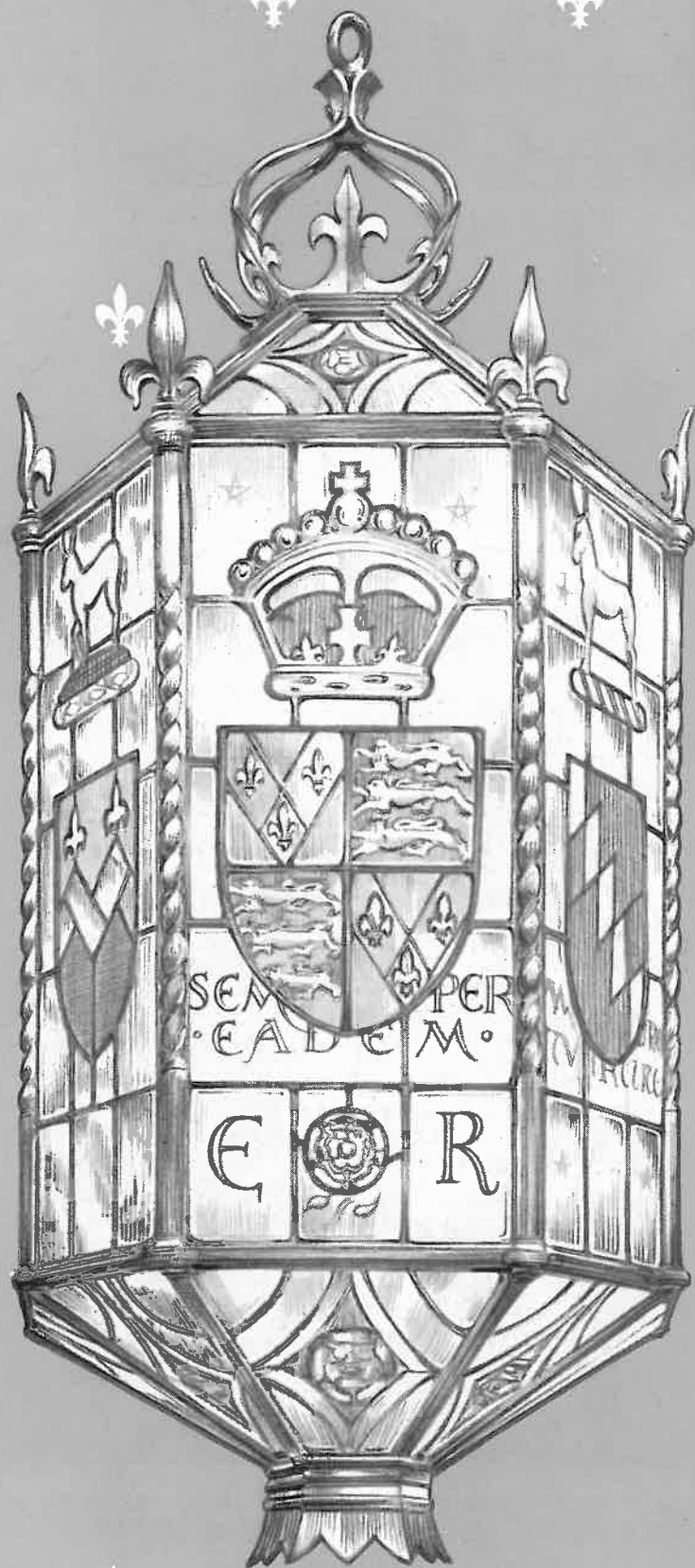


THE OUTSHINING  
**LIGHT**

THE MAZDA LIGHTING JOURNAL



*This New Elizabethan Age*

VOLUME 2 NUMBER 2



*Golden Hind, ship of adventure and discovery and one of the great names in British naval history, more than anything else typifies the spirit of the first Elizabethan Age. Floodlit in Southend Harbour, this model of Drake's ship offers a colourful reminder of the differences and the similarities of past and present.*

# THE OUTSHINING LIGHT



**F**OUR hundred years! In 1558 Queen Elizabeth the First came to the throne ; in 1952 Queen Elizabeth the Second reigns over Britain and the Commonwealth. Four hundred years of glorious history, of great progress and achievement! How do we compare with our illustrious forebears? Are we greater today or not—greater in the sense of *industry, well-being and character*? Yes, a thousand times!

In industry we command electricity, gas, steam, petrol and now, atomic energy. We are able to manufacture the commodities necessary to sustain and improve our life in ever increasing abundance. Our homes and work-places are cleaner, healthier, easier places to live and work in. Four hundred years ago the soil was tilled by hand implements and only the most primitive machinery was available to the people who worked in industry. Yet the fact that our lives are easier nowadays has not dulled our spirit or weakened our determination.

In character—ah, there stands a nation's might! Is the country that stood dauntless and alone in 1940 lacking in character? Is not the spirit of Raleigh, Drake, Hawkins, Frobisher, of the Cabots and the merchant adventurers alive today in the indomitable character of the people who have contributed so much to the freedom and prosperity of mankind? There is the example of the first Elizabeth herself, whose adventurous reign was preceded by her imprisonment in the Tower and culminated with the rise of her country from disunity to internal and external strength, from poverty to wealth, from indifference to almost world-wide counsel and respect.

History repeats itself. Once more the world stands on the threshold of a new, uncertain age. An age of mighty, unleashed energy capable of unbelievable good or evil. And a young Queen again occupies the throne—dedicated, as are her people, to achievement, progress and well-being in This New Elizabethan Age!

When the "Golden Hind" returned from its journey round the world, Queen Elizabeth ordered the beautifully decorated lantern of Drake's ship to be copied and presented to London's Middle Temple. After nearly 400 years of almost undiscovered service it still adorns and brightens the hall of this fine Elizabethan building.

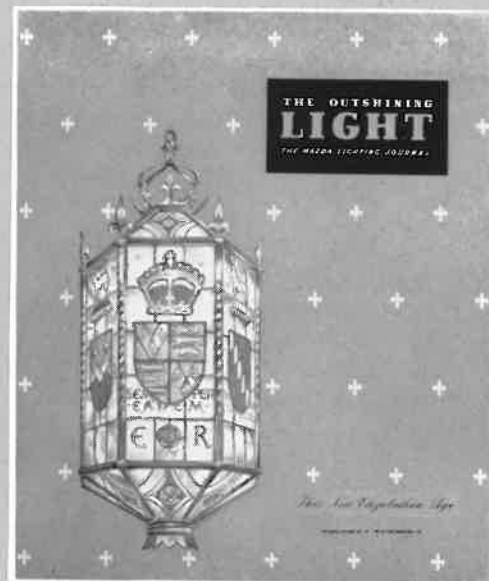
During the war, part of the Middle Temple was reduced to ruin by a bombing attack. Yet present day craftsmen pieced together every salvageable part of the building, including the lantern, so that it is entirely restored to its original form. Drawn as part of our cover design by W. James, the lantern typifies the sturdy and decorative spirit of a past age and the progress of modern times. Today it houses a brightly burning electric lamp.

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# IN THIS NEW

## Elizabethan

# AGE



**I**N THE 16th Century The British Thomson-Houston Company did not exist. Neither did electrical power stations, turbines, transformers, motors, switchgear, radar, electric lamps—a catalogue indeed, to terrify a Tudor merchant yet merely part of the everyday language of the twentieth century. BTH was, in fact, formed in 1896. In that year it was already building the electrical equipment for the stations, sub-stations and locomotives of the Central London Railway, or the “Twopenny Tube” as it was called, and for the first tramway systems in Leeds, London, Sheffield and other cities. A few years later exports were leaving the Company’s works for electrification systems in Barcelona, Madrid and Ceylon.

BTH engineers made possible the first applications of electric power to textile mills and steel rolling mills, during the early years of this century. They were also among the first to develop electric travelling cranes for use in workshops and to build totally-enclosed industrial motors. The pioneering record of the Company is one of never ceasing endeavour and achievement. The first electrical systems in coal-mines, magnetos for aircraft, traction equipment for London’s underground and the first 30,000-kW turbo-alternator set, may be added to the list of early landmarks.

In this new Elizabethan age, the enterprising beginnings which made BTH a symbol of reliability and fame throughout the engineering world are perpetuated in many recent contributions to industrial and commercial progress.

In 1937, BTH assembled the first jet engine which was developed under the supervision of Sir Frank Whittle in the Company’s work-

shops. This engine is now in the Science Museum at South Kensington and the second jet, also made by BTH, is in the Smithsonian Institute, Washington.

Now the Comet has proved the crowning achievement of jet propulsion, and the electrical system for this famous aircraft was designed and supplied by BTH.

The first ever gas-turbine engine used to propel an ocean-going merchant ship was made for the British vessel *Auris* by BTH.


In lighting too the same record of achievement, the same pioneering spirit, are to be found.

During the war the industry supplied lamps and fittings in vast quantities to the armed forces and to factories. The figures speak for themselves. An aircraft carrier needed over 10,000 lamps, a battleship over 14,000; a submarine used more than 1000 lamps and its depot ship 5000. A cruiser, 7000, a large bomber over 100. These are a few of the quantities in which lamps were required throughout the war, to which must be added supplies for the army, for essential industry, for a thousand and one urgent needs.

Yet the transition to peace-time production, and the development of new equipment to meet a radically changed situation took place quickly and effectively.

Soon after the war, the first installation of fluorescent lighting in a coal-mine was completed, Mazda lamps and fittings being employed. The first fluorescent streetlighting systems were installed in Old Bond Street, London, and High Street, Rugby, in 1946. R.M.S. *Caronia*, largest and best-equipped British post-war liner, was illuminated

## The Year of the Comet



The Comet—herald of a new era in international travel. “That superb product of British invention, enterprise and skill—the de Havilland Comet....” With these words Sir Miles Thomas, D.F.C., chairman of B.O.A.C., introduced the world’s first regular jetliner service, and in so doing reflected praise on the workmanship of the engineers who played such a large part in making this pipe-dream of five years ago today’s reality. He added that the remarkable technical craftsmanship of British engineers in producing the pure-jet and turbo-prop. engines would enable B.O.A.C. to girdle the earth, “...an aim that excites the imagination and inspires all our efforts....”

1952 will long be remembered as the year of the Comet; a year which gives Great Britain a lead in jet aircraft over all other countries. British manufacturers are working with the airlines to retain this ascendancy for our country in the world of civil aviation.

The jet engine was pioneered by Wing Commander Frank Whittle in the workshops of The British Thomson-Houston Company. Now Air Commodore Sir Frank Whittle, the inventor, has seen his early efforts culminate in the Comet, a masterpiece of modern engineering.

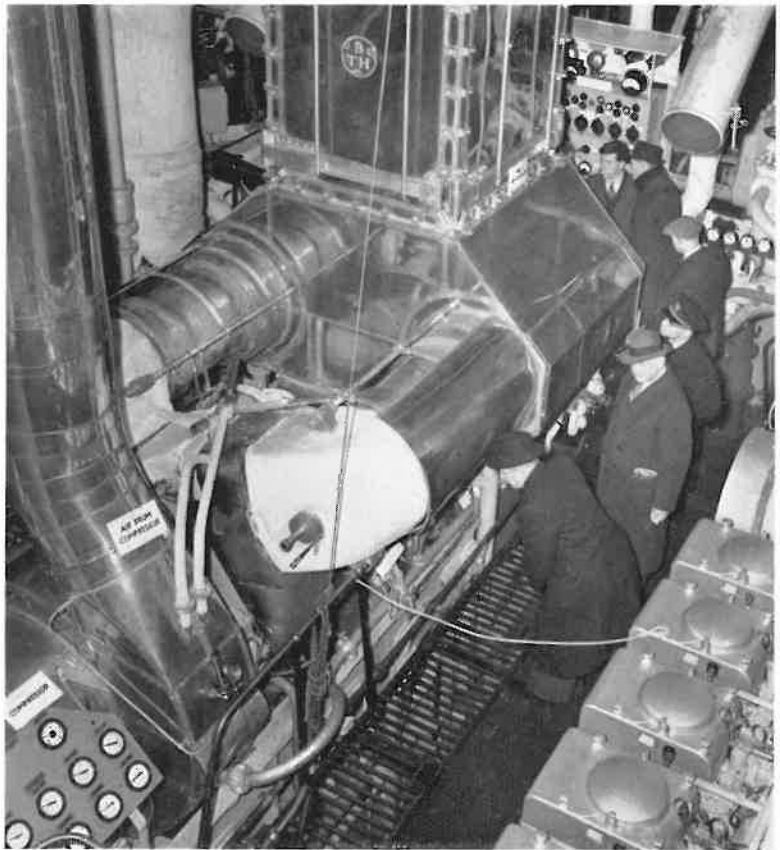
throughout its public spaces by Mazda lamps and fittings. From the tungsten filament lamp to the fluorescent tube, from electric-discharge lamps for factory and street lighting to projector lamps for film work, the names BTH and Mazda have been associated with almost every discovery and improvement.

Goods and services for export, upon which this country’s economy depends so much, have also figured prominently in the activities of BTH during recent years. Electric generating plant has been installed in Spain, India, Australia, Burma, Canada, Africa and many other parts of the world. Mazda equipment is used to provide one of the world’s largest systems of fluorescent street lighting, in Rio de Janeiro, and fluorescent mine lighting in the Eregli coal-fields of Turkey.

It was during the first Elizabethan era that Britain began to trade with the rest of the world, and the advice of the well-known mariner and writer of that period, Richard Hakluyt, might well be quoted with equal relevance to the exporters of today.

“Take with you only those things that be in a perfection of goodness, that their goodness may make your commodities in credit in time to come; for false and sophistic commodities shall draw you and your trade into contempt and ill opinion.”

With modest pride, BTH may claim to have followed that advice in spirit and in fact.



*The engine room of the Shell oil-tanker Auris, first ocean-going merchant vessel to be propelled by a gas turbine.*



*Put out more flags . . . . turn on more lights . . . . Coronation Britain can be*

# Gay Elizabethan

"What better time than the Coronation?" asked Her Majesty's Minister of Works, Mr. David Eccles. "Let us have something more gay—something more Elizabethan," he requested.

Bunting will decorate the streets, parks and houses of the land. Fresh paint will glamorize the buildings. Lights will provide the sparkle and the enchantment. How well can the job be done? How gay can we make Britain? With the Festival of Britain fresh in the

memory, there are plenty of lessons, good and bad, to learn from. Visitors to this country will expect a bright, colourful and scintillating display. We will be competing with Copenhagen's Tivoli, with Sydney's Luna Park, with Atlantic City, Paris and New York.

What should be the aim in illuminating our towns, cities, parks and places of amusement? How, with limited resources can we compete with the light spots of the world?

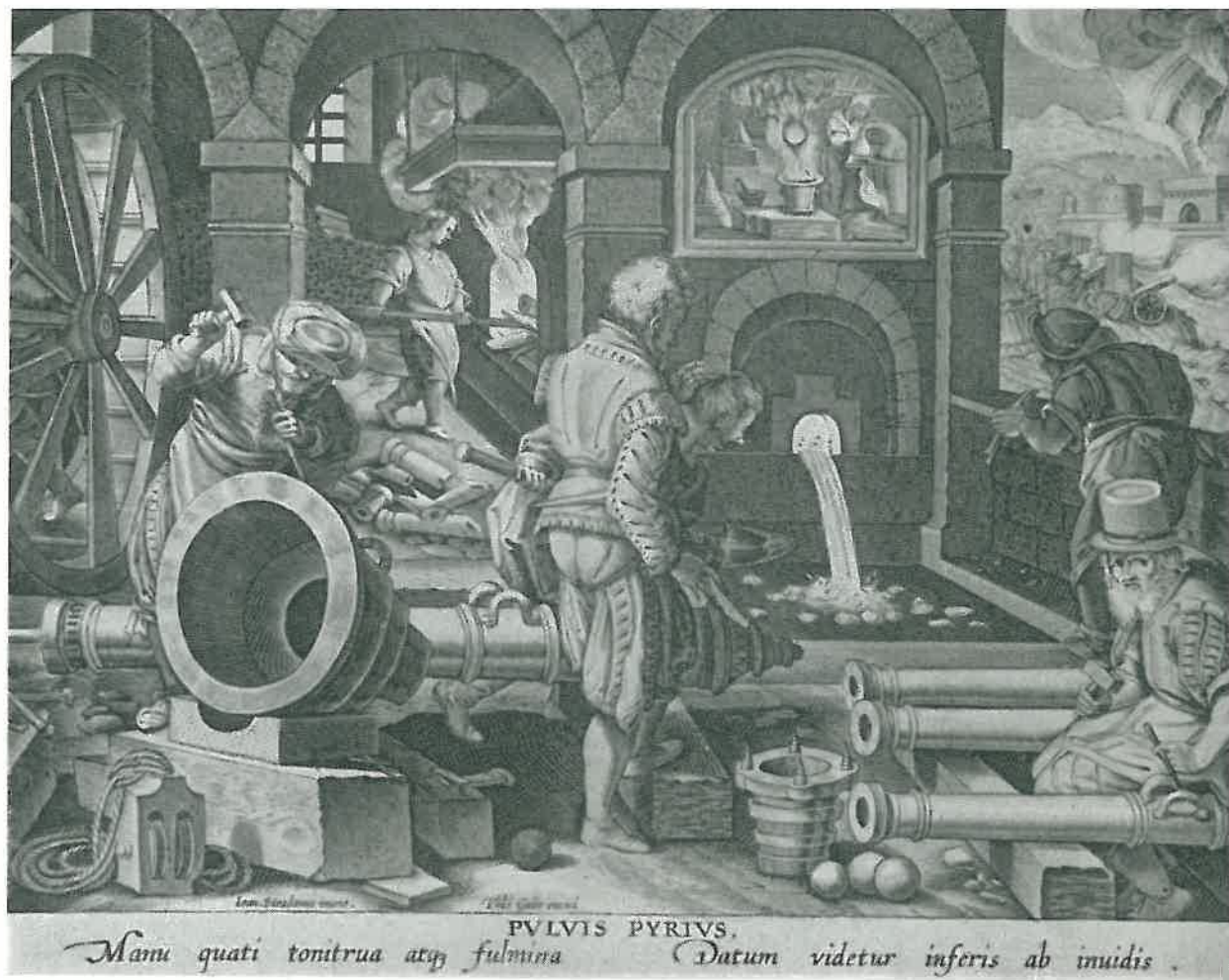


*Few forms of outdoor lighting evoke so much splendour as the illuminated river bridge. Hundreds of small filament lamps, gleaming above the water, can create a scene of incomparable enchantment. This view of the Conway Suspension Bridge in Wales is an example. Lamps cut a silver pattern out of the sky, silhouetting coastline and castle in mysterious outline.*



*A similar effect has been achieved with London's Chelsea Bridge. The example could well be followed at other points along our rivers which are among the nation's finest and most popular natural attractions.*





Picture Post Library

## The Advance of Industry

**I**N the days of the first Elizabethan era, *production* meant simply a pair of hands and a set of implements. Machinery was a rarity; and, where it existed at all, it was built on a comfortably small scale.

The floor area of a typical workshop (such as that illustrated above) was probably no more than a few square feet. And not all of this small surface required illumination. The lighting of the day was doing its job if it reached the workbench and the material on it, the craftsman's hands and the tools they held.

The second Elizabethan era, in contrast, must live to a great extent by industry on a mammoth scale. It is industry with factories as big as a market town, and individual machines the size of a row of cottages, to every part of which light must be brought. Light of the right intensity, of the right kind and in the right place, is as much a part of productivity as the raw material itself.

The needs of modern factories and workshops have, in fact, created a demand for special forms of lighting equipment and for properly planned installations. It is the task of the lighting engineer, working in collaboration with the architect and consultant, to keep pace with these changing and developing needs, to help in securing the best

form of illumination for a particular task. Lighting today's factories is a job for the expert. As this fact becomes more widely appreciated, so the demand increases for more and better, glare-free light, to help provide more comfortable conditions in the world's workshops.

However, lighting engineers must cater for the little man as well as the large group, providing efficient illumination for areas of a few square feet to gigantic installations of many acres.

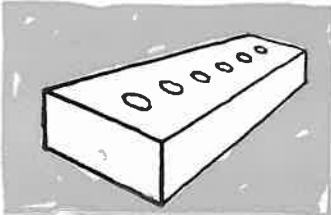
In a sense, therefore, industrial lighting is a problem of *space*. The following pages show how three factories, of widely differing character, have tackled their requirements. . . . .

FIRST, a great steel-mill, whose problem is one of length. . . . . the longest single structure of its kind in Europe, down whose vast expanse each operator must be able to see clearly what his opposite numbers are doing.

SECOND, a factory in South Wales, whose lighting must reproduce at night the clarity that it obtains from normal daylight.

THIRD, a more usual but no less important layout: the large-scale modern machine shop, where a multiplicity of detail must be illuminated without either glare or shadow.

## The Advance of Industry



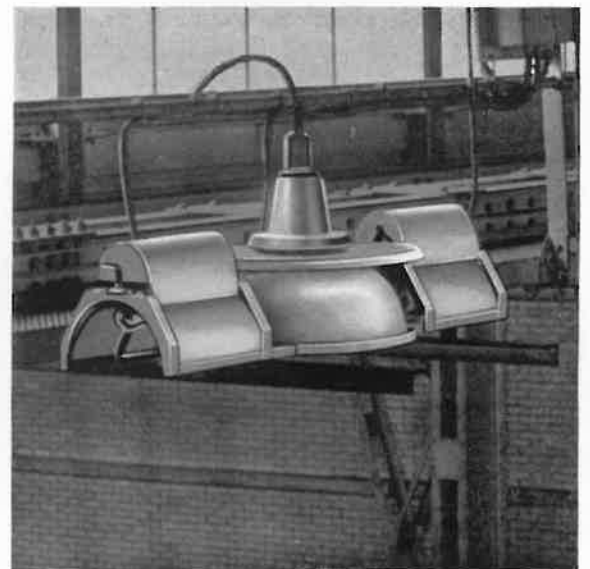
### **Steel Company of Wales**

A continuous strip steel rolling mill has two main architectural requirements.

One is *height*, to accommodate the heavy cranes and handling equipment. The other is *length* so that the whole rolling operation—from soaking-pits to coiler—can be carried through in a continuous flow. Such buildings have therefore tended to become the biggest units in modern industry.

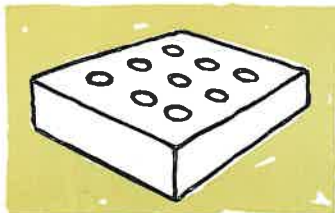
These characteristics are evident in the new Abbey Works of the Steel Company of Wales. The main mill building rises from 45 to 80 feet in height, and is more than three-quarters of a mile in length. The problem confronting lighting and engineering consultants was to fill this vast area with light. Light on the mill itself, which stretches down the centre, so that the operators who control it can see what is happening for several hundred yards in either direction. Light for the floor space on either side—wide as a main road—with its own steady flow of communications traffic.

*Fittings: Mazda Blended Light*





## Brynmawr Rubber Company



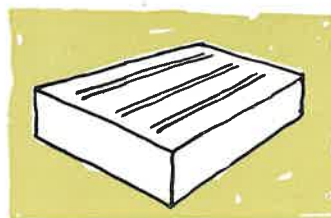
The shape and character of this factory in South Wales was largely governed by the technical requirements of engineers, working in reinforced concrete.

The manufacturing process itself demands a large floor area (77,000 sq. ft.) which shall as far as possible be unbroken by pillars or stanchions. Because a single unsupported span of this size would be impracticable, this in turn led to a roof consisting of nine domes, the largest of their kind in the world. Good lighting is essential at Brynmawr; not only to provide bright and pleasant conditions of work but also because the work is dusty and the Company believes that the easiest way to prevent excessive dust is to make it visible. Each dome, therefore, is amply fitted with clerestories and glass ports, each portlight accommodating six fluorescent lamps in cruciform. The designers' great achievement was to reproduce the very high standard of daylight illumination at night-time when artificial lighting takes over. A perfect example of co-operation between the architect and the lighting engineer.

*Fittings: Specially designed Mazda Portlight*



## Vauxhall Motors



Many factory buildings — particularly machine shops, or others making a large number of different components — are laid out in the form of parallel lines of machinery.

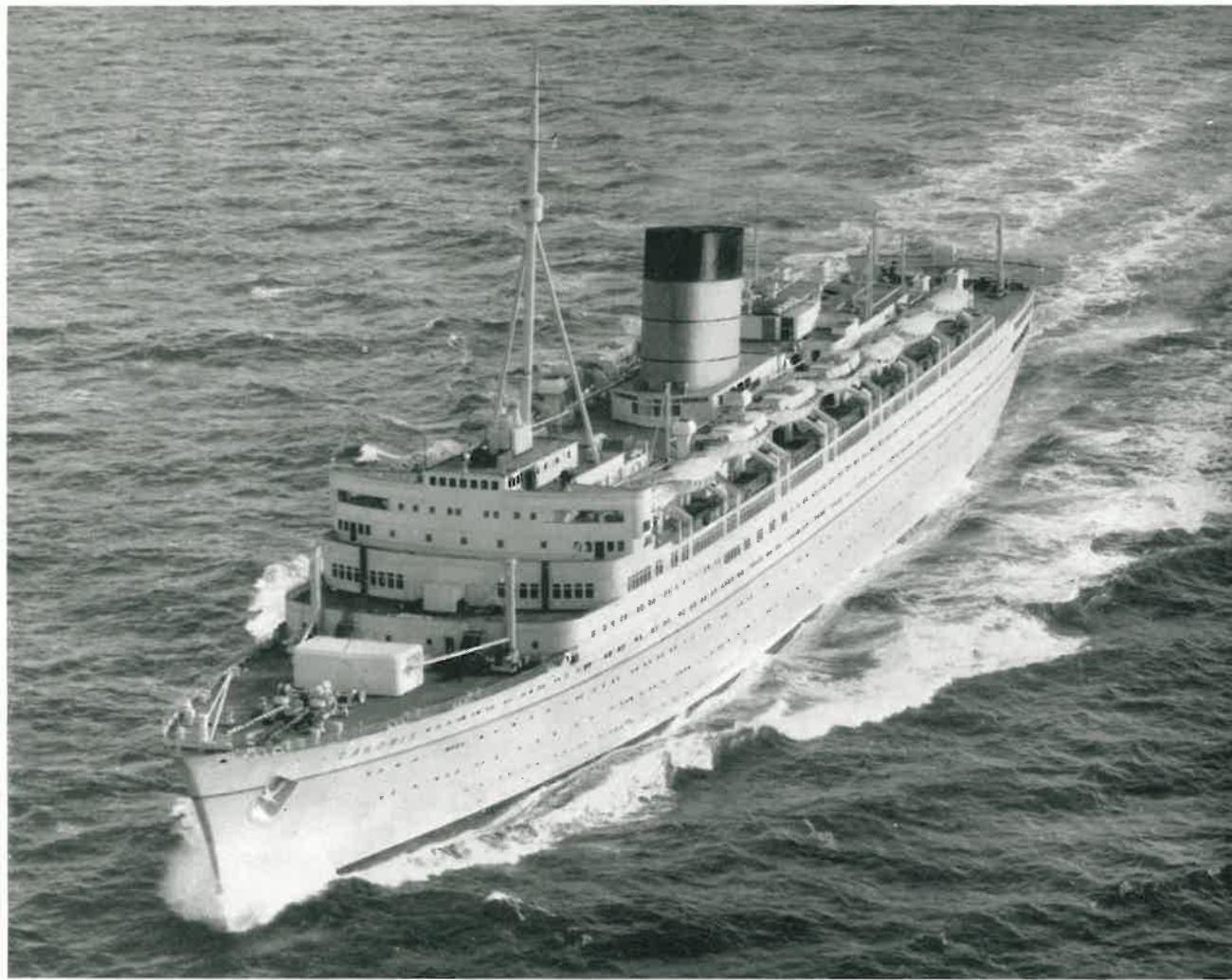
Each unit must be lit at a suitable intensity and from an angle that does not cast a shadow on the work. In addition, there must be good "background" lighting for the shop as a whole, and particularly for gangways used for the movement of material (often by fork lift trucks or other mechanical handling devices).

The lighting pattern of such shops tends naturally to fall into a series of parallel rows. Because of its shape and light output, the fluorescent tube is specially suited to such an arrangement; and the factory of Vauxhall Motors Ltd., at Luton, is a fine example of suiting the lighting installation still further to the need. This novel system of fluorescent trunking, devised by BTH, may well become the standard lighting of the future for large factory areas of this kind.

*Fittings: Mazda Fluorescent Reflector*







## ***The Wealth of Britain's Ships***



"WE DO ACCOUNT that he which striketh at thee, Drake, striketh at us!"

The farewell speech with which Queen Elizabeth I despatched Drake on his proposed visit to the South Seas finds an echo in more recent times. On October 30th, 1947, the present Queen and the Duke of Edinburgh launched Britain's largest post-war ship, and one of our most important dollar earners, R.M.S. *Caronia* of the Cunard Line.

The Golden Hind's cargo when it arrived at Plymouth was described as the most valuable "ever held in one bottom". Wherever she goes, *Caronia* carries the finest example of this country's manufacture and workmanship, providing conditions of luxury and comfort for all who travel in her. Wealth today resides in the appearance, the amenities, as well as the freights, of Britain's Merchant Fleet.



*Photo P.A./Reuter*  
 Queen Elizabeth II and the Duke of Edinburgh wave "Godspeed" to the *Caronia* (above) at her launching in 1950. This finely designed and equipped vessel has added to Britain's prestige throughout the world.





**“White Queen” of the Atlantic, R.M.S. Caronia, is the most luxurious of all ocean going ships. A floating city with every facility for work, relaxation and pleasure, this 34,000-ton liner is one of Britain’s major dollar earners.**

**What is the secret of its appeal to transatlantic passengers?**

**Incomparable service, every modern amenity from daily newspapers to a theatre and, everywhere, comfortable surroundings made bright and spacious by modern design.**



*In every public space aboard R.M.S. Caronia, tasteful decoration and comfortable furnishings are given added appeal by Mazda tungsten and fluorescent lighting.*



**RMS Caronia**



*Architects and lighting engineers combined their experience to provide Caronia's lounges with illumination which is both efficient and in keeping with their dignified appearance. This moulded ceiling, which conceals fluorescent lamps above each of its sections, is one result of the partnership in design and lighting.*



*Fluorescent cornice lighting, combined with tungsten deckhead fittings, gives a soft illumination in the observation lounge where passengers can rest without the distraction of glaring lights above them.*



*Bright artificial lighting in the library makes life easier for passengers who wish to select the right book.*

Two great pre-war liners, the Cunard's "Queen Mary" and "Queen Elizabeth", are both famous for the efficient and comfortable transatlantic service which they provide. In war and peace they have contributed much to Britain's welfare. As troopships they safely transported thousands of members of the allied forces. In peace-time they have proved among the most popular passenger ships, earning a considerable dollar income. Outstanding examples of British skill in the design of ships, they have in common attractive, expertly planned lighting.



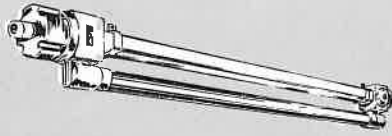
**RMS Queen Mary**

*R.M.S. Queen Mary has Mazda lighting fittings in many of her public spaces. In the travel bureau the map of the world is clearly outlined. Throughout this ship the rule is comfort and brightness, service and efficiency.*



**RMS Queen Elizabeth**

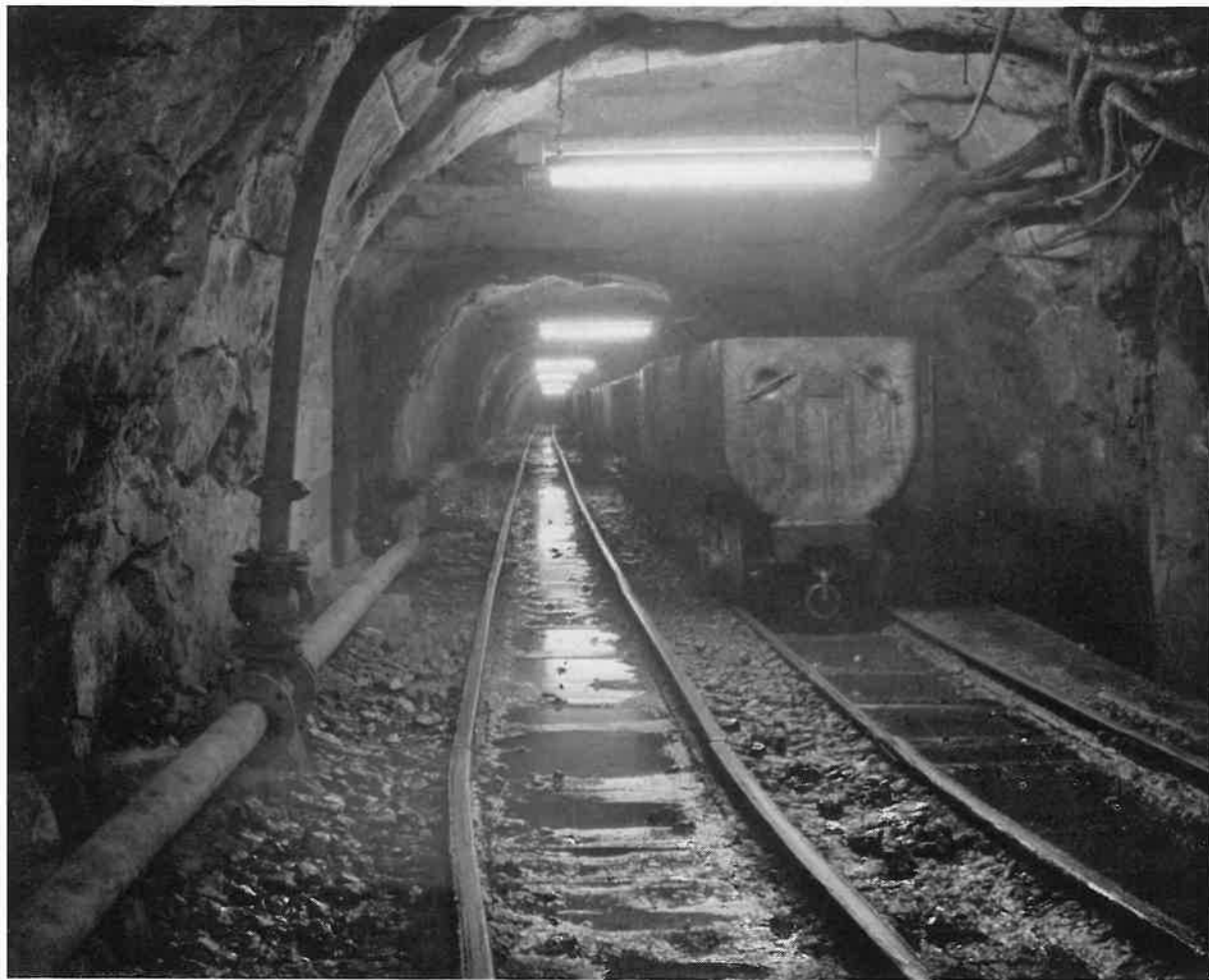
*First-class lighting for the first class dining room. One of the outstanding Mazda lighting schemes aboard R.M.S. Queen Elizabeth.*



Soon after the war, the first underground fluorescent lighting system was completed in a British mine. Modern flameproof mine lighting became a reality, providing "day-light" visual conditions in the depths of the earth. Now the Ereğli mines of Turkey are adopting this safe and efficient form of lighting.



## EREĞLİ KÖMÜRLERİ İŞLETMESİ



*A main production road in one of the Ereğli pits. Great post-war progress is shown by diesel traction and fluorescent lighting. Unimagined brightness is now provided in working areas that were once notoriously dark.*

**E**REĞLİ, for the benefit of those who are not familiar with Turkish geography, is a small, mountainous district east of Istanbul. It is at present the scene of a vast programme of industrial expansion, for in this remote coastal town, and stretching over the hills to Zonguldak, are the country's richest coalfields, selected for development under the Economic Co-operation Administration.

Already the mines reveal an impressive picture of mechanical progress. The great development scheme now under way is designed to provide enough coal for the rapidly expanding industry of Turkey and to ensure that the mining is done efficiently and economically. It is a remarkable achievement of engineering planning and organization, and BTH has played a prominent and important part.

We have to glance at the history books to understand the fantastic difference between the Turkey of today and just a few years ago.

The decline of the Ottoman Empire left the country in a state of physical exhaustion and political uncertainty until the arrival of Kemal Atatürk who led his nation to emancipation. Under his leadership Turkey developed in the

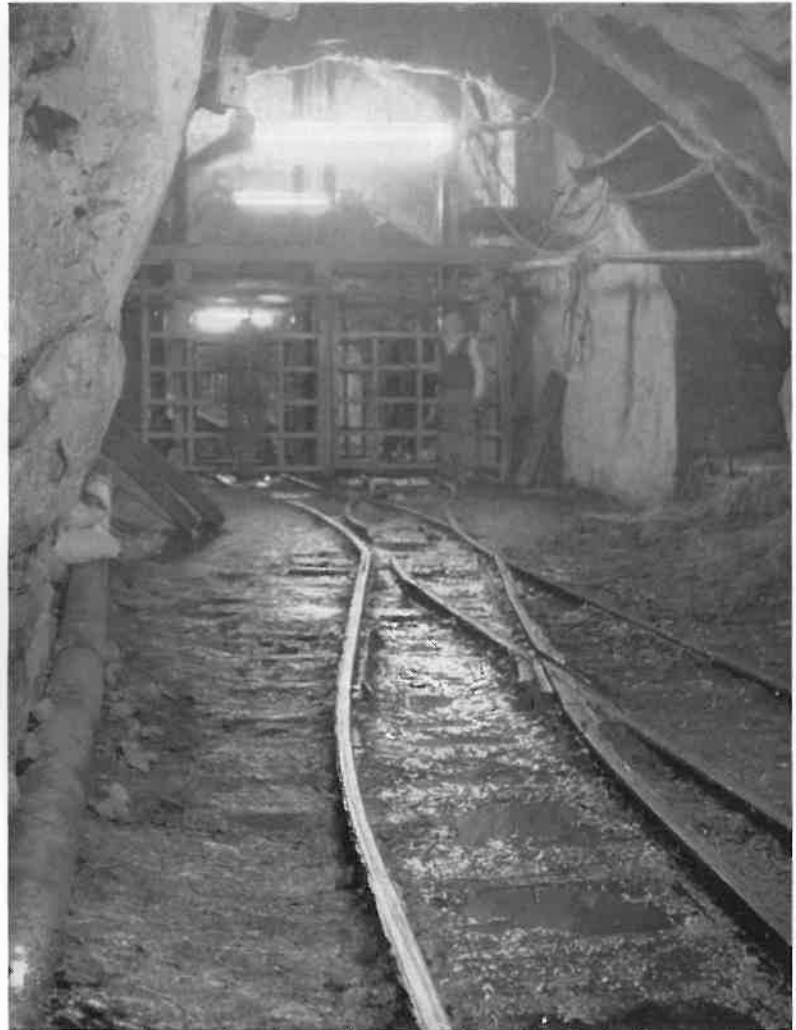




*Engineers from Turkey on a visit to this country where they studied at first hand the principles of maintaining and operating modern electrical equipment.*



*Turkish miners and maintenance men listen attentively to a BTH engineer sent to Ereğli to give on-the-spot instruction. Soon they will be looking after some of the world's most highly mechanized coal mines.*



*Another underground roadway. The work of the miner in loading and hauling the coal is made easier and safer by the flameproof fluorescent lighting which provides almost daylight conditions in these pits.*

short space of 15 years from absolute Sultanlic rule to an independent democratic republic. Today new roads and factories are being built and the mines are being modernized on a scale never before attempted.

The story of Ereğli District Coalfields (or Ereğli Komurleri Isletmesi) stems from the Crimean War. Although the mines were in operation during the 19th century, it was the supply of fuel for British ships taking part in the Crimean war that gave them a much needed fillip in production and established them as commercial propositions. Soon they had spread over the valleys of the region, and Ereğli gave way to Zonguldak as the headquarters of the mining district.

Following the war there was a further impetus to expansion. For the first time the Turks were able to embark upon a scheme of development and mechanization in tune with modern requirements. The results have so far been beyond expectation.

Many companies in Europe and America competed for the post-war order put out by E.K.I. for vast quantities of electrical equipment, and eventually the whole of the under-

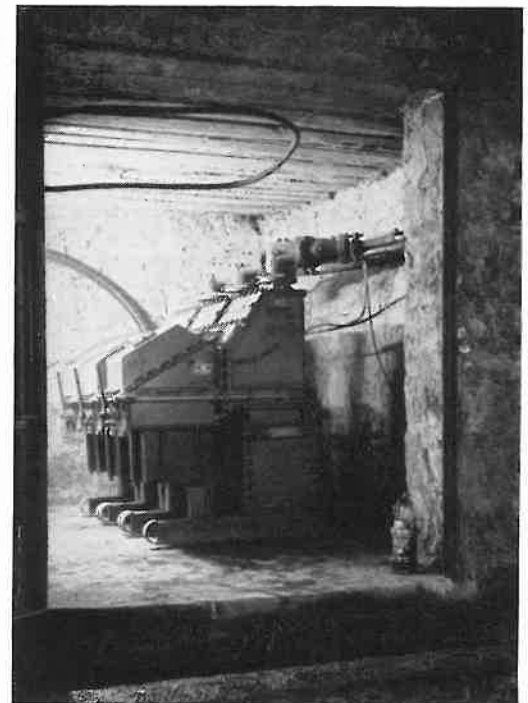
ground electrical distribution was assigned to British firms; the largest part, including the entire fluorescent lighting contract, to BTH.

The total order for BTH equipment comprised 3300-volt flameproof switchgear, 550-volt gate-end boxes, 550-volt section switches, 3300/220-volt lighting transformers and fluorescent flameproof type lighting fittings.

At the outset BTH engineers were sent to Turkey to act as advisors to the E.K.I. where they have organized a training course for the pit electricians and engineers. Twelve Turkish engineers also came to this country where they were able to witness the manufacture of equipment, testing and installation and maintenance methods. The programme of their visit was largely arranged by BTH together with other manufacturers and the National Coal Board.

Only part of the lighting scheme has been completed to date. Yet it is already the largest underground installation in the world. When completed it will comprise thousands of fittings which will bring daylight working conditions to the roadways throughout the mines.

*D. J. Westcott*



*Switchgear has to be flameproof, reliable, efficient, like the electrical facilities it controls. This BP 31 switchgear, used at Ereğli, is the most modern of its kind.*



# History in Streetlighting

*Ale a ha'penny a pint . . . the Elizabethan street scene may have been dark at night-time, but never dull . . . Why worry? Left or right along the dimly lit highway, it's all the same.*

**H**ISTORIANS differ as to whether any form of streetlighting existed in the ancient world. The history of Jesue Stylites tells us that Eulogius ordered night lighting in the streets of 6th century Edessa. But there is no indisputable record that fixed lanterns of any kind were hung in the streets before the convention was adopted in Paris, and, a little later, in London, during the reign of Elizabeth. "Lanthorns with lights to be hanged out on the winter evenings" was the earliest order of the day. But of course the Elizabethan street scene was never very enticing to the traveller either by foot or horse. To sink into a quagmire of mud and filth was the usual reward for braving the roads. A basketful of garbage on the head was common enough.

In the present age, street illumination is one of the greatest concerns of the enlightened municipality—and one of the finest accomplishments of BTH who have been responsible for some of the most outstanding installations ever carried out.

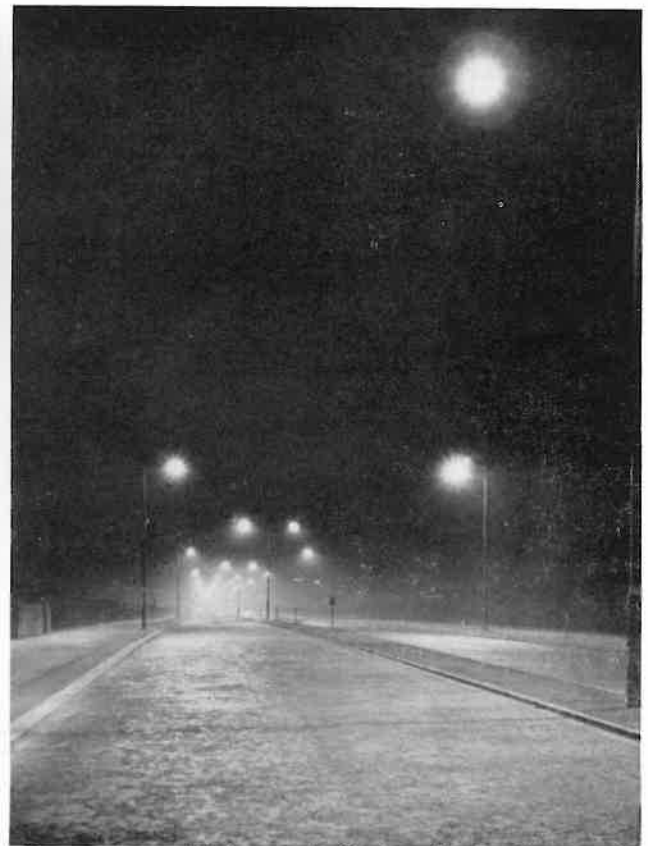


*Old Bond Street (above and left) is not only one of London's busiest and most famous shopping thoroughfares. Mazda fluorescent lighting was installed experimentally in 1946, along with its kind. Recently it was extended to give uniform, shadow-free illumination along the entire length*

# ighting



*One of Britain's largest installations of sodium vapour street-lighting, on the Glasgow-Carlisle Road. Lamps are 140 watt in enclosed type lanterns. Mounting height 26 ft. spacing 120 ft.*



*Mercury vapour lighting on the Motherwell—Hamilton Road. Like sodium, this is efficient and economical. Lamps 250 watt in enclosed type lanterns. Mounting height 25 ft. spacing 120 ft.*



*centres. It is, by night, one of the world's h High Street, Rugby, the first scheme of i of the street.*

*Rugby is among the best lit towns in the world. Its main thoroughfares and side-streets represent the finest examples of modern roadway illumination. Fluorescent, mercury, sodium and tungsten lanterns are employed, depending upon particular requirements, and here, in the High Street and along Sheep Street, 5 ft. fluorescent units give a characteristically high level of lighting.*



# Streetlighting Overseas

SINCE the introduction of fluorescent streetlighting by BTH six years ago there has been a continual demand from overseas for this type of roadway illumination. And from reports of its efficiency and orders received it would seem that its future as a valuable export is assured.

South America now possesses one of the largest installations of fluorescent streetlighting in the world. In Brazil—a country which Drake visited 375 years ago in the course of his journey round the world—300 BTH fluorescent lanterns have been installed in some of the main streets of Rio de Janeiro, the capital city.

There are several impressive installations in South Africa. Fittings were supplied to the Johannesburg City Council for use in one of its principal shopping centres, the Municipal Market. In addition, 850 Sodium Open Streetlighting lanterns, accommodating 140-watt lamps, have been supplied to the city of Salisbury and 2000 Rural Open Streetlighting lanterns to the Electrical Supply Commission of Cape Province, for a variety of undertakings.

Fluorescent streetlighting is also to be found in Haifa, where an initial system of ten 5 ft. three-lamp lanterns has been completed in one of the main streets—and in Nairobi where similar lanterns light the whole length of Harding Street, one of the city's principal thoroughfares. A large number of fluorescent streetlighting lanterns has been ordered for most of the main streets of Mombasa the sole port for Kenya and Uganda. In New Zealand the Waitemata Electric Power Co., has installed BTH fluorescent lighting at the North Shore Ferry Terminus, Auckland, and the city is shortly to install a further 170 fluorescent units in important highways.

Fluorescent streetlighting is also obtaining recognition in India, largely through the efforts of A.E.I. (India) engineers, who represent BTH in that country. Several trial installations have been completed, including one at Chowpatty Sea Face Road, Bombay, last year. Observers from many parts of India were favourably impressed.

Fullerton Road, an extremely important thoroughfare, and the Collyer Quay area of Singapore, provide admirable examples of streetlighting of the highest standard. Fluorescent lanterns housing 5 ft. 80-watt lamps give bright, evenly distributed, glare-free illumination in some of the busiest areas of the city.

Rio



Haifa



Nairobi



# Progress Abroad

**I**NDUSTRY in Asia and Africa is undergoing a sudden and rapid transformation. The once agrarian economies of these continents are giving way to modern industries capable of mass-production on Western lines.

In this great change the part played by lighting is extremely important. The detailed work of the textile operative or the mechanic, in India as much as in Britain, needs good lighting. And one of the first steps of the managements of these developing industries has been to seek expert advice on the illumination of factories and other work places and, whenever possible, to install modern lighting equipment.



*Lighting equipment being stowed aboard a B.O.A.C. aircraft ready for a speedy trip to the cotton ginning factories of the Sudan.*

Schemes which provide the highest standards of illumination have recently been completed in industrial and commercial establishments in the Sudan and India and Pakistan.

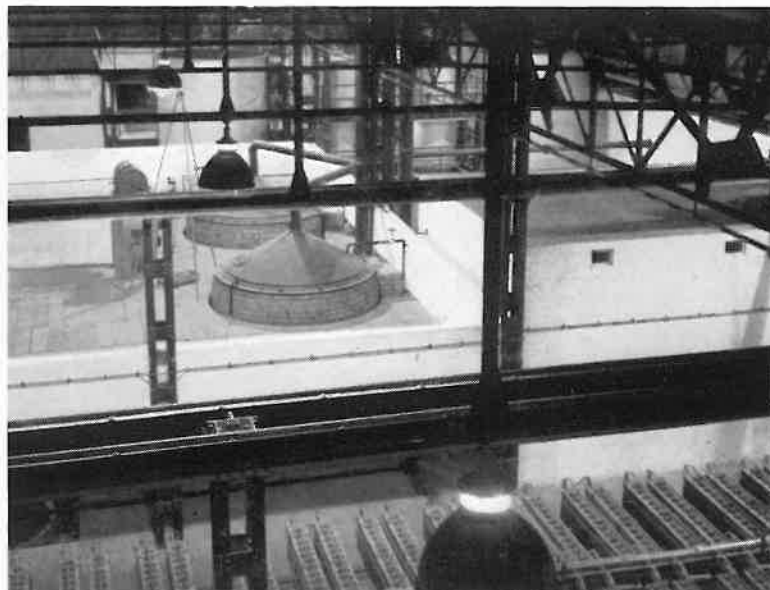
At the end of last year BTH lighting fittings were sent by airliner to illuminate cotton factories in the Sudan, in time for the start of the cotton ginning season in January. The cargo was one of the largest of its kind. This new lighting, in addition to other modernization schemes, is helping to provide safe and efficient conditions in these ginning factories and will facilitate the night work needed to deal with the large cotton harvest expected in the future.

The use of lighting equipment overseas also brings us to one of the world's oldest industries, jute, where modern illumination is proving a vital aid to production in one of the three new Adamjee jute mills being erected in East Pakistan. In all, 1756 twin-lamp fluorescent reflectors and 30 industrial type reflectors housing mercury vapour lamps have been installed.

India too has many fine examples of BTH lighting. Several cotton mills have undergone lighting changes in the past few years, including the three new Bombay factories of Shree Niwas Cotton Mills Ltd., where 380 fluorescent reflector fittings provide a uniform brightness comparable to that expected of up-to-date factories in the most advanced industrial nations. A further example is provided by a recent installation at the new factory of Hindustan Heavy Chemicals Ltd., where Mazda industrial reflector type fittings employing electric-discharge and tungsten lamps, have been erected.



*Machinery being assembled under a fluorescent lighting system which provides efficient illumination at the modern factory of the Britannia Biscuit Co., Calcutta.*



*Mercury vapour fittings provide ideal lighting for vats as well as other parts of this modern industrial establishment—Hindustan Heavy Chemicals, Calcutta.*



*Problems involved in the detailed job of weaving are simplified by the introduction of fluorescent lighting at Shree Niwas Cotton Mills, Bombay.*

... and continuing the Gay Elizabethan theme

## Lightscape



*Outdoor illuminations can be organized in patterns or they can be haphazard, creating a fairyland picture of chaotic charm. They should never be merely a row of coloured lamps, pathetic and purposeless. Southend pier sets a fashion in brilliance which, if not breath-taking, is at least interesting—even exciting.*



*And in different vein, Ramsgate has achieved an ingeniously gay impression with Cinderella in light. This sort of thing is the apotheosis of an organized lamp display, whether at the seaside or on the front of the Town Hall. But the single rows of coloured lamps in the background could be dispensed with. They would be more effective if arranged in clusters or groups.*

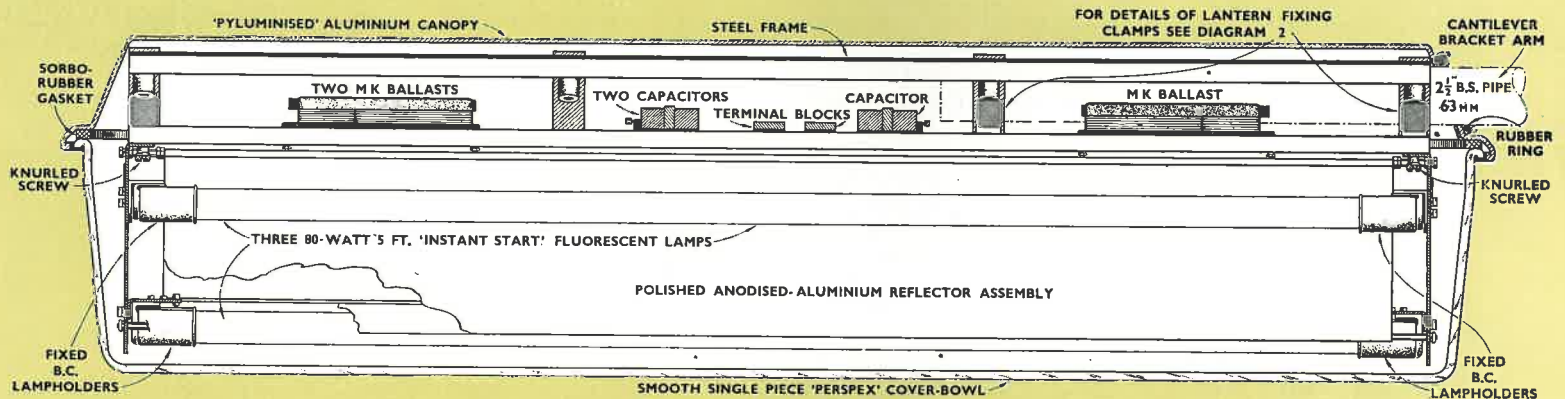
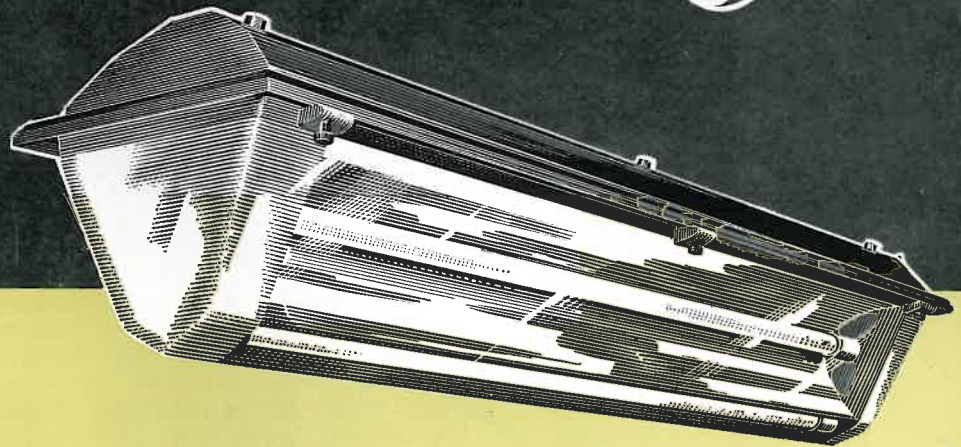


*Again the organized lamp display is used to give an impression of gay, fairyland sparkle, this time at Morecambe's Little Venice. If the ephemeral style of building used to imitate the Venetian scene is rather Hans Anderson in effect, the idea is amply justified by the attractive lightscape it provides.*



# SLX 3535

## FLUORESCENT STREETLIGHTING LANTERN

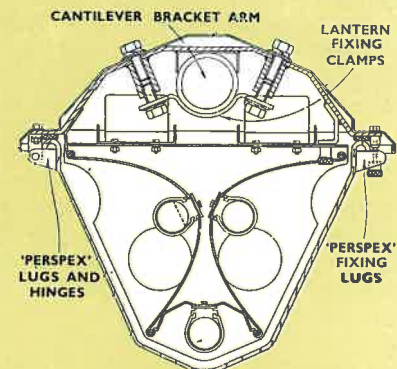


**Construction.** Sheet-steel frame strengthened by four mild-steel transverse ribs. *Pyluminized* corrosion-resistant aluminium canopy. Smooth single-piece "Perspex" bowl free from drilling or rivetting, securely hinged and held against weathertight and insect-proof sorbo rubber gasket. "Instant Start" ballasts, power factor and radio suppression capacitors on easily accessible control gear trays. Fixed B.C. lampholders earthed for "Instant Start" fluorescent lamps. Anodized aluminium reflectors give maximum glare-free light distribution. Wired for single-lamp economy working. Suitable for tropical use without modification.

**Installation.** Side-entry cantilever bracket mounting, or catenary wire suspension with pulleys.

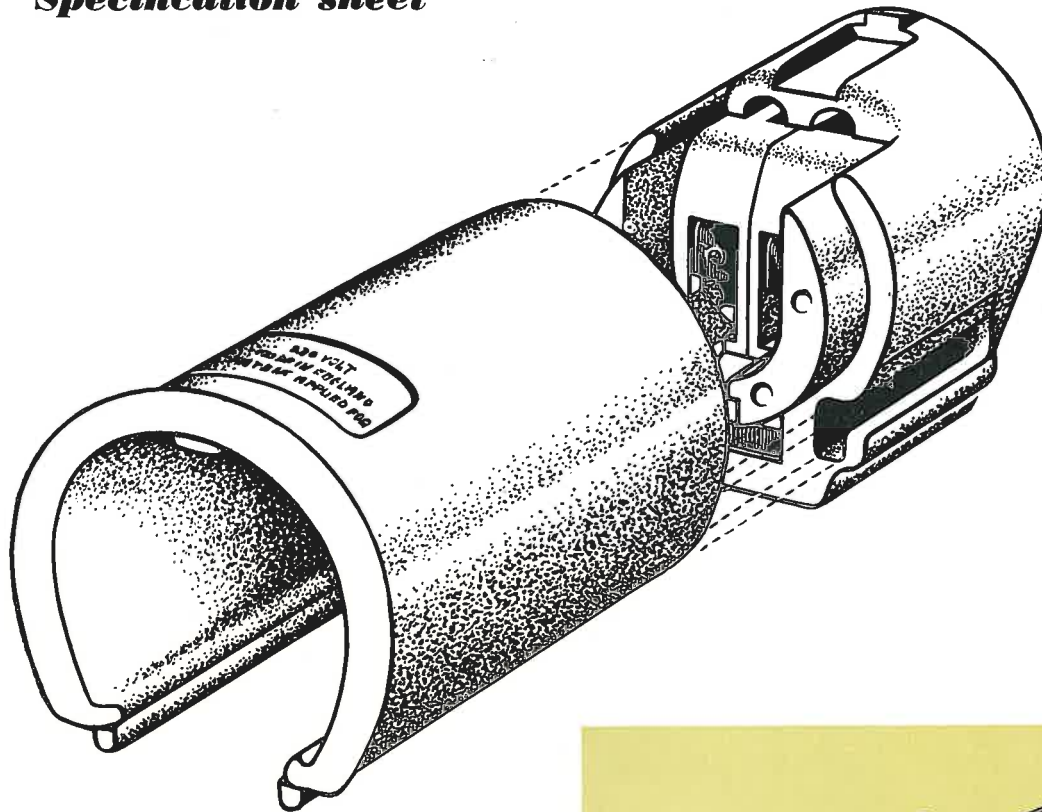
**Maintenance.** Smooth easily-cleaned exterior. Re-lamping facilitated by fixed B.C. lampholders at both ends. SLX ("Instant Start") series lanterns have no starter switches and control gear will operate almost indefinitely without attention.

Approx. weight 60 lb. (27 kg.).



for erection and maintenance





**Fixed B.C. Lampholder—Cat. No. C 82856**

- ★ This new fixed B.C. lampholder for fluorescent lamps is used in the SLX 3535 streetlighting lantern. It has many advantages to commend it: Maintenance is speeded by the accurate and automatic location of the lamp cap in the holder working from *one* end of the lamp only.
- ★ The lamp cap is automatically earthed, so making this holder suitable for use with "Instant Start" fluorescent lamps.
- ★ The ends of the lamp are fully shielded.
- ★ Powerful phosphor-bronze springs ensure positive connection to the lamp through independently sprung contacts.

**Erection**

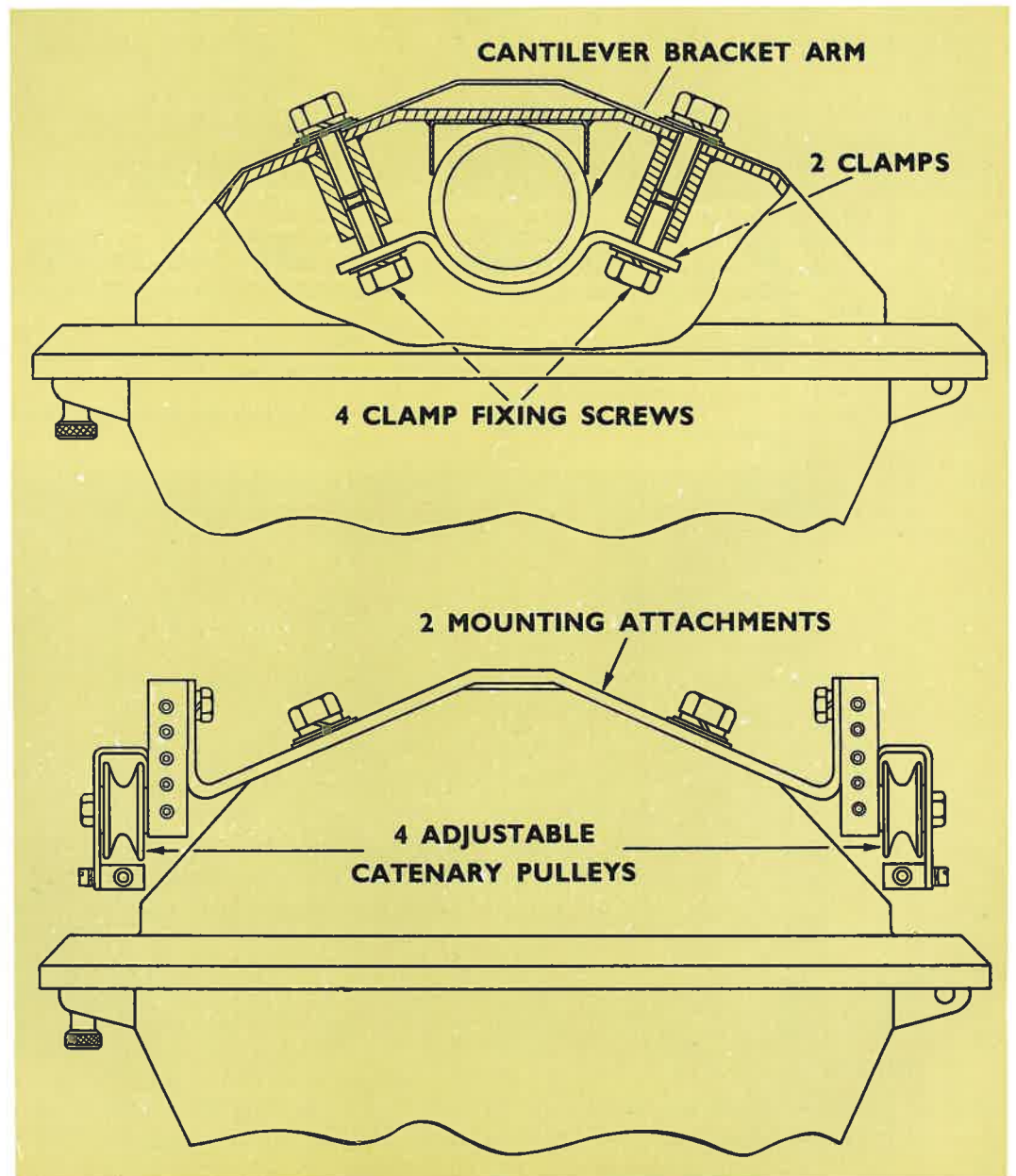
Lanterns in this Series can be supplied either for internal cantilever bracket mounting, or for catenary wire suspension with pulleys; both these methods are illustrated here.

For cantilever mounting on steel or concrete columns, the bracket enters the lantern at one end through a weathertight bush, and is secured inside the lantern by two clamps. Access to these clamps is by opening the cover bowl and swinging down the optical assembly. Supply cables are brought through the cantilever arm and connected to the terminal blocks. The marked "E" terminal is then earthed.

For catenary suspension the pulleys, at 14 $\frac{3}{4}$  inch centres, are mounted externally; they may be adjusted to compensate for the slope of the wire. Cable entry in this case is through a packed gland in one end of the canopy.

**Maintenance**

The new design of fixed B.C. lampholder described above simplifies re-lamping from one end of the lantern, and the smooth easily-cleaned exterior requires a minimum of attention. Auxiliary gear will operate almost indefinitely without attention.



# The Work Behind Lamp Development

*When William Gilbert, physician, philosopher and scientist, demonstrated to Queen Elizabeth I that the earth was a great magnet, he was laying the foundation for a theory of electricity and magnetism which has guided research to almost incredible discovery. Research which continues to add to the comfort and amenity of life. . . . .*

**I**N THE last 25 years there has been a rapid growth in the evolution of all mains voltage discharge lamps; even with the tungsten filament lamp, which was well established by the middle 1920's, considerable progress has been made. Lamp development engineers look back over 25 years which have seen the introduction and establishment of the coiled-coil tungsten filament, the internally silica-coated bulb, internally mirrored reflector lamps, cementless capping, sodium and mercury vapour discharge lamps, the fluorescent lamp, and high brightness discharge projection lamps, to mention only the outstanding landmarks.

Although the primary task of a group working on lamps must always be the development and improvement of lighting sources, probably the majority of the members of such a team will be engaged on the ancillary work created by the introduction of new devices. For instance, the introduction of discharge lamps automatically created the need to study lamp circuitry and the photometry of light sources of widely differing colours, neither of which constituted a problem with the tungsten filament lamp.

The story of the development of the various types of discharge lamps has been told so often that it is fairly well known, but the work involved in the development of new techniques of measurements and control which new lamps have engendered, is not so widely appreciated.

## Measurement

Discharge lamps differ from filament lamps in two major ways; they require auxiliary circuit components to control the current, and they do not emit radiations continuously throughout the visible spectrum. Most of the ancillary work springs from these two main causes. The need for circuit control gear obviously leads to a study of lamp circuitry; here different combinations of electrical components result in varying waveforms which will affect the performance of the lamp, both as regards light output and cathode performance, upon which lamp life is closely dependent. Such effects must be studied and understood before they can be accurately controlled. Efforts to avoid using the starter switch as an additional fluorescent circuit component continue to absorb much attention, as does the study of minimizing the effects of voltage supply variations—an unwelcome feature of present day conditions.

The measurement of electrical quantities is based on well-established techniques. It presents no great difficulties, although some

techniques require considerable skill and patience. The measurement of optical quantities, however, is considerably complicated by the fact that the colour of most discharge lamps is widely different from that of the standard of comparison (which is usually a tungsten filament lamp).

Methods of photometry, or measurement of light quantity, have had to be developed to enable lamps of all colours to be measured, and such methods have then had to be standardized, both nationally and internationally. With the advent of the fluorescent lamp, which has enabled the lamp engineer virtually to control the colour of the light at will, the study of colorimetry, or the measurements of light quality, has had to be extended. This involves the double concept of colour appearance (how the lighted lamp looks to the eye of the observer) and colour rendering (how coloured objects appear when illuminated by a lamp). Lamps with the same colour appearance do not necessarily have the same colour rendering properties. Every subtle shade and variation of colour must be capable of being accurately measured and defined before lamp engineers can be sure that they are discussing the same colour.

Before leaving the question of colour, one other point of interest arises—is there a “correct” colour to which lamps should be

made? Two different observers will probably each prefer a different lamp colour, but this does not mean that either is necessarily right, nor that the particular lamp colour is correct. This problem has been attacked in the BTH laboratories by conducting sample surveys of public opinion. Two cubicles, identically furnished are arranged to be lit by lamps of different colours. Test objects, such as food, coloured fabrics, and the human complexion, are compared in each cubicle under different illuminants, and disinterested observers (engineers, typists, and others) are invited to assess their preferences—a test which is by no means easy either to participate in or to analyse.

## Development

The application of discharge lamps has largely followed the fundamental principles evolved with filament lamps. The concepts of coefficient of utilization, diversity factor and point-by-point method, are equally applicable. The concept of “brightness engineering” has, however, emerged as a new technique, and has been triumphantly vindicated in the successful application of fluorescent lamps to streetlighting, where a lamp of low brightness has resulted in vastly superior visibility conditions in streetlighting, in spite of having a relatively low total light output.

The impact of a new lamp is likely to extend to other allied fields. New materials may be needed, existing materials may need further improvement.

All the time, however, development work on the lamps themselves continues. Much of it results in important but little noticed improvements in lamp quality, longer life, an improved light maintenance, a more uniform product. From time to time a novelty appears—sometimes to dwindle into obscurity, on another occasion to blossom forth as a new light source. There is little reason to doubt, however, that the development of lamps and lighting will continue, improvements bringing with them fresh problems and new measurement techniques for the lamp engineer to master.

*E. D. Jones*



**PHOTOMETRY.** The lamp to be measured is operated inside a spherical enclosure whose white diffusing surface collects and mixes light from all around the lamp. A sample of this integrated light enters the inspection “tunnel” (seen on the right) and illuminates one half of the field of view; the other half is lit by a lamp of known optical characteristics.





*A modern interior with well-diffused lighting from Silverlight lamps in table and centre-of-ceiling fittings.*

Jill McBain

*discusses  
the home*

In Two Reigns

*Indirect lighting from fluorescent lamps is used in this lounge of a centuries-old farmhouse.*



ELIZABETHANS, 1552 vintage, bowing back over the centuries to their illustrious forefathers, are drawing a pleasing parallel between the enterprise fostered by Elizabeth I and all the promising signs for a new flowering of ideas and development under our own young Queen.

The earlier Elizabethans, lusty in their appetites, bawdy in their speech, extravagant in their dress, romped through their age with a wanton disregard for personal danger and a firm determination to enrich their Queen, their land and very naturally themselves. In seafaring and discovery, in music, drama and poetry, these colourful spirits led the world and whether their adventures took them to the end of the earth or no farther than the court of Gloriana, their return home was marked by a fine spending spree which built some of the most beautiful houses in England set in fine gardens and parklands.

Lovely Longleat . . . Audley End . . . Kenilworth—these gracious private palaces built in peerless Renaissance style bear witness to the glory of the golden age and its delight in the display of beauty. And besides these lordlier rural homes, there grew up innumerable smaller manor houses, bewilderingly different in size, and style of architecture—some in stone, some in red brick, others half-timbered—yet all tangible evidence of economic prosperity.

In our own time the desire to build beautiful homes is strong as ever it was when England was Merrie . . . but the difference now is that beautiful design in the building of homes, their decoration and their furnishing can be achieved at many more income levels. And more than that, the civilizing, glorifying influence of good lighting is reaching everywhere.

How vastly different the Tudor twilight which could only end in flickering rush or candlelight! Why, Will Shakespeare's plays were performed in the day time because no stage lighting of any kind was known and certainly the ardent play-goer would hurry home ere nightfall . . . for the unlit streets of the town sheltered the sly pick-pocket, while the dark country ways cloaked the footpad who would rob, and kill to rob if necessary.

Many comparisons can certainly be made between the old and the new but it can be fairly said that the advances made in modern home lighting compare handsomely with earlier Elizabethan achievement, and might rate higher in fact than the introduction of the tobacco habit to this island!

In the development of the fluorescent light enormous strides have been made and if this form of lighting has not completely won the housewife over, it is only a matter of time. Most popular move has been to install fluorescent lamps in kitchens and bathrooms, where the advantages of its bright shadowless light are obvious. Less obvious, but on the way up in the popularity poll is the decorative use of fluorescent light.

Fluorescent lamps can provide a kindly, mellow background light if concealed behind cornices, alcoves, under pelmets, beneath shelves, in the roofs of china cabinets, making a perfect foil for local filament light concentrated on all working surfaces—desk, table, sewing chair or reading chair.

Yet a further advance in the decorative use of fluorescent lamps has been the manufacture of the circular lamp. This can be used in fittings of conventional design and a certain future for it is in pendant ceiling fittings.

In incandescent lighting a big improvement came about when the Silverlight lamp made its appearance. The silica coating of the inside veils the dazzling filament, provides a good steady light to make even darning a pleasure. Silverlight lamps are friendly, easy to live with, easy on the eyes.

And surely that's the general feeling about well-lighted homes—they're friendly . . . secure . . . civilized.

*They all depend on*

# LIGHT

*The Modern Lamp has strange forebears. In this article Francis Moran discusses the history of lamps and some modern applications*

THE business of dispelling darkness has been intimately connected with the name "Mazda" for a very long time. More than three thousand years ago, the nomadic tribes of Central Asia believed in nature spirits, good and bad—the good being called "asuras" and the bad "daevas". Some time before 600 B.C.—and it may be a good deal earlier—a prophet called Zoroaster spread a new religion based on the old nature worship but transcending it. He claimed that the forces of nature were not many but two, the good force and the evil; and he called the force of goodness AHURA MAZDA, the Wise Spirit, and the force of evil, Ahriman. In his philosophy evil fought against goodness and was conquered but not killed and was thrust down into darkness with the daevas: and from the darkness Ahriman continually fought with Ahura Mazda for power over all living things. The symbol of Ahura Mazda was light—a living flame tended by priests.

The name Mazda, in its religious connotation, did not survive the Persian Empire, though a small minority of Central Asians continue their allegiance to Zoroastrianism which derives from AHURA MAZDA, mainly as the religion of the Parsis of India.

For the majority of people today it is the means of bringing light to all the places in which we live and work. Cheaply, easily, efficiently, it brings illumination of almost any chosen colour or intensity, enabling us to defy the night and pursue our activities for as long as we like.

If we could project ourselves back four centuries we would find, among other things, that daily life was more or less rigidly controlled by the amount of daylight available. A normal working day would begin at sunrise and end at dusk.

From these early times until quite recently little was achieved in the progress of artificial lighting. Developments of the 16th century seem largely to have been confined to the candle and its more economical counterpart the rushlight. The 17th century has little progress to offer. One major event, however, took place in Paris during 1667, when that leader of fashion, and the first city to adopt effective streetlighting, had its highways and byways lit by oil lamps and torches.

Candles were still quite common in the 18th century, but it was in this period that the oil lamp, of the crusie type, came into general use. An event of considerable importance took place at Lord Lonsdale's coal mines in 1765 where gas was piped to some offices and used for illumination. The Argand burner was constructed in 1784, although it was not commonly used, except in lighthouses, until the next century. It was well into the 19th century, in 1855, that Clamond

revolutionized methods of gas and oil lighting by hanging baskets of calcined magnesia over the very hot, almost non-luminous flame invented by Bunsen.

Subsequent developments in both gas and oil lighting may be regarded as refinements rather than fundamental discoveries. It has been left to the electric light, introduced towards the close of the 19th century, to provide the surge of progress that holds out a future freed from the restrictions which forced our forefathers to leave so many labours undone.

Improvements in construction, the rise in popularity and general use of the electric lamp in just over a century, are the more remarkable when compared with developments in the oil lamp, which has been in general use since about 1000 B.C., or with the open saucer float wick lamp which is known to have been used in the Ancient Empires of Egypt, Greece and China.

The first practical electric lamp was manufactured about 1858 in the form of the carbon arc lamp, to be followed by the carbon filament lamp in 1879. The Nernst and Osmium lamps were introduced in 1897, followed, quite rapidly, by the Tantalum in 1905 and Vacuum in 1909. The early part of 1910 saw the introduction by BTH of the first tungsten lamp of the "squirted" filament type, and at this time the word Mazda was introduced as the name of an incandescent electric lamp. A year later this name was associated with a new invention, the drawn wire tungsten filament. But the gas-filled lamp in 1912, another development with which Mazda was prominently connected, has probably had a greater influence than any other single factor on the progress of electric lighting. This was followed by the coiled-coil in 1934. Electric discharge lighting first came into use in 1895 with the introduction of the Moore Tube, followed by the Cooper Hewitt Mercury in 1900, Neon Tube 1922, Sodium and Mercury 1932, Quartz Tube Mercury 1939, Fluorescent 1940.

The contrast between the electric lamp of today and the candle of the not very remote yesterday is a measure of the improvement in the standard of illumination which has taken place. When the first electric lamp appeared it was regarded as exceptionally bright—at 16 candle power—yet the Mazda fluorescent lamp of 1952 is commonly used in ratings equivalent to a mean spherical candle power of 300.

So unobtrusive, so reliable is modern lighting that all too often we take it for granted. But if it were suddenly taken away . . . . . if we were plunged back to the lighting conditions of even fifty years ago . . . . . well, think how much each of the people and places referred to in the following pages owes to the electric lamp—to modern lighting technique.



they all depend on **LIGHT**



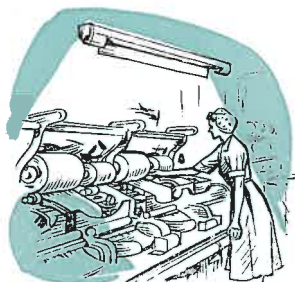
**the surgeon**

Delicate hands, guided by a cool brain... a co-ordination of thought and action on which a life depends. A moment's interruption might mean failure; but that interruption will not happen. *Within the lamps on which so much depends, the "emergency" filament is ready to take over instantly if the main supply fails.*



**the works manager**

The industrialist of the 1950's is a student of lighting. He has to be! He knows, for instance, the difference that good lighting can make to efficiency and output—but that's only a beginning. *From infra-red lamps for heat treatment and stoving, to ultra-violet for special inspection processes and fluorescent lighting for general work, wherever he looks in the factory, he sees Mazda at his service.*



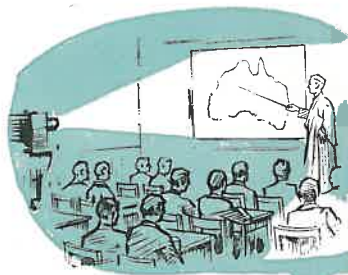
**the mill girl**

Miles of cloth a week come from the looms under her control; and every piece has in its warp thousands, perhaps millions, of individual threads. Somehow her mother and grandmother managed by flickering gas lights—but productivity has vastly increased since then. *In part, at least it's due to modern lighting... Britain's textile industries have installed thousands of fluorescent lamps during recent years.*



**the miner**

Half-a-miledown in the darkness of the earth...but it need be darkness no longer. Flameproof lighting fittings illuminate the main roadways as well as a busy city street. At the coalface too, fluorescent lamps nowadays cast their welcome light. *Only the highest standards will do... and Mazda lamps from the overhead flameproof fluorescent to the cap and hand varieties provide that standard in many of the world's mines.*



**the schoolmaster**

For modern youth, modern lessons. Reading about things in books gives way, in many cases, to really seeing them for yourself. The epidiascope, trouble-free descendant of the old "magic lantern", throws on to the screen an enlarged image of anything from a nature study specimen to a Roman coin. *The chances are, the lamp that does the job is one of the three different Mazda Epidiascope types.*



**the photographer**

Film stars and politicians... crowned heads and criminals... triumphs of sport that are over in a second, and great occasions that stem from centuries of tradition. The press photographer must record them all, and if he misses there are no second chances. *Which is why so many of them take Mazda photographic lamps wherever they go.*

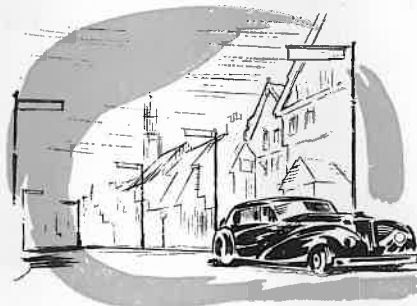




**the scientist**

Hundreds of years . . . millions of volts . . . thousandths of an inch. Whatever the standard

of measurement of his particular study, its ultimate aid is the same; for the pursuit of knowledge needs exact records and clear seeing. *Mazda contributes to the work of modern science, by a variety of lamps for optical equipment, projection microscopes, stroboscopes, and other special requirements of many kinds.*



**the motorist**

For every moment he is on the road, lamps outside and inside the car are at the service of

the motorist. Even in day-time, "stop" and "trafficator" lamps aid the complex job of traffic driving. As night falls, headlamps . . . sidelamps . . . scientifically-planned streetlighting . . . all help to make clear the way ahead. *Wherever a car can go, Mazda goes too, in the service of greater Road Safety!*



**the film star**

It's the raising of an eyebrow or the turn of an ankle that the "fans" notice on the screen.

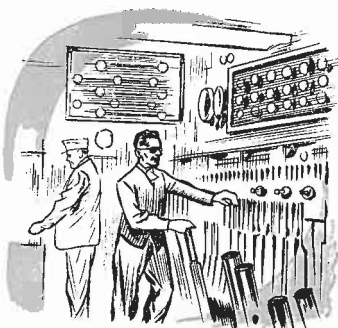
Without lighting, carbon arc, electric-discharge or incandescent lamps, how few of the triumphs of the screen could have taken place. *From first to last, Mazda serves the film industry—with spots, floods, "broad-sides", projector lamps, and even the little exciter lamps, without which films would still be silent.*



**the pilot**

Little more than thirty years ago, two British pilots—Sir John Alcock and Sir Arthur Whit-

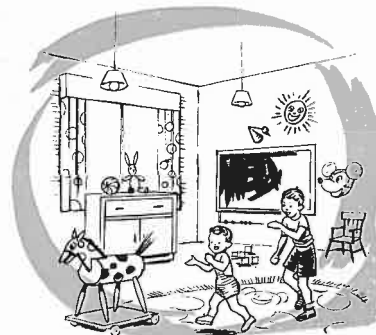
ten Brown—flew non-stop across the Atlantic for the first time. In the 13 years since regular transatlantic air services began, more than a million-and-a-half passengers have followed their example. *The modern aircraft is a mass of lamps . . . Instrument and Warning, Cabin and Cockpit, Navigation, Identification, Landing and Taxying . . . many of them within the Mazda Range.*



**the signalman**

Coloured lights wink on the panel before him . . . the bell rings sharply . . . a lever is

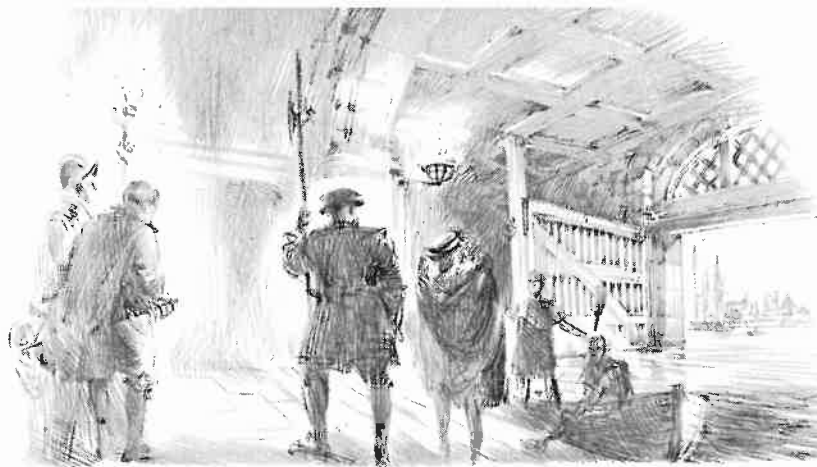
moved. Outside the box, five hundred passengers or a thousand tons of freight rush by with a roaring of wheels. *Clear visual indications, and general lighting planned to the best modern standards, combine to reduce the strain of one of the most concentrated and responsible duties in modern transport.*



**the nursery**

Drawing . . . jigsaws . . . lessons . . . games on the floor. Every waking moment of child-

hood demands *light . . . light bright enough to reveal all the details of this strange new world, but light without a trace of glare to injure the eyes. The ideal lamp for nurseries is of course the Mazda Silverlight, glowing throughout its life with a soft, even brightness.*



and concluding the Gay Elizabethan theme . . . .

# Floodlit

# Facades

The Tower of London and Windsor Castle—two buildings around which has centred much of the history and pageantry of the British people.

Linked geographically by the Thames, architecturally by their predominating Norman towers, traditionally by their associations with our kings and queens, they share a major place in our national

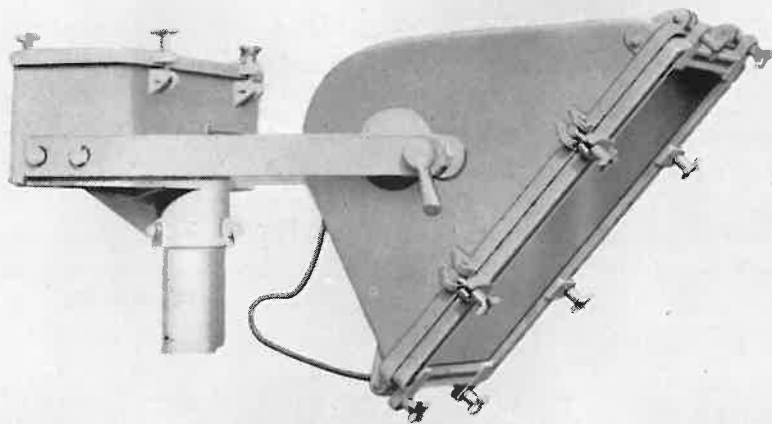
celebrations and the colourful pageantry which goes with them. Never are these buildings more impressive than when floodlit in honour of Britain's great occasions. And nowadays they are not alone in their brilliance. Other Royal palaces, as well as Government buildings, factories, offices and national monuments have been given gleaming and colourful appeal by floodlighting.



*A well-planned floodlighting scheme can give vivacity and interest to almost any scene. Witness the great buildings of London, such as the Tower, when they are floodlit for state occasions.*

*. . . . . and witness this famous home of the Royal Family, Windsor Castle. Illuminated for the Festival of Britain it attracted thousands of visitors with its gleaming walls and towers forming a magnificent back-cloth to the pageantry that is inseparable from the Castle.*

# Mazda Floodlights



**"TEN"**  
Designed for floodlighting working areas such as docks and marshalling yards.  
Lamps: Mercury Vapour.



**"THREE"**  
For large buildings, towers, spires, ships' funnels and other structures requiring a long beam projection.  
Lamps: B.2. Projector or Gas-filled Tungsten.



**"TWENTY"**  
Can be used either as a narrow or wide beam medium-power projector.  
Lamps: Tungsten Filament or B.1. Projector.



**"FOURTEEN"**  
For small-scale, general purpose floodlighting.  
Lamps: Reflector Spotlight or Reflector Floodlight.



**"TWENTY-ONE"**  
For use as a narrow-beam projector for lighting signs, architectural features and small areas of buildings, or as a wide-beam projector for general floodlighting.  
Lamps: Tungsten Filament.



**"TWENTY-TWO"**  
A more powerful dual focus floodlight for a wide range of applications.  
Lamps: Tungsten Filament.



**"EIGHT"**  
For small-scale floodlighting schemes or, with an ultra-violet lamp, for exciting fluorescent paints and powders used on display surfaces.  
Lamps: Tungsten Filament, Mercury Vapour MB(V) or Mercury Vapour with Ultra - Violet Filter Bulb (MBW/V).



**"TWENTY-THREE"**  
For building facades, gardens, shrubberies and other areas where a coloured effect is required.  
Lamps: Sodium Vapour, Mercury Vapour or Tubular.





# Coloured Lamps

A Coronation is essentially a time of rejoicing, of gaiety . . . . . of colour. Municipal authorities, borough councils and industrial organizations are already devoting time and money to planning a fitting tribute to Her Majesty.

In this issue of "The Outshining Light" we have featured a number of displays employing coloured lamps. They offer many possibilities for solving the difficult question of outdoor illumination.

There are any number of attractive combinations. Lettering can be picked out in sign lamps, trees festooned with many different colour-sprayed lamps, windows outlined with tubular strips.

With proper care and thought, the most prosaic building can be given a magic touch. And on this page we list some of many lamps of varied sizes and colours from which to choose.



## General Lighting Service

Available in White, Red, Blue, Green, Yellow, Flame, Orange, Pink, Amber. For interior and exterior decoration of public halls, gardens, parks, trees, streets, promenades, piers, etc.

## Sign Lamps (externally sprayed)

Colours: White, Red, Blue, Green, Yellow, Orange, Flame, Pink and Amber. Particularly suitable for display lighting and lettering, as well as festive lighting.

## Sign Lamps (internally sprayed)

Ideal for inaccessible, exposed positions. Paint cannot scratch and lamps do not collect dust or dirt.

## Fairy Lights

Supplied ready wired in sets of twelve, they can be used for the decoration of ballrooms, restaurants, homes, cafes, inns and many other interiors.

## Fairy Candles

Complete with clips and ready wired they can be easily attached to Christmas trees, etc.

## Candle Lamps

Sprayed in standard colours and available in plain or twisted shapes they provide attractive additions to interior decorative lighting schemes, especially when used in candelabra.

## Tubular Lamps

Can be sprayed in a variety of colours. Useful for interior schemes where short strips of light are needed.

## Fluorescent

A more expensive but correspondingly more attractive method of lighting for civic centres, town halls, restaurants, etc. Available in standard colour and Red, Green, Blue, Yellow.

## Light Tubes

Supplied in straight and curved lengths, these tubes can be used to emphasize architectural features or to outline signs, mirrors or pictures. Finish: Opal or colour sprayed.







### 1558, LIGHT RULES MAN

**A**MONG the first Elizabethans, the old aphorism about "Early to bed" was a token of necessity rather than virtue. At sunset the day's activities came to an end, for there was no adequate light—only the fitful shadows of an open fire, a feeble oil lamp or a guttering rushlight. Man was well and truly ruled by light.

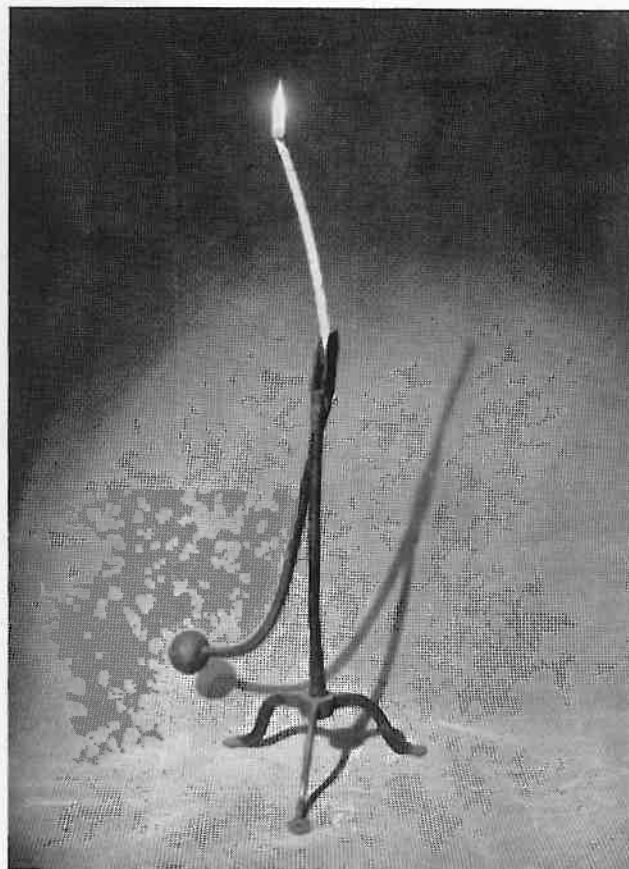
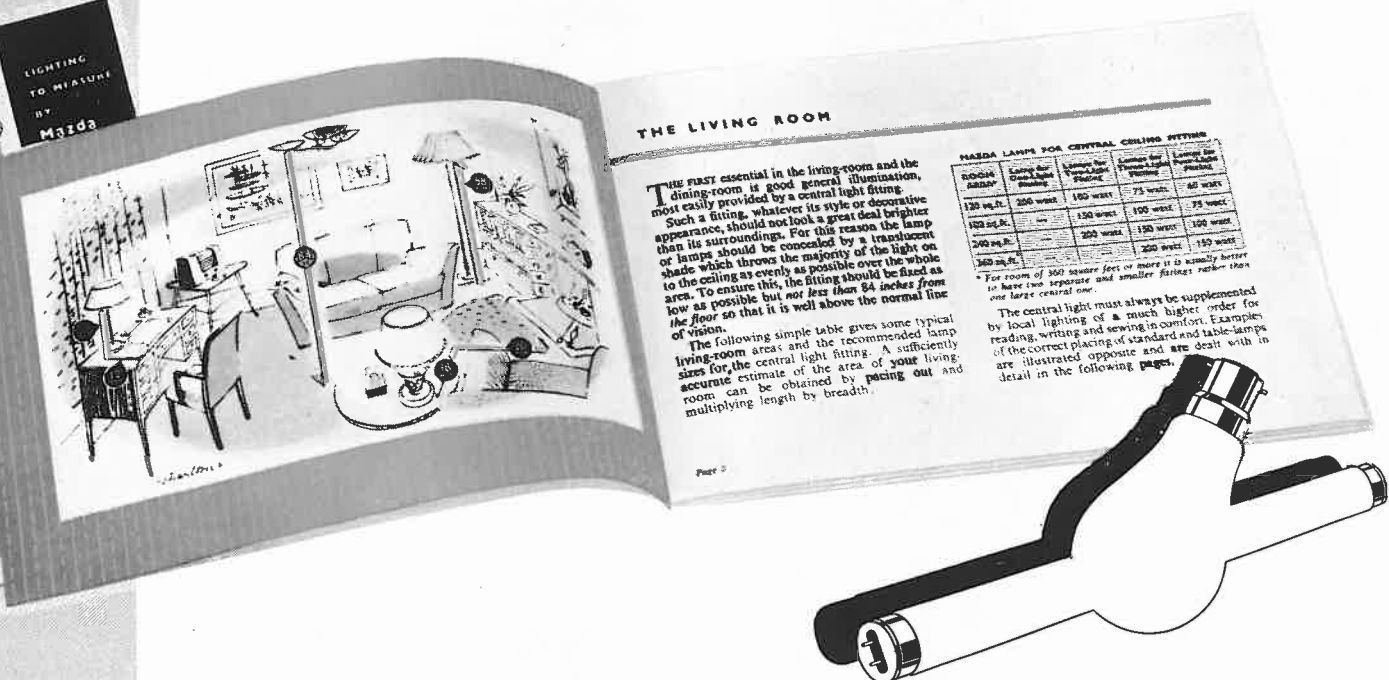
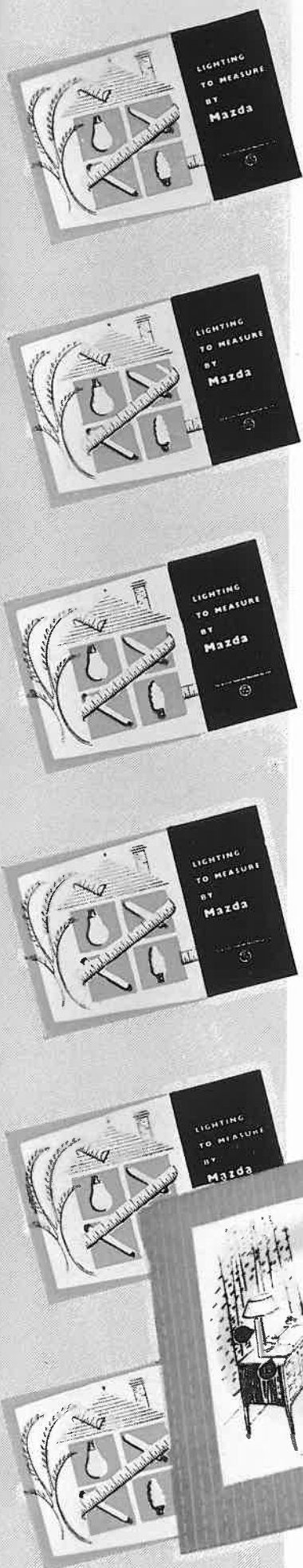


Photo : By courtesy of the Director, Science Museum. Reproduced by permission of the North Thames Gas Board.

### 1952, MAN RULES LIGHT

In 1952, however, man rules light. He can turn night into day at a touch of the switch. But, even to-day, there is room for improvement. Too often the lighting in the home is a 'hit and miss' affair. With this in mind, Mazda have worked out a series of simple 'recipes' which can easily be understood and put into practice. They have been published in a booklet entitled "Lighting to Measure".



#### THE LIVING ROOM

**T**HE first essential in the living-room and the dining-room is good general illumination, most easily provided by a central light fitting. Such a fitting, whatever its style or decorative appearance, should not look a great deal brighter than its surroundings. For this reason the lamp or lamps should be concealed by a translucent shade which throws the majority of the light on to the ceiling as evenly as possible over the whole area. To ensure this, the fitting should be fixed as low as possible but not less than 84 inches from the floor so that it is well above the normal line of vision.

The following simple table gives some typical living-room areas and the recommended lamp sizes for the central light fitting. A sufficiently accurate estimate of the area of your living-room can be obtained by pacing out and multiplying length by breadth.

MAZDA LAMPS FOR CENTRAL CEILING FITTING				
ROOM AREA*	Lamps for Living Room	Lamps for Dining Room	Lamps for Study or Office	Lamps for Bed Room
120 sq.ft.	200 watt	100 watt	75 watt	65 watt
150 sq.ft.	250 watt	150 watt	100 watt	75 watt
200 sq.ft.	300 watt	200 watt	150 watt	100 watt
300 sq.ft.	400 watt	300 watt	200 watt	150 watt

\* For rooms of 300 square feet or more it is usually better to have two separate and smaller fittings rather than one large central one.

The central light must always be supplemented by local lighting of a much higher order for reading, writing and sewing in comfort. Examples of the correct placing of standard and table-lamps are illustrated opposite and are dealt with in detail in the following pages.

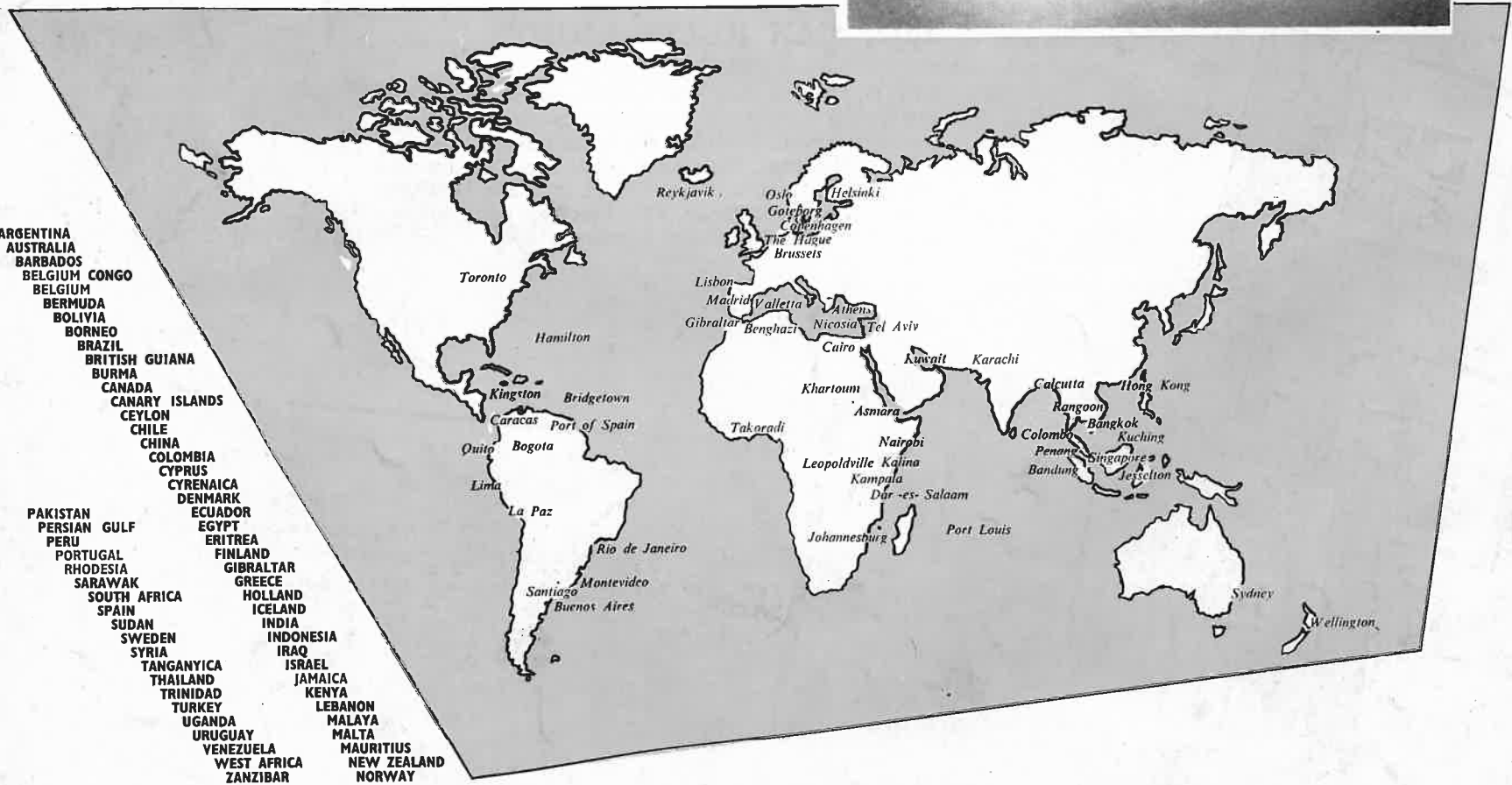
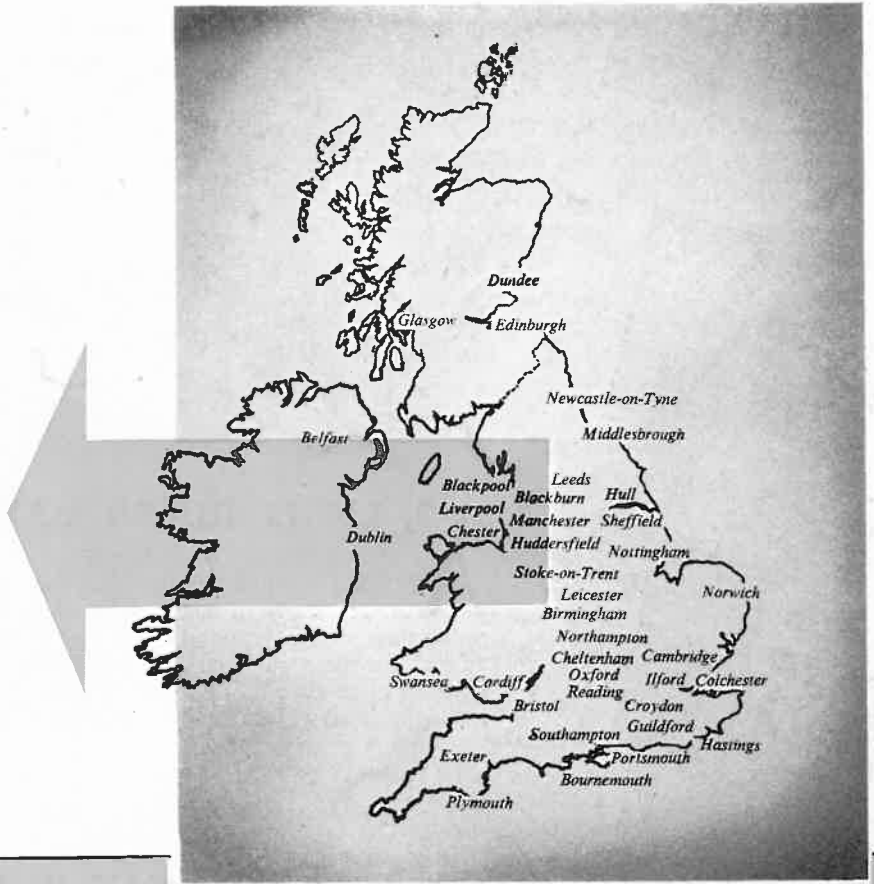


# AT HOME & OVERSEAS

**BELFAST**  
**BIRMINGHAM**  
**BLACKBURN**  
**BLACKPOOL**  
**BOURNEMOUTH**  
**BRISTOL, 1**  
**CAMBRIDGE**  
**CARDIFF**  
**CHELTENHAM**  
**CHESTER**  
**COLCHESTER**  
**CROYDON**  
**DUBLIN**  
**DUNDEE**  
**EDINBURGH, 2**  
**EXETER**  
**GLASGOW, C.2**  
**GUILDFORD**  
**HASTINGS**  
**HUDDERSFIELD**  
**HULL**  
**ILFORD**  
**LEEDS, 1**  
**LEICESTER**  
**LIVERPOOL, 1**  
**LONDON, N.W.1**  
**MANCHESTER, 3**  
**MIDDLESBROUGH**  
**NEWCASTLE-ON-TYNE, 1**  
**NORTHAMPTON**  
**NORWICH**  
**NOTTINGHAM**  
**OXFORD**  
**PLYMOUTH**  
**PORTSMOUTH**  
**READING**  
**SHEFFIELD, 1**  
**SOUTHAMPTON**  
**STOKE-ON-TRENT**  
**SWANSEA**

12 Alfred Street.  
 Geoffrey Buildings, John Bright Street.  
 "Old Bank", Old Bank Street, King Street.  
 8 & 9 Cowley Road, Marton.  
 511 Roumelia Lane, Boscombe.  
 119 Victoria Street.  
 Fellowship House, 133 Fitzroy Street.  
 Jotham's Buildings, 26-27 St. Mary Street.  
 17 Grosvenor Street.  
 5 Boughton.  
 Culver Street.  
 54 Selsdon Road, South Croydon.  
 Mazda House, 25 Suffolk Street.  
 17 Baltic Street.  
 130 George Street.  
 Post Office Chambers, 83/84 Queen Street.  
 53 Pitt Street.  
 Bedford House, Bedford Road.  
 17 Dorset Place.  
 7 Brook Street.  
 2 Prince's Dock Chambers, Prince's Dock Street.  
 23 & 25 Green Lane  
 46 Wellington Street.  
 5 Campbell Street.  
 27-29 Stanley Street.  
 44 Fitzroy Road.  
 15 Quay Street, Deansgate.  
 Post Office Buildings, Marton Road.  
 9 Higham Place.  
 College Street.  
 St. Michael's Chambers, St. Andrew Street.  
 71-73 Lower Parliament Street.  
 90 St. Aldates.  
 Chapel Street, Regent Street.  
 54 St. Vincent Street, Southsea.  
 74 Oxford Road.  
 Mazda Buildings, Campo Lane.  
 33 Carlton Crescent.  
 King's Chambers, Kingsway.  
 12/13 The Kingsway.

Belfast 29368/9  
 Midland 6335  
 Blackburn 7093  
 South Shore 41422  
 Boscombe 34194  
 Bristol 20111  
 Cambridge 54370  
 Cardiff 32291/3  
 Cheltenham 2776  
 Chester 20813  
 Colchester 2843  
 Croydon 5633  
 Dublin 77379/70  
 Dundee 5600  
 Central 6922  
 Exeter 55749  
 Central 4331  
 Guildford 2788  
 Hastings 2734  
 Huddersfield 3291  
 Central 36241  
 Ilford 2561  
 Leeds 31541  
 Granby 291/2  
 Central 5721  
 Primrose 7750/63  
 Blackfriars 2691  
 Middlesbrough 2476  
 Newcastle 25040  
 Northampton 2981  
 Norwich 22541  
 Nottingham 43588/9  
 Oxford 4170  
 Plymouth 61915  
 Portsmouth 4383  
 Reading 2700  
 Sheffield 23086  
 Southampton 3369  
 Stoke-on-Trent 48768  
 Swansea 2151



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 BELGIUM  
 BERMUDA  
 BOLIVIA  
 BORNEO  
 BRAZIL  
 BRITISH GUIANA  
 BURMA  
 CANADA  
 CANARY ISLANDS  
 CEYLON  
 CHILE  
 CHINA  
 COLOMBIA  
 CYPRUS  
 CYRENAICA  
 DENMARK  
 ECUADOR  
 EGYPT  
 ERITREA  
 FINLAND  
 GIBRALTAR  
 GREECE  
 HOLLAND  
 ICELAND  
 INDIA  
 INDONESIA  
 IRAQ  
 ISRAEL  
 JAMAICA  
 KENYA  
 LEBANON  
 MALAYA  
 MALTA  
 MAURITIUS  
 NEW ZEALAND  
 NORWAY

## MAZDA LAMPS STAY BRIGHTER LONGER