

Ceiling Mounted Fittings

AS part of a series of fittings designed to perform the twin tasks of controlling glare and providing high efficiency, **Holophane Ltd.** have produced their Cubic range of ceiling mounted fittings for use with tungsten filament lamps. Of attractive appearance, the Cubic is uniformly low in brightness and gives comfortable, prismatically controlled illumination. Instead of merely cutting-off waste light in the glare-zone, accurately formed prisms redirect this waste light back on to the working plane to give a high light output ratio and a British Zonal Rating of BZ3/4.

Price and delivery: on application.

For more information use Reader Service Form quoting LEN 192



HOME LIGHTING KIT

Flexible Arm Fitting

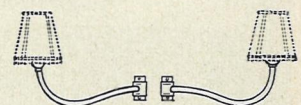
L. B. LIGHTING LTD. have introduced a fitting called the Twinlite home lighting kit. The manufacturers say that the Twinlite ends the difficulty of lighting awkward corners in the home. Hundreds of lighting angles are possible through the setting of the Twinlite flexible arms, which are neatly anchored to the wall or fitment in question by a neat circular wall disk. All parts of the fitting are easily assembled and completely safe.

The Twinlite was first shown at the recent Liteshow exhibition. The kit is intended primarily for do-it-yourself users but is also suitable for general use.

Price: 75s per box of two multi-adjustments.

Delivery: on application.

For more information use Reader Service Form quoting LEN 193



Automatic Lighting Control Unit

SPECIFICATION

SUPPLY VOLTAGE— 200/250 VAC 50 CYCLES

POWER CONSUMPTION— 1.5 VA APPROX

RELAY RATING AT 250VAC—RESISTIVE LOAD 7.5amps

INDUCTIVE LOAD pf. 0.4, 3amps

OPERATING LEVELS— ADJUSTABLE IN THE RANGE 0.1 to 20 foot candles

SWITCHING DIFFERENTIAL— APPROX 3:1

AMBIENT TEMPERATURE —40° C to +60° C

—40° F to +140° F

NETT WEIGHT — 19oz (0.539 kg)

PROCESS UNITS (HALIFAX) LTD

BREARLEY WORKS BREARLEY LANE

LUDDENFORD HALIFAX

Tel: CALDER VALLEY 2711-2-3

The 'Fisher' Zodion Lighting Control incorporates solid state circuitry featuring 3 cadmium sulphide cells thus allowing non-directional mounting.

The cone shaped enclosure is moulded from UV inhibited high quality impact plastic, is impervious to discoloration and will withstand all climatic conditions.

The unit is unaffected by direct sunlight and the shape affords protection against birds and dirt accumulation.

For ease of installation the control is arranged in two separate sections, a) base terminal socket block and b) plug-in automatic switching unit.

For more information use Reader Service Form quoting LEN 190

Classified Advertisements

AGENTS REQUIRED

To sell the AUSTIN SHEERLITE RANGE OF GLASS FIBRE FITTINGS. Very generous terms will be offered to applicants with good connections in the Lighting Trade. Please state past experience, other lines carried and territory covered.

Apply in writing to:

L. WOLF,

T. A. AUSTIN (Designs) LTD.,
ONGAR, ESSEX.

LEN C003

SITUATIONS VACANT

An opportunity exists to leave London or the Midlands and work a delightful area. Applications are invited from Lighting Fitting Salesmen to join Ronald A. Hall Limited, of Northgate House, St. Mary's Place East, Newcastle upon Tyne, 1. Please write stating age, experience, status and salary required.

C004

FOR SALE

YOUR LIGHTING AND GLARE CALCULATION PROBLEMS SOLVED. Time can be saved and the possibility of error eliminated by the use of two simple calculating devices which will quickly and efficiently solve all calculation problems: the Glare Index Calculator, 54/- and the Lighting Calculator, 38/- (both post free). Send remittance to:—Equipment News Ltd., 35 Red Lion Square, London, W.C.1.

LEN 203

SITUATIONS VACANT

Lighting Research

The expansion of the Daylight Laboratory has created an opening for a SENIOR LIGHTING ENGINEER to be responsible for photometry.

This Laboratory provides a paid consultancy service for architects on all aspects of natural lighting and environment. Computer facilities and a large artificial sky are available, and the post offers scope for original work in such fields as vector and scalar illumination and subjective aspects of vision.

Candidates should possess a degree and/or I.E.S. Diploma. Previous knowledge of day-lighting is not expected, but several years experience in a lighting laboratory and a thorough knowledge of lighting calculations would be regarded as essential.

Applications quoting TS/1 and giving brief details of career to date should be addressed to D. Garforth, Group Personnel Department, Head Office, Prescott Road, St. Helens.

C006



PILKINGTON

Trade Publications

A leaflet from Victor Products (Wallsend) Ltd. describes their new industrial wellglass lighting fittings for tungsten and MBF/U lamps. These fittings are suitable for use in Division 2 areas as defined in British Standard Code of Practice CP 1003, Part 1, 1964.

LEN 194

Bill Switchgear Ltd. now have available a new publication, reference number J2, illustrating their extended range of Civic distribution boards. Another leaflet, reference B2, fully illustrates, with detailed technical information, the range of Bill Majestic fuse switches and switches which are available as individual surface mounting units and as cubicle type assemblies for the manufacture of switchboards.

LEN 195

Available now is a new leaflet from Courtney Pope (Electrical) Ltd., covering their extended floodlighting range. Comprising a four page introductory leaflet and a four page technical data leaflet, the publication embraces not only the highly successful Wide-Lite floodlighting fittings but also additional units for short, medium and long range lighting applications. The leaflet is in A4 size, SfB classification 63.

LEN 196

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When replying direct to advertisers, kindly mention LIGHTING EQUIPMENT NEWS. Alternatively, please use Reader Service Form (between pages 16 and 17).

LOW PRICE DRIVING AND FOG LAMPS

Two Ranges from Raydyot

RAYDYOT LTD. have introduced two ranges of driving and fog lamps.

The DL.80 Quartz-Iodine range of lamps (upper illustration) are fitted with the latest 12 V, 55 W Mazda quartz-iodine bulbs for double the light intensity and life of the normal bulb. The short filament of the driving lamp gives a better concentration of light, resulting in a longer beam, and the matching fog lamp has a specially finished amber reflector with fluted lens and additional bulb shield to ensure an exceptionally wide cut-off amber beam with minimum back glare. The DL.82 British Pre-focus range (lower illustration) is fitted with 12 V, 48 W British Pre-focus bulbs which do not need re-adjusting. The driving lamp gives a long-range concentrated beam pattern, and the matching fog lamp is fitted with an amber reflector and fluted lens. The heavily plated lamp body bracket allows vertical and horizontal mounting with full adjustment.

Between them, these two ranges offer sixteen alternatives, including a choice of two finishes: chrome rim with chromed brass shell, or chrome rim with grey enamelled steel shell. They are supplied complete with 10 ft of cable and white on-off switch.

Prices: DL.80, from 65s each. DL.82, from 40s each. Delivery: on application

For more information use Reader Service Form quoting LEN 197

PHOTOELECTRIC PROJECTOR AND RECEIVER

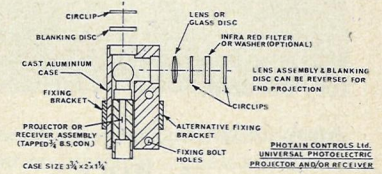
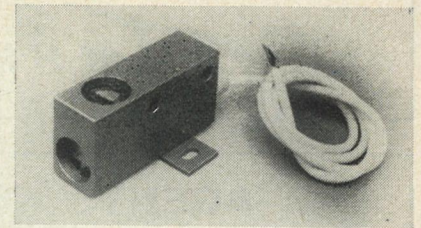
Low Price Units

PHOTAIN CONTROLS Ltd. who have manufactured photoelectric controls for many years have now put the benefit of this experience into the design of a new photoelectric projector and receiver unit styled UPI Projector and URI Receiver. These units are said to answer all the production, installation and operational problems experienced over the years.

In construction both projector and receiver units are identical and vary only in the fact that the projector is complete with an SBC lampholder and low voltage lamp whilst the receiver has a 3 pin socket with a plug-in photocell. The body is an aluminium alloy casting of overall size $3\frac{1}{2}$ in x 2 in x $1\frac{1}{4}$ in. A unique feature of the design is that the unit is suitable for right angle viewing or straight on viewing as required merely by moving the optics. This can be done on the site in a matter of seconds. The projector is suitable for use with a variety of lamps. Depending on the type of lamp used, beam lengths from 2 in to 20 ft can be provided. The receiver can be fitted with a photo-transistor, silicon photo-diode or photoconductive cell. The units may be mounted in four different ways including bracket or bolt fixing or by screwing the unit to a $\frac{3}{4}$ in ET conduit using the cable entry hole which is tapped accordingly.

Price: £4 each. Control Units £10. Delivery: from stock.

For more information use Reader Service Form quoting LEN 198



Control your lighting the modern way with R.T.E. PHOTO-ELECTRIC EQUIPMENT

Note these points

DETECTOR

1. PATENTED DESIGN—SELF-CLEANING
2. SIMPLE FIXING—SINGLE $\frac{5}{8}$ " HOLE
3. NO INTERFERENCE WITH LANTERN DESIGN—BARELY NOTICEABLE
4. COMPLETELY WEATHERPROOF

CONTROL UNIT

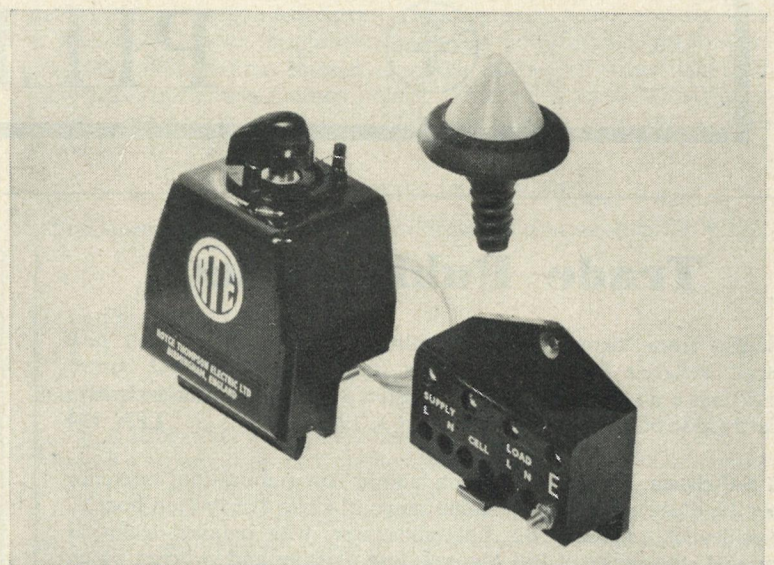
1. PLUG-IN DESIGN
2. TEST SWITCH
3. FULLY ADJUSTABLE—EASILY ACCESSIBLE
4. LOWEST PRICE

The accepted design for both interior and exterior lighting control

227 R.T.E. units control all roadway lighting on the Severn Bridge

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