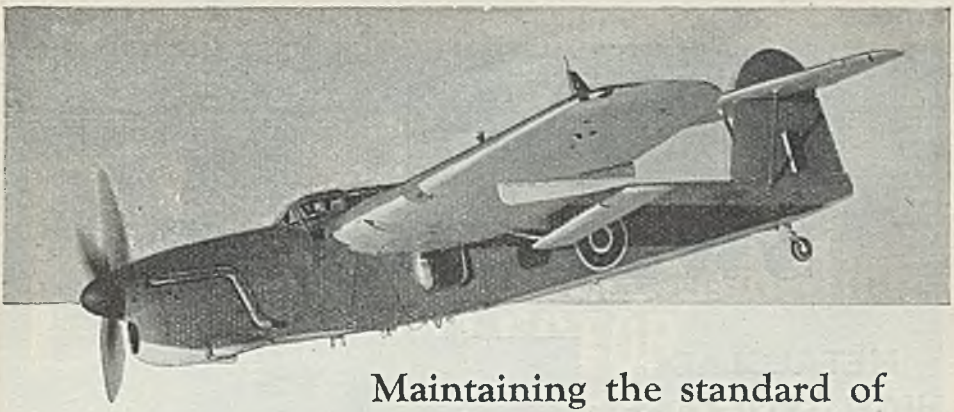
THE ELECTRICIAN

Vol. CXXXV. No. 3512. Friday, September 21, 1945. Sixpence

(Registered at the General Post Office. Entered as Second Class at the New York U.S.A. Post Office.)



Maintaining the standard of BRITISH CRAFTSMANSHIP

THE Fairey *Barracuda* torpedo-bomber which achieved such striking success against the enemy, was, of course, intended for service under essentially modern conditions of warfare. Yet its development was the result of a strict adherence to those same principles of good craftsmanship which produced the deadly longbows of the fighting archers of Agincourt.

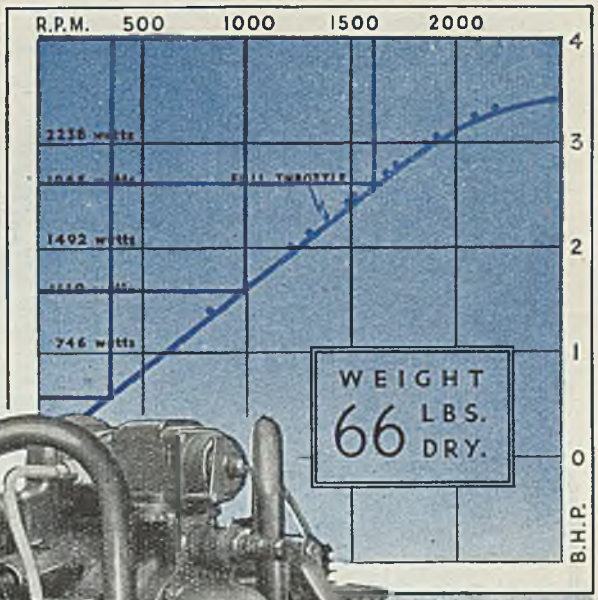
This awareness of a great tradition is also apparent in the production of Crabtree electrical accessories. Whether these are for peace-time application or whether — as in the case of those installed in the *Barracuda*—they are equally suitable for military requirements, the aim of their designers is the same: ultimate perfection. To the purist, this objective can never be reached, but in constantly striving to attain the impossible, the products of Crabtree craftsmen have reached such standards of excellence that they are selected for service whenever quality and reliability are of paramount importance.

One of the Crabtree products similar to those used for controlling the camera gun of the *Barracuda*

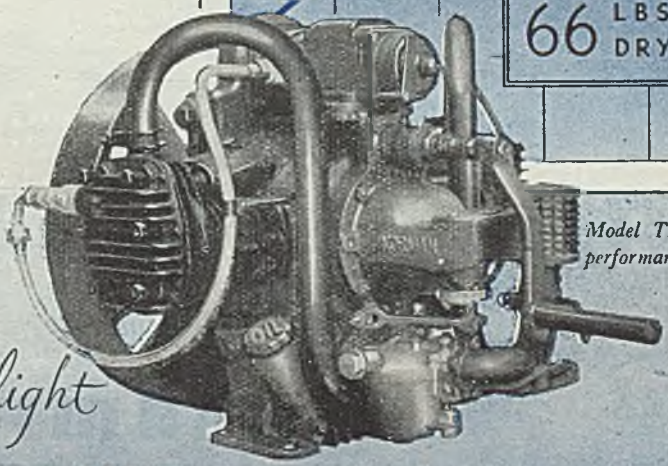
"*Crabtree*" (*Registered*) C578. *Advt. of J. A. Crabtree & Co. Ltd., Walsall, England.*

We shall be happy to discuss the future requirements of manufacturers who will be buying Lightweight Aircooled Engines.

THE NORMAN ENGINEERING CO. LTD., WARWICK, ENGLAND.



Model T.300 and its performance graph.



An ultra light

POWER SOURCE

Aircooled - Compact - Silent - Smooth - Reliable

The design of Norman Aircooled Engines has been perfected during 25 years of manufacturing for a wide range of applications, and world-wide operating experience. Lightest engine in its own class, it is also one of the best engineered of any class. Many thousands are on war service and their extreme mobility takes them right into the "front line." For battery charging sets, lighting sets, transmitters, refrigeration and air conditioning, marine, aircraft, and all portable equipment requiring up to 3 h.p. this engine is unrivalled.

Warwick
NORMAN
England

LIGHTWEIGHT AIRCOOLED PETROL ENGINES

MISCELLANEOUS ADVERTISEMENTS

None of the situations advertised in these columns relates to a man between the ages of 18 and 50 inclusive, or a woman between the ages of 18 or 40 inclusive, unless he or she is excepted from the provisions of the Control of Engagement Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.

SITUATIONS VACANT

LONDON COUNTY COUNCIL.

REQUIRED at School of Engineering and Navigation, High Street, Poplar, E.14, Graduate Teacher of electrical engineering and allied subjects, to commence as soon as possible. Work will include part-time day and evening classes up to Higher National Certificate and final City and Guilds of London Institute standard, and some teaching in the secondary (technical) school. Salary in accordance with Burnham Scale, together with London allowance and additions for qualifications and training as applicable. Application form T.1./40, obtainable from The Education Officer (T.1), County Hall, S.E.1 (stamped addressed envelope necessary), returnable by 8th October, 1945.

APPOINTMENTS VACANT.

SOUTH AFRICA.—Two Engineers in Metering and Instrument Section of Testing Department of large Power Company. Qualifications:—Apprenticeship with Instrument Maker or large user; also field experience in maintenance and calibration. Should have passed graduate examination of the I.E.E. Meter and Instrument Section or equivalent. Salary £32/37 per month, according to qualifications. Holiday and Savings Fund allowances additional, plus cost of living index being paid at present £6 per month. Successful applicant required to join Pension Fund, Medical Benefit Society and Sports Club.—Apply, giving full particulars, to Box L.Q.C., "THE ELECTRICIAN," 154, Fleet Street, London, E.C.4.

ELECTRICAL ENGINEER wanted for engineering and development work on a light electro-chemical process. At present in the London area, but may move to Provinces. Must have some light power electrical engineering background, preferably with a knowledge of physics and chemistry. Some experience in a manufacturing concern essential. Good prospects for advancement in an important Electrical Engineering firm for young man with initiative and ability. Applicants should write stating age, training, experience and salary required to Box 7720, A.K. Advg., 212a, Shaftesbury Avenue, W.C.2.

MANAGER required, with general experience in the manufacture of lead storage batteries. State experience and salary required.—Write Box L.P.O., "THE ELECTRICIAN," 154, Fleet Street, London, E.C.4.

AGENCIES

TECHNICAL house, with ample commercial and professional references, wishes to represent in the ARGENTINE Republic manufacturers of SPECIAL MATERIALS FOR THE INSTALLATION OF ELECTRIC LIGHTING FOR NAVY, AVIATION AND PETROL INDUSTRY.—Reply to E. F., Casilla Correo 779, Buenos Aires.

PATENT AGENTS

MEWBURN, ELLIS & CO.,
PATENTS, DESIGNS AND TRADE MARKS,
70 & 72, Chancery Lane, London, W.C.2.
Grams: "Patent, London." 'Phone: Holborn 0437 (2 lines)
And at—NEWCASTLE: 3, St. Nicholas Buildings.

FOR SALE

SEARCHLIGHTS (sale or hire), Carbon Rods, Ebonite, Fibre Hightensite, Porcelain House-wiring and other Cleats, Reels and Knobs, Mirrors, Lenses, Lamp Lowering and Suspension Gear, T.R.S., lead and other Cables, Winches (hand), hundreds of thousands in use, etc.—London Electric Firm, Croydon.

LEATHER FINGER STALLS.—Made of Chrome Hide. Very strong and hard wearing. Length 3 in. Price 4s. per doz. Prompt delivery. Sample on application.—Willson Brothers, Industrial Clothing Manufacturers, Epsom, Surrey.

ENAMELLED COPPER WIRE.—10 tons, slight salvage, for sale to bulk purchasers.—Apply, H. LESTON LTD. (Govt. Contractors), 5, Charles Lane, London, N.W.8.

REPAIRS

COOKERS.—We can give good deliveries of Sheet Metal Vitreous Enamelled Electric Cooker parts.—JOHN KING & SON (ENAMELLERS), Ltd., PYRO WORKS, WHITTINGTON MOOR, CHESTERFIELD. Phone: Old Whittington 50.

WORK WANTED AND OFFERED

WE will gladly undertake the making of component parts, etc., on our Lathes, Millers, Drills, etc.—London Electric Firm, Croydon. 'Phone: UPLands 4871.

INSTRUMENT WIRES
INSULATING MATERIALS

WEST INSULATING COMPANY
LTD.,
2, Abbey Orchard Street,
Westminster, London, S.W.1

PRESSPAHN, LTD.
Electrical Insulative Material Manufacturers
REGISTERED ELECTRICAL WELLSTEAD INSULATION TRADE MARK
EST. 1900
Telephone; BRADFORD 5050
Telegrams & Cables: "PRESSPAHN" BRADFORD
REGISTERED OFFICES:
38 WELL ST., BRADFORD, England

THE ELECTRICIAN

Established 1861. The Oldest Weekly Illustrated Journal of

Electrical Engineering, Industry, Science and Finance

Bouverie House, 154, Fleet Street, London, E.C.4. Telegrams: "Benbrotric, Fleet, London. Telephone: Central 3212 (Ten Lines).

Midland Office: Daimler House, Paradise Street, Birmingham. Telephone: Midland 0784.
Glasgow Office: 116, Hope Street, Glasgow, C.2. Telephone: Central 3970.

The Offices of THE ELECTRICIAN *are closed on Saturdays in accordance with the "Five-day Week" plan adopted by Benn Brothers, Ltd., and its associated publishing organisations. Until further notice the offices will be open between the hours of 9 a.m. and 5.30 p.m. from Monday to Friday.*

No. 3512. [Vol. CXXXV, No. 12] September 21, 1945 Annual Subscription 25s Overseas 30s.

CHIEF CONTENTS OF THIS ISSUE

Street Lighting Appeal

THE spirit which permeated the conference of the Association of Public Lighting Engineers at Glasgow last week, is best described as one of reconstruction, which not even the gloom of Mr. R. KELF COHEN of the Ministry of Fuel could suppress. The papers provoked criticism of a type which indicates the readiness of the lighting engineer to put the illumination of our highways in the forefront of world example, as soon as the negative suggestions of those in charge of our Government departments can be overcome; so soon as those responsible for making good all our shortages realise that the best way to retrieve our losses is to increase output rather than cut down consumption.

Mr. KELF COHEN, who was speaking on behalf of the Minister of Fuel with respect to the appeal for a reduction in street lighting, gave the amount of coal required to permit of full peace-time lighting as 1 000 000 tons, and in a country so rich in coal we are asked to believe that this amount would be extraordinarily difficult to find in time for the coming winter. Accepting this statement as substantially correct, the inference is that the proximity of the winter is something which could not have been anticipated during the summer months; something for which provision could not have been made by building up output during the years when there was no street lighting; something which has taken the coal industry by surprise.

The official attitude has so far been to pare down electricity consumption to meet coal output, when reasonable argument suggests that output should be stepped up to permit of greater current consumption. Ever since 1940, when the Government so badly appreciated the position that they depleted the ranks of the miners by Service enlistment, the coal industry has dictated to all other forms of industry, and the time has now come to call a halt, if our returning man-power is to be absorbed; if our export trade is to be recovered; if the needs of the home market are to be satisfied.

The Ministry of Fuel has just reason to regard the coal position as a serious matter, but adding to the long list of restrictions placed upon electricity consumption during the war years, is not likely to reduce anxiety during the early years of peace. Industry and the public need more coal, and it is time the Ministry woke up to the fact that it has accepted the responsibility of administering the means for providing it. The electrical industry, always willing to co-operate in the national interest, has accepted the Ministry's appeal for reduced street lighting but in doing so, it is surely

entitled to expect an early end to such appeals, to feel that while everybody else is doing something to relieve the demand for coal, the Ministry should be no exception and henceforth be constructive as opposed to restrictive in in its outlook.

T.U.C. and Railway Electrification

THE gradual nationalisation and unification of all the transport services in the United Kingdom was urged in a report presented to the Trade Union Congress by the General Council last week. Those services, which it is suggested should be transferred to public control at once, include the railways, for, it is argued, electrification is a much more achievable proposition if (a) the railways can be considered as one unit of a comprehensive national transport system, and (b) if the necessary finance can be secured at a reasonable rate of interest. In support of this contention the Council points out that during the ten years up to the outbreak of war the length of track electrified increased by only 355 miles. It is true that our main line railways, with the exception of the Southern, have shown little desire to adopt the modern conveniences of electricity, and in that respect are open to criticism; but to infer that an increase of 355 miles in the electrification of our lines during the ten years before the war is anything to be ashamed of, displays a lack of understanding of the technical problems involved. Just how a change from private to public ownership would overcome them is not clear.

Control of Labour

REPORTS which were current recently of a decision by the Ministry of Labour to permit men and women to find their own jobs after a week on the lists at an employment exchange were denied without qualification during last week. The contacts which we make with industry up and down the country suggest that there can be very few works which are not already prepared to absorb all the labour that can be put into them, and yet we hear of instances of professionally-trained students and others still looking for employment. Of the labour in ex-munition works, much of it is idle due to the cancellation of contracts, and would welcome the opportunity to resume a peace-time calling. The electrical industry, particularly the small manufacturing section, is over-anxious to return to the making of appliances for an increasingly impatient public, but for some reason unknown to all but officialdom a high percentage of our man-power must remain under war-time control, and the public must be content to wait. The fashion of planning should now give way to a realisation of the fact that the times in which we live demand that when the output of industry has been produced it is no longer consumed by the waste of war, but has to be sold against foreign competition; without adequate labour to produce, to sell, and to demonstrate, industry must fight a losing battle, until in the end the demand for labour may have faded away.

Overseas Trade

THE official figures of overseas trade which were published last week are of special interest for they are the first six-monthly return to be made public since the outbreak of hostilities; they cover the first half of 1945 and thus include the final phase of the war in Europe. Their comparison with the same period of 1944 shows an increase in value of about one-third, but only two-fifths of the value of 1938 exports; the actual figures being £83 266 000, £65 785 000 and £209 205 000, respectively. Bearing in mind the fact that many of the shipments made included essential goods to the liberated countries, consignments of machinery to the U.S.S.R. and exports to the United States under reverse Lease-Lend, the figures can bear little resemblance to anything to be hoped for in the future. They indicate, however, something of the position in which we find ourselves and something of the leeway which has to be made good. For the first half of this year the excess of imports over exports (including re-exports) amounted to £401 millions, leaving out of account munitions. This is £117 millions less than in the first six months of last year, but still more than double the visible adverse balance for the first half of 1938. By value the retained imports, of which about 30 per cent. were received under Lease-Lend and mutual aid arrangements, were one-third higher than in 1938, but as the volume was one-third lower there appears little scope

for increased austerity if the materials necessary for our manufacturing organisations are to be received in quantities adequate for a large expansion of export trade.

Electrical Exports

WHILE the exports of electrical goods and apparatus for the six months ended June 30 were reduced by one-sixth from the figures for the corresponding period last year, imports were up by over one-quarter, largely due to a continuing inflow of radio equipment for operational purposes. With the end of the war bringing a drastic reduction in Service requirements and a gradual change-over in the radio and electrical industries to peace-time production, the figures for the second half of the year should have a very different story to tell. The exports of electrical machinery were also down in value by over £100,000, but, on the other hand, the imports were less by £172 911. We exported 8 282 380 electric light bulbs, compared with 7 018 108 in the first half of last year and 9 828 597 in the corresponding period of 1938, the respective values being £375 982, £307 164 and £296 641. For electrical goods and machinery the Dominions and Colonies and the Soviet Union were, as might be expected, our biggest customers.

The Board of Trade Journal

THE proposal outlined by Sir STAFFORD CRIPPS at Blackpool for the planning of industries of every kind by the setting up of a "Working Group" for each industry, composed of representatives of the employers, the employees and outsiders, together with a chairman appointed by the President of the Board of Trade himself, is enjoying much discussion. What is most disturbing is to find the statements of Sir STAFFORD CRIPPS presented in the columns of the official Board of Trade Journal, which, as the City Editor of "The Times" points out, is a novel departure, since it is not the tradition of the Journal to contain anything resembling politics more closely than, say, a factual exposition of Government plans. For this Government publication to declare that many of our industries have become hopelessly behind their overseas rivals and to allege a "static state of inefficiency" here is a gross travesty. Britain's commercial and industrial position has for generations been the envy of every nation, and will be again if the conditions permitting industrialists to get on with the job are assured. The comment of "The Times" is right—that this novel departure may do harm both in view of the Board of Trade Journal's substantial foreign business leadership in ordinary times, and because official journals which contain any political colouring-matter may lose the reputation for objectivity and scientific impartiality which they have had in the past.

Lamp Sales Publicity

THOUGH the lamp makers are by no means clear of the restrictions which during the last six years have made their sales campaigns less aggressive than was their custom before 1939, the material produced is remarkably attractive. Denied the paper for large displays, cut-outs and those other show pieces we remember so well, the campaigns have had to be designed in such a way that each permitted piece of publicity is 100 per cent. effective. This, judging from the details so far made available, has been done with commendable success, and those lamp stockists who still have windows in their shops will doubtless make the most of the opportunities offered. The public response to better lighting is likely to be far better than it was before the war, for houses are for the most part largely needing internal decoration, and the high absorption factor of dirty ceilings is likely to result in a demand for lamps of higher wattages than would normally be used.

Degaussing Progress

THOUGH most of the public may have formed the opinion that the degaussing of ships as a protection against magnetic mines, is a system born of the war just concluded, it is made clear elsewhere in this issue that work on the problems involved commenced in 1914, and considerable success resulted. The present-day system, developed largely by the electrical industry, bears little relation to the equipment used in those early days but it is interesting to note that the progress made has carried us from attempts to magnetise a whole ship's hull to incorporating the principle of the tennis ball into sweep cables.

The Paris Fair

Heat Storage Cookers Claim Chief Interest—Disappointing Show

THE Paris Fair, now being held, is about half the size of its predecessors. Generally the fair is held in May, but two months ago the Minister of Industrial Production, M. Robert Lacoste, decided that the first post-war fair should be held in September this year.

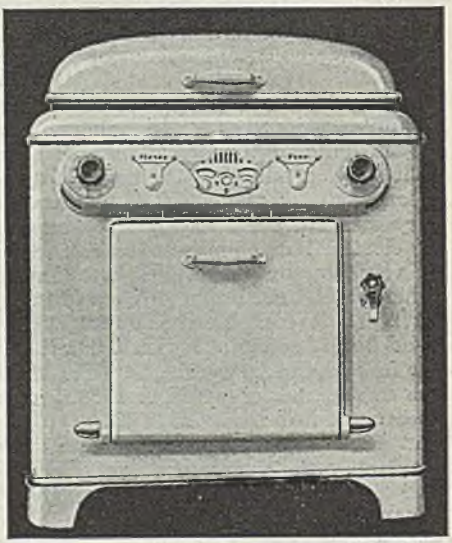
In the electrical section emphasis has been made upon heating and cooking, and manufacturers display their suggestions for overcoming the current shortage. These include small cookers taking no more than 5 A maximum, fitted with one boiling element and oven. There is also to be seen heat storage systems both for cooking and heating. These consist of appliances fitted with such heat-retaining elements as brick, sand and stone, which are heated during the off-peak hours. Several of these heaters are exhibited, but before they can be bought it is necessary to first obtain a permit. Some manufacturers are hoping to be able to export these appliances, and Chambers of Commerce now hold, at the disposal of foreign buyers, the necessary permits to enable them to buy. The permits are, of course, necessary to enable manufacturers to obtain raw materials.

Low Wattage Cooking

Perhaps the most interesting development in this field to be seen at the fair is a new cooker which may be connected to the lighting circuit. Manufactured by Otherma, of Toulouse, the cooker weighs about 190 lb., is under 3 ft., and comprises a large hotplate, a special hotplate for simmering, an oven with heat control, and a 70 litre water tank. The cooker is loaded to 350 W and requires to be switched on for 12 hours before the hotplates are warm enough for cooking. The cooker heater may not be switched off, however, for the retention of an adequate temperature for cooking depends on the constant heating of a special brick holder. It should be understood that for ordinary heat storage cooking, at least 25 A are generally considered necessary, but the Otherma consumes about 250 kWh per month.

The Isroc is a similar cooker, which, loaded to 150 W, is even more attractive in view of the current position. No manufacturer, however, will be able to give delivery in less than three months. Among other novelties to be seen at the fair is a Telecontact, a switch which can be connected to any apparatus. Its use is mainly for comfort; a radio set can be switched on or off from bed, an electric cooker in the kitchen can be switched on or off from the dining room, or even the bedroom if desired.

In the heavy electrical engineering field there is nothing new. The British exhibit



The Otherma heat storage cooker on view at the Paris Fair

is disappointing, comprising one stand, the Anglo-French Distributors Ltd., which includes about seven British firms. There are no American firms in the electrical field, and although Switzerland, Czechoslovakia and Sweden are represented, they have very little to exhibit.

The fair is, perhaps, a little too early, but nevertheless it shows enterprise on the part of a nation which has suffered as much as France.

Trade With Italy.—Three Orders made under the Trading with the Enemy Act authorise persons in the United Kingdom to resume trade in goods with Italy. (statutory Rules and Orders 1945 Nos. 1098-1100). Italian property in the United Kingdom at the date of the Order, and income arising therefrom, continue to be under Board of Trade or custodian control. From now on United Kingdom traders will be free to negotiate contracts with the appropriate agencies of the Italian Government.

The A.P.L.E. Conference

Proceedings and Discussions at Glasgow Last Week

THE annual conference of the Association of Public Lighting Engineers, which as indicated in our last issue was held in Glasgow from September 11 to 13 inclusive, under the presidency of Mr. E. J. Stewart, was in fact based on the arrangements made in September, 1939, but which had to be cancelled on account of the war. There was an attendance of some 1 000 officially appointed delegates and visitors, including Mr. Herzog, city engineer, Paris, and Mr. Gaymard of the Paris Electricity Co. On the Tuesday the Lord Provost of Glasgow, Mr. James Welch, gave the association a civic welcome and Mr. E. C. Lennox (past-president) thanked the Lord Provost in reply.

Mr. E. J. Stewart

Mr. S. B. Langlands, a previous inspector of lighting in Glasgow, and Capt. A. J. Liberty, formerly inspector of lighting to the City of London Corporation—and both founders of the association 21 years ago—then gave a brief account of the conditions of street lighting in those days, and earlier.

The annual general meeting followed, at the opening of which the conference stood in silence for a few moments in memory of those members who had passed away since the association last met.

The hon. treasurer, Mr. H. C. Brown, submitted the accounts, and drawing attention to the fact that the income had been well maintained, said the slight falling off was accounted for by a number of members who had been called to the Forces and whose subscriptions had been suspended by decision of the Council. He added that the association had been able to live within its income and to add £10 to the total in hand.

The result of the ballot for officers and Council for the coming year was as follows:—President: Mr. E. J. Stewart (Glasgow). Vice-President: Mr. W. N. C. Clinch (Northmet Power Co.). Members of Council: Messrs. J. F. Colquhoun (Sheffield); H. V. Emptage (Margate); N. Boydell (Eastbourne); E. C. Lennox (Newcastle-upon-Tyne); Robert Lee (St. Pancras); H. Pryce Jones (Brighton); A. S. Tapsfield (City of London); T. Wilkie (Leicester); and C. I. Winstone (Gas Light and Coke Co.). Hon. Treasurer: Mr. H. C. Brown (Gas Light and Coke Co.).

Considerable discussion took place upon proposals by the Council for altering the constitution of the association. The various points brought up will be considered by the Council and a final draft will be sent to the members prior to the calling of a general meeting for a final decision.

It was explained on behalf of the Council that the aim is to conduct the affairs of the association in future on the lines of a professional body, and one step in that direction is a proposal to call the association "The Institution of Public Lighting Engineers." This proposal is now before the Board of Trade but no decision has yet been arrived at by the Board.

With the same object of improving the status of the association and of lighting engineers as a body, modifications are proposed in regard to qualification for membership. Hitherto there have been no special qualifications and whilst the Council do not think the time has yet arrived to institute an examination scheme, it is proposed that full membership shall only be granted to those who hold the diploma of the association, or are at least 30 years of age and hold a responsible position in connection with public lighting as head of a public lighting department which has control of not less than 1 000 lamps and, in addition, are associate members of the association. Alternatively, corporate membership of the Institution of Electrical Engineers, the Institution of Gas Engineers or the Institution of Mechanical Engineers may be deemed by the Council to be sufficient qualification, whilst the Council may also admit to full membership other persons whom they consider have had suitable education and training in public lighting and have rendered service to public lighting.

Class Membership Proposals

Proposals are also made with regard to admission to associate membership, associates and students, and the present classification of "junior member" is to be abolished. The whole object is to bring the constitution of the association more into line with the older engineering institutions. Alterations to subscriptions are also recommended.

The Council are to consider a suggestion to hold a conference in Paris in 1947.

With regard to the Papers Competition, it was announced that four were sent in

and that the following has been selected as winners of the first and second prizes: "The Relation of Public Lighting to Safety on the Roads" by Norman Axford (Northmet Power Co., Harrow); and "Photometry in Relation to Street Lighting" by F. M. Hale (Technical Assistant, Glasgow Corporation Lighting Department).

The President then delivered his address in which he drew attention to some aspects of present local lighting which, for reasons of economy, had not yet fully reached post-war levels. In its present modified form it had meant an increased expenditure in Glasgow over the previous year of £24 393 on gas and electricity alone. The total increase of the city's estimated 1945-46 net expenditure over that of last year, was £56 749. Restoration of the full pre-war standard would have necessitated the expenditure of £50 000 more on gas and electricity, the equivalent of an additional penny rate. These considerations led the President to question whether upper limits, financial or technical, were desirable. He did not suggest restriction of street lighting when compelling causes no longer operated, being content simply to emphasise the value of high mounting. He also pointed out that low mounting tended to create glare and patchy illumination.

Fuel Economy

Official Views on the Lighting Problem and Consumption

FOLLOWING the President's Address, Mr. R. Kelf Cohen (Director, Gas and Electricity Division, Ministry of Fuel and Power) spoke to the conference regarding the circular issued to the local authorities on August 22, urging them to shut down public lighting at midnight in order to economise in the use of coal. The Minister, he said, regretted having to ask for a reduction of street lighting, but it was necessary as a temporary measure, and with the present fuel shortage it was manifestly against public interest that street lighting should be the only form of fuel consumption in which there was a full return to peace-time standards at once. It had been said that the economy in street lighting asked for represented only about 1 per cent. of the coal consumption of the country. If anything, 1 per cent. was slightly on the high side, but every additional demand, however small, was very serious. Economies in the use of fuel generally had been accomplished with the willing co-operation of millions of consumers of solid fuel, gas and electricity, and the Ministry was now relying on that co-operation to a greater degree than ever. It was clear that we should be in for a very difficult time this coming winter unless steps were taken to reduce the amount of public lighting. Hence the necessity for the circular of August 22 which gave an indication of the line which the Ministry thought local authorities might take. It was appreciated that conditions varied in different localities, and it was impossible to suggest a clear-cut method of achieving the necessary economy. It was hoped, however, that by the end of September every local authority would have taken steps to effect a substantial saving in fuel used for street lighting and in any other form of lighting which they might control.

Mr. J. F. Colquhoun (Sheffield), commenting on the small saving that would be effected by what had been suggested in the circular, suggested that a sense of proportion was necessary. The amount of coal used for street lighting in Sheffield was 21 000 tons per annum, whereas the domestic consumption was of the order of 600 000 tons. Therefore, even if the whole of the coal used for street lighting could be saved, it would only represent a little over 3 per cent. of the domestic consumption. By the proposal of the Minister, the saving would be from 1 to 1½ per cent., and if he had any grumble against the circular it was that it came after local authorities had been urged for years by every Government department to get their street lamps ready.

Mr. H. Midgley (Plymouth) pointed out that in most parts of the country in October it would be dark at 7 a.m., and if the lamps were turned off at midnight it would be impossible for practical reasons to put them on again. Where the lighting was manually-operated there was not the labour, and where clocks were used they could not be arranged for double switching.

Ald. Thraves (chairman, Watch Committee, Sheffield) urged that every effort should be made to carry out the Minister's request; and a number of other speakers took the same view. One suggestion was that all public lighting should be shut down for the five weeks before and following the longest day, and that during that time coal stocks should be built up.

Mr. Kelf Cohen, replying to the comments, said the Ministry was not competent to work out arrangements for 1 700 local authorities, but he suggested that each should work out its own arrangements according to its circumstances.

Lighting of Road Bends

Discussion of Problems Set by Junctions and Round-abouts

IN opening the discussion on the paper by Mr. Francis F. Middleton, on the Lighting of Bends, Junctions and Round-abouts, an abstract of which was given in our last issue, Mr. F. C. Smith (Gas Light and Coke Co.) said that whilst he was in agreement with most of what the author had put forward, he felt that the paper so simplified the problem that if it were not interpreted correctly it might be misleading. The picture drawn by the author was on a static basis but anyone traversing a street, whether as a motorist or a pedestrian, did not find the conditions static. The road brightness from the point of view of a car driver, for instance, changed from time to time in consequence of the different reflection co-efficients according to the angle of approach. Moreover, the background against which a driver saw an object was misleading, in that there were not the clear cut differences of black and white which the author had used in his paper, although he was justified in doing so in order to bring out his case.

Bad Road Design

Mr. E. L. Leeming (Urmiston) urged lighting engineers to take more interest in the design of bends, junctions and round-abouts. There were many badly designed bends in this country and the lighting would be very much improved if bends, for instance, were super-elevated instead of cambered. In that case the lighting would be better if it were from the inside of the bend. More economical lighting might be obtained as well as more uniform distribution, with a greater use of super-elevation. As regards junctions, something might be done by using a different coloured light when a junction was being approached. This would assist road safety. Many round-abouts, also, were badly designed; they were too small and the slope of the road was often in the wrong direction. It should be inwards and this would again permit of level lighting on the inside of the bend instead of high level lighting outside the bend.

Mr. R. Greaves (St. Helens) disagreed with the suggestion of low mounting heights on the inside of bends, and expressed the view that high level lighting, which could be seen at a distance, better enabled the traffic to get round the bend.

Mr. E. C. Lennox (North Eastern Electric Supply Co.) said that glare was a matter of proportion. It was not a question of gas versus electricity but of contrast. The author was correct in not talking about roadway brightness but of background brightness, which included the road surface, background and everything within the line of vision; personally he did not know of any electrical firms who were designing lanterns for roadway brightness. Lighting engineers were now convinced that they must create background brightness. There were two types of distribution. One was the cut-off type, which the author advocated, in which most of the illumination was cut-off over an angle of 75°, and the other was the non-cut-off type which gave maximum illumination between 75 and 85°. The reason for the higher angle was to create a brightness on the road surface and on the footpath and to a certain extent on the other surfaces of the background; one point which had not been brought out was that with the non-cut-off type of distribution the lamps could be 150 ft. apart with a consequent reduction in running costs.

Mr. Middleton replying to the discussion said that where the brightness varied, as suggested by Mr. Smith, the installation was badly designed. As to a different coloured light to indicate the approach of a bend or junction, there was the problem of eye adaptation which might be a handicap to drivers and cause eye strain. Super-elevation of the road surface at bends would not be necessary if there was good background lighting on the pavements so that people could be seen there. Motorists had to carry light and they could illuminate the roadway for themselves. As to gas versus electricity, they both had a job to do and the efficiency of either was determined by the results. In reply to Mr. Lennox, he said there were many lanterns designed to scatter the light on the road. Moreover, he was not advocating the cut-off type of illumination any more than the other type, and as to the use of 150 ft. poles being an advantage, he suggested that lower mounting heights and lower intensity sources with shorter spacing would give just as cheap results.

The A.P.L.E. at Luncheon

Mr. Middleton's paper was followed by luncheon at the Grosvenor Restaurant, the President being in the chair.

Mr. E. Stroud (president of the Illuminating Engineering Society) proposing the toast of 'the association, said that public lighting engineers, after six

years extinction of their lamps were looking forward to giving a much better service than before the war and expressed regret that conditions made it necessary for economies to be practised, just at a time when the public had begun to have an appreciation of good street lighting after the long black-out period. Public lighting engineers now had a great opportunity to show what could be done.

The President, responding to the toast, said there was no rivalry between the association and the society. The work of the two bodies was related and they would continue to work together in the interests of progress and in making public lighting far better than it had ever been. At the same time, he expressed the thanks of the association to the manufacturers of street lighting equipment for the new designs and inventions which they had brought out in the past and were continuing to do.

Street Lantern Design

Discussion on Engineering Principles by A.P.L.E. Delegates

ON Thursday morning, the paper "Engineering Principles in Street Lantern Design," was read by Messrs. J. S. Smyth and J. G. Christopher, an abstract from which was given in our last issue. The discussion which followed was opened by Dr. S. English who spoke of the importance of the æsthetic outlook in regard to lantern design. With regard to the corrosion of aluminium alloys, he said a great deal of work done during the war would have valuable application in the future. With regard to the use of horns for carrying in the wires in such a way as to leave the water outside, he said he regarded this as a horrible arrangement and suggested that provision for bringing in the wires should be made as an integral part of the lantern.

Mr. W. J. Jones (E.L.M.A.) speaking as regards moisture entering the lantern and causing failure of the lamp, said that a few years ago he received an urgent call from a local undertaking whose lamps had failed after a storm and the suggestion was that the lamps were faulty. Actually, the damage had been done during the storm, 24 hours before the failure. Water had got into the lanterns, dripped on to the hot lamps, and a small crack developed; as long as the lamps were alight there was sufficient heat to give the gas pressure enough to prevent air entering the bulbs. When the lamps were switched off and the bulbs cooled down, however, they failed. With regard to general maintenance, this was under the direct control of the lighting engineer and was beyond the control of the manufacturer of the lamps, be they electricity or gas. In recent years the general life of the 400 and 250-W mercury discharge lamps had been increased from about 1 500 to 3 000 hours. That was important from the maintenance point of view because lamp costs were halved and, moreover, it facilitated and reduced maintenance. For example, the longer life enabled re-lamping to take place before the bad weather began and the lamps would then last until the return of fine weather in May or June. Other improvements in lamps were also confidently to be expected. With regard to design, he said the conference would go down in the annals of the A.P.L.E. as that at which a remarkable range of clean, new designs were shown at the exhibition, not only in lantern design but in the attempts to deal with street furniture as a whole.

Mr. J. F. Colquhoun (Sheffield) urged the need for the greatest possible co-operation between lamp and fittings makers and designers and users. Could not some permanent machinery be set up for this purpose? Perhaps the B.S.I. was the most appropriate body to deal with the matter.

Mr. E. Gardiner Thorpe (Slough) asked whether it was likely that mercury vapour lamps in sizes below 80 W would be available in the near future, as they would be very suitable for side street lighting. At the same time, he suggested it would be an advantage if the control gear could be turned out as a complete unit ready to be fitted to a board in the base of the pole where it would be much more protected from condensation and moisture, and probably only four terminals would be necessary. He also asked what prospects there were of a lamp emitting light of a colour composition more suited to the prevailing colour of the road surface, in contradistinction to the provision of roads with colours suitable to the lighting.

Mr. G. E. Hill (Gravesend) said that the electric lamp lanterns in his area which were in position before the war had remained there throughout, although not in use. They were of a clean design and when they were taken down last year and examined, less than 10 per cent. showed any serious defect and in that 10 per cent. the defect was almost exclusively in the anodised aluminium reflectors. There had been no trouble with the electrical gear nor with the glassware.

Mr. E. C. Lennox (North Eastern Electric Supply Co.) expressed the hope that the tendency among the exhibitors at the exhibition for the use of larger bolts and nuts would be continued in preference to a large number of small bolts and nuts which on high poles were a great trouble to maintain. He was also pleased to see the side entrance of the wires to the lantern and wondered why this had not been done before.

Mr. Smyth, replying to the discussion, expressed agreement for the need of co-operation between the designer and users of fittings, although he was not sufficiently familiar with the machinery of the B.S.I., to express an opinion whether that would be the most appropriate body. But anything would be better than the present position. Perhaps the A.P.L.E. could inaugurate a News Letter in which comments and suggestions might be made which would be of the greatest value to the designers. He thoroughly disliked the top entry of wires into the lanterns and as to the suggestion for a general improvement in street lighting furniture, one of the difficulties was that so many people had control of different parts of street furniture. There were the Post Office, the transport people, the street lighting committees and so on, all of whom would have to co-operate in a very different manner from what had been the case in the past. He did not know whether a mercury vapour lamp below 80 W was on the stocks. The suggestion of the control gear being in a separate unit was an excellent one and no doubt designers of auxiliaries would bear that in mind. As to hanging street lighting fittings from buildings, borough surveyors would have more to say on that than he could, although he could see objections. For example, the bracket arm required would be more ugly than that on a lamp-post as it would necessarily have to be heavier in design.

Street Lighting Standards

Comment Invited on Suggested Specifications

IN the afternoon of September 12, Dr. J. W. T. Walsh outlined before the conference the work of the Drafting Sub-Committee of the Main Committee of the British Standards Institution which is dealing with the specification on street lighting, to implement the Ministry of Transport Report of 1937.

A re-draft of the B.S.I. specification for street lighting No. 307, first issued in 1927 and revised in 1931, has been circulated for technical comment. This re-draft is intended to implement the recommendations of the Ministry of Transport Departmental Committee on Street Lighting issued in 1937. Streets have been classified into eight groups—A to H—but the present proposals relate only to traffic routes as defined in Group A. Views have been expressed in favour of a complete specification but others have thought that a Code of Practice would be the better way to deal with this matter, setting forth in more general terms the aim in view and leaving the designer and user to go as far as possible in the direction indicated in the code. It has also been suggested that such a Code of Practice might be supplemented with a specification for a street lamp and other details. This fundamental matter came before the Main Committee dealing with the problem and it was decided by quite a substantial majority that a complete specification should be proceeded with.

It was stressed, at the request of Dr. C. C. Paterson, chairman of the Main Committee, that the re-draft which has been circulated to all organisations concerned is presented for comment and constructive criticism in order that a final and complete street lighting specification may be prepared.

Dr. Walsh then went through the many items in the re-draft and there was considerable discussion on the various points of detail.

Comments in writing were also asked for.

Women and Electricity.—Nearly eight million women were mobilised directly for the war effort and a vast number of them operated electrical apparatus or equipment in their work. Over 31 000 women out of the 79 000 in Civil Defence were engaged as telephonists. In the Postal engineering services alone, there were 16 000 women teleprinters and operators, and 4 600 women engineering assistants. The Women's Royal Naval Service have employed 5 000 directly on electrical equipment; and the Women's Land Army, at peak periods had 77 000 members using electrical equipment, counting all the dairy appliances as well as the heavier apparatus. The W.A.A.F. have used 79 000 women for handling electrical equipment in some form or another, 95 per cent. of them replacing airmen in the skilled trades.

Electrical Overseas Trade

Exports Higher by £1 000 000 Compared with 1938

IN the first half of 1945 the value of United Kingdom exports (other than munitions) amounted to £173 million, being higher by one-third (£42 million) than in the corresponding period of 1944. Exports of machinery were slightly lower, exports of machine tools to Russia being reduced by over one-half, while those of electrical goods were reduced by one-sixth. Under the heading of "Electrical Goods and Apparatus," the total value of the exports was £6 071 141, compared with £7 334 625 for the first half of last year and £6 715 202 for the corresponding period in 1938. Exports of electrical machinery were of the total value of £4 459 060, compared with £4 575 842 for the corresponding period of 1944 and £2 133 983 in 1938. The value of imports in the first half of 1945, including imports by Government departments of goods other than munitions, was £598 million, a fall of 8 per cent. (£53 million). Electrical goods, on the other hand, rose by two-fifths as the result of continuing imports of radio equipment for operational uses. The value of electrical goods and apparatus imported in the six months was £12 896 550, an increase of £3 725 179 over the figure for the first half of 1944, and £11 273 147 over that for the corresponding period of 1938. The value of electrical machinery and motors (other than railway and tramway) imported was £1 972 309 compared with £2 102 705 in the first six months of last year, and £242 929 in the first half of 1938. The classified figures are given below:—

EXPORTS

	Six months ended June 30th, 1938. £	1944. £	1945. £
Electric wires and cables, insulated—			
Telegraph and telephone wires and cables—			
Submarine ...	103 736	99 456	198 674
Other	430 819	580 753	494 734
Other descriptions—			
Rubber insulated	705 202	901 730	598 289
Insulation other than rubber	919 539	738 651	625 377
Wireless apparatus—			
Receiving sets and receiver chassis, complete, other than radio-gramophones, excluding valves	220 532	70 408	45 952
Transmitting apparatus, excluding valves ...	169 779	600 833	202 018
Valves, complete ...	247 635	821 621	471 811
Parts and accessories, not elsewhere specified	259 613	473 816	240 065
Telegraph and telephone apparatus, other than wireless	1 456 298	884 425	1 112 459
Electric lighting appliances, accessories and fittings, and parts thereof, not elsewhere specified—			
Bulbs, complete, ready for use ...	296 641	307 164	375 982
All other descriptions	291 391	197 446	197 994
Batteries, primary, complete ...	81 431	76 690	63 906
Accumulators—			
Complete—			
Portable (including accumulators for road vehicles) ...	291 878	146 506	186 158
Stationary ...		98 972	18 911
Parts and accessories		71 771	68 726
Electrical cooking and heating apparatus (including industrial)	183 982	60 656	78 729
Electrical instruments (other than telegraphic and telephonic)—			
House service meters, complete ...	94 748	44 411	47 469
All other descriptions	152 943	232 930	222 632
Insulating materials, not elsewhere specified	116 061	123 509	139 990
Total of all other articles	692 974	802 877	681 265
Total of group ...	6 715 202	7 334 625	6 071 141
Electrical ware (including insulators)	75 625	52 748	75 142
Copper—			
Wire in coils (including uninsulated electric wire)	338 334	56 010	119 492
Electrical machinery—			
Generators—			
Not exceeding 200 kW. ...	228 427	445 576	312 242
Exceeding 200 kW.	714 476	1 073 930	436 679
Total	942 903	1 519 506	748 921
Motors	870 270	751 610	904 905
Converting machinery		2 543	9 085
Transformers for lighting, heating and power, including coils	607 827	870 888	663 166
Rectifiers for power-house use	20 779	12 225	29 796
Starting and controlling gear for electric motors	305 196	169 338	180 467
Switchgear and switchboards (other than telegraph and telephone)	1 107 201	792 151	1 228 480
Electrical machinery, not elsewhere specified... ...	92 980	2 728 697	2 348 066
Total ...	2 133 983	4 575 842	4 459 060

	Six months ended June 30th, 1938.	1944.	1945.
Portable mechanical appliances electrically operated—			
Vacuum cleaners...	159 971	1 277	5 152
All other equipment	62 365	12 343	17 293
Total ...	11 300 653	14 303 961	12 402 106

IMPORTS

Electric wires and cables, insulated ...	187 474	1 794 656	983 315
Wireless apparatus—			
Receiving sets and receiver chassis, complete, other than radiogramophones, excluding valves	60 886	841 540	249 672
Valves, complete ...	65 356	717 577	589 342
All other descriptions	324 711	4 014 374	7 470 298
Telegraph and telephone apparatus, other than wireless	55 460	360 028	601 642
Carbons, electric, complete—			
Furnace ...	24 324	300 668	2 719
Other	13 806	75 904	55 680
Electric lighting appliances, accessories and fittings, and parts thereof, not elsewhere specified—			
Bulbs, complete, ready for use...	61 588	347 447	186 055
All other descriptions	231 985	54 022	147 846
Batteries, primary (complete, and parts other than carbons)	21 296	95 655	219 310
Electrical instruments (other than telegraphic and telephonic)	192 344	95 688	171 412
Total of all other articles ...	314 173	403 812	2 149 259
Total of Group	1 553 403	9 101 371	12 826 550
Copper—			
Wire in coils (including uninsulated electric wire)	30 765	39 718	10 161
Electrical machinery—			
Motors (other than railway and tramway)	154 596	8 903	51 418
All other sorts ...	88 333	2 093 802	1 920 891
Portable mechanical appliances, electrically operated, not elsewhere specified—			
Vacuum cleaners	96 587	—	289
Total ...	1 923 684	11 243 794	14 809 309

Electrical Personalities

We are always glad to receive from readers news of their social and business activities for publication in this page. Paragraphs should be as brief as possible

Mr. R. G. Brandon has been appointed a director of the Hotpoint Electric Appliance Co., Ltd. His first engagement with the A.E.I. group of companies commenced in August, 1924, when he joined the lamp sales department of the British Thomson-Houston Co., Ltd. In 1929 he became superintendent lamp sales, London area, and in 1932 manager of lamp and lighting sales, Southern area. Recently Mr. Brandon was appointed to the position of manager of lamp and lighting sales for the whole country.

Mr. R. G. Brandon

The Minister of Works has appointed **Mr. H. N. de Villiers** to be an additional Deputy Secretary in the Ministry of Works, with effect from October 1. Mr. de Villiers will take charge of the administrative work for which the Controller General has hitherto been responsible.

The **Duchess of Kent,** Commandant of the Women's Royal Naval Service, is to open the first women's electricity exhibition at Dorland Hall, Regent Street, London, on October 11, sponsored by the British Electrical Development Association in celebration of the coming of age of the Electrical Association for Women.

Sir George Paget Thomson, F.R.S., has accepted the invitation of the Council to become president of the Junior Institution of Engineers (Incorporated), for 1945-46.

The late **Mr. W. A. Pearman,** general manager and secretary of the London Power Co., left £26 060 (net £18 571).

Mr. F. G. H. Bedford has at his own request relinquished his position of chairman and joint managing director of C. A. Parsons and Co., Ltd., as from September 30, after serving the company continuously for nearly 45 years. He will remain on the board of directors and will act in an advisory capacity. **Sir Claude D. Gibb,** who has been with the company for 22 years, has been appointed chairman and managing director.

Mr. G. H. Clipstone has been appointed manager of the control gear sales department of the British Thomson-Houston Co., Ltd., in succession to the late Mr. F. G. B. Hill. Mr. Clipstone joined the company in 1912 as an engineering apprentice. **Mr. O. A. Pallett** has been appointed supervisor of purchases for the B.T-H. Co., which post became vacant by the death of Mr. J. E. Betts. Mr. Pallett joined the company at Coventry in 1912.

As briefly announced in our issue of September 7, **Air Commodore Hugh Leedham,** retired from the position of Director of Radio Research and Development, M.A.P., to become managing director of Ericsson Telephones, Ltd. He participated in pioneer research work which gave us the radio valve in usable form. He was head of the Radio Division of the Royal Aircraft Establishment at Farnborough when the first radio-controlled aircraft was evolved. In 1935 he was transferred to the Air Ministry as Assistant Director of Research and Development (Aircraft Instruments), and during the years 1937-9 when radiolocation was born, was Deputy-Director of Radio Research and Development. From 1940 to 1943 Air Commodore Leedham was Director of Radio Production M.A.P. He was also the first chairman of the Inter-Services Valve Production Committee and of the Inter-Services Components Committee. In 1943 he was made Director of Radio Research and Development. He was awarded the O.B.E. in 1929 and the C.B. in 1942 for services in connection with radiolocation.

Air Commodore Leedham

Mention was made in our last issue of the generous acknowledgment made by General Sir Frederick Pile in his broadcast on September 8 of the continuous and able assistance rendered by **Mr. L. H. Bedford** in scientific research on problems of A.A. gunnery. As director of research for A. C. Cossor, Ltd., Mr. Bedford has been closely associated with the development and application of the cathode ray tube and kindred subjects for many years. Amongst important contributions to the advancement of science were the development of the micromesh valve and, in 1932, of an entirely new television system based on the velocity-modulation principle with superposed intensification—the only system giving a satisfactory picture with the gas-focussed tubes then available. As the outcome of, and concurrently with, further work on television, Mr. Bedford was closely involved in the practical development of radiolocation, or radar. Following an intimate association with the official Langley group of physicists, who had carried out early experiments in the principles of radiolocation, Mr. Bedford was one of the first two men in industry (the other being Dr. Dodds of the Metropolitan-Vickers Electrical Co., Ltd.) to be initiated into the whole highly secret project. In a Cossor laboratory assigned solely to this work he produced in 1937 the first complete radio-location receiver in the world, and the company was subsequently entrusted with the manufacture and installation of the Battle of Britain coastal chain of receivers. Other numerous contributions to victory include the famous Bedford attachment initiated in a crash programme to render existing A.A. gun-laying equipment suitable for use against night raiders. For his work Mr. Bedford was awarded the O.B.E. in June, 1943. A native of London, Mr. Bedford was schooled at Marlborough, and received his technical education at London University, where he obtained his B.Sc. degree in engineering, and became an A.C.G.I. At Cambridge University he obtained the B.A. degree and a Wranglership.

Mr. L. H. Bedford

Mr. A. N. Duffett, resident constructional engineer at the Prince of Wales power station, Rotherham, takes up his new duties as deputy-borough electrical engineer of Blackburn at the beginning of October. He entered the Rotherham electricity department in 1935, after graduating at Sheffield University.

Obituary

Mr. D. Johnstone Sinclair, managing director of St. Helen's Cable and Rubber Co., Ltd., chairman of British Insulated Cables (S.A.) Ltd., and a director of the Automatic Telephone and Electric, British Insulated Cables Ltd., Helsby Cables Ltd., and Midland Electric Corporation for Power Distribution.

Mrs. Frank H. Whysall, at 1, Queen's Grove, Southsea, where she was staying with her husband, former city electrical engineer of Belfast, who has been with the Admiralty since his retirement. Mrs. Whysall was a well known visitor at the I.M.E.A. conventions.

Mr. C. G. Tegetmeier, pioneer of electric tramways and public lighting, on September 18, aged 92 years. After helping to establish Auckland tramways, he became chairman of the former South Metropolitan Electric Tramways and Power Co. and a director of the North Metropolitan Electric Power Supply Co., the North Metropolitan Power Station Co., Ltd., and the Harrow Electric Light and Power Co., Ltd.

Correspondence

The Editor welcomes the free expression in these columns of genuine opinions on matters of public interest, although he disclaims responsibility alike for the opinions themselves and the manner of their expression.

An Appeal for Text Books

[To the Editor]

Sir,—As education officer of the 310 Coy., R.A.S.C. (Armoured Brigade), B.A.O.R., I am making an appeal for new or second-hand text books and books of reference that I can use in re-equipping men of this company for their return to "civvy street." Perhaps many of your readers have books in their libraries that they have never looked at since completing their studies or after taking examinations. It is to these that I mainly send this appeal. Any books that are received will be gratefully appreciated and all will be acknowledged.
—Yours faithfully,

L. D. Rushby, Captain,
Education Officer.

Capitalisation of Losses

[To The Editor]

Sir.—The very interesting article by "E.O.T." on page 148 of the August 10 issue of The Electrician has come to my notice. The article makes the method of calculating the capital value of the losses in electrical plant perfectly clear, but I still have the difficulty of not being able to clearly understand what special advantage there is in capitalising losses. This difficulty principally arises from an engineering viewpoint rather than that of the economist or accountant. I realise, of course, that it is very common practice in calculations concerning running costs to capitalise losses and other charges, and I feel bound to admit that there is a good and proper reason for this. I should therefore be grateful if "E.O.T." could supply another short article or note dealing specifically with this angle of the matter.

As I see it, the administrators of any undertaking are interested in the total annual outlay, and taking the example illustrating the article, I would have come to the same conclusion as the author, in the following way:

Transformer A

Outlay on capital cost and depreciation, 8% of £250	=	£20
Outlay for total losses ...	=	£28.93
Total annual outlay ...	=	£48.93

Transformer B

Outlay on capital cost and depreciation, 8% of £200	=	£16
Outlay for total losses ...	=	£33.85
Total annual outlay ...	=	£49.85

Thus transformer A costs £48.93 per annum and transformer B £49.85 per annum, so that obviously transformer A, although higher in first cost, is the cheaper of the two.

Yours faithfully,
C. H. Lackey.

Hebburn on Tyne.

Plugs and Sockets

[To The Editor]

Sir,—The B.S.I. Electrical Industry Committee announces that a "final decision" has been reached to the following effect:—To uprate the 5A B.S. 546 plug and socket to 13A. To provide for a 13A fuse in the socket. To prohibit fuses of more than 3A in the plug. This is the exact opposite of all the previous official decisions and it is worth reviewing the history of this controversy:—

1. The Study Committee appointed by the I.E.E. at the request of the Minister of Works came to a unanimous decision in favour of an entirely new standard 3kW 230 V plug and socket with a fuse in the plug. The decision was unanimous, therefore the B.S.I. statement that they are conforming with the majority recommendation is to say the least misleading.

2. The Study Committee's recommendations were confirmed by the Codes of Practice Committee.

3. The were also confirmed by the B.S.I. Electrical Industry Committee in October, 1944.

The ground was therefore thoroughly cleared for the preparation of a specification on the lines of the Study Committee's report, but nothing was done. Instead, on the plea of more assistance being required by the B.S.I. Committee, to cope with the heavy demands made on its efforts, four more B.E.A.M.A. members were added to it, making eight in all, without counting half a dozen or so others connected with manufacturing interests. Only one representative of the E.C.A. was on the Committee. The stress of work needing additional assistance could not have been very pronounced, because the Committee did not meet again until nine months later.

4. The main item on the agenda for this second meeting was to report receipt of a request from the I.E.E. to prepare a specification for a 3 kW socket outlet with fused plug. What the Committee did was the exact opposite. What is the state of opinion in the industry about all this? (a) The supply industry have already made it clear, (90-95 per cent. majority),

that they are opposed to what the B.S.I. has now put forward. (b) The Electrical Contractors' Association are also opposed. (c) As far as is known all other user bodies take the same view.

No doubt the importance of the housing programme will be urged as a reason for adhering to B.S. 546, but it should be realised that the adoption of the B.S.I. decisions involves the complete redesign of the socket and plug with the sole exception of pin diameters and centres. Not only is this new design not available yet, but it will be many months before commercial quantities can be produced.

On the other hand the new standard design 3 kW fused plug and socket asked for by the Study Committee has been on the market for over a year and large numbers are already in use.

Yours faithfully,
R. AMBERTON,
For Dorman and Smith Ltd.
Director.

An Australian Invitation

[TO THE EDITOR]

Sir,—I have recently arrived in this country from Australia for the purpose of visiting various electrical companies we represent in Australia, and whilst here I am anxious to make contact with any other electrical concerns not represented in Australia, and desiring to develop an export business to that country. My company also has manufacturing facilities, and manufactures certain items and parts under licence from companies in this country; it may be that other equipment may be made more readily saleable in Australia, if it could be assembled or cased in Australian cases.

Should any of your readers be interested in making contact with me, it would be appreciated, if they would do so at an early date, as my stay in London is very limited.

Yours faithfully,
R. ALAN CROOK,
Managing Director,
Alan Crook Electrical Co. Pty. Ltd.
Mount Royal Hotel, W.1.

[*Any correspondence addressed to Mr. Alan Crook at the offices of* THE ELECTRICIAN *will be forwarded without delay.*—ED.]

Electrical Women

PRESENTATION of a cheque for £100 to help towards the creation of a scholarship trust in electrical housecraft was the chief feature of the twenty-first birthday celebrations held in Birmingham on September 13, of the Electrical Association for Women. It was the Birmingham and District branch's twentieth birthday. The cheque was presented from the branch to Miss Caroline Haslett, director of the association, and the scheme which it will help will provide five two-year scholarships annually throughout the country.

A luncheon preceding the afternoon meeting was attended by the Deputy Mayor of Birmingham, Alderman L. G. H. Alldridge, deputising for the Lord Mayor, who was presented with a cheque for £500 from the branch as a gift to the Lord Mayor's Services Victory Fund.

Alderman Alldridge expressed thanks for the gift on behalf of the Lord Mayor, and said it was fitting that the Birmingham branch should be one of the first provincial branches to be formed after that in London, for Birmingham had always been progressively minded so far as electricity was concerned.

Alderman Lieut.-Col. H. A. Sale, chairman, Birmingham Electric Supply Committee, after praising the work of the association, said in regard to an inspection carried out on some of the city's new houses, that whereas it was at first suggested that 85 per cent. of the houses should be equipped with gas and 15 per cent. with electricity, a poll resulted in a demand for over 50 per cent. of the houses to be electrically equipped.

Opening the afternoon meeting, Mrs. A. B. Hodson expressed the hope that the time saved by intelligent use of electrical appliances would enable people to enjoy more fully the amenities Birmingham offered.

An account of what she had learned during tours of America, Canada, Sweden, Finland and the Middle East was given by Miss Haslett. She compared the status of women in America and this country, and hoped that the travelling exhibitions which would be awarded as part of the proposed scholarship trust would enable women of Britain to go abroad and learn the work of other countries, at the same time making popular—to the advantage of our export trade—the work of our electrical industry.

Dingwall.—The Corporation has agreed to instal electricity in place of gas in the main streets, and a promise has been given to have brackets installed by the end of September in certain streets. Gas is to be retained on side streets.

Lamp Sales Publicity

Further Details of the Campaign for the Coming Winter

A FURTHER feature of publicity for the new season is the publication of the first leaflets of a new series dealing with Cosmos and Metrovick lamps and lighting equipment. The leaflets are prepared in quarto size, and are punched with three holes for binding in a folder; each leaflet has an individual number for ready identification. Amongst those already published are leaflets dealing with general lighting service lamps (No. 102/1-1), miners' bulbs (No. 102/36-1), electric discharge lamps (No. 103/1-1), and control gear for electric discharge lamps (No. 103/2-1), as well as leaflets numbered 124/1-1 and 124/2-1, which describe flameproof and gastight fittings for use in mines and industrial establishments.

Other similar leaflets cover a wide range of industrial lighting fittings both for metal filament and for electric discharge lamps, and trough reflectors for 5 ft. fluorescent lamps.

The ending of the black-out and the consequent return of street-lighting is signalised by the publication of a number of descriptive leaflets on Metrovick street lighting lanterns suitable for Class "A" and Class "B" road. Each lantern is described in a separate leaflet, and, in addition to an illustration of the lantern, details are given of candle power distribution-curves and other characteristics.

The principal leaflet (No. 122/21-1) of this series describes the Trafford lantern for Class "A" roads, and all these leaflets are in similar form to those described above.

The production of advertising showcards and display pieces is still prohibited by the Government paper control, but small numbers of folding window display units made before the war started are still available.

A new edition of the price list in orange and white giving reduced Cosmos lamp prices has been prepared, however, and will be distributed as far as regulations will allow. The list this year is an abridged form, but contains information on lamps for general service vacuum and gas-filled types, tungsten lamps and pygmy lamps for signs and switchboard indicators. It is numbered E.S. 4102/27.

The Metrovick fluorescent lamp both in its "daylight" and warm-white forms is described in a special publication 7103/26 and reference is also made to Metrovick fittings for these lamps. This publication takes the form of a small folder printed in two colours and can be had on application.

Metrovick infra-red equipment for industrial heating including lamps and fittings is described in an illustrated folder

Collection of Cosmos lamp publicity material

S.P. 7108/1 printed in two colours. This is available on application.

A price card for resellers printed in orange and black has been produced and is being distributed with the abridged price list.

The illustration reproduced above shows a group of the above-named publications —in the foreground the price list, the Metrovick fluorescent lamp publication, the infra-red equipment publication and in the background the price card.

The Metrovick Cosmos "Girl" Calendar which has been produced by the Metropolitan-Vickers lamp and lighting department for a period of many years, will again be available. It will be provided with a monthly tear-off pad, commencing October 1, 1945.

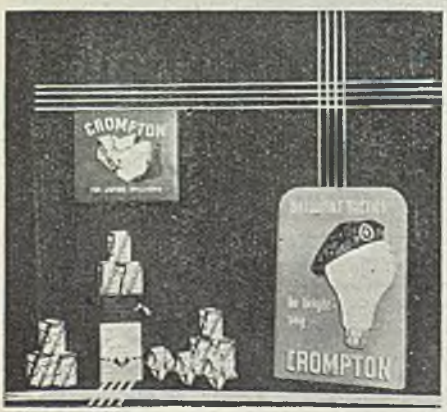
* * *

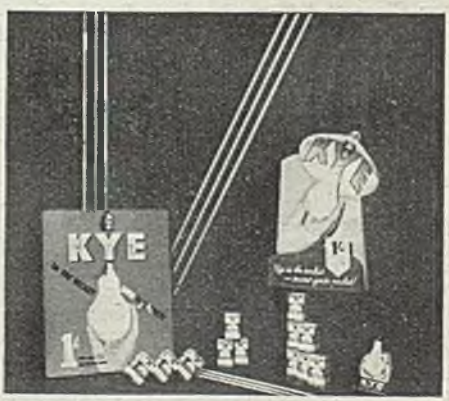
Philips Lamps, Ltd., in order to maintain public interest have developed their lamp advertising for the coming winter around that universal childhood impulse to break something open just to see "the works." A lamp is shown in illustration with a doorway cut into it. The door is padlocked, and the copy points out that, locked away inside, is the secret behind the economical current consumption "for

Examples of Philips Lamps advertising material.

a maximum of clear, bright light." Other advertisements show a knife cutting a lamp in two; two people walking into a lamp through a doorway, and so on. The campaign will be given prominence in all the national dailies and a wide range of provincial papers. Behind this unusual presentation lies the same thinking that went into previous Philips advertising campaigns. These campaigns, as many remember, carried a war-time tie-up, and showed such things as Spitfires and battleships whose engines transform petrol and steam into power in the same way that a lamp transforms a little electricity into light. To-day, the war link is dropped, of course, but the story still leaves the consumer with the information that, inside a Philips lamp, is the workmanship and experience that enable it to transform "a minimum of current into a maximum of clear, bright light."

Crompton plans for the forthcoming lamp season are on similar extensive lines to the past campaign. They include publicity in the London national and evening newspapers, a strong list of provincial newspapers and also weekly and monthly periodicals. Kye lamps will be featured similarly. In addition, posters will appear in a number of the most important centres throughout the country, together with painted signs on railway stations and arterial roads. Once again the theme for the Crompton campaign will be various types of hats surmounted on lamp "heads," with tie-up headlines, and the Kye lamp appeal will once more be one of economy. Whilst display material is still restricted owing to the paper position the pictures reproduced give examples of what a Crompton and a Kye window display can look like.





Examples of lamp publicity material offered by Crompton Parkinson Ltd.

Induction Motor Torque

Some Notes Respecting the Needs of Industrial Drive

IN applying induction motors to industrial drives it is essential to ensure that the motor selected has an adequate starting torque, so as to avoid stalling, and obtain sufficiently rapid acceleration; at the same time, there is no purpose in using a motor having a starting torque greatly in excess of that actually required. Excessive starting torque may unduly stress the power transmitting components of the driven machine. In this respect, a low value of starting torque is preferable; but it may waste time in certain cases, and in others, lead to the operation of thermal trips or fuses.

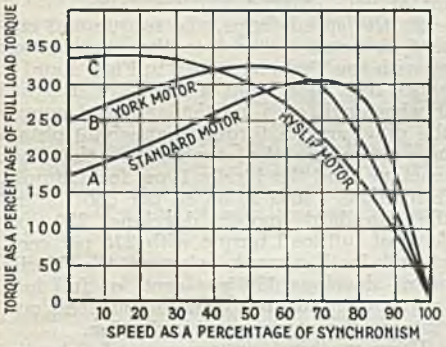


Fig. 1.—Comparative speed torque curves of standard, Tork and Hyslip motors

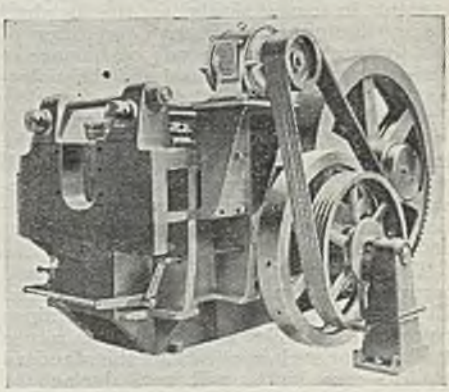
For the majority of applications up to 30 H.P. the squirrel-cage motor is suitable. When switching direct on to the supply. the standard squirrel cage motor develops a starting torque of 100-175 per cent. full load torque with 450-750 per cent. full load current. Where this value of starting current is not permissible, it can be reduced to 150-250 per cent. by star-delta starting; but unfortunately the starting torque is also reduced to 33-55 per cent. of full load torque—a condition that may not be acceptable.

To meet the requirement of comparatively high starting torque with reasonably low starting current, the class of motor known as the Tork is available. When switched direct on to the supply, such motor develops about 225 per cent. full load torque with 325-600 per cent. full load current. With star-delta starting the starting torque is about 66 per cent. full load torque with 100-175 per cent. full load current.

Certain applications require that the running torque should vary widely to meet a fluctuating load without an excessive loss of speed. This requirement is generally satisfied by the standard squirrel-cage motor (Fig. 1). Where, however, the motor operates in conjunction with a flywheel designed to assist it during sustained peak loads, it is necessary that the motor speed should drop considerably as the load increases.

It should be noted that there is a distinction between the flywheel designed to contribute energy during a sustained period of excessive power demand (the power-stroke of reciprocating motions), and one which is provided only to maintain an approximately constant speed. With the first, a speed drop is required for it to become active; the second is intended to minimise even the relatively small speed variation which may occur with a standard squirrel-cage motor.

With such a motor, as the speed tends to decrease, the current and torque increase at such a rate that the actual drop in speed is relatively small. Hence the flywheel is not effectively utilised since it retains the bulk of its energy; whereas its purpose should be to give out energy during the period of maximum power demand and thereby assist the motor. When this assistance is not forthcoming the current taken by the motor varies considerably with detrimental consequences.



50 H.P. Hyslip Tork motor on a forging machine

For driving machines incorporating a flywheel designed to assist the motor by giving out energy during the period when the maximum power is required, the

wrong type of motor is frequently selected. Due to an incorrect appreciation of the action of the flywheel, an approximately constant speed of motor is employed. Now, during the period when the maximum power is required, a flywheel can only give up energy if the speed of the motor drops.

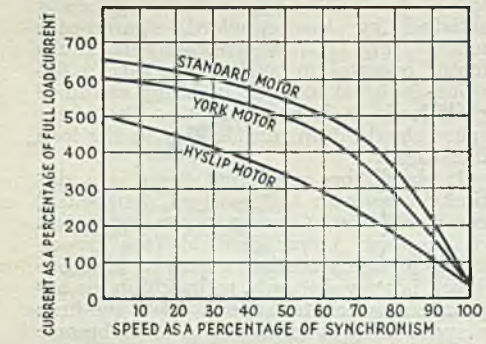


Fig. 2.—Comparative speed-current curves of standard, Tork and Hyslip motors

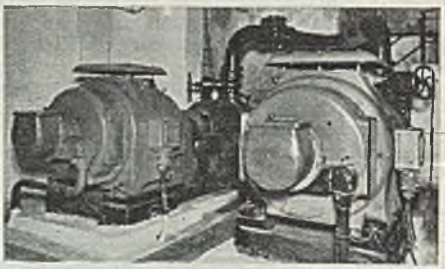
In some applications of standard motors to flywheel drives investigated, it appeared that the ampere loading was excessive, whereas this condition was actually due to the inadequate utilisation of the flywheel energy. Inactivity of the flywheel is often revealed by the rate of rise of the current. If the flywheel is contributing energy, the current increases slowly as the flywheel energy diminishes. Effective utilisation of the flywheel energy depends on balance in design between the flywheel and the motor. As the load increases the motor can slow down and thereby allow the flywheel to contribute an increasing proportion of the total energy required. Subsequently, with a decreasing load the motor should be restoring energy to the flywheel in preparation for the next period of maximum power demand

These alternations of power demand occur with presses, forging machines and all applications where there is a sustained power stroke followed by an idle return stroke. For such applications the standard squirrel-cage motor will not, during the power stroke, fall in speed sufficiently for the flywheel energy to be adequately utilised, so that the motor must exert almost all the torque required with but little assistance from the flywheel. During the return stroke the motor will be idle, whereas if the flywheel energy had been utilised it should be actively restoring energy to the flywheel preparatory to the next power stroke.

To meet the requirements associated with flywheel machine tools, a Hyslip-Tork motor is available. This machine is designed to combine the advantages of the extremely robust squirrel-cage class with the dropping speed characteristic of a slip-ring motor provided with an external slip resistance. The starting torque of the Hyslip motor is similar to that of the Tork type, and it is designed to have a larger percentage variation of speed with load (see Fig. 1). The Hyslip characteristics are obtained by increasing the inherent resistance of the rotor; this increases both the starting torque and the slip, and gives a speed-torque curve similar to that of a slip-ring motor with external slip resistance.

As the speed drops, the torque and current increase, but not to the same extent as with the Tork, as shown in Figs. 1 and 2, hence it is clear that a correctly designed flywheel will at a particular speed supply the difference in torque that would obtain between either the standard or the Tork machine, and the Hyslip type, for example, from Figs. 1 and 2, at 85 per cent. speed the standard motor develops 250 per cent. of full load torque with 275 per cent. of full load current, whereas the Hyslip motor develops 130 per cent. of full load torque with 130 per cent. of full load current for the same speed reduction.

These machines are recommended by the makers for all applications where the flywheel is required to contribute the major proportion of the total energy required during the sustained power stroke, but they are not suitable for applications where the power stroke is of short duration and the flywheel serves only to maintain an approximately constant speed.



Two 275 H.P. slip-ring motors driving main shaft pumps at a colliery where the pumping plant runs 12 hours continuously every day throughout the year

Although the performance of the Hyslip motor is inferior to that of the standard motor, its application in certain circumstances will actually reduce the energy consumption. This is because, despite the lower efficiency and power-factor, when the peak load power is largely supplied by the flywheel the current peaks are reduced so that the copper losses—which vary as the square of the current—are appreciably less.

Moreover, the H.P. rating of the required Hyslip motor is lower than that of a standard motor, consequently the light-load losses are, it is claimed, reduced in that they are a percentage of a smaller H.P. The power-factor is also said to be improved because the magnetising current is correspondingly reduced. Correct utilisation of the fly-wheel also reduces the mechanical stresses in the motor.

It is sometimes required that the starting torque should be high, but the starting current reduced to a minimum. In this case it is recommended that a slip-ring motor should be employed. With this type of motor, a starting torque of 100 per cent. full load torque is available with a starting current of 125 per cent. full load current. Larger starting torques can be obtained by modifying the design of the starting resistance. The slip-ring motor has been used for applications incorporating a flywheel wherever it has been possible to obtain the required speed-torque characteristic by introducing a slip resistance. It will be found in many cases that the squirrel-cage Hyslop motor can be used where hitherto a slip-ring motor with slip resistance had been employed.

We are indebted to Crompton Parkinson, Ltd., for the information and the illustrations contained in this article.

I.E.E. Programme

ARRANGEMENTS made by the Institution of Electrical Engineers for the first half of the 1945-46 Session are as follows. The time of meeting, unless otherwise stated, is 5.30 p.m. :—

Ordinary Meetings.

October 4.—P. Dunsheath: Inaugural Address as President.

October 18.—Discussion on "Weather and Electric Power Systems." (Opened by J. S. Forrest, H. W. Grimmitt, A. J. Drummond and Wing Comdr. R. M. Poulter. Joint meeting with the Royal Meteorological Society.)

November 1.—P. B. Frost and E. F. H. Gould: "Practical Aspects of Telephone Interference arising from Power Systems."

November 15.—R. Davis: Parsons Memorial Lecture. "High-Voltage Research at the National Physical Laboratory."

December 6.—G. L. E. Metz: "The Electrical Engineering Industry in After-War Economy."

January 17.—A. G. Ellis: "Some Notes on Transformer Practice with reference to Standardisation."

February 7, March 7, April 4.—Particulars to be announced later.

April 25.—The 37th Kelvin Lecture.

May 9.—Annual General Meeting.

Installations Section.

October 11.—Forbes Jackson: Inaugural Address as Chairman.

November 8.—E. C. Lennox: "Street Lighting."

December 13.—F. W. Tomlinson, M.A., and H. M. Wright: "Mineral-Insulated Metal-Sheathed Conductors."

January 10.—W. R. Watson: "The Control of Electrical Installation Work."

Dates of other Installations Section meetings (subjects to be announced later) are February 14, March 14, April 11, May 2.

Measurements Section.

October 26.—S. H. Richards: Inaugural Address as Chairman.

November 23.—J. M. Meek: "The Influence of Irradiation on the Measurement of Impulse Voltages with Sphere-Gaps."

December 14.—G. F. Shotter and H. D. Hawkes: "A Precision A.C./D.C. Comparator for Power and Voltage Measurement."

January 25.—Discussion on "Instruments for Special Purposes." (Opened by R. W. Griffin.)

Dates of other Measurements Section meetings (subjects to be announced later) are February 22, March 22, April 26, May 24.

Radio Section.

October 10.—A. H. Mumford: Inaugural Address as Chairman.

November 7.—R. J. Clayton, J. E. Houldin, H. R. L. Lamont and W. E. Willshaw: "Radio Measurements in the Decimetre and Centimetre Wavebands."

November 21.—J. R. Brinkley: "A Method of Increasing the Range of V.H.F. Communication Systems by Multi-Carrier Amplitude Modulation."

November 27.—Discussion Meeting. Particulars to be announced later.

December 5.—F. C. McLean and F. D. Bolt: "The Design and Use of Radio-Frequency Open-wire Transmission Lines and Switchgear for Broadcasting Systems."

December 11.—Discussion Meeting. Particulars to be announced later.

January 16.—C. F. Booth and F. J. M. Laver: "A Standard of Frequency and its Applications."

Dates of other Radio Section meetings (subjects to be announced later) are January 22, February 6, February 26, March 6, March 25, April 3, April 16, May 1, May 21.

Transmission Section.

October 17.—E. T. Norris: Inaugural Address as Chairman.

November 14.—W. J. Nicholls: "Recent Progress in the Design of the High-Voltage Overhead Lines of the British Grid System."

December 12.—E. Billig: "Mechanical Stresses in Transformer Windings."

January 9.—P. J. Ryle: "Steel Tower Economics."

Dates of other Transmission Section meetings (subjects to be announced later) are February 13, March 13, April 10, May 8.

Informal Meetings.

October 29.—Discussion on "Should Engineering Concerns be managed by Engineers?" (Opened by the President.)

November 26.—Discussion on "Standardisation of Ripple Control." (Opened by T. R. Rayner.)

January 14.—Discussion on "Country Road Lighting." (Opened by C. R. Bicknell.)

January 28.—Discussion on "Electrical Aids to Coal Production." (Opened by R. Crawford.)

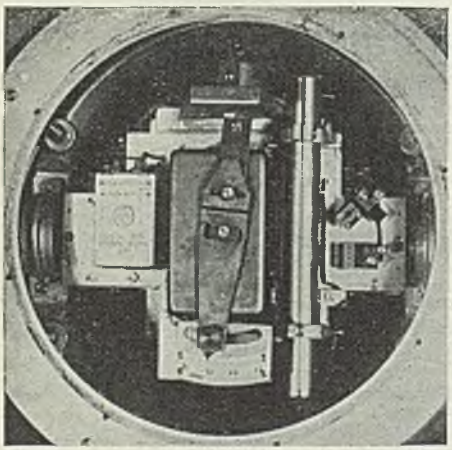
Dates of other Informal Meetings (subjects to be announced later) are February 25, March 25, April 29.

Development of Degaussing

Progress from "Wiping" of Ships to the Double-L Sweep

THE development of degaussing as a means of combatting the magnetic mine has been referred to in the past, more from the point of view of achievement than from a technical aspect, but the cessation of hostilities now makes it possible to reveal something of its history.

Degaussing commenced during the 1914 war, and in 1917 the loop method of detection, was put into service. Between



Firing mechanism of German magnetic mine with covers removed, showing hand sensitivity setting

1919 and 1922 experiments were carried out in home waters with the object of a more systematic investigation of the subject and measurements were made on various ships. An analysis of the results showed that the magnetic field of a steel ship, at points not too close to the hull, could be calculated with considerable accuracy by assuming the ship to consist of a row of vertical dipoles, a row of horizontal (athwartship) dipoles, and a longitudinal dipole of length rather less than that of the ship. It was also shown that the longitudinal magetism of a ship consisted of a "permanent" component, which did not vary with the ship's heading, and an "induced" component, which varied from zero on an E.W. heading to a maximum on a N-S heading, this maximum being roughly proportional to the value of the earth's horizontal field at the place of measurement. From these results it was clear that the study of the magnetic properties of ships would have to be extended to other latitudes, and in 1924-5 similar experiments were carried out in equatorial and southern latitudes.

In 1936 a committee was set up to consider counter-measures to magnetic firing devices, and arising from its work, a system of electro-magnets for "over-gausssing" mine-destructor ships was designed in March, 1939. When it appeared, in September of that year, that the Germans were using a non-contact mine, the construction and fitting of these magnets in another ship was put in hand, but it was not until a German mine was recovered on November 23, 1939, and established as a magnetic ground mine that the self-protection of ships by degaussing became clearly a practical possibility. The first occasion that German magnetic mines with parachute attachments are known to have been laid was on the night of November 21, 1939.

The magnetic unit of the recovered mine was in a damaged condition, but, after eighteen hours' work through the night, the principle of the unit was elucidated, and demagnetisation of ships became a first priority. It is understood that demagnetisation cannot be complete, and it is only when the enemy has shown his hand that proper counter-measures can be taken.

It was decided to fit all ships with external coils a few feet below the upper deck, but such arrangements proved unseaworthy. They were replaced by a permanent system consisting of heavy copper strips in rubber channelling. This proved not too satisfactory, and in March, 1940, as a result of model trials, it was found that the coils could be fitted inside the hull. Many practical questions arose in this work, but it was established that the model magnetic laws were applicable, changes of field were proportional to the current in the coil, and the hysteresis was negligible.

1940 Experiences

Early in 1940 experiments were started to see if a ship could be permanently magnetised by wiping with a current-carrying conductor in such a way that its induced vertical magnetism was roughly cancelled; rather like making a bar magnet by stroking it with another. Considerable success was achieved and a large number of ships were wiped, including many used at Dunkirk. Unfortunately, the magnetism gradually decayed and the necessity for re-wiping set a limit to the number of wiped ships it was possible to operate.

As the war spread throughout the world it became necessary for ships to adjust the

current in their degaussing coils to suit the value of the earth's magnetic field wherever they happened to be. Rapid improvement was made in under-water measuring gear, and the range of magnetometers now available is quite impressive. By the end of May, 1940, 2 000 merchant ships had been fitted with temporary coils, the highest weekly score being 210. At the end of the year 4 400 merchant ships and 1 704 warships had been so treated.

Since war is never static, it would have been too much to expect that the original insensitive German magnetic mine would continue in use for long. Changes occurred rapidly, there was soon a mine of reversed polarity to catch over-degaussed ships, then a device to fire the mine only after several actuations in order to prevent sweeping. Then sensitivity was improved. Many other variations were made and the enemy never gave up using magnetic mines. As a result, the attention of those responsible for degaussing could never be relaxed, and the technique had to keep in step with the more exacting conditions as time went on. Meanwhile, a successful method of sweeping magnetic mines, using the double-L sweep, had been developed, the technical considerations of which, together with details of the special cable used, were given in THE ELECTRICIAN of June 1, last.

News in Brief

I.M.E.A. Jubilee.—The Incorporated Municipal Electrical Association, which reaches its Jubilee this year, proposes suitably to celebrate the event during the week of the 1946 Convention, for which arrangements are already proceeding.

Valuation Appeal Rejected.—At a sitting of the Valuation Appeal Court, held at Fort William on September 11, the Lochaber Power Co. appealed against the County Assessor's valuation of their Lochaber undertakings, and asked for a reduction on the capital cost, a 50 per cent. reduction on the cost of their pier and light railway, and a valuation of 4 per cent. instead of 5 per cent. on the civil engineering. The Court unanimously refused the appeal, and upheld the Assessor's valuation. Mr. R. P. Morrison, for the appellant, asked for a stated case.

Electrical Women at Manchester.—The Manchester and Salford district branch of the E.A.W. on September 13, began a new season's work with a lecture by Miss Hilton Royle, of Ancoats Hospital, on the uses of electricity in the rehabilitation of the wounded. Future lectures include the subject of housing, to be dealt with by Mrs. L. Wood, secretary of the Lancashire Advisory Housing Council, on October 18; care in the use of domestic appliances, which will be discussed by Mr. W. E. Swale on February 14; and on April 11 a speaker to be announced later will address the association on the place of the refrigerator in the post-war home.

Institute of Fuel.—We are informed that, owing to food restrictions, the total number of people that can be provided for at the annual luncheon of the Institute of Fuel on October 17, at the Connaught Rooms, is limited to 600, and that all tickets have now been taken up by the members. No further tickets, therefore, are available.

Electricity for Housing Schemes.—Witney, Oxon, R.D.C. Housing Committee, in connection with their post-war housing scheme, have decided that all their new houses shall be wired for electricity during construction.

New Street Lighting. — Bray, Berks, P.C. have decided to obtain estimates of the cost of public lighting by gas and electricity during the winter.

I.E.E. North-Eastern Students. — A visit has been arranged to the Consett Iron Co., at Consett, Co. Durham, on September 26, at 6.30 p.m., and those wishing to attend should advise the visits secretary not later than September 22.

TWENTY - FIVE YEARS AGO

FROM THE ELECTRICIAN of September 17, 1920: The French Law authorising the establishment of a high tension electric transmission network in the liberated regions has now been promulgated. We learn that it is proposed to connect the big existing or projected electricity stations in the Nord and Est regions by means of 120 000 V transmission lines for purposes of mutual aid. Though the Law has only just been passed work has been proceeding for some time, and has made substantial progress. It is thought that the Paris transmission line will be found useful in case of strikes, and in other emergencies.

Electricity Supply

Stretford.—The Finance Committee has obtained sanction to lend £300 000 to the Stretford and District Electricity Board.

Brierfield.—Owing to the cost of coal the District Council has decided to raise the two part tariff rate from ½d. to ¾d. per unit.

Hastings.—The Electricity Committee has obtained sanction to borrow £5 000 for mains and services, £3 000 for sub-stations and equipment, and £3 000 for meters.

Hawick. — The T.C. has decided to switch off street lighting at 12.30 a.m. in future, and it will be switched on again at 6 a.m., for the benefit of early workers.

Sunderland.—The Electricity Committee intends to spend nearly £20 000 on extensions to the electricity supply. The cost will be borne out of the surplus on the undertaking for the current year.

Wokingham. — The Town Council has concluded an agreement with the Yorktown (Camberley) and District Gas and Electricity Co. for the supply of power to the corporation's pumping and transformer station.

Bengal.—It is reported that in accordance with the Bengal Government's policy for the nationalisation of the province's electricity supply industry, negotiations have been completed with the Calcutta Electric Supply Corporation for an option to purchase the complete undertaking at an early date.

St. Austell.—The Electricity Commissioners have made an Order extending for another two years the period during which the three local authorities concerned may purchase those parts of the undertaking of the St. Austell and District Electric Lighting and Power Co. which are respectively situate in their areas.

North Wales.—Commenting on complaints which have been made on the price of electricity, Mr. Price White, consulting electrical engineer to the Llanfairfechan Council, states that though the supply of electricity in North Wales is from hydro plant, the area is still largely supplied from the grid system. Owing to the cost of fuel there is little hope of an early reduction in electricity prices.

Dorchester.—The Electricity Committee has considered the question of simple hire agreements for apparatus hired from the Council, and recommends that if and when any apparatus is replaced, the old hiring agreement should be terminated and a new agreement entered into; the charge for hire to be based upon the present-day cost of acquiring and maintaining the apparatus, such charge to be later arranged by the Committee.

Aled.—The Rural Council has decided to ask Sir Henry Morris-Jones, M.P. for Denbighshire, to bring pressure to bear upon the various Government departments to expedite approval of sites, layout plans, specifications, etc., for post-war housing, proposed by the Council, so that the schemes could be proceeded with in the near future. A request has also been made to the North Wales Power Co. to include the provision of electricity to each parish in the area in their post-war schemes.

Westminster.—Reporting upon guard post lighting, the Highways Committee states that it has received a letter from the Metropolitan Boroughs Joint Committees intimating that the Ministry of War Transport has had under consideration the question of retaining the white cross lamps on those bollards which in pre-war times had no internal illumination, and that the Ministry proposes to carry out experiments in order that authorities may be advised how best to secure uniformity in the interests of road safety. In the meantime, pending the result of these experiments, it is suggested that the white cross lamps should be temporarily retained. The cost for the remainder of the year will be £3 000 in Westminster.

Glasgow.—As a result of wilful damage to electric lighting equipment in the city, and in some adjoining towns—a threat has been made that facilities may be cut since replacements cannot be obtained. In Glasgow, the Inspector of Lighting has intimated to the Police Committee that serious damage is being caused to lamps in tenements and streets. Unless some alleviation in the present rate of damage is achieved, the need to restrict lighting may be forced on the Corporation. The Transport Committee is to persist in efforts to extend the plant capacity at the Pinkston power station by 2 500 kW by replacing two existing machines giving 22 250 kW capacity by one rated at 25 000 kW. The Electricity Commissioners, pointing out the present heavy demand for plant for the grid, have suggested that the transport department contact the electricity department regarding drawing supplies from the Port Dundas station, since it is imperative that demands on manufacturers be reduced to the lowest minimum. The Transport Department has indicated that the plant is substantially a replacement of existing plant for which no authority is required and that the Port Dundas supply arrangement would be neither safe nor suitable. The Committee is consequently to press the Commissioners to grant the application.

Industrial Information

Change of Name.—The name of the Shaw Estates and Trading Co., Ltd. ("Gud" Products), has been changed to Weston Senior Ltd.

Bitumen for Pipe Coating. — The Ministry of Works announces that all restrictions on the use of bitumen, etc., for pipe coating are withdrawn.

Contractors' Plant Decontrolled.—After September 30, all types of contractors' plant may be purchased without a permit from the Ministry of Works.

Works Extension. — Blackburn Town Council have approved plans for a large extension to the works of Philips (Blackburn Works), Ltd., radio and electrical manufacturers.

List of Addresses.—In consequence of changes that have taken place, F. H. Wheeler and Co., Ltd., have produced a new list giving the addresses of their branches and area offices, and a selection of installations carried out by the company.

B.E.A.M.A. Contract Price Adjustment Formulæ.—For purposes of calculating variations in (a) "Rates of Pay"—the rate of pay for adult male labour at September 8 shall be deemed to be 95s.; (b) "Costs of Material"— the index figure for intermediate products last published by the Board of Trade on September 8 is 182.5 and is the figure for the month of August, 1945.

Electrical Sales.—Mummery and Harris, Ltd., Frinton-on-Sea, announce that they are greatly extending their electrical department to include the sale of refrigerators, electric cookers, washing machines, and other domestic electric equipment. Their manager, Mr. C. Cross, will be glad to hear from firms offering such goods.

Railway Stations in Kingsway.—The four striking displays of railway station scenes which now adorn the front of Magnet House, Kingsway, in connection with the Osram lamp publicity campaign, are an example of the artistic ingenuity which has made those four "blitzed" window sites notable in the last five years. The painting of the pictures involved visits to the stations depicted and close study of their characteristics. The Osram lamp displays at these, as in many other main line railway termini, "catch the eye."

The A.P.L.E. Exhibition.—We reproduce below a photograph of the stand of the Automatic Telephone and Electric Co., Ltd., at the A.P.L.E. exhibition, held in Glasgow last week, featuring rhythmatic equipment for the centralised control of electric street lights and other communal facilities. A demonstration piece had a diarama of a city with miniature street lamps controlled by actual rhythmatic equipment consisting of receiving relays linked to a standard self-contained rhythmatic control unit of a type suitable for sub-station area control. Operation is by super-imposition of a h.f. current, generated in a small motor-alternator inside the control cabinet on to the local supply circuits. Two further applications of the equipment were shown; one was the switching-on of police call lamps mounted on street fire alarm boxes and the other the switching-on and off of domestic water heaters for the purpose of peak load control. Included in the foreground of the diarama was a model power station which demonstrated the effects of load control achieved by the use of rhythmatic equipment.

Stand of the Automatic Telephone and Electric Co., Ltd., at the A.P.L.E. exhibition at Glasgow

Street Lighting.—An illustrated leaflet (L. 766 M) describing some additions to

the range of Mazdalux street lighting lanterns has been published by the lamp and lighting department of the British Thomson-Houston Co., Ltd. It deals with the company's Parish, Rural and Urban lanterns.

Building Standards.—A supplement to Handbook No. 3—"British Standards for Building Materials and Components" has now been issued. It includes the summarised technical requirements of 82 standards. Eighteen of these are revisions of standards included in Handbook No. 3 and the information about them accordingly supersedes that given in the handbook. Copies of the supplement, price 7s. 6d. are available from the Offices of the British Standards Institution, 28, Victoria Street, Westminster, S.W.1.

Electric Vehicle Development.—A number of individual manufacturers have applied to the Ministry of Supply for authority to produce electric road vehicles in 1946, and programmes have been agreed which total many times this year's estimated output and more than four times the number which the last recorded pre-war figures indicate were manufactured in the previous 12 months.

Display and Decorative Lighting.—During the Victory celebrations when Government buildings were floodlit, the Ministry of Fuel and Power raised no objection to the floodlighting of other premises, or to various other forms of outdoor illumination. This special concession for Victory Days only, ceased on August 17, and the Ministry of Fuel reminds local authorities and the public of the restrictions on all outdoor display and decorative lighting announced on May 26. Such lighting includes floodlighting of buildings, structures and gardens; illumination of hoardings or facias of shops; other lighting of, or on, the exterior of buildings when not reasonably necessary for public safety; decorative lights on piers, parks, gardens, promenades, fair grounds, bandstands and the like; searchlights or beacons other than those operated for military purposes by the Armed Forces of the Crown or for the benefit of shipping or aircraft. The Minister is confident that local authorities and the public will comply with these restrictions, so that the necessity for further exercise of powers under the Control of Fuel (No.3) Order, 1942, can be avoided. The announcement does not apply to street lighting, but the public is reminded that waste of fuel and the consumption of fuel for advertisement purposes (including the display of goods in the course of any business) are already specifically prohibited under the Control of Fuel (No. 3) Order, 1942.

Contracts Open

WE give below the latest information regarding contracts for which tenders are invited. In the case of overseas contracts, particulars are to be had from the Department of Overseas Trade, Millbank, London, S.W.1 (corner Horseferry Road), unless otherwise stated.

Girvan T.C.—Electrical installation work in connection with the erection of 70 houses on the Roxburgh Road site. Schedule from the Town Clerk, Town Clerk's Chambers, Girvan.

Inverness B.C., September 22.—Electrical work in connection with 40 houses to be erected at Dalneigh. Specification from the Burgh Surveyor's Office, Inverness; deposit, £5.

Oban B.C., September 24.—Electrical work in connection with 60 houses to be erected at Dalintart. Specification from the Burgh Surveyor's Office, Municipal Buildings, Oban.

Wick B. C., September 29.—Electrical work in connection with the erection of twelve blocks of houses at Murchison Street, Wick. Specification from Mr. J. R. Ballantyne, 112, Bath Street, Glasgow; deposit, £2 2s.

Birmingham Electric Supply Department, October 4.—Supply, delivery and erection of 132 kV double-circuit steel tower overhead transmission lines, approximately 19 miles; deposit, £2. Particulars from Mr. F. W. Lawton, 14, Dale End, Birmingham, 4.

Woolwich B.C., October 9.—Supply, delivery and erection of one 750 kW Diesel alternator and four 30 MVA outdoor reactors. Specifications from the Borough Electrical Engineer, Electric House, Powis Street, Woolwich, S.E.18; deposit, £1 1s.

North of Scotland Hydro-electric Board, October 15.—Supply, delivery and erection of 132 000 V transmission lines. Specification from Mr. T. Lawrie, 16, Rothsay Terrace, Edinburgh, 3; deposit, £5 5s.

Overseas

Eire Electricity Supply Board, December 14.—Civil construction work in connection with the hydro-electric development of the River Erne, Co.Donegal, including, (1) Power development at Cathaleen's Falls, for installation of about 40 000 kW; (2) power development at Cliff for installation of 10 000 kW. Particulars from Mr. P. J. Dempsey, Electricity Supply Board, 60/62, Upper Mount Street, Dublin; deposit, £21.

Company News

BELL TELEPHONE OF CANADA.—Div. for qr. $2 (same).

ENFIELD CABLE WORKS, LTD.—Intm. div. 6¼% on ord. (same).

ELECTRIC SUPPLY CORPN., LTD.—Intm. on ord. 3½% less tax (same).

KAY AND CO. (ENGINEERS), LTD.—Fst. and fin. 12½% less tax (same).

ASCOT AND DISTRICT GAS AND ELECTRICITY.—Intm. div. 2½% (same).

AUTOMATIC TELEPHONE AND ELECTRIC CO., LTD.—Intm. div. 3% on ord. (same), less tax, payable Oct. 1.

WOKING ELECTRICITY SUPPLY CO., LTD.—Dirs. have held over the question of paymt. of an intm. ord. div. (for 1944, intm. 3% and fin. 4½%, mkg. 7½%, tax free).

POWER CORPN. OF CANADA.—Net earnings (after tax) for yr. to June 30 $1 275 673 ($1 251 862), to deb. int. $458 340 ($461 762), net pft. $817 333 ($790 100), to divs. on cum. prefd. and non-cum. prefd. $600 000 (same), common div. 20c $89 273 (same), pensions $10 000 (same), surplus fwd. $2 300 147 ($2 182 087).

PACIFIC GAS AND ELECTRIC. — Gross operatg. rev. to June 30, $157 568 545 ($146 537 605), less exes., etc., $68 924 318 ($65 154 965), and depreen. $20 846 241 ($19 736 922). Net operatg. rev. $67 797 986 ($61 645 718). To bond and other int. $12 979 345 ($11 027 170), inc.-tax $33 355 343 ($27 662 800), common divs. $12 522 548 (same), blce. $835 355 ($2 337 183).

MIRRLEES WATSON (engineers).—Net pft. to March 31 was £19 488 (£32 136), but figs. not comparable on acct. of sale of part assets. After bringing fwd. £17 609 (£10 478) and deducting war dmge. insur. £808 (£1 704) and intm. pref. div. £1 260 (£976), avail. blce. £35 029 (£39 934), fin. pref. div. absorbs £976 (same) and ord. div. 8% (same), already declrd., £18 640 (£21 349), fwd. £15 413.

SHAWINIGAN WATER AND POWER.—Intm. statemt. 6 mos. ended June 30 shows gross rev. $11 135 139 ($12 119 584), exes. $5 221 726 ($5 974 780), fixed chrgs. $1 576 471 ($1 731 012), exch. $80 642 ($130 969) depreen. $1 500 000 (same) income and E.P.T. ($1 503 003 ($1 674 007). Divs. half-yr. ended June 30 $980 212 (same), surplus for half-yr. $183 082 ($128 603). Div. on com. June qtr. 23 cents.

BERRY'S ELECTRIC, LTD.—After depreen. pft. to March 31 £60 594 (£56 338). Deduct N.D.C. and blce. inc.-tax 1944-45 £2 866 (£2 452), int. on convertible notes £2 464 (£2 636), etc., there remains £52 776 (£48 631), plus $4 673 ($3 589) brot. in. Div. 10% £7 050 (same), to res. for leasehold premises £497 (same), res. redemption of notes £10 000 (£15 000), res. income-tax 1945-46 £25 500 (£23 000 for 1944-45), res. repairs to premises £2 000 (same), writing down freeholds £5 000 (nil), fwd. £7 402.

ARON ELECTRICITY METER.—Trdg. pft. after taxn., defd. rprs. and contings., for yr. to Mar. 31 was £34 169 (£31 697), plus £286 (£61) sundry income. To dirs.' fees £4 350 (£2 933), gen. exes. £7 198 (£6 136), legal exes. £947 (£677), patents expend. £262 (£300), staff pensions £1 846 (£1 657), int. payable £25 (£117), W.D.C. £561 (£874), dvg. net pft. £19 266 (£19 064). Brot. in £17 379, mkg. avail. blce. £36 645 (£33 774). To gen. res. £7 500 (£5 000), div. 15%, less tax (same) £17 750 (£17 379); fwd. £17 750.

SHEEPBRIDGE COAL AND IRON CO., LTD. Pft. to June 30 incl. divs. and int., and after taxatn., was £235 530 (£212 444). To deb. int. £8 892 (same), depreen., £42 300 (£40 271), dirs.' fees £4 000 (same), dirs.' remun. for special services nil (£133), leavg. net pft. £180 338 (£159 148). Brot. in £121 454, mkg. avail. blce. £301 792 (£279 244). To renewals. res. £30 000 (£20 000), pens. res. £10 000 (nil), gen. res. £20 000 (same), intm. div. 3% tax free (same), on particg. pref. and ord., together £44 171 and fin. div. on each class 5% tax free (same), together £73 619, fwd. £124 002.

BRITISH INSULATED CALLENDER'S CABLES.—Statutory rept. of the dirs. states that total no. of shs. allotted is 933 334 £1 6% 1st cum. pref., 1 045 455 5½% £1 2nd. cum. pref. and 9 240 386 £1 ord. No shs. have been allotted for cash, and all above shs. have been allotted credited as fully paid up as follows: (a) 500 000 6% pref., 500 000 5½% pref., and 6 000 000 ord. in satisfactn. of consideratn. payable by co. for sale to it of undertakg. of British Insulated Cables; (b) 433 334 6% pref., 545 455 5½% pref. and 3 034 574 ord. in satisfactn. of consideratn. payable by co. for sale to it of undertakg. of Callender's Cable and Construction Co., except only its holdg. of £525 000 stk. of Callenders Trust; (c) 205 812 ord. in satisfactn. of consideratn. payable by co. for sale to it by Callenders Trust of certain trade invests.

Company Meetings

SILENTBLOC LTD.—In the course of his address at the annual meeting held in London on August 30, Mr. H. Vezey Strong, the chairman, said the board had given much thought to the period of transition

which they had now reached. He was glad to say that their normal business was beginning once again to take shape, although it was a curious sidelight on current events that at present their factories were worse off for labour than at any time during the war, for under the call-up scheme they were losing their younger employees, whose places the Labour Exchanges were quite unable to fill.

Apart from the company's normal business, they had certain negotiations afoot which would, if successful, open new possibilities both at home and overseas, while the scope of their activities had been so widened that to-day they had the privilege of serving some 68 different trades and industries.

CALCUTTA ELECTRIC SUPPLY CORPORATION, LTD.—The annual meeting was held in London on September 5. The chairman, Sir James Donald, proposed the adoption of the report, the confirmation of the dividends already paid which, in the case of the ordinary stock, amounted to 6 per cent., free of income tax, and the declaration of that amount as the dividend on the ordinary stock for the year.

The resolutions were carried unanimously.

Coming Events

Wednesday, September 26.

INSTITUTE OF WELDING (WOLVERHAMPTON BRANCH).—Crown Hotel, Albrighton. Inaugural dinner. *7.15 p.m.*

Wednesday, September 26-27.

E.D.A., MID-EAST ENGLAND AREA.—Public Library, Vernon Road, Scarborough. Electricity supply autumn two-day conference.

Thursday, September 27.

INSTITUTE OF WELDING (SHEFFIELD BRANCH).—Royal Victoria Hotel. "Industrial Application of Automatic Submerged Arc Welding." R. Sillifant. *6.30* for *7 p.m.*

Friday, September 28.

INSTITUTE OF WELDING (E. SCOTLAND BRANCH).—Heriot Watt College, Edinburgh. "Welding, Past, Present and Future." A. Stephenson and D. Llewelly. *7.30 p.m.*

Saturday, September 29.

INSTITUTE OF WELDING (E. COUNTIES BRANCH).—Visit to Welding Research Laboratory, Cambridge. *2.30 p.m.*

Commercial Notes

County Court Judgments

NOTE.—*The publication of extracts from the "Registry of County Court Judgments" does no imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be actions. But the Registry makes no distinction. Judgments are not returned to the Registry if satisfied in the Court books within 21 days.*

WALTON, F. K., Showrooms, Electricity Department, Hamlet Court Road, Westcliff-on-Sea. £45 12s. 9d. June 29.

GROVES, Jno. R., radio dealer, 191, Woodhouse Street, Leeds. £27 5s. 4d. July 25.

NEWBERY, R. S., (T/a Radio Service Depot), Wilford Road, Nottingham. £13 17s. 7d.

Partnership Dissolved

Partnership between William Ernest SULLIVAN and James Philip SANDERS-PARKS carrying on business as radio and electrical engineers at High Road, Laindon, Essex, under the style of "S. P. L. Radio and Electrical Repairs," was dissolved by mutual consent as from July 30, 1945.

Discharge

HEAD, William George, 2 Wellesley Road, Ashford, Kent, electrical engineer, lately carrying on business at 30a, High Street, Ashford. Aug. 7, 1945, order made—Discharge suspended for seven days, and that he be discharged as from Aug. 14, 1945.

Metal Prices

		Monday, Price.	Sept. 17. Inc.	Dec.
Copper—				
Best Selected (nom.)	per ton	£60 10 0	—	—
Electro Wirebars ...	„	£62 0 0	—	—
H.C. Wires, basis ...	per lb.	9 7/16d.	—	—
Sheet	„	11 1/16d.	—	—
Phosphor Bronze—				
Wire(Telephone)basis	„	1s. 0 7/8d.		—
Brass (60/40)—				
Rod, basis	„	—	—	—
Sheet „	„	—	—	—
Wire „	„	11¼d.	—	—
Iron and Steel—				
Pig Iron (E. Coast Hematite No. 1)...	per ton	£7 13 6	—	—
Galvanised Steel Wire (Cable Armouring) basis 0.104 in. ...	„	£28 5 0	—	—
Mild Steel Tape (Cable Armouring) basis 0.04 in. ...	„	£20 0 0	—	—
Galvanised Steel Wire No. 8 S.W.G. ...	„	£26 0 0	—	—
Lead Pig—				
English	„	£31 10 0	—	—
Foreign or Colonial	„	£30 0 0	—	—
Tin—				
Ingot (minimum of 99.9% purity) ...	„	£303 10 0	—	—
Wire, basis... ...	per lb.	3s. 10d.	—	—
Aluminium Ingots ...	per ton	£85 0 0	—	—
Spelter...	„	£31 5 0	—	—
Mercury (spot) Warehouse	per bott.	£69 15 0	—	—

Prices of galvanised steel wire and steel tape supplied by the C.M.A. Other metal prices by B.I. Callender's Cables Ltd.

ELECTRIC LAMPS

E.L.M.A

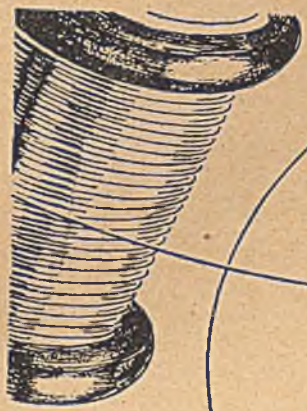
ELECTRIC LAMP MANUFACTURERS ASSOCIATION

Price Reduction Group 1 Lamps operative on July 16th, 1945

The Electric Lamp Manufacturers' Association have pleasure in announcing that they will make **allowances direct to Retailers without Agreement** for the difference between old and reduced prices on stocks held on **July 16th, 1945.**

For this purpose Retailers are invited to apply to the Electric Lamp Manufacturers' Association, 25 Bedford Square, London, W.C.1 for a Form on which to make their claim **not later than October 3rd, 1945.**

ELECTRIC LAMP MANUFACTURERS' ASSOCIATION
25 BEDFORD SQUARE, LONDON, W.C.1



Wire

Electrical wire may be fine and small—sometimes finer than human hair—but its importance is invariably

out of all proportion to

its size and cost. Resolving the problems relating to the correct type of insulated wire for specific applications is one of our jobs, because we believe we "know something" after specializing for over 60 years.

The selection is made easier for the reason that we make only first-class wires with insulations of all types—

LEWCOS INSULATED CONDUCTORS *(Regd.)*

THE LONDON ELECTRIC WIRE COMPANY AND SMITHS LIMITED
LEYTON, LONDON, E.10

Printed in Great Britain by Straker Brothers Ltd., 194-200, Bishopsgate, E.C.2, and published by Benn Brothers, Ltd., at Bouverie House, 154, Fleet Street, London, E.C.4.—Friday, September 21, 1945