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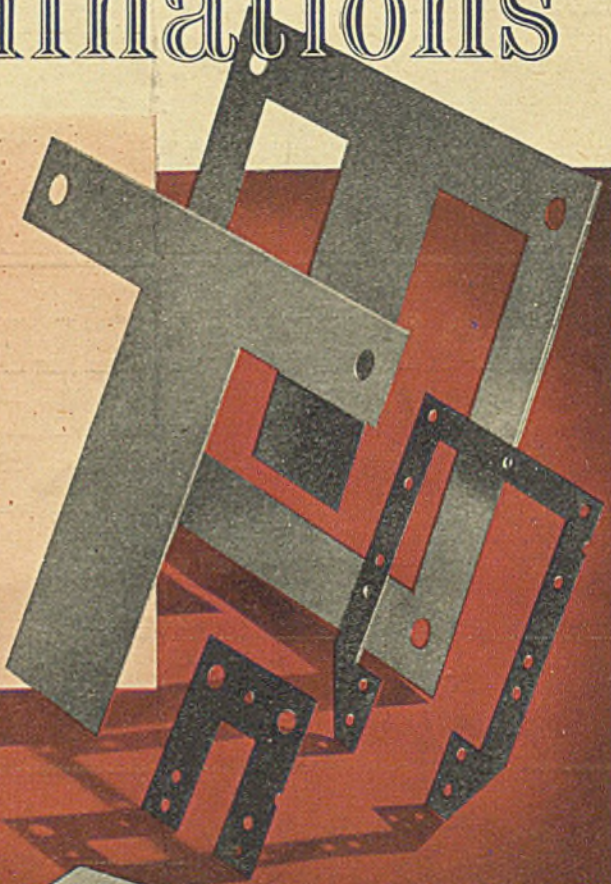
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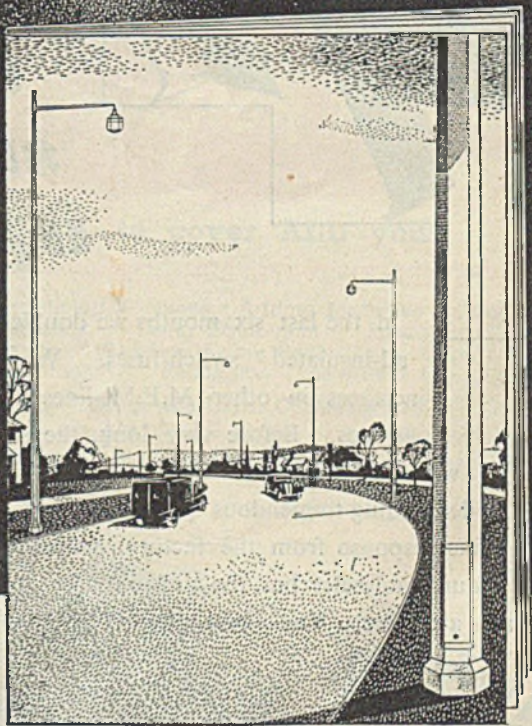
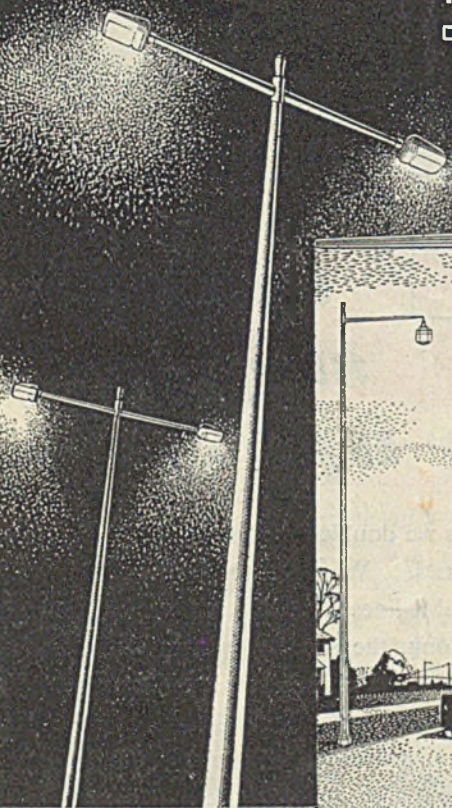
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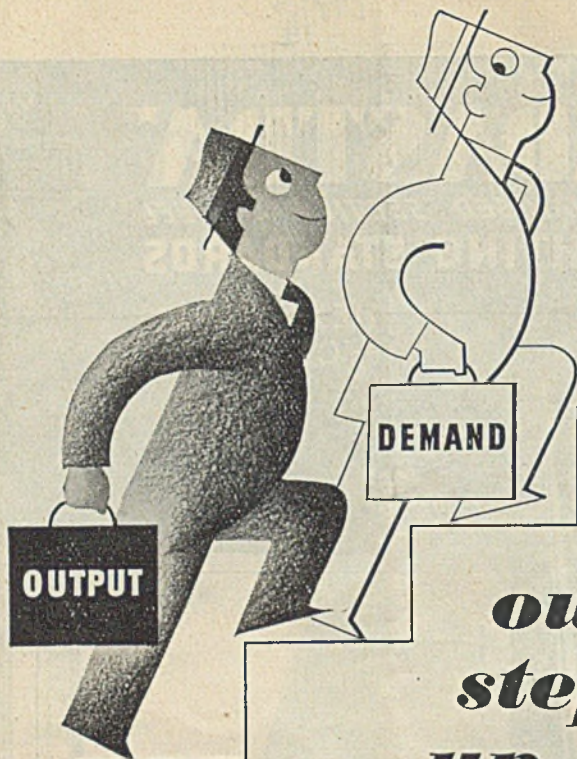
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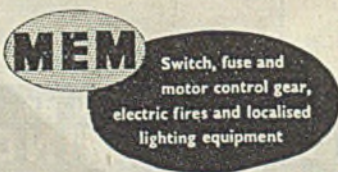
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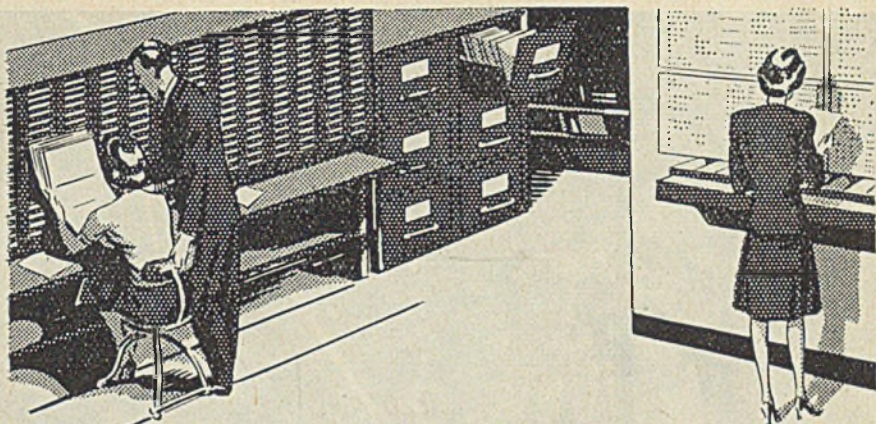


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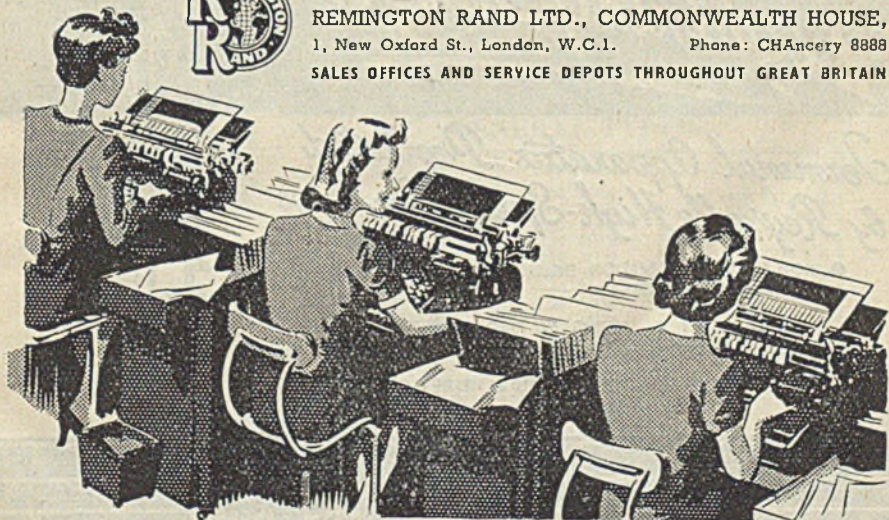
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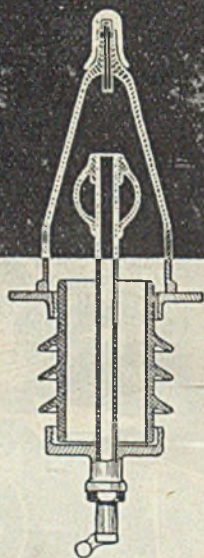




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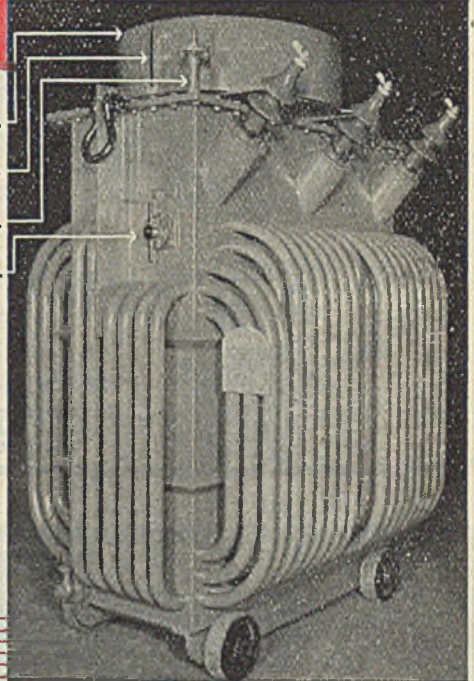
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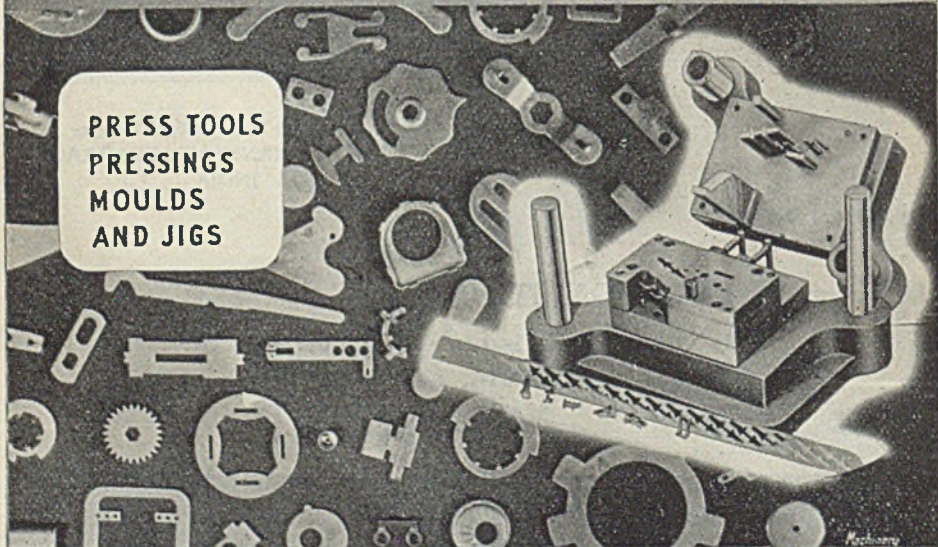


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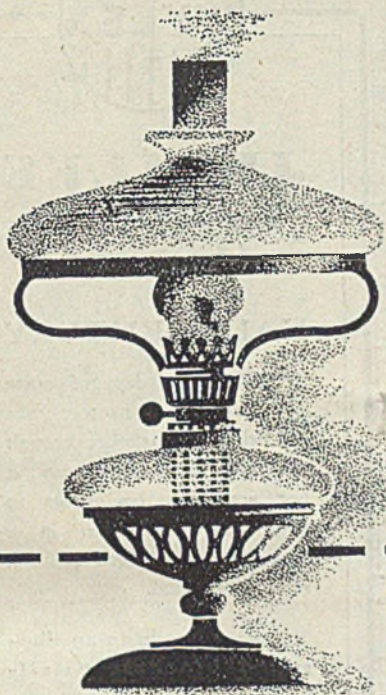
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Henleys W.T. Telegraph Works, Ltd. ...	Cover i & 14
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Marconi Wireless Telegraph Co., Ltd. ...	12
Metropolitan Vickers Electrical Co., Ltd. ...	Cover iv
Metway Electrical Industries, Ltd.	20
Midland Electric Manufacturing Co., Ltd.	2
Ministry of Supply	23
Mond Nickel Company, Ltd. (The)	12
Mosses & Mitchell, Ltd.	18
Micramatic Electric Instrument Co., Ltd.	21
Poles, Ltd.	1
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Reyrolle, A., & Co., Ltd.	4
Rotunda, Ltd.	29
Runbaken Electrical Products	64
Scemco, Ltd.	64
Scholes, Geo., & Co., Ltd.	10
Sims, F. D., Ltd.	17
Stainless Steel Wire Co., Ltd.	21
Sun Electrical Co., Ltd.	68
Symonds, R. H., Ltd.	8
Taylor Tunnicliff & Co., Ltd.	64
Telegraph Condenser Co., Ltd.	13
Terry, Herbert, & Sons, Ltd.	65
Thomas, Rd., & Baldwins, Ltd.	Cover ii
Tullis Russell & Co., Ltd.	19
Uhlhorn Bros., Ltd.	67
Universal Tools, Ltd.	8
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West Insulating Co., Ltd.	20
Westinghouse Brake & Signal Co., Ltd. ...	Cover iii
Whiteley, B. S. & W., Ltd.	6
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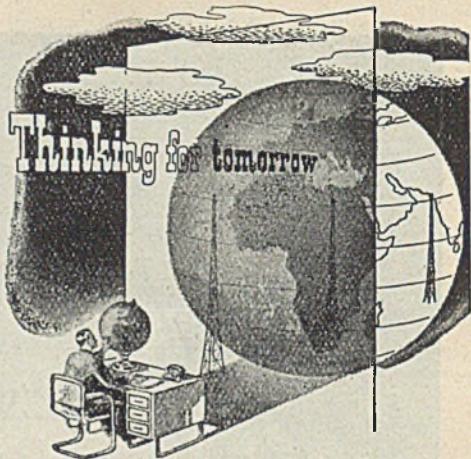
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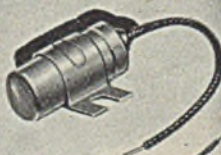
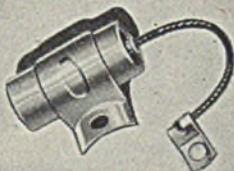
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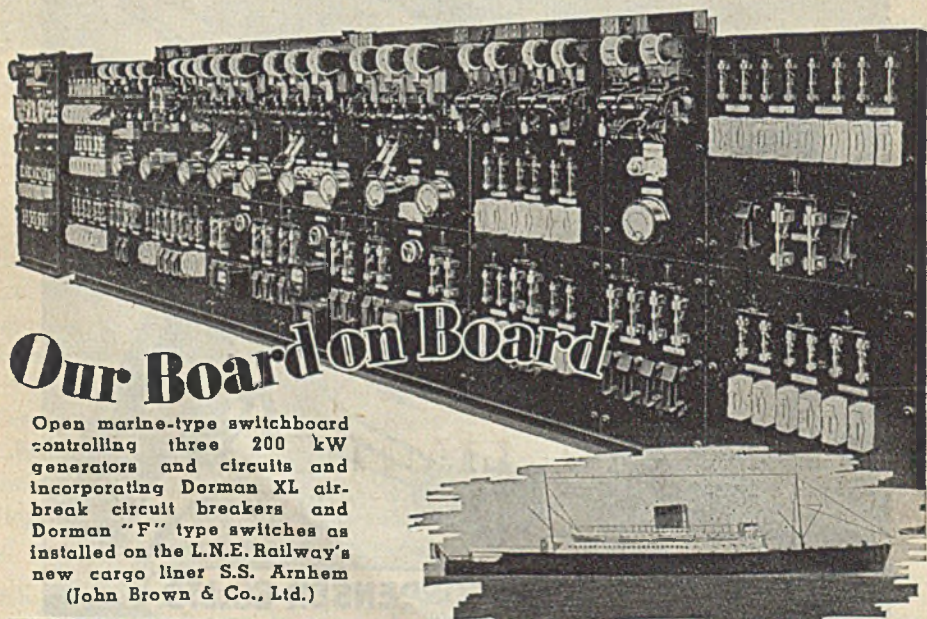
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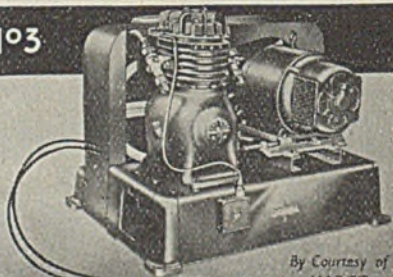
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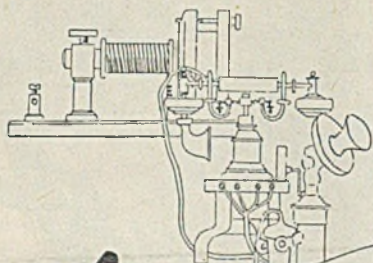
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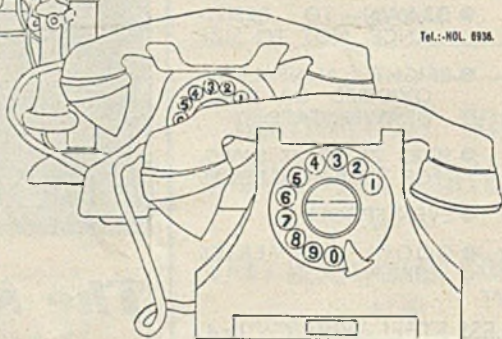
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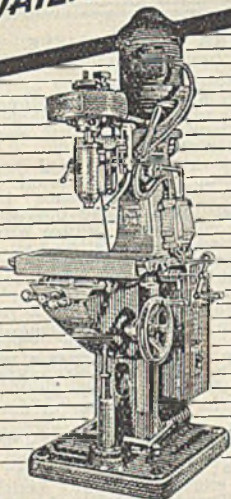
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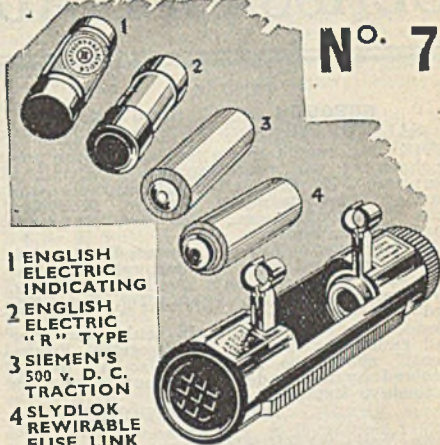
MANCHESTER

Britannia House, Fountain Street.

ISSUED BY THE MINISTRY OF SUPPLY

Fusing Facilities

N^o. 7



- 1 ENGLISH ELECTRIC INDICATING
- 2 ENGLISH ELECTRIC "R" TYPE
- 3 SIEMEN'S 500 v. D. C. TRACTION
- 4 SLYDLOK REWIRABLE FUSE LINK

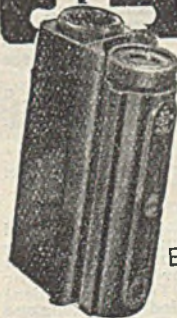
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The larger sizes in the New SLYDLOK Fuse range provide four alternative degrees of protection, from 250ACDC3, using the standard SLYDLOK rewirable Fuselink (at the cost of a fuse wire,) to 500ACDC4, using one of three proprietary makes of H.R.C. cartridges, as sketched above, all without change of holder.

Lower, but not higher, rated cartridges may be inserted in each respective size fuseholder and, equally important, neither can be inserted or used in the base without the other.

EXCLUSIVE TO THE NEW

SLYDLOK



The fuse you will
eventually use

EDWARD *Wilcox*
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Sharston Road, Wythenshawe, Manchester.

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THE ELECTRICIAN

CLASSIFIED ADVERTISEMENTS

TENDER

BOROUGH OF ACCRINGTON.

SALE OF ELECTRICAL EQUIPMENT.

THE Corporation invite tenders for the purchase of the following electrical plant, viz.: One 2000 kW British Thomson-Houston Curtis Turbo-Alternator, 3-phase, 50 cycles, 6600 volts, 3000 r.p.m., with Cole Marchant Condensing Plant.

Further particulars and permission to view may be obtained from the Borough Electrical Engineer, Corporation Electricity Works, Hyndburn Road, Accrington. Tel. Nos. 2002 and 3374.

Tenders, enclosed in plain sealed envelope and endorsed "Tender for Electrical Equipment," should be forwarded so as to be received by the under-named not later than Thursday, 31st July, 1947.

P. D. WADSWORTH,

Town Clerk.

Town Hall, ACCRINGTON.
18th June, 1947.

SITUATIONS VACANT

SHEFFIELD CORPORATION ELECTRICITY DEPARTMENT.

DISTRICT MAINS ENGINEER.

APPLICATIONS are invited for the above position. Applicants must possess an engineering degree or equivalent technical qualifications admitting to corporate membership of the Institution of Electrical Engineers, and must have had a thorough engineering training including experience in the Mains Department of a large Supply Undertaking. The person appointed will be required to take charge of all mains and service work in a District containing heavy industrial and densely developed residential areas, distribution being mainly by underground cables of all voltages up to 33 kV.

The salary will be in accordance with Class M, Grade 8, of the National Joint Board Schedule, commencing at £635 per annum.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937. Applicants must preferably be not more than 40 years of age, or have had previous Local Authority service, carrying transfer value within the meaning of the Act. The selected applicant will be required to pass a medical examination.

Applications are to be returned to me not later than Thursday, 24th July, 1947, accompanied by copies of not more than three recent testimonials.

Canvassing or any communication to a member of the Council, either directly or indirectly, is prohibited, and is a disqualification.

JOHN R. STRUTHERS, M.I.E.E.,

General Manager and Engineer.

Commercial Street,
SHEFFIELD, 1.

TELECOMMUNICATION Engineers required with some technical training, good knowledge of auto telephone exchange practice and experience with circuits or apparatus or equipment. Also men with some technical training and practical knowledge of exchange wiring for preparing Wiring Drawings. Applicants should give full details of age, training and experience and state salary required.—Ref. 424, Siemens Brothers and Co. Limited, Woolwich, S.E.18.

BOROUGH OF RADCLIFFE.

ELECTRICITY DEPARTMENT.

Mains Assistant.

APPLICATIONS are invited for the above position at a salary in accordance with Class "E," Grade 8, of the N.J.B. Schedule, at present £413 per annum.

Applicants must possess technical qualifications not less than Higher National Certificate and have had experience in the construction, maintenance and operation of E.H.T. and L.T. 3-phase A.C. and 3 wire D.C. Distribution Systems, and with A.C. static sub-stations and equipment. Some experience in D.C./A.C. change-over and fault localisation is desirable.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination. Canvassing will disqualify, and candidates must disclose in their applications any relationship to any member or officer of the Council.

Applications stating age, qualifications and experience, together with copies of not more than three recent testimonials, must reach the undersigned, endorsed "Mains Assistant," not later than Tuesday, 15th July, 1947.

H. A. FOX,

Town Clerk.

Town Hall,
RADCLIFFE, Lancs.
20th June, 1947.

BOROUGH OF RADCLIFFE.

ELECTRICITY DEPARTMENT.

Class I Plumber Joiner.

APPLICATIONS are invited for the above position. The rate of pay and working conditions will be those of the National Joint Industrial Council, at present 2s. 6d. per hour for a 47-hour week. Applicants must be fully experienced in high tension and low tension jointing work, network boxes, and sub-station H.T. and L.T. boards.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination. Canvassing will disqualify, and candidates must disclose in their applications any relationship to any member or officer of the Council.

Applications stating age, and details of practical experience, together with copies of not more than three recent testimonials, must reach the undersigned, endorsed "Plumber Joiner," not later than Tuesday, 15th July, 1947.

H. A. FOX,

Town Clerk.

Town Hall,
RADCLIFFE, Lancs.
20th June, 1947.

ENGINEERS and Draughtsmen required for development work on Automatic Telephone Exchange Equipment. Apply in writing giving particulars of qualifications, experience, age and salary required to: Ref. 634, Siemens Brothers and Co. Limited, Woolwich, S.E.18.

ARMATURE winding Charge-hand required for repair shop, to control female labour on small Armature and Stator winding. Applicant must have experience of A.C. and D.C. winding.—The Midland Electric Installation Co. Ltd., Cyprus Works, Upper Villiers Street, Wolverhampton.

SITUATIONS VACANT

ELECTRICIANS, D.J.I.C., Grade "B" conditions and rate. 29/25d. an hour, with experience of domestic and business installations.—Apply with full details of apprenticeship training and experience to The East Anglian Electric Supply Co. Ltd. (L.R.S.), Finborough Hall, Stowmarket, Suffolk.

EXCEPTIONAL opening for experienced man to take entire charge Mica Buying and Processing, etc., in Midland works employing 80 hands.—State qualifications and salary required to Box L.F.L., "THE ELECTRICIAN", 154, Fleet Street, London, E.C.4.

ARMATURE WINDERS and Improvers wanted for General Repair Works, A.C. and D.C., Top Rates.—Phillips and Sons Electrical Ltd., 40, Waterford Road, S.W.6.

FOR SALE

400 RENT Collectors (C. and H.), 20-amp., A.C., 200/250 v., 50 cycles, calibrated 2s. to 16s. (in shillings) per week. Suitable collectors for consumption or use of appliances, billiard tables, etc. Good condition.—Offers to Box L.F.K., "THE ELECTRICIAN", 154, Fleet Street, London, E.C.4.

FLUORESCENT LIGHTING.—Delivery from stock of 5 ft., 4 ft. and 3 ft. fittings complete with gear and tube, from £7, subject to usual trade terms. Write for full list.—Drubel Radio Distributors Ltd., 39a, Stafford Road, Croydon, Surrey. Croydon 1107/8.

CONDENSERS 11.V. Transformers (all types), Relays, Junctions, etc., and wide range and quantities of Electrical Accessories and equipments. All New.—M.M.C., 206/210, Bishopsgate, London, E.C.2.

NEW "ENGLISH ELECTRIC" 50 Motors. 230/50 Volts: Single Phase: Cont. Rating. Price £3 10s. Cash with order. Delivery immediate. Carriage 2s. 6d.—Stark, 215, London Road, Mitcham.

FOR SALE.—Delco Remy 50V, 300 watt PLANT, complete with batteries. In good condition, offers.—Hewett, 61, Cheap Street, Newbury, Berks.

PORTABLE Arc Welding Sets: One Petrol Driven "Petbo", 300 amps. One Petrol Driven "Harbour", 300 amps. One Electric Driven "Metro-Vick", 300 amps., A/C-D/C. One "Quasi Arc" 3 ph. 20 K.V.A., 200-400 amps. One 5 K.V.A. 230/150 Petrol Driven Generator, direct coupled to Coventry Climax Engine. Mounted on Steel Chassis. A/C Motors: Two 7 h.p. 415/3/50 570 r.p.m. S.R. B.B. Vertical mounting, with O.I. Starters. One 11 h.p. Siemens 440/3/50 1000 r.p.m. S.R. P.B. One 18 h.p. A.D. and M. 420/3/50 578 r.p.m. S.R. B.B. One 20 h.p. Crompton Parkinson 400/3/50 1500 r.p.m. S.R. B.B. One 44 h.p. Siemens 440/3/50 750 r.p.m. S.R. P.B.—Details from A. W. Barker and Co. Ltd., Colnbrook, Slough.

WE can supply all types of Presspahn Insulating Pieces to your specification. Your enquiries are appreciated.—Tradex Manufacturing Co., 92, Station Road, Swindon. Swindon 3696.

OFFERS wanted for quantity two hundred and forty air-conditioning and heating INSTALLATIONS, comprising motor blower, filters, heating elements, ducts, silence cabinet, spares and maintenance kit. 200-250 volts, 50 cycles supply. New and unused in the maker's original packings. Ideal lines for export market. Offers may be made for either the whole or part of total quantity ex our Leeds warehouse.—Wireless Instruments (Leeds), Ltd., 54-56, The Headrow, Leeds, 1. Tel.: 22262.

10 000 METAL Lamp Shades, ex Government surplus, pre-war quality, each 1s. Galleries 9d. sample dozen 2/6. Quantity of Bakelite Accessories.—Suplex Lamps Ltd., Suplex House, 239, High Holborn, London, W.C.1.

FOR SALE

METRO-VICK Mains TRANSFORMERS, new and unused, ex-Ministry of Supply. 4 kVA oil-filled. Input 230 volts, 50 cycles, output 115 000 volts. Packed in manufacturer's crate, £15 carr. fwd. 3½ kVA oil-filled, input 230 volts, 50 cycles; output 21 000 volts, £15 carr. fwd. Substantial discounts can be given for quantity orders.—Wireless Instruments (Leeds), Ltd., 54-56, The Headrow, Leeds, 1. Tel. 22262.

20 NEW Searchlights (Leigh Lights), 24 volts, packed in original wooden cases. Can be inspected. Price £25 each.—Max Propp Ltd., 120, Moorgate, E.C.2.

450 SATCHWELL thermostats, tubular type, W.O., variable 10 degs.-90 degs. C. 3 000 wire wound potentiometers by Fox and B.E.R. 50 watt 50 ohm and 500 ohm 20 watt loading. All brand new tested stock offered, substantially discounted for quantities.—Partridge, Wilson and Co. Ltd., Davenset Electrical Works, Leicester.

FLUORESCENT Starter Switches, 80 watt, glow type S.B.C.—Parkinson and Worden, Ltd., 49, King Street, Blackburn.

H.S.L. (ELECTRIC), 29, Grosvenor Road, Ilford, Essex.—Radio and electrical wholesalers since 1930; stock lists always available.

FLUORESCENT LIGHTING—CHOKES, extra quality, elongated, 4 ft., 40 W, tapped 200/250 V, silent working, each unit guaranteed, measurements 1½ in. by 1½ in. by 8½ in. Price £1 5s. each net. Carriage extra.—Write **SCEMCO LTD.**, Scemco House, 6/7, Soho Street, London, W.1. Tel.: GER. 1461/2/3.

FLUORESCENT LIGHTING.—Daylight and Warm White, 30 watt fittings complete with self-contained control gear and 36 in. tubes. Immediate delivery with guaranteed component and tube replacement service.—Apply **SCEMCO LTD.**, Scemco House, 6/7, Soho Street, London, W.1. Tel.: GER. 1461/2/3.

FLUORESCENT LIGHTING: See our stand No. 99 at the Public Works, Roads and Transport Exhibition at Olympia—July 21st-26th. Send for Catalogues and complimentary ticket. **SCEMCO LTD.**, Scemco House, 6/7, Soho Street, Oxford Street, London, W.1. Telephone: Gerrard 1461/2/3.

FLUORESCENT FITTINGS—Trough or Flush type fitted Hi-Craft Ballast control gear, complete with tubes. Delivery from stock.—Apply—**SCEMCO LTD.**, Scemco House, 6/7, Soho Street, London, W.1. Tel.: GER. 1461/2/3.

FLUORESCENT LIGHTING.—1 000 Fittings complete with tubes always in stock, for immediate delivery. Send for our 15 page List Price Illustrated Catalogue. Generous discounts to Export, Wholesale and Trade.—**SCEMCO LTD.**, Scemco House, 6/7, Soho Street, London, W.1. Telephone: GERard 1461-2-3.

FLUORESCENT LIGHTING FITTINGS, 4 ft., 40 watt, Flush and Trough complete with tubes and guaranteed control gear from stock.—Apply—**SCEMCO LTD.**, Scemco House, 6/7, Soho Street, London, W.1. GER. 1461/2/3.

BI-UNI.—The New Push-Button Flush-Fitting Domestic Switch. Wholesale Enquiries Only. Send for details—**SCEMCO LTD.**, Scemco House, 6/7, Soho Street, London, W.1. Tel.: GER. 1461/2/3.

DYNAMO & MOTOR REPAIRS LTD.,

Wembley Park, Middlesex.
Telephone: Wembley 3121 (4 lines).
Also at Phoenix Works, Belgrave Terrace,
Soho Road, Handsworth, Birmingham.
Telephone: Northern 0898.

REBUILT MOTORS AND GENERATORS.

Long deliveries can often be avoided by purchasing rebuilt secondhand plant. We can redesign or replace surplus plant of any size.

SEND US YOUR ENQUIRIES.

OVER 1 000 RATINGS ACTUALLY IN STOCK HERE.

FOR SALE

CIRCUIT BREAKERS: 15 amp. 250 v., Single Pole; complete with automatic overload cut-out; robust moulded construction. Accepted by most supply undertakings as efficient switch fuses if used in conjunction with our Distribution Boards. **DISTRIBUTION BOARDS:** 5 and 15 amp.; 2, 3, 4 or 6 way; D.P. or S.P. and N.P.; wood cases; improved design and finish. No permit required. **EKCO and SMITHLITE FLUORESCENT FITTINGS:** Complete; ex stock. Large quantities available; carriage paid. **ELECTRIC MOTORS:** 1 h.p. Squirrel Cage Induction Motors (Tilling-Stevens), 400/440/3/50, 1430 r.p.m.; new. **INSULATORS:** Suitable for overhead service cables. Bakelite, brass inserts; screwed P.O. thread for pin mounting; vertical type with drip groove, 5½ in. high, ¾ in. dia. Large quantities available; sample 2s. per return. Discount on quantities. **WOOD SWITCH BLOCKS:** ¾ in. round and square. 6 in. by 3 in. by ½ in.; 9 in. by 3 in. by ½ in. and 6 in. by 6 in. by 1 in. White Enamelled and Walnut Finish from 6s. 6d. to 6s. 3d. per dozen respectively. Discount on quantities and for natural finish.—Metropolitan Distribution Ltd., Truro.

PENCIL Bars, Boiling Rings, Flat Bars, wire to customers' requirements. Large stocks. Quality guaranteed. Spirals wired and dispatched by return. Special elements to customers' requirements supplied.—New Products (Nottingham) Ltd., 6a, Peas Hill Road, Nottingham.

SECOND-HAND Wild Barrfield Furnace. 1 400 volts 3 phase 50 cycles. Type 1612.H., complete with all control.—Oldfield Engineering Co. Ltd., 96, East Ordsall Lane, Salford, 5. **AND 4 way Fuse Boxes, 5 and 15 amp.** 2 5000 Multi Range Meters. Large quantity of Radio Components. Fluorescent Fittings, 5 ft. and 4 ft., from stock at keenest prices. Fluorescent Spares, 5000 Chokes in stock, 40 and 80 watt., Power-Factors, 2's, 4's, 8's and 10's, thousands in stock. Starter Lamps, Thermal and Glow Suppressors, 4 and 5 ft. Tubes, etc.—Phone or call, L. Goodman (Radio) Ltd., 9, Percy Street, Tottenham Court Road, W.1. MUSEUM 0216.

FLUORESCENT LIGHTING UNITS, 4-ft. and 5-ft. Self Contained and complete with tubes. Write for new illustrated trade list. Enquiries invited from buying agents for export.—**MOSS BROS.**, 53, Goodge Street, W.1. MUSEUM 5365.

550-WATT Lyon-Norman CHARGING AND LIGHTING SETS, completely self-contained with switchboard, silencer, spares, etc., for immediate delivery. £35 each.—Cross and Sankey, Ltd., 96-100, Victoria Street, London, S.W.1.

BLOCKS, best quality, polished wood, imitation walnut. All standard sizes in stock at current prices.—B.E.M. Co., 25-27, Berners Street, London, W.1.

1 000 000 YARDS Plastic Lighting FLEX (single) 3 029 to 18 gauge. Also **BELL WIRE.** Price 1s. per lb., approx. 16 yds. to a lb. Any quantities supplied. Samples free.—Apply 629/631, High Road, Leytonstone, E.11.

FLUORESCENT and Industrial Light Fittings with Protectional Shock Absorber, Starter Switches, Chokes, Mains Transformers, Immersion Heaters, 1½ and 3 Gall. Storage Heaters, Door Chimes, Wood Switch Blocks, Fire Bars, Pear Switches, 2 way Light and Heat Adaptors, Batteries. Send for list.—J. E. Wildbore, 26, Marlborough Street, Oldham.

ELECTRIC HOIST BLOCKS, capacity 5-6wt. to 7 tons. Reasonable delivery.—A Morgan and Co., 50, Wilkin Street, London, N.W.5. Phone: GUL 1147.

LADDERS, Trestles, Steps and Hand Carts from Ramsay and Sons (Forfar) Ltd., Forfar.

FOR SALE

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.

JUNCTION Electric Irons, superior design and quality, supplied with suitable stand. Also Junction Nickel plated Torch Cases. Supplied for home trade and export. Also large selection of household electrical appliances, Fires, Radiators, other electric Irons, Toasters, Table Lamps, Torch cases, Dry batteries, etc. Vacuum Cleaners, various makes, Fluorescent fittings good variety with fluorescent tubes, wash boilers, actually in stock. Please write for full list.—Brooks & Bohm, Ltd., 90, Victoria Street, London, S.W.1. Tele.: Vic. 9550/4441.

ELECTRIC MOTORS, A.C. and D.C. We supply all types and sizes of Electrical Machinery—Slow Speed Reduction Gears can be supplied to customers' requirements with short deliveries. Send your enquiries to The Electro Power Co. Ltd. (formerly Be-Be, Eng.), 3, Retreat Close, Kenton, Middlesex. Tel.: WORDSWORTH 4928.

TINNED STEEL ARMATURE BINDING WIRE.—All even numbered sizes from 16 s.w.g.-28 s.w.g. supplied from stock on 7 lb., 14 lb. or 28 lb. reels.

FREDERICK SMITH & CO. WIRE MANUFACTURERS LTD., CALEDONIA WORKS, HALIFAX.

SACKS and Bags in excellent condition for all commodities, as low as 4½d. each. Write: John Braydon Ltd., 230, Tottenham Court Road, W.1. Tel. No.: Museum 6972.

BRITISH Electric Co. (Beco) Ltd., can supply most types of A.C. and D.C. Motors from stock.—British Electric Co. (Beco) Ltd., Electra House, 25/29, Lower Road, Rotherhithe, S.E.16. Bermondsey 3449.

BUSINESS OPPORTUNITIES

SCEMCO, LTD., Fluorescent Lighting Specialists, announce their **AGENCY SERVICE** to Electrical Traders and Electrical Contractors. Applicants for "Selling Rights" of "SCEMCO" Fluorescent products in their individual districts are invited to apply for further details. Two Trade References must accompany initial enquiry. Applicants will be treated in rotation, priority being given to the 5000 Electrical Traders and Contractors already on our Mailing List. Summary of "SCEMCO" Agency Service:—(1) **SCEMCO LTD.** will forward to their Accredited Agents, all Direct Consumer orders and enquiries they receive as a result of the SCEMCO Advertising Media. (Trade Press, Local Press, Exhibitions. (Mail Order.) (2) **SCEMCO Accredited Agent** to receive, apart from Trade Discount of 25 per cent. and Cash Discount of 2½ per cent., an additional Agency Commission of 5 per cent. on all Sales in the allotted territory. (3) **SCEMCO Accredited Agent** to receive full benefits of the "Scemco Guarantee" regarding the replacement of Fittings and Components. (4) **SCEMCO LTD.** retain the right to nullify an Agency Agreement by one month's notice in writing should the Accredited Agent's service in any way prove unsatisfactory, and **SCEMCO LTD.** agree to the Accredited Agent having the same facility. This notice inviting Agency Applicants from Electrical Traders and Contractors will be closed on or before 30th July, 1947.—Scemco Ltd., 6/7, Soho Street, and at 18, Soho Square, London, W.1. Tel.: GERard 1461/2/3.

ELECTRICAL wholesalers and exporters require continuous supplies of wide range of electrical appliances for home trade and export. Permanent business guaranteed.—Box L.F.A., "THE ELECTRICIAN," 154, Fleet Street, London, E.C.4.

BUSINESS OPPORTUNITIES

NEW LINES REQUIRED FOR HOME TRADE AND EXPORT.—London wholesalers and exporters with agents throughout the world are prepared to conduct extensive advertising scheme to introduce new lines.—Send details to Box L.E.Z., "THE ELECTRICIAN," 154, Fleet Street, London, E.C.4.

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G.  R.

By Order of the Minister of Supply.

MINISTRY OF SUPPLY DEPOT,
FEATHERSTONE.

Six miles from Wolverhampton, Staffordshire.

NOCK AND JOSELAND

are instructed to sell by Auction without reserve, at the above Depot, on **TUESDAY, WEDNESDAY and THURSDAY, 29th, 30th and 31st JULY, 1947,** at 11 a.m., each day, a large quantity of Valuable

INDUSTRIAL ELECTRICAL EQUIPMENT and PORTABLE POWER TOOLS,

including about:

3200 MOTORS various h.p., and voltage, A.C. and D.C., including geared and flame proof types and 200 Electric Fan Motors.
262 MOTOR ALTERNATORS, standard A.C. and D.C. voltages.

250 CONTROL GEAR UNITS motor driven and friction drive. 140 Boosters for voltage control, 120 Electric flex shaft Polishers and Grinders, 80 Suds Pumps and Sump Pumps.

570 GENERATORS up to 72 K.W.

127 TRANSFORMERS up to 114 K.V.A. 20 Riveting and Etching Machines, 9 D.C. Spot Welders 40 K.V.A., complete with Transformers, Circuit Breakers and Rectifiers, and other Arc Welding Equipment.
10 Static Condensers 20 K.V.A., 170 Starters and a large quantity of small Industrial Switchgear.

Also A Large Quantity of Equipment, including: Control Panels, Contactors Panels, Furnace Control Panels, Testing Panels, Frequency Changers, Switchboards, Distribution Boards, Fuse Boards, Rectifier Units, Dynamos and Super-Chargers. Pneumatic Grinder (Holman).

120 Drill Steel Bits. Quantity of Copper Strip and Copper Bus Bar.

A Large Quantity of T.R.S. and P.V.C. Multi-Core Cable.

ON VIEW Tuesday, Wednesday, Thursday, Friday and Monday, 22nd, 23rd, 24th, 25th and 26th July, 1947, between the hours of 10 a.m. and 4 p.m.

ADMISSION to View and Sale by Catalogue only. Each Catalogue will admit two persons on View Days and one person only on Sale Days.

CATALOGUES One shilling each (post free on receipt of Post Order) may be obtained from the Auctioneers:

NOCK AND JOSELAND, 48, Queen Street, Wolverhampton, Staffordshire (Tel.: 20070).

REPAIRS

RUNBAKEN ELECTRICAL REPAIRS.—Rewinding to trade. Fractional h.p. motors a speciality, a.c. and d.c. Prompt service. Guaranteed work.—45, Oxford Road, Manchester. Tel.: ARD. 2507 (3 lines).

COOKERS.—We can give good deliveries of Sheet Metal Vitreous Enamelled Electric Cooker parts.—JOHN KING & SON (ENAMELLERS), LTD., PYRO WORKS, CHESTERFIELD. Phone: 5305.

WANTED

WANTED—One Ironclad Oil CIRCUIT BREAKER, triple pole, 400 volts, 3 phase.—Send details and price to Bruntons, Ltd., Sudbury, Suffolk.

W/E are requiring the following motors new dates are invited: Twelve 1 H.P. 690 R.P.M. Eight 1 H.P., 945 R.P.M. Squirrel cage induction motors, 400/440 volts, 3 phase, 50 cycles.—Langley London Limited, 161, Borough High Street, S.E.1. HOP. 2946.

REQUIRED.—Second-hand REFRIGERATOR in good order and condition, 12/14 cu. ft. capacity.—12/14, Rodney Road, Cheltenham.

FOUR each 300-amp. ammeters, panel fixing and pedestal, 300-amp. knife switches DP and 6-way 100-amp. IC Disn-boards LD.—Details to John Shaw and Co. (Elec.) Ltd., Vane Street Works, Hull.

A.C. MOTORS, 1-100 h.p., 500-1 500 r.p.m. Any make fitted with ball and roller type bearings. Must be good machines, such as you yourselves would buy. Alternatively motors for rewinding will be considered.—Oldfield Engineering Co., Ltd., 96, East Ordsall Lane, Salford, 5.

ELECTRICAL steel sheet or laminations of reputable make, .014 in. to .020 in. thick will be purchased for cash in any quantity by Davenset Electrical Works, Leicester.

AN unlimited number of modern A.C. motors urgently required for essential work. Highest cash prices paid for suitable units. We also want all types of motors for conversion and rewinding. Send details to Sales Dept., A. P. Watson, 104, Upper Brook Street, Manchester, 13.

WORK WANTED

ENQUIRIES solicited for all Press Work and Stampings. Keen rates, prompt delivery. John Drown and Co. Ltd., 7, Northampton Street, Birmingham, 18. Cen. 6381.

ARMATURES.—For vacuum cleaners, all types rewound.—32s. 6d. Complete overhaul of MOTORS our speciality, estimates free. Reconditioned Machines from £8. Vacuum, all makes.—From 201, Hope Street, Glasgow, C.2. Tel.: Douglas 6234.

21/- ARMATURES, 11/6 COILS.—We are the specialists in VACUUM CLEANER REWINDS and REPAIRS. Prompt delivery and work GUARANTEED.—County Vacuum Cleaner Service, 215, London Road, Mitcham.

VACUUM CLEANER REWINDING SERVICE. Commutators and Bearings. Prompt delivery and full guarantee.—Thomas Anderson, 117, Bowes Street, Blyth, Northumberland. Phone: Blyth 405.

BUSINESSES FOR SALE

SURREY.—Electrical Installation. Radio. Television Engineers. Annual turnover £13 000. Modern D/F. shop, beautifully fitted, carpeted. Lounge, 2 bedrooms, kitchen, bathroom, garage. All main agencies. Most comprehensive equipment for all departments, including Public Address. Bedford 10 van. Vendor is willing to leave £1 000 in. Will grant 21 years' lease at £4 4s. p.w. or Freehold £6 000. Goodwill. Fittings, Equipment, Vehicle £7 500. Stock £1 500 approx. A really excellent proposition. Apply: National Business Agency Ltd., 36, Eastcheap, London, E.C.3. MANsion House 2748.

MIDDLESEX.—Electrical Engineers. Contractors. Excellent connections throughout residential district. Certified turnover £4 000, net profit £1 250 last year. 20 years on lease. D/F. shop, 1 reception, 2 bedrooms, kitchen, bathroom, garden. 3 employees. Goodwill, Fittings, £2 250 or offer for quick sale. Stock £500 approx. Apply: National Business Agency, Ltd., 36, Eastcheap, London, E.C.3. MANsion House 2748.

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.

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BATTERY Chargers Modernised. Your old Charger made like new by specialists. Conversion from valve to metal rectification. Send for interesting leaflet "Q.D." on this service.—Runbaken Electrical Products. Manchester, 1.

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FLOUORESCENT LIGHTING UNITS FOR HIRE, WITH TUBES, per week or per month. State requirements.—**MOSS BROS.**, 53, Goadge Street, W.1. MUSEum 5385.

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PLANT AND MACHINERY AND
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for A.C. and D.C.

Illustration shows TWO
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Second impulse "off"
2 VA coil consumption
tested to 2,000 volts.

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CONTENTS

Views on Current Affairs	31
Portrait—Mr. Norman Elliott	33
I.M.E.A. Convention	34
Power Station Practice	35
Convention Snapshots	37
Electricity Supply Law	40
Atomic Energy and Electricity	42
I.M.E.A. Annual Meeting	14
Women's Day at Bournemouth	45
Electrical Personalities	46
Electricity for the Farmer	49
Contracts Open	50
Electricity and Coal	51
The Batti-Wullahs' Society	52
Electricity in Northern Ireland	53
The Electricity Bill	54
Industrial Information	55
Uganda's Power Resources	57
Electricity Supply	58
Company News	59
Commercial Information	60

I.M.E.A. Future

THE consensus of opinion expressed at the I.M.E.A. Bournemouth Convention last week with respect to the future of the association, was to the effect that the knowledge born of 50 years' experience should not be lost to the industry, no matter what shape the latter may assume under national administration. Views to that effect opened the convention when the Mayor of Bournemouth gave them voice, and throughout the following days ventilation of them persisted. Lord CITRINE, chairman of the Organising Committee, who attended the reading of the paper on Electricity Supply Law, gave at least some unofficial hope of the continuance of the association in reorganised form, while at the ordinary general meeting, held on the last day of the convention, it was made clear that the Council's intention of exploring every possible avenue for retention of the I.M.E.A. or the formation of a new organisation, is in general accord with the wishes of the supply industry as now constituted.

The presence of Lord CITRINE at the convention is indicative of a desire to become as fully acquainted as possible with the spirit which now prevails in the industry, and the opportunity afforded him of seeing the association at work will have done much to assure him of the unity of purpose with which the supply industry as a whole pursues its objective of service to the public, irrespective of municipal or other politics. His observations on the position were

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constructive and, coupled with the desire of the association members to carry on, may well form the basis for considered reasoning. As Mr. J. S. PICKLES pointed out, however, certain legal points have to be decided and it may therefore be some weeks before a meeting is called whereat future procedure will be decided. Be that as it may, it is obvious that both local authority and engineer delegates hold that the association should be kept in being, not for any sentimental or political reason, but because those now within it are able to offer a state-owned industry invaluable assistance in administration and direction, and because the association, or something like it, would do more to preserve that spirit of endeavour which has made the industry what it is to-day, than could any organisation set up independently by the Central Authority or other official body.

Power Station Practice

THE paper which Mr. F. W. LAWTON read at the I.M.E.A. Convention last week was outstanding in importance, in that it recorded the progress made since Messrs. H. C. LAMB and K. BAUMANN dealt with the same subject in 1938, and because there were given in it many facts and figures not hitherto published. The appreciative reception of the paper was supported by a long and carefully prepared discussion, the authors of which are already well known for their wide experience in power station practice. Opinion upon American developments is likely to be particularly valuable, for whereas on that Continent progress from 1939 onwards was unhampered by air raids, man-power problems and other difficulties occasioned by the war, power station development in this country during the same period had to give way to the pursuit of efficiency of another kind.

Coal and Ash Content

THE difficult circumstances under which our power stations operate, the fact that the coal consumed may have an ash content as much as four times that to which American engineers are used, suggest that, given the American conditions, British power stations would prove superior. Mr. F. NICHOLLS, of Leeds, feels that we are about six years behind American practice and

while that may well be for the reasons given above, the privations imposed upon the British power station engineer and the initiative which prevailing conditions call upon him to exercise, result is an experience denied the American engineer, which may yet place us in the forefront of development and efficiency. Were the American power stations called upon to operate in conditions accepted in this country as being inevitable for some years what, we wonder, would be the outcome?

Electricity Supply Law

THE preparation of a paper on the law relating to electricity supply during a time when a new Bill is going through the House must be bad enough, but when that Bill deals with the nationalisation of the whole supply industry, the difficulties confronting its author must be even greater. Even so, Mr. R. BIRT, of Ealing, so faced up to the problem at the Bournemouth Convention that not only was he able to give a brief account of the history and development of the law relating to electricity supply up to the time when the Electricity Bill was published, but to give also a reasonable understanding of the position, notwithstanding the fact that the Report stage of the Bill immediately preceded the reading of his paper.

I.M.E.A. and the Bill

THE Bill was attended by Mr. BIRT throughout the Committee stage, and this experience, and the fact that he is a barrister-at-law, enable him to put at the disposal of the association an understanding formed by both an engineering and legal mind. The majority of the time taken up by Mr. BIRT was devoted not so much to the paper as officially issued prior to the convention, but to an explanation of the position which has developed since the paper was printed by the association. His performance was masterly and because of it the discussion which followed was something of a surprise; not only were the speakers many, but due to Mr. BIRT's lucid explanations, most gave the impression of being possessed of a knowledge of law higher than that usually found outside the immediate legal field. A compliment indeed on the handling of a most difficult subject.

Portrait—Mr. Norman Elliott

We give below a word-picture of a man, who besides being well known in the electricity supply industry, carried out the major operation of restoring power supplies in order that the Allied Armies' advance into Germany, in 1944, might be assisted by adequate dockyard services at Caen, Antwerp and Ostend. He also reorganised the wrecked power systems in the Ruhr and Westphalia.



SOON after the capture by the Allied Nations in August, 1944, of the inland port of Caen, in Normandy, Mr. Norman Elliott joined the Royal Engineers to carry out important work for the 21st Army Group, details of which were published in *THE ELECTRICIAN* of August 23 and 30, 1946. This work was executed after a long and varied experience in matters concerned with power supplies, commencing with service with Messrs. Stephen Sellon and Partners, consulting engineers, and later in the chief engineer's and managing director's departments of the London Underground Companies.

Mr. Elliott was then for a period with the London and Home Counties J.E.A. as personal assistant to Mr. F. W. Purse, following which he became commercial assistant to the late Mr. W. B. Woodhouse, managing director of the Yorkshire Electric Power Co.

In 1936 he was appointed deputy engineer and manager of Ilford electricity department, and three years later succeeded the late Mr. C. F. McInnes as borough electrical engineer and manager at Gravesend.

In 1944, Mr. Elliott was appointed chief electrical engineer and manager at Wimbledon on the retirement of Mr. A. E. McKenzie, but before taking up his duties there he joined the R.E.'s for the reasons outlined in the first paragraph, attaining the rank of Colonel; he was also appointed Deputy Director of Works to the 21st Army Group and was awarded the O.B.E. (Military Division) for his services.

Commissioned with the immediate rank of Lieutenant-Colonel, and appointed C.R.E. (Electric Power), Mr. Elliott was, from his arrival in the B.L.A. in September, 1944, responsible for the whole electric power activities of 21st Army Group. His first major task was the rehabilitation of the Caen power station, on which the functioning of the important dockyard facilities depended. Subsequently one of his companies erected a 70 kV transmission

line, under difficult conditions, between South Holland and Belgium, restored supplies to Ostend and later to Antwerp Docks, and finally reorganised the wrecked power systems in the Ruhr and Westphalia.

Mr. Elliott is now general manager and chief engineer of the London J.E.A., this new appointment as chief executive officer having been created upon the retirement of Mr. Leslie Gordon and Mr. F. W. Purse. Mr. Elliott is a member of the Council of the Electrical Research Association and hon. secretary of the Conference of Joint Electricity Authorities and Joint Boards. He is also a member of the South-East and East England District Consultative Technical Committee of the Central Electricity Board.

The electrical industry cannot, however, claim to have attracted the whole of Mr. Elliott's attention, for he is, besides being a member of both the "Civils" and the "Electricals," a Master of Arts and a barrister of the Middle Temple. At St. Catherine's College, Cambridge, he took a tripos in both mechanical science and law.

His chief interests outside the immediate electrical field are the theatre and music. He has also represented his county at rugby football and still plays cricket and golf. He lives at "Windyridge," Oakfield Road, Wimbledon Common, S.W.19.

I.M.E.A. Convention

The Proceedings at Bournemouth Last Week — Electricity And the Social Structure

In *THE ELECTRICIAN* last week was given an outline of the programme to be followed at the convention of the Incorporated Municipal Electrical Association, held at Bournemouth from June 23 to 27, and below is given a brief report of the opening proceedings. In the following pages are given the discussion of the papers delivered by Messrs. Lawton and Birt, a report of the E.A.W. luncheon and the proceedings at the ordinary general meeting. The photographs of delegates in last week's issue and in this are the copyright of *THE ELECTRICIAN*, and copies of them may be obtained upon application to the Editor.

THE business session of the annual convention of the Incorporated Municipal Electrical Association opened at Bournemouth on June 24, with a civil welcome by the Mayor of Bournemouth, Coun. J. W. Moore, J.P., following the President's Reception the evening before.

In according delegates an official welcome to the town, the Mayor said there was nothing of greater importance to this country at the present time than electricity. It was necessary to speed up, not only transport but also production so that more goods for export could be produced to make this country again a creditor instead of a debtor nation. The social, economic and commercial structures of this country were undergoing considerable change and the skill and knowledge of the electrical industry and of every individual in it would be required in the future to an even greater degree than in the past. It might be from remarks he had heard, that the I.M.E.A., as at present constituted would cease to exist. Should that be the case he hoped that another organisation would be built up on the foundations so well laid already, of a similar character and nature.

The president, Mr. J. S. Pickles, thanked the Mayor and added that the conference would endorse his hope that should the present organisation go out of existence, another association, equally strong and corporate, would take its place. Continuing, the President welcomed all those delegates and visitors whom he had not had the opportunity of welcoming at the reception on the previous evening and said that as was the usual custom, a loyal message would be sent to the King.

The President then delivered his Address, an abstract of which was given in our last issue.

Mr. W. J. Cooper (electrical engineer, Hamilton), proposing a vote of thanks to the President, said that while previous Presidents may have had some difficulty in choosing a subject for their Addresses, in the present case there was no such difficulty. The President had been bound to tell the delegates and members of the association what he thought of the forthcoming change in the industry and he congratulated him on having given a fair and reasonable assessment of the position.



The 1946/47 Council Members of the Incorporated Municipal Electrical Association outside the Pavilion, Bournemouth

Power Station Practice

Discussion on I.M.E.A. Paper at Bournemouth Last Week

THE proceedings of the I.M.E.A. Convention at Bournemouth last week, opened in the afternoon of June 24, with the paper "Some Recent Developments in Power Station Practice," by Mr. F. W. Lawton, chief engineer and manager, Birmingham, an abstract of which was given in our last issue. Discussion of it was lively and below is given an abstract of the main points put forward.

MR. J. W. J. TOWNLEY (electrical engineer, West Ham) said that as an engineer at present concerned with the construction of a new station, a point he wished to bring to the notice of local authority representatives was that when an engineer laid out a new station he was often compelled by the Central Board to construct it in sections. Contracts were placed for the first section, and when the second and subsequent sections came to be dealt with, it often happened that the local authority desired that tenders should be called for again, whereas the engineer, not unnaturally, wished to design the station as a complete whole. In dealing with a scheme in sections and with different contractors, there was the risk of the final station being something of a museum as regards the multiplicity of plant. He appealed, therefore, to the representatives of local authorities to appreciate that in desiring to treat power stations as a complete whole and to duplicate existing contracts, engineers were doing the right thing.

With regard to the use of high pressure piping, there was to-day a tendency to use the highest possible pressures which the steam drums of the boilers would stand—in his own case 675 lb.—and accepting considerable pressure drop between the boiler and the turbine stop valve. This seemed to him to be important in that there was no great loss of heat energy and there was a considerable saving in capital cost.

Reference was made in the paper to difficulties in keeping boiler tube spaces free of deposits and bird-nesting, owing to the high temperature conditions. In connection therewith, a recent report of the Boiler Availability Committee suggested that we were not on the right lines in our use of boiler soot blowers. A recent suggestion from American sources was to the effect that the feed water regulation should be related to the steam output, but this was a rather revolutionary point of view, and he asked for the author's views upon it. With regard to steam piping, he said that whilst the radiographic examination of welded joints was universally accepted

as the correct method for assessing high pressure steam piping, he wondered whether manufacturers would react to it. He had recently had some trouble in this connection and had had to transfer a contract from one steam pipe manufacturer to another because the firm in question would not accept radiographic examination of the welded joints. His own view was that whatever the difficulties might be, this method at least gave some information and an assurance that serious risks were not being taken. Finally, on the question of de-aeration of feed water this was, in his view, essential, and he was installing an entirely separate de-aerating plant to ensure that no oxygen saturated water reached the boiler plant.

DR. S. WHITEHEAD (director, E.R.A.) outlined some of the contributions which his association had made to some of the problems mentioned in the paper, and what it was hoped to do in the future. The present high temperature alloys had been developed in association with E.R.A. and the present steam tables and Mollier diagrams were now quite familiar. It was now intended to raise temperatures from the present 1 000° F. to 1 200°, and then to 1 500°. In conjunction with the British Coal Utilisation Research Association, it was hoped to produce a standard for the grindability of coal, which though now lacking was of importance in view of what the author had said as to the proportion of new power plant being designed for pulverised fuel firing. Again, in conjunction with the Iron and Steel Research Association, there was in hand an investigation of small gas turbine generating units, and he understood that the manufacturers had developed some large units. Information such as that given in the paper—and he hoped other information would also be forthcoming—would be extremely helpful in framing the policy of the E.R.A. on this subject. Of minor interest, perhaps, was a recent test of the possibility of the overheating of rotors by harmonics, but the results were quite reassuring. He also referred to the work done by E.R.A., in connection with air-blast circuit-breakers and disagreed with the author's observations as to the complexity of the pneumatic equipment. However, this was not the time to discuss the point in detail, and he contented himself by saying that time would show. On the question of electrical sheet steel, he said that fundamental research was being carried out by Sir Laurence Bragg and

others, and although at the moment this work was perhaps of more interest to the Royal Society than the I.M.E.A., he believed that some valuable results would emerge in the near future. As regards surges, he said that whilst the interposition of a transformer minimised these, it did not eliminate from the generator the risk of damage from surges from overhead lines, so that protection was still necessary. A point not mentioned in the paper was the fact that in surge testing, it was not possible to tell whether the machine or apparatus had passed the test or not, and a new method was being worked out with the object of ascertaining this. Personally, he believed that the possibility of damage to sound insulation by an unexpectedly severe test under trying conditions was quite small, but it was such an important matter that it would repay extensive research.

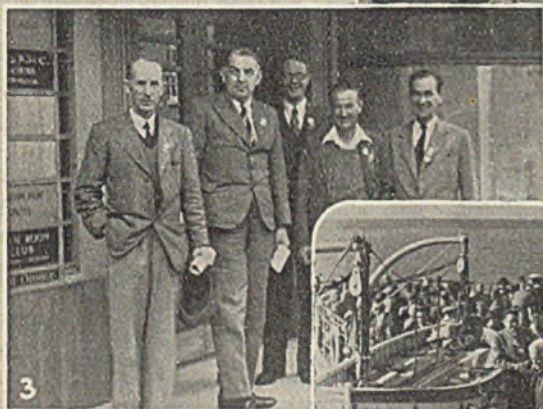
MR. R. A. S. THWAITES (electrical engineer, Manchester) said that since Section 3—"Boiler Developments"—of the paper had been written, there had been presented at the centenary meeting of the Institution of Mechanical Engineers three papers on British, American and Continental practice, and it was interesting to note that all three arrived at very much the same decisions. So far as Europe was concerned, the figures appeared to be 900 lbs. per sq. in., and 900° F., but there was a tendency in America for still higher temperatures and pressures for reasons indicated in this paper. He supported the author's view that power station designs should be functional, and said that there were cases in which the engineer had been almost forced to abandon belt conveyors for coal and adopt bucket conveyors, to please the Fine Arts Commission. He thought that bucket conveyors should not be permitted in any circumstances. He expressed satisfaction that the author was against designing the main plant to provide for district heating. In connection with the new power station to be erected by Manchester Corporation, there had been an objection by a neighbouring authority against this being constructed according to the prepared plans because it did not, in their view lend itself to district heating for a housing estate they were building. The answer was that acceptance of that objection meant that pass-out turbines would have to be used or a separate electric-cum-thermal station built with electricity produced as a by-product. There was room for research on this matter, as provided for in the Electricity Bill, and it might be found economic in some cases to provide district heating by means of the heat pump, utilising as a source of heat the warm water discharged from the condensers in the power station.

He believed that the gas turbine was the coming method of generating electricity for peak load stations, and he had seen a preparatory lay-out of such a station incorporating four 15 000 kW sets. The advantages appeared to be (1) low capital cost; (2) comparatively small space occupied; and (3) the need for very little cooling water. On the question of atomic energy, Prof. Cockcroft had quite recently said that within the next decade the exploratory work would be carried out for generating electricity by this means and that within the second decade from now a power station might be constructed, using atomic energy as heat. Therefore, in designing new power stations now, engineers should not commit themselves too deeply as to lay-out and plant likely to be installed in perhaps 10 years' time, or to complete and extend such stations as Carrington, which was designed for an ultimate capacity of 400 000 kW.

MR. F. NICHOLLS (electrical engineer, Leeds) said that he, like the author, had visited America and his views on the problems set out in the paper coincided with those of Mr. Lawton. As he saw the position the war had put a brake on progress in this country and our practice was now at least six years behind that of America.

KEY TO PICTURES OPPOSITE

(1) *Left to right*: Mr. F. W. Main, technical director, Enfield Cables, Ltd.; Mrs. C. J. Armstrong; Mr. W. R. Elliott, B.E.A.I.R.A.; Hon. John Grimston, managing director, Enfield Rolling Mills, Ltd., deputising at Bournemouth for Lord Forrester; Mr. H. D. Parsons, associate director, Enfield Cables, Ltd.; Mrs. Parsons; and Mr. C. J. Armstrong, associate director, Enfield Cables, Ltd. (2) *Left to right*: Mr. J. Woodhouse (Clough Smith and Co., Ltd.); Mr. P. G. MacLean (Cable Covers, Ltd.); Mr. Dawson Thomas (Abertillery); Ald. B. Brammer, J.P. (East Retford); Mrs. Worthington; Coun. W. F. Walters, J.P. (Abertillery); Mr. C. G. Bloore (East Retford); Mr. P. F. Clark (Clough Smith and Co., Ltd.); Mr. G. D. Worthington (Cable Covers, Ltd.). (3) *Left to right*: Ald. B. Brammer, J.P., and Mr. C. G. Bloore (East Retford); Mr. G. T. Allcock and Ald. F. H. Stone (Gt. Yarmouth); and Mr. P. F. Clark (Clough Smith and Co., Ltd.). (4) *Delegates taking the air during the trip round the Isle of Wight*. (5) *Left to right*: (Front) Mr. J. Shrobury, managing director of T. Clarke and Co.; (behind and extreme left) Mr. A. E. Torrance, managing director, Enfield Cables (South Africa) (Pty.), Ltd.; Mrs. H. D. Parsons; Mrs. J. Shrobury; Mrs. D. Denstad; the Hon. John Grimston, managing director, Enfield Rolling Mills, Ltd.; Sir Harold Moore, chairman, T. Clarke and Co.



The I.M.E.A. "snapshots" in last week's issue and in this are the copyright of THE ELECTRICIAN. A key to the groups reproduced herewith is given on the opposite page

As regards coal, the Americans were planning to use fuel containing 6 to 10 per cent. ash and they were appalled when their attention was drawn to the fact that we had to deal with anything up to 25 per cent., and in some cases even worse. It was incumbent on the Coal Board in the future to ensure that the supply industry had a steady delivery of coal with a reasonable amount of ash. Hydrogen cooling was developing very rapidly in this country and it was to be used at Leeds. A feature pointed out in the paper was that American tariffs were considerably higher than ours in spite of the fact that coal was cheaper. On the question of district heating, he said this was quite a side line to electricity production in America and it did not appear to be developed to any great extent.

MR. W. N. C. CLINCH (Northmet Co.) said he did not share the view of the author that 900 lbs. pressure and 900°F. would necessarily give the most effective results. He had had the opportunity of operating a boiler at 1 900 lbs. pressure and 950°F., and at 1 500 lbs. pressure and 940°F., and the conclusions reached as a result of that experience would one day be told. We should bear in mind the flywheel effect of evolution and take the advance turn of the flywheel in the hope that we might ultimately be able to make use of the coal which was to-day so difficult to procure. Referring to the use of pulverised fuel, he said that while there were certain difficulties, it was a fact that with most pulverisers it was possible to trap the pyrites and prevent them passing into the combustion chamber and therefore into the atmosphere. It was interesting to note that two of the stations mentioned by Mr. Lawton as using gas washing did not use pulverised fuel. There was need in this country for closer attention being paid to the design of cooling towers, and as regards boiler design, assuming pulverised fuel to be the fuel for the time being, there was a means of operating without very much soot blowing; i.e., removing the soot without having to lay the boiler off for that purpose. This again indicated that we were still in a state of evolution. Another point was concerned with safety valves, which often failed to blow when they should, or vice versa, but he had found from experience that an electrically-assisted safety valve was a remarkable improvement. He suggested that gas turbines might be installed to deal with peak loads on those parts of the grid system where the maximum demand was sustained for relatively short periods. Finally, he urged the importance of what both the President and the author had said with regard to the spirit in the industry, and expressed the

hope that those in the industry would continue to endeavour to give the same service they had so willingly given in the past.

MR. H. PRYCE-JONES (electrical engineer, Brighton) commenting on the indication in the paper that 66.9 per cent. of contemplated power stations were scheduled for pulverised fuel, said the problem of dust arresting and disposal must be faced with vigour and courage. Gas washing was a scandalous thing and entirely unnecessary. The arresting apparatus should be sufficiently effective to prevent any visual emission from the chimney and experience had shown that where there was no visual emission there were usually very few complaints. Given effective arresting apparatus and sufficiently high chimneys, anything that was emitted was comparatively harmless and, in his view, the tendency towards gas washing should be discouraged. He had found the electrostatic precipitator inadequate in one respect which had not been mentioned in the paper, viz., the ability to deal with the abnormal burden imposed during soot blowing. It might be suggested that that was only temporary but in the case of a large station with 12 boilers, each of which had to be blown once a shift, and each boiler taking from 30 to 40 minutes, it was within the bounds of possibility that during the whole of the 24 hours there would be a tendency for an abnormal dust-content to be blown into the chimney. Electrostatic precipitators were also lacking in performance in connection with high carbon content in the ash, and in burning low volatile fuels a great deal of anxiety was experienced in regard to chimney emission where electrostatic precipitators were functioning. His suggestion for improving the position—and he had been thinking of it in connection with a new power station—was to put a mechanical precipitator in series with the electrostatic equipment. This had several advantages. The collecting efficiency of the mechanical precipitator resulted in an increased efficiency of the electrostatic precipitator to round about 95 per cent. during the whole performance, and it was also possible, in this way, to extract much of the larger carbon particles resulting from inefficient grinding. If large carbon particles were extracted before reaching the electrostatic precipitator, it left it in a more favourable position to perform its usual excellent service. Another advantage of the use of the mechanical precipitator was where regenerative air heaters were employed, for with such heaters there was a tendency to entrain large amounts of dust in the forced draught duct. With a mechanical precipi-

tator arranged between the boiler and the regenerative air heater, that disadvantage was considerably reduced. At the same time, he questioned whether the 96.5 per cent. efficiency mentioned in the paper for the electrostatic precipitator was actually obtained year in and year out. Having collected the dust, there was the problem of disposing of it and those towns situated on the coast had a great advantage. Although he had tried to dispose of the ash, and had been successful to a certain extent, there still remained large quantities and he had devised a means of dumping it into the sea after suitable treatment. By adding the requisite quantity of water it was possible to get the ash into a condition in which it could be loaded into a hopper barge quite easily, provided the latter had straight sides, and to discharge 600 to 700 tons of the ash into the sea in 10 minutes.

MR. J. F. FIELD (electrical engineer, Edinburgh) said the only means of raising the standard of living in this country was a greater use of electricity in industry, and he recalled that the amount of electric power used per man in industry in America was two or three times that used in this country. Assuming there was to be a greater use of electricity per man, then we could not tolerate the present thermal efficiencies which were on average only 21 per cent. Even 30 per cent. was not good enough, and he suggested the possibility of doubling the present efficiency in the production of electricity. A much broader approach to the problem was required and it would call for a considerable amount of research. It was to be hoped that under the ægis of the new Board, this aspect of the matter would

receive due attention. From what was said at the Harrogate fuel conference recently, it seemed obvious that the coal-fired turbine was "in the bag." The Americans had got rid of the dust problem and he thought it was certain there would be a perfectly successful coal-fired turbine. The question was whether it would be good enough for what was wanted, viz., to raise the efficiency beyond 40 per cent. He did not think the gas turbine would do that, in that so soon as one tried to make a gas turbine more efficient, it was necessary to use heat exchangers. He believed it was possible to get an improved efficiency by means of steam, but not by present methods.

MR. LAWTON dealt briefly with a few of the points and promised a full reply in writing.

MR. J. ECCLES (electrical engineer, Liverpool), proposing a vote of thanks to Mr. Lawton, said that no more competent person could have been selected for the task of preparing the paper, because Mr. Lawton was now responsible for the installation of five 55 000 kW sets which were going in simultaneously, although in different stages of construction. Undoubtedly a degree of standardisation was necessary; standardisation of conditions, and of design to the extent of deciding whether the economic rating should be 80 per cent. or 100 per cent. It was no use standardising conditions without standardising what the units were to operate upon. Nevertheless, he still believed it would be necessary to have 15, 20 or 25 per cent. of the plant of a purely experimental character because there was a vast field open for further investigation.



Top left : Mr. A. E. Roots (Dumfries), Mr. P. J. Roberts, J.P., and Mr. G. W. Clarkson (Worcester), Mrs. Roots, Mrs. Clarkson and Mrs. Roberts. Top right : Mr. F. Mitchell, Mrs. Wadeson, Mrs. Mitchell and Mr. Mor-



ris Wadeson (Nott'm.) Below : (back row) Mr. E. Mail, Mr. A. Kelso (Harrogate), Mr. R. Gravett (Hoylake); (front row) Mrs. Mail, Mrs. Downing, Mr. C. H. Downing, Mrs. Kelso and Mrs. Gravett

Electricity Supply Law

NEED FOR CODIFICATION—LORD CITRINE'S VIEWS

ON Thursday morning, June 26, delegates at the I.M.E.A. convention heard Mr. R. Birt, borough electrical engineer, Ealing, deliver his paper on "The Law Relating to Electricity Supply," an abstract of which appeared in our last issue. Mr. Birt did not read Part II of his paper, in view of the proceedings on the Electricity Bill in Standing Committee, but gave instead an outline of the changes that had been made in the Bill during the Committee proceedings and the Report stage.

Before the reading of the paper, the President said that Mr. Birt had watched the proceedings in Committee on behalf of the Association and had heard every word spoken. He had been invited to prepare his paper in the early part of the year, but his task had not been eased by the Electricity Bill, the position concerning which was not known at the time.

Mr. NORMAN ELLIOTT (London and Home Counties J.E.A.) opened the discussion and, referring to the statement towards the end of the paper that there were in local enactments provisions of general application which could, with advantage, be extended throughout the area of the electricity supply industry in Great Britain, said that at present there was the curious position that certain supply authorities had, through special Acts, obtained powers which others had not, and he expressed the hope that there would be a general codification under the new scheme which would ensure uniformity of practice throughout the country. Unless some change of that kind were carried out, the new electricity boards would possess powers in some areas which they did not possess in others.

MR. R. A. S. THWAITES (Manchester) said this meeting took place at a rather awkward time, because the Report stage of the Electricity Bill had only been concluded on the previous day. Referring to the fact that Clauses 19 and 20 of the 1882 Act were to be repealed, he said these had been originally prepared for the protection of the consumer and it was necessary to be assured that the consumer would be adequately protected in the future. At the moment, there were certain aspects of the old clauses which did not seem to him to protect the consumer, as for instance, the demand to have a supply on the same terms as any other consumer in similar circumstances, and the question of undue preference did not seem to have been

covered adequately. Finally, he strongly supported the plea that there should be codification of the legislation.

MR. W. N. C. CLINCH (Northmet Co.) said that whatever the legislation might be, its final success must depend on the individuality of purpose and initiative of those engaged in the industry, and he hoped that nothing would be done which would prevent the full use of those qualities under the new conditions.

MR. F. NEWBY (Lincoln) said there were 10 million consumers of electricity in the country and there had been exceedingly few disputes between them and the supply authorities. That was a great tribute to the goodwill that existed between the two parties and an indication of mutual confidence, and he hoped nothing would be done to change that state of affairs under the new set-up. A point of some interest was that for some years consumers had been asked to pay deposits in respect of their accounts and received interest at the rate of 4 per cent. per annum upon them. The new authority would be raising money, at, say, 2½ per cent. and would be paying 4 per cent. on consumers' deposits, and that was a point which appeared to have been overlooked.

MR. J. ECCLES (Liverpool) said the new legislation meant complete reorganisation, and carried with it provisions which would enable the industry to enter upon a new lease of life and develop and consolidate many of the practices which, in the past, had only been applicable to the most progressive undertakings. Nevertheless, whatever was contained in Acts of Parliament, they could not play such an important part in the life of the industry as the people engaged in it. It was true that if legislation was unduly restrictive it might put a sprag in the wheels of progress, but he thought, taken by and large, that the new Bill was a sensible and necessary measure. If that were conceded, then the application and the interpretation of it was far more important than the actual verbal content of the Bill and the rules made under it. He believed that when the Bill became an Act there would be full scope for the initiative and zeal of all in the industry from the highest to the lowest level. If that were so, then under the new legislation they could look forward to something undreamed of in the past in the development of the industry.

ALD. SIR WILLIAM WALKER (Manchester) said that one matter which interested him in regard to the new legislation was the fixed global sum of £5 000 000. He would like to know how that was to be distributed. There were claims for loss of rate aid and all kinds of things and £5 000 000 would not go very far. If, however, the sum was meant to provide just for severance, then it might be sufficient. The more he read the Bill the more he felt a great injustice could be done to local authorities if the strict wording of it was applied.

LORD CITRINE (chairman, Organising Committee), called upon by the President, said he had had some part in the evolution of the basic principles upon which the present legislation was formed, and on behalf of the T.U.C., he had given evidence before the McGowan Committee in 1932. In view of the new position to which he had been appointed he thought it would be a good thing to make contact as soon as possible with those concerned in the industry, and he therefore found great pleasure in being present at the Convention. He asked them to believe that he was conscious of his limitations, but he was anxious to learn and to co-operate.

After paying a tribute to the work of Ald. Sir William Walker, whom he had so often met on the No. 3 National Joint Industrial Council, and to the work of the President on rural electrification, Lord Citrine referred to his association with Mr. Eccles during the last few weeks, and said he was a man possessing extraordinary powers of penetration and analysis.

Continuing, he said he was very pleased that the Minister had selected such a capable band of colleagues for him. He

was concerned at the moment with the structure of the organisation that was to be built up. The legislative phase was, in some senses, the easiest in these matters, and he felt that the Organising Committee had a hard job before them. They must be sure not only that the structure was right but that the right men were obtained to run the industry. Otherwise, it was hopeless to expect success. It might be that the Minister would be open to accept advice from the Organising Committee on that matter, and he was satisfied that the Committee would be able to give very sound advice in that respect.

Referring to the many comments that had been made as to the future of the I.M.E.A., Lord Citrine said that was a matter to which he, and no doubt some of his colleagues, had been giving some thought. Speaking for himself, he said he desired the transition to the new order of things to be made with the minimum of disturbance. He did not want to uproot organisations that were performing and were still capable of performing work which was beneficial to the industry, and any proposals that were made in this connection would be received with a sincere desire to secure the continuance of any work which the I.M.E.A. had been performing. He supported all that had been said as to the need for maintaining the spirit and initiative which had so successfully manifested itself in the industry in the past, for he was satisfied that without it the public could not be provided with that high quality service to which it was entitled.

MR. BIRT briefly replied to the discussion, and was cordially thanked for his paper.



Mr. J. Eccles, Lord Citrine, Mr. V. W. Dale (E.D.A.) and Col. B. H. Leeson (B.E.A.M.A.) outside the Bournemouth Pavilion

Atomic Energy and Electricity

Present Knowledge Related to Power Station Design

SOME 600 delegates and visitors attended the I.M.E.A. banquet at Bournemouth, on June 26, when the president, Mr. J. S. Pickles, was in the chair, and the principal guest was Prof. J. D. Cockcroft, F.R.S., director of the Ministry of Supply Atomic Energy Research Establishment.

Professor Cockcroft, proposing "The Incorporated Municipal Electrical Association," said there were many reasons why it gave him great pleasure to do so. In the first place, the President and himself were very old friends, both having been born on the borders of Lancashire and Yorkshire, and both going to the same school. After the first world war they both studied electrical engineering together at the Manchester College of Technology under that great pioneer, Dr. Miles Walker, who had the great virtue that his students studied every problem from the standpoint of fundamental physics and came away from his lectures with a very clear idea of the principles underlying the subject. These methods should find a still wider acceptance in engineering education to-day.

Another reason why he appreciated the opportunity of proposing this toast was that he could pay his personal tribute to the work of the members of the association and of the electricity supply industry generally. The electrical industry, more, perhaps, than any other, was based on the discoveries of physics.

One of the remarkable features of the growth of the electricity supply industry—the output of which in units sold had doubled every seven years since 1919—was the fact that more than two-thirds of the industry was now managed by local authorities. During the next few years the structure was to be changed to extend the principle of public ownership to the whole industry. Its future success would depend on how far the new Area Boards would draw on the time and energies of public spirited men, as the municipalities had done in the past.

The fuel crisis this year had had the good effect of forcing us, perhaps for the first time, to think seriously about our fuel supplies, which were truly the basis of our whole economy. There had been a tendency to look for salvation to the latest and most spectacular discovery of science—atomic or nuclear energy. It was true indeed that we had tapped a new source of heat and power from the splitting of uranium atoms. It was true also

that from the burning of one ton of uranium fuel—the lighter form of uranium—in a nuclear furnace we could obtain the same energy as from three million tons of coal. It must be remembered, however, that it took electrical science and technology over 50 years to develop from Faraday's discovery of electromagnetism to the first electricity undertaking, and a further 51 years—from the date of the foundation of the association—to develop the industry to its present state.

Although the rate of development had increased enormously since Faraday's time, he went on, we should not expect miracles now. We should rather ask what was the present state of our knowledge, what were the technical problems to be solved before a full utilisation of nuclear energy could be made and, finally, what would be the capital cost of changing over to nuclear power and how could such a programme be integrated with our expanding needs for power?

Prof. Cockcroft then said that much of the pioneer work was due to the British school of nuclear physics and particularly to that great scientist, the late Lord Rutherford. At the beginning of the war, when the potentialities of nuclear energy became apparent, the job was turned over to the Americans. In 2½ years the sum of £500 millions was spent in its application, not to the production of power but to the atomic bomb. During the course of this development, a number of atomic piles or nuclear boilers were built, which generated more heat than the largest of power stations. The piles were built to produce a nuclear explosive, plutonium, and the heat went wastefully into the Columbia River, heating it by less than a degree.

The nuclear boiler, he explained, consisted essentially of many bars of uranium metal, sheathed in aluminium, embedded in a pile of many hundreds of tons of pure graphite. The uranium rods became hot and would generate as much heat as the engineer was able to remove. It was possible to remove heat in the conventional way by compressed gas or other coolants, but as long as we were limited to rods sheathed with aluminium, the emergent gas temperatures could not exceed about 300° C. or 570° F. This was unduly low for efficient power generation, but the first experimental power generating plants would, however, probably operate in that region of temperature.

One of the major problems to be investigated would be that of fuel replacement.

If nature had no troubles in store for us, we could leave a nuclear boiler containing, say, 100 tons of uranium to run for 20 years until the one per cent. of the light uranium, which constituted the real fuel, was burned. During this time it would provide the thermal output of three million tons of coal. But the actual operating problems were likely to be much more difficult, for at intervals it would almost certainly be necessary to take out the uranium, dissolve it, extract certain radioactive products which tended to damp down the nuclear fire, and put the metal back into the furnace. These operations were likely to result in the greater part of the fuel cost.

In order to obtain improved efficiencies, the temperature of the emerging gas would have to be increased, and this, in turn, depended on metallurgical advances. He felt, therefore, that five years were required to build experimental power producing plants, and a further five years' experience of their operation was likely to be required before we could begin to make useful assessments of the potentialities of nuclear power.

In the interim period we should obtain some benefits which were likely to be of first importance, for in the nuclear boilers we could produce radioactive elements which had been proved to be most valuable tools for medical, biological and industrial research.

The general conclusion, Prof. Cockcroft thought, was that whilst nuclear power had great potentialities and was worth a determined effort, it was yet far from certain how important it would be in the next ten to 20 years. We should not, therefore, be distracted by its rather dazzling promise from a search for economy in our present standard fuels.

Looking at the overall picture from the point of view of a physicist, he was struck

by the low overall efficiency of thermal utilisation of coal. It was probably below 15 per cent., and contributing to this low figure were many well-known sources of loss. First, there was the large percentage of heat going uselessly into our rivers, and it was to be hoped that district heating schemes would, in time, remove some of this waste. There was also, he believed, a very large difference in fuel consumption between that of the electricity supply industry and the average consumption of other power producers over the whole country. Thirdly, our domestic heating system, in which over 20 per cent. of our coal was used, had certainly a low thermal efficiency—something of the order of 10 per cent. This could be largely improved by new designs of household heating units and by better thermal insulation of buildings. In the field of space heating, too, there were possibilities in the use of the heat pump and a really large scale use of electricity might be developed in that connection.

The President, responding to the toast, said that in the first 50 years of its existence the whole of the electricity supply industry in this country had spent only one-tenth of what had been spent on atomic energy research in a period of five years.

Mr. J. Eccles (President-elect) proposed "The Guests," Mr. V. Z. de Ferranti, president, I.E.E., replied.

Mr. J. S. Pickles then presented to the Mayoress of Bournemouth an electric hot-plate as a mark of appreciation of all she had done to welcome the delegates, and there was also presented to Mr. C. H. Downing (British Electric Meters, Ltd.) the G. P. Dennis Trophy won in the golf competition held during the week. The I.E.E. Benevolent Fund would benefit to the extent of £11, Mr. Pickles said, as the result of the competition.



THE PRESIDENT at the annual dinner of the I.M.E.A., with PROF. J. D. COCKCROFT on his right, and LORD CITRINE on his extreme left

I.M.E.A. Annual Meeting

Resolutions with Respect to the Electricity Bill—New Officers

THE I.M.E.A. annual general meeting was held at Bournemouth on June 27, with the president, Mr. J. S. Pickles, in the chair.

After the report and accounts had been adopted without comment, Coun. A. E. Wills (chairman, Newport, Mon) put a resolution to the effect that the association



Left, Mr. J. Eccles, 1947 president of the I.M.E.A., and, right, Coun. J. Selwyn-Jones, vice-president

viewed with concern the reimposition of purchase tax on domestic electrical appliances, and urged the Government to remove the tax entirely from wash-boilers and water heaters. The resolution was accepted, together with an amendment to include refrigerators.

Ald. Gough (chairman, Cardiff) moved that the Council be asked, in view of impending legislation designed to alter the structure of the supply industry, to consider the future of the association. The motion was seconded by Ald. W. Dobbie (York).

The President welcomed the resolution and said that the matter had been considered by the Council. The position, broadly speaking, was as he had indicated in his Presidential Address. It would have to be decided whether to reconstitute the association or whether the association should be dissolved. Counsel's opinion had been taken and the view expressed was that if the association desired to continue, application would have to be made to the Courts for an alteration of the Articles—which might not be sanctioned—and if it was decided to dissolve, application would have to be made to the Courts with regard to the transfer of the assets to a suitable body. A point brought out in Counsel's opinion was that the association could not pay compensation to the

officers of the association for loss of office. On this latter point, said the President, it appeared that other associations were in a similar position and an amendment had been prepared to the Electricity Bill to enable bodies such as the I.M.E.A. to devote funds in the event of dissolution, for the purpose of compensation to the staff. The Ministry of Fuel had no objection, in principle, to this amendment being introduced, but it had not yet been introduced.

Coun. J. K. Clarke (Malvern) stressed the need for local authorities continuing to take a close interest in electricity supply matters and suggested the formation of an Electricity Consumers' Union or something of that nature.

Ald. W. J. Bennett (Thurrock, Tilbury) thought it should be placed on record that whatever happened to the I.M.E.A., the work done by it throughout its existence had been the result of the first-class team spirit between local authorities and their engineers, from the smallest to the largest undertaking. The resolution was then adopted.

Coun. G. S. Hyde (vice-chairman, New Mills) moved that the association take steps to obtain such amendment of or addition to the compensation clauses of the Bill as would provide that in addition to any other amounts which they might be entitled to receive by way of compensation, a local authority would also be entitled to receive payment of an amount equal to the aggregate of the amounts of any losses sustained by the authority in the operation of their electricity undertaking and met out of the general rate fund of the authority, in so far as such aggregate amount of losses exceeded the aggregate amount of contributions (if any) made from time to time towards the relief of rates.

Ald. B. Brammer (East Retford) seconded the motion.

The President said the Council had approached the Ministry on this matter and their reaction to it was sympathetic, but that there must be a two-way traffic; in other words, if Councils were to be paid for the difference between the amounts taken from the rates and the amounts paid to the rates, then the Government would expect to get the difference between the amounts paid to the rates and the amounts taken from them, where the former was greater than the latter. After all, they could not have it both ways. However, having consulted

the officers of the association, he would advise the Council to accept the resolution. They had worked in close conjunction with the Institute of Municipal Treasurers and were indebted to them for their help and assistance.

Ald. R. Matthewson (Chester) spoke against the motion, but on a count of votes the resolution was carried by 344 votes against 142.

The President then announced that Mr. J. Eccles, city electrical engineer, Liverpool, was elected President for the ensuing year, the Council's nomination of him not having been contested. Mr. Eccles expressed his appreciation of the honour done him and presented Mr. Pickles with the past-president's badge, at the same time moving a hearty vote of thanks to him for his services. Coun. W. J. Hebden (Shoreditch) seconded the vote of thanks.

Coun. W. M. Macdonald (chairman, Dumfries County Council) responded to an expression of thanks to his Council for placing the services of Mr. Pickles at the disposal of the association during the past year, and Ald. A. Critchley (chairman, Liverpool) expressed the appreciation of

the Liverpool Corporation and its Electricity Committee at the election of Mr. Eccles as president for the coming year.

It was decided to leave the venue of the next convention in the hands of the Council.

The President announced that Coun. J. Selwyn-Jones (Newton-le-Willows) had been elected vice-president, and invested him with the vice-president's badge.

The election of members of Council resulted as follows: *Group A.*—Local Authority: Ald. Capt. C. Saer (Fleetwood); Engineers, Mr. A. J. C. de Renzi (Newcastle-under-Lyme), Mr. Dawson Thomas (Abertillery). *Group B.*—Local Authority Representative: Coun. B. J. Watson (Maidstone). Engineers: Mr. R. Birt (Ealing), Mr. W. A. Royle (Sunderland). *Group C.*—Local Authority Representatives: Ald. Sir William Walker (Manchester); Ald. G. B. Brooks (St. Marylebone). Engineers: Mr. C. T. Melling (Luton); Mr. J. W. T. Townley (West Ham). Mr. W. P. Lilwall, formerly borough electrical engineer, Fleetwood, was elected an Honorary Member of the association.

Women's Day at Bournemouth

THURSDAY, June 26, was Women's Day at the I.M.E.A. Convention at Bournemouth, and a luncheon was arranged by the E.A.W. with Mrs. F. N. Rendell-Baker in the chair, supported by, among others, Lord Citrine, Mr. C. G. Morley New, Ald. W. Walker, Mr. J. Eccles, Mr. H. Hobson, Mr. Clarence Parker, Mr. H. J. Randall, Mr. V. Z. de Ferranti, Sir Montague Hughman, Mr. E. E. Hoadley, Sir Thomas Purves, Mr. V. W. Dale, and Miss C. Haslett.

Mrs. Rendell-Baker welcomed the guests, and said that the association was especially pleased that women were permitted to attend the convention proceedings. Before calling upon Mr. J. S. Pickles to propose "The Association," she extended to Miss C. Haslett the congratulations of the E.A.W. membership upon her being appointed a Dame of the British Empire.

Mr. Pickles, after expressing pleasure at the presence of Lord Citrine, said that the association, though a corporate body, had been commendably instrumental in the establishment of the status and high standard of training which women in the industry enjoyed. The certificates and diplomas of the association were regarded as basic qualifications for employment in the industry, while the association had also bridged a very difficult gap between

the housewives of the country and the industry. In the latter connection, the association functioned as a medium through which instruction in the proper use of electrical appliances could be obtained, and its work in this respect had been of inestimable value. The association received its "pocket money" from the industry and he hoped that when the nationalisation proposals became law, something would be done to ensure the future of the association.

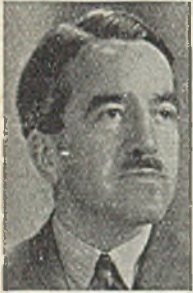
Alderman Mrs. Gregory, in reply, said that co-operation between the E.A.W. and the I.M.E.A. was of many years' standing and it had always been appreciated. It had been during the presidency of Ald. Sir W. Walker that machinery was devised under his guidance for the establishment of the Electrical Housecraft Association. Though at the present time the watchword was economy where electricity was concerned, that would not always obtain.

Mr. J. Eccles—speaking in place of Mr. Carpenter, chairman of the E.D.A., who had that morning taken off from Poole Harbour on a flight to Australia—proposed the health of Mrs. Pickles, and in appreciation of the assistance and support she had rendered the I.M.E.A. during her husband's difficult presidency, presented her with a coffee percolator.

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. T. H. MARTIN-HARVEY and MR. CHARLES PIPKIN have, in accordance



MR. W. H. MCFADZEAN



MR. P. V. HUNTER

with their wishes, tendered their resignations as deputy chairmen of the British Insulated Calender's Cables, Ltd., as from June 30, the initial work arising from the amalgamation having been completed. Mr. W. H. McFadzean and Mr. P. V. Hunter have been appointed deputy chairmen as from July 1. Mr. T. H. Martin-Harvey will continue as a director of the company, but Mr. Charles Pipkin, by his own desire, has resigned his directorship.

LORD MCGOWAN was elected president of the British Standards Institution in succession to Lord Woolton. Sir Clifford Paterson, F.R.S., has been elected chairman of the General Council in succession to Sir William Larke.

DR. S. WHITEHEAD, director of the British Electrical and Allied Industries' Research Association, is a member of the sub-committee appointed by the Parliamentary and Scientific Committee, whose Interim Report on the Scientific Aspects of Coal Utilisation was published on Saturday, June 28.

MR. H. C. WATERS, general manager of the East Anglian Electric Supply Co., Ltd., the Bedfordshire, Cambridgeshire and Huntingdonshire Electricity Co., and the Newmarket Electric Light Co., Ltd., all forming part of the Edmundson group of companies, has been appointed a Justice of the Peace for the county of Suffolk.

DR. LUFTI KIRDAR, Governor of the Province of Istanbul and mayor of the city, who is visiting this country under the aegis of the British Council, called at the London

Transport Board's offices on June 24 for consultation with officials concerning a plan to model an underground railway system for the city of Istanbul on the latest extensions to the Central Line in London.

MR. J. L. ADAM, chief surveyor to the British Corporation of Shipping and Aircraft, has been elected president of the Institute of Welding, and Dr. J. H. Pater-son, vice-president, for 1947-48.

MR. A. M. PERRY, who for some time has been deputy borough electrical engineer and manager at Southwark, London, has been appointed to a similar position with the Grimsby Corporation.

MR. E. M. HICKIN has been elected chairman of the I.E.E. London Students' Section for the 1947-48 session. The other officers are: Mr. A. Mason, vice-chairman; and Mr. P. W. Castle, hon. secretary.

SIR MAURICE SIMPSON and Mr. John Lamont have resigned from the board of



MR. F. W. ANDERSON



MR. A. H. M. JACOB

W. T. Henley's Telegraph Works Co., Ltd., as from June 30. Mr. F. W. Anderson, the general manager, and Mr. A. H. M. Jacob, the secretary, have been appointed directors. Mr. Anderson joined the company in 1906, having served previously with the National Telephone Company. He occupied the position of assistant sales manager for a number of years, and was appointed sales manager in 1925. In 1937 he became assistant general manager, and in 1943 succeeded Mr. W. F. Bishop as general manager. Mr. Anderson is also a director of Oakley Brothers, Ltd. Mr. Jacob commenced with the company in 1906. In 1913, he became an assistant

to the secretary, the late Mr. A. E. Salmon, and in 1926 succeeded him as secretary. Mr. Jacob is also a director of Oakley Brothers, Ltd., of the Antrim Electricity Supply Co., and the Antrim Electricity Distribution Co.

MR. F. E. ROWLAND, manager of the agricultural department of the General Electric Co., Ltd., has been appointed vice-president of the Institution of British Agricultural Engineers. This is the first occasion on which an electrical engineer has occupied the office.



MR. F. E. ROWLAND

MR. J. DACRE, with the Sheffield electricity department, has been appointed chief clerk in the Chesterfield electricity department in succession to Mr. Owen, who has resigned owing to ill-health.

MR. A. C. BAKER, chairman and managing director of Simpson, Baker and Co., Ltd., Bristol, has been elected president of the Electrical Wholesalers' Federation.

MR. H. F. CARPENTER, chairman of the E.D.A. Council, in his capacity of president of the Chartered Institute of Secretaries, left England by air on Thursday, June 26, for Australia and New Zealand in connection with the proposed fusion of the Chartered Institute of Secretaries, the Australasian Institute of Secretaries and the Institute of Incorporated Secretaries of Australasia. He was accompanied by the secretary, Dr. A. M. Allen.

MR. G. S. PRESTON, superintendent of the metal finishing department of the Plessey Co., Ltd.,



MR. G. S. PRESTON

who, as announced in our issue of June 20, has been made an M.B.E., was responsible, during the war, for a high output of finished radio equipment for the R.A.F. and other Services, shell fuses and bombs.

MR. G. W. LACEY, director and general sales manager, British Aluminium Co., Ltd., and Dr.

W. J. Warboys, chairman of the board of the plastics division, Imperial Chemi-

cal Industries, Ltd., hon. treas., member of the Council and Executive Committee, and chairman of the Design Sub-Committee, British Plastics Federation, have been appointed by the Board of Trade as additional members of the Council of Industrial Design.

MR. J. P. WOLFENDEN, head of the electrical engineering department of Rutherford College, Newcastle-on-Tyne, has resigned to take up a post at the Borough Polytechnic College, London.

MR. B. H. MUSGRAVE, hitherto the secretary of the Telegraph Construction and Maintenance Co., Ltd., has been appointed a director of the company with effect from July 1. Mr. G. L. Lawford has been appointed secretary of the company.

SIR HARRY RAILING (chairman and joint managing director) and Lady Railing, Mr. Leslie Gamage (vice-chairman and joint managing director) and the Hon. Mrs. Leslie Gamage, as well as members of the management at Witton, were among



The HON. MRS. GAMAGE handing the trophy to the best girl athlete at the G.E.C. sports at Witton

those present at the twenty-first annual sports and gymkhana of the Witton engineering works of the General Electric Co., Ltd., in the grounds of the Magnet Club, on June 14. The prizes were presented by the Hon. Mrs. Leslie Gamage, and in the photograph, reproduced on this page, she is seen handing the H. N. Whitford cup, for the best all-round girl athlete, to Miss E. Francis, who won the trophy for the second year in succession.

MR. R. W. HUGHMAN, managing director of "The Electrical Times," retired from that position at the end of last month and thus concluded 56 years of technical journalism and an association with the electrical industry that brought him a host of friends. In January, 1890, Mr. Hughman joined the staff of Robert

Hammond, who, in the following year started an electrical journal with the title of "Lightning." Beginning as secretary of the company, Mr. Hughman became assistant editor in 1895, and when he was appointed general manager in 1901, he changed the name of the journal to "The Electrical Times." In 1907 he became joint managing director. He played a large part in the formation of the I.M.E.A. He is a member of the Court and Council of the E.I.B.A. and a past-president of the Batti-Wallahs' Society.

LADY RAILING crowned the beauty queen and distributed the prizes at the



LADY RAILING presenting the prize awarded to MISS JOAN LAVENDER, crowned "Miss G.E.C., 1947"

G.E.C. annual championship sports and gala held at the company's London sports ground, Preston Road, Wembley, on Saturday last. Also present were Sir Harry Railing (chairman and joint managing director of the General Electric Co., Ltd.), Mr. Leslie Gamage (vice-chairman and joint managing director), the Hon. Mrs. Leslie Gamage, Sir Clifford Paterson, F.R.S. (director of the company's research laboratories at Wembley), and Lady Paterson. Miss Joan Lavender, a shorthand typist in the Osram lamp factory at Hammersmith, was selected from among 16 competitors in the beauty competition to hold the title of "Miss G.E.C., 1947." The "Leslie Gamage" trophy awarded annually to the leading London establishment, was won by the Glass Works, who secured the highest aggregate of points for eleven events. The band of the Scots Guards played during the afternoon, and in the evening there was a concert, followed by dancing, in the Hirst Hall. The weather was fine and warm until the conclusion of the sports programme when a thunderstorm forced the spectators to seek shelter.

MR. A. V. HEYES (North-West branch) was at the annual convention of the

Association of Mining, Electrical and Mechanical Engineers, at Grange-over-Sands from June 25 to 28, elected national president for the 1947-48 session in succession to Mr. C. Charles Bleach (S. Wales branch). Mr. S. W. Richards (London branch) was elected junior vice-president in succession to Mr. G. A. McLennan (Lothians branch) who was elected senior vice-president. At the reception and dance held in the Grand Hotel on June 27, Mr. R. Crawford (London branch), electrical engineer to the National Coal Board, was the principal guest. Mr. G. C. Knight (Yorkshire S.-E. branch) won the Heyes Cup in the convention golf competition.

MR. HENRY E. GOODRICH, M.P., chairman of the London and Home Counties J.E.A., presided at the sports day and flower show, held at the authority's motor testing and record department at Burford on Saturday last. Despite changeable weather and a thunderstorm which interrupted the final stages of the athletic events and delayed the prize-giving, more than 1 500 employees of the authority and their families enjoyed a pleasant afternoon and evening. Music was provided by the Banstead and District Silver Band. After the prizes had been distributed by Mrs. Goodrich, a case of pipes and a silver tankard were presented to Mr. A. L. Burnell, clerk and finance officer, for his services to the Social Association since its formation in 1933, and Mr. Norman Elliott, general manager, gave a brief address. The evening concluded with a film show for the children and dancing in the pavilion.

MR. T. A. G. MARGARY, whose death was announced in our last issue, died on June 23, and not June 24 as stated.

Caroline Haslett Trust

THE Caroline Haslett Trust has awarded the second Travelling Scholarship in Electrical Housecraft to Mrs. E. A. Windsor who will spend two or three months in Sweden studying home economics, particularly the application of electricity to housecraft. Mrs. Windsor, holder of the E.A.W. Diploma in Electrical Housecraft, has had experience in Bethnal Green electricity department, and is now chief electrical housecraft adviser at Hackney. She is secretary of the Association of Housecraft Advisers formed a year ago.

Dame Caroline Haslett, in honour of whom the Trust was founded, is visiting Sweden as a delegate to the 8th International Scientific Management Congress which opened yesterday, Thursday.

Electricity for the Farmer

Interesting Demonstrations at the Lincoln Royal Show

WHEN the Royal Agricultural Show opened at Lincoln on Tuesday, the electrical exhibits were among those arousing wide interest. Farmers from many parts of Eastern England and elsewhere paid particular attention to an ambitious stand, arranged by the E.D.A., which demonstrated forcibly the advantages, in the way of speed and efficiency, which electricity could bring to traditional agricultural and horticultural processes.

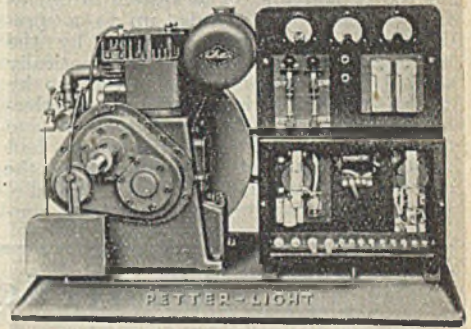
The E.D.A. stand took the form of a miniature farm, the theme being that every farm operation involving light, heat, motive power or refrigeration could be aided and improved by electrical methods. The farm was divided into a number of sections, including dairy and milking equipment, barn and farmyard machinery, poultry breeding appliances, pump equipment, a farm workshop, horticulture and greenhouse equipment. Not the least benefit arising from having available a supply of electricity on the farm lies in its use inside the farmhouse itself, and the stand showed examples of modern domestic appliances for the farmer's wife.

In the dairy and milking section, the exhibits included a milking machine operated by an electrically driven vacuum pump, a bucket milking plant, a milk cooler capable of reducing the temperature from 95° to 40°, a cold room, a bottling machine and bottle washing machine, and an electric water heater for providing the normal hot water requirements of a dairy. The section was lighted by fluorescent lamps.

The advantages of electric drive for barn machinery were emphasised in another section of the exhibit, where a small automatic Essex mill was shown. This mill, which was driven by a 3 H.P. single-phase motor, received whole grain from hoppers on an upper floor, ground it to the required degree of fineness and blew the ground product to storage bins. Other motor-driven machines included a cake breaker, root cutter, log saw, a grain dryer incorporating electric drive and electric heating with thermostatic control, and a pneumatic grain elevator. For the farm workshop, electrically driven machinery was shown, capable of carrying out most running repairs, and including a welding set.

Poultry farmers who visited the stand were impressed by conversion sets by means of which hovers and brooders using other forms of heating could readily be adapted to electrical methods, and a

demonstration was given of motor-driven pumps, including one which, using compressed air in the storage tank, would give an automatic supply of water where no piped supplies were available. There were



Seen at the Royal Show, a Petter 32 V automatic lighting set

also examples of centrifugal pumps, piston pumps and a submersible pump.

The application of electric heat to cultivation was demonstrated in the horticulture section, and the equipment shown included tubular heaters for greenhouses and soil warmers for tomato houses and cloches.

Although it is not possible, in the available space, to describe in detail all the appliances which went to make the E.D.A. stand one of the most comprehensive demonstrations of electrical farming methods yet to be staged, there may be mentioned a storage steam raiser. This apparatus, which the General Electric Co., Ltd., entered for the Silver Medal at the Show, was especially designed for dairy farms and other situations where steam is required at infrequent intervals with a minimum consumption of electricity. It is useful for sterilising recording milking plant and, in addition, hot water for washing the plant may quickly be obtained by steam injection.

With a maximum storage capacity of 65 lbs. and a maximum working pressure of 90 p.s.i., the steam raiser is controlled by a pressure switch which cuts off the current when the maximum pressure is reached and switches it on again when the pressure falls to a pre-determined figure.

For use on those farms requiring an auxiliary power supply, or where mains supply is not likely to be available for some

time, engine driven lighting sets were shown by Associated British Oil Engines, Ltd. One of these was a compact automatic set of the floating battery type, rated at $1\frac{1}{2}$ kW at 32 V. Other sets in the same range are for 2 kW at 110 V or 4 kW at 110 V. The set consisted of a 3 H.P. Petter air-cooled petrol engine, belt driven generator and automatic switch-board mounted on a fabricated steel base-plate, with battery. The dynamo was shunt wound and fitted with series turns for motor starting. The system of operation provided that loads up to a pre-determined value were supplied by the battery, the set being automatically started by "motoring" the dynamo by means of the series winding. An electrically operated choke fitted to the engine facilitated starting. After the engine had fired and attained normal speed, the battery was automatically put in parallel with the generator to supply the load, con-

tinuing to do so until the load fell to the same value as was fixed for the starting operation. A safety device ensured that in the event of the engine failing to start, the motoring current was automatically cut off, thus preventing damage to the battery. The engine thus operated only when an economic load was available, loads below this value being supplied by the battery, while heavier loads which might depreciate the battery were taken from the generator. The electrical equipment for the set was supplied by Small Electric Motors, Ltd., of Beckenham.

Among manufacturers who co-operated with the E.D.A. in the electric farm were: Messrs. Beresford, Sigmund, Stuart-Turner—pumps; Cope and Cope, Curfew Appliances, Horace Stephens, Western Incubators—poultry equipment; General Electric Co.—steam raiser and soil warming equipment; Gascoigne, Perkins, Aidas—dairy equipment.

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 Board of Trade, Millbank, London, S.W.1 (corner Horseferry Road), unless otherwise stated:—

Iraq.—Supply of 100 Diesel-driven generator sets, 400/230 V, three-phase, 50-75 kVA at .8 p.f. Specification from Crown Agents for the Colonies, 4, Millbank, London, S.W.1, ref. W/Iraq 7705.

Edinburgh, July 5.—Work at Portobello power station: (a) supply, delivery and erection of 3 300 V and 415 V switch-gear and motor control gear for auxiliary services; (b) supply, delivery and erection of 5 MVA, 6.6/3.3 kV dual ratio transformers for auxiliary services. Specifications from Consulting Engineers, Messrs. Kennedy and Donkin, 12, Caxton Street, London, S.W.1.

Heston and Isleworth, July 7.—Conversion, alteration or adjustment of wireless equipment in part of Lampton area owing to change-over of supply from d.c. to a.c. Specification from Borough Electrical Engineer and Manager, 11, Staines Road, Hounslow.

Manchester, July 7.—Supply of (a) 660 V d.c. traction switchgear; (b) batteries and charging equipments. Specifications from Chief Engineer and Manager, Electricity Department, Town Hall, Manchester, 2.

Chesterfield, July 11.—Supply of 75 kW glass bulb mercury arc rectifier. Specification from Borough Electrical and Manager, Corporation Electricity Department, 172, Chatsworth Road, Chesterfield.

Burnley, July 14.—Supply and delivery of e.h.t. cable. Specification from Borough Electrical Engineer, 43, Grimshaw Street, Burnley.

Darlington, July 16.—Supply of (a) over-ground feeder pillars; (b) underground disconnecting boxes. Specifications from Borough Electrical Engineer, Haughton Road, Darlington.

Dundee, July 21.—Supply, delivery and erection of automatic CO₂ fire extinguishing equipment for 33 kV sub-station at Clepington. Specification from Town Clerk, City Chambers, Dundee.

Accrington, July 31.—Tenders invited for purchase of: 2 000 kW B.T.H. Curtis turbo-alternator, three-phase, 50 cycles, 6.6 kV, 3 000 r.p.m., with Cole Marchant condensing plant. Further particulars from Borough Electrical Engineer, Corporation Electricity Works, Hyndburn Road, Accrington.

Newport, July 31.—Manufacture, supply and installation of 3 kV main and pilot cables, by companies fully experienced in laying of submarine cables. Specifications from Electrical Engineer and Manager, Electric House, Dock Street, Newport, Mon.; deposit, £1 1s.

Reigate, August 22.—Supply of (a) six units, each comprising three oil-immersed, 11 kV, 300 A switches and six eight-way isolator and fuse units; (b) six 500 kVA, three-phase, 50 cycles, oil-immersed transformers. Specifications from Engineer and Manager, Electric House, Linkfield Corner, Redhill, Surrey.

Electricity and Coal

INTERIM REPORT OF PARLIAMENTARY AND SCIENTIFIC COMMITTEE

A NUMBER of recommendations to bring about a reduction of the peak load on the electricity supply system to meet the circumstances that are likely to arise next winter, are made in the Interim Report on Coal Utilisation, prepared by a sub-committee appointed by the Parliamentary and Scientific Committee—an unofficial group of some 200 members of both Houses of Parliament of all parties and of seventy scientific and technical institutions.

UTILISATION EFFICIENCY

In the introduction to the report, published on June 28, the sub-committee state that nearly 70 per cent. of our output of coal is still to all intents and purposes wasted and not much more than 30 per cent. is turned to useful account. Thus, whereas on our present-utilisation efficiency we can just "pull through" with an output of 200 million tons, if we could increase this efficiency by one-tenth, namely from 30 per cent. to 33 per cent. we would have an output equivalent to 220 million tons, which would be ample for our immediate needs (excluding exports). It is, therefore, essential that as much effort should be concentrated on the utilisation side of the coal problem as on the production side.

In the light of recent production figures a tentative estimate is made that the output of coal for 1947 is likely to be not much in excess of 195 million tons; that if we have a normal winter and are to approach the export target set by the Government, the consumption of coal will be not less than 210 million tons; and if two million tons of coal are imported, we may be faced with a gap of 13 million tons.

It has been proved by more than 25 years' experience in the electrical industry, states the report, that the publication of figures showing the coal consumed in the generation of electricity is a most potent factor in securing increased efficiency, and one of the first things that requires to be done is to establish and make public for general guidance an efficiency index for every industry for which it is possible.

After making recommendations regarding industrial coal allocations, the sub-committee discuss the consumption of electricity and the peak load problem. They state:

No more than 600 MW of new generating capacity are expected to come into

commission during 1947. It has been estimated that the capacity of the power stations might be increased by some 300 or 400 MW if they get better grade fuel, but, even if that is supplied, it is clear that the supply of electricity will still be unable to meet the potential demand at all periods during the coming winter. The reduction of the peak load to meet these circumstances can only be achieved by some or all of the following means.

Much more effective organisation of shift systems and staggered hours in factories; clear Government directions and better incentives are needed in this respect.

Effective action to curtail the peak period consumption of electricity by domestic and commercial (i.e., shop and office) consumers, who are now responsible for about 40 per cent. of the load.

Some informal or voluntary rationing scheme for the sale of new electric fires; it is estimated that something like two million new electric fires have been sold to the public since the end of the war, and their sale still continues with the sole hindrance of a reimposed Purchase Tax of 50 per cent.

SPACE HEATING

Arrangements should be made without delay to provide more domestic consumers with means of heating their homes other than by electric fires during exceptionally cold spells. For example, the mass production and larger sale of some form of cheap and simple oil heater should be encouraged by better priorities. But a very large number of such heaters would be needed to make an effective contribution to the electricity peak load problems of a country where there are already about 10 000 000 domestic electric fires, of which some 3 000 000 may be in service simultaneously during a cold spell. If the use of these oil heaters were encouraged during cold spells to avoid the use of electricity, it would be an important contribution towards closing the gap between demand and generating capacity, while the additional consumption of kerosene would be comparatively small.

More effective publicity for fuel economy.

Further investigations should be made without delay into the possibility of increasing and improving the present scheme of coal/oil conversion. For instance, as

a short term project, the possibility of converting more of the boilers in our power stations to oil firing should be further investigated.

For several years to come, the demand for electricity in this country is likely to exceed the capacity of the power stations supplying that demand. Even if the coal problem is solved, the efficient working of our factories and heating of our homes will still be liable to suffer from inadequate supplies of electricity. The Government has given the highest priority possible for the supply of manpower and materials for the building of new power stations in this country, but there are other factors besides materials which delay building. So important to the maintenance of our standard of living is the increase of the electrical generating capacity of this country that the possibilities for delaying construction should be severely curtailed during the present emergency. It may be true that no station envisaged in the Central Electricity Board's programme up to 1950/1951 is being unduly held up, but the whole procedure from beginning to end seems cumbrous having regard to the existing emergency. The Committee appreciate that action in this matter could bring no relief during the next

winter, but they refer to the question in their interim report because they feel immediate action is called for.

The deterioration in coal quality during and since the war has seriously detracted from its efficient conversion into heat and power. The ash in coal supplied to-day is nearly 50 per cent. higher than the quantity considered excessive by the pioneers of coal cleaning 20 years ago. The ability of the electricity generating industry to operate with efficiency would be substantially increased if coal supplies were better prepared. But even if everything possible is now being done to utilise the existing washeries to the best advantage, a considerable saving of coal would still be effected by ensuring consistency in the supplies of generating stations.

The Committee recommend that immediate steps should be taken to test on a works scale the potentialities of the principal coal components, i.e., the use of coal dust in pulverised fuel furnaces, the use of the caking component in gas retorts and coke ovens, and the use of the non-caking component for boiler firing. Application of the results of research is a necessary preliminary to any plan for efficient coal preparation and cannot be undertaken too soon.

The Batti-Wallahs' Society

THE battle that raged recently over the proposal to erect a new power station at Bankside on the south bank of the Thames was mentioned by Mr. R. H. Matthews, architect to the London County Council, in the course of an address on "The London Plan," at the monthly luncheon of the Batti-Wallahs' Society at the Connaught Rooms, London, on Thursday, June 26.

As the result of the approval of the project, he said, Sir Giles Gilbert Scott would be given a magnificent opportunity for monumental architecture granted to few of his day and generation. That controversy had shown up very forcibly the urgent necessity for the consideration of proper sites for generating stations, and he was glad to say he had heard that the authorities concerned were already in consultation on the matter.

Mr. Matthew, who was introduced by the president, Col. H. J. Wellingham, outlined the proposals of the Greater London Plan, and the County of London Plan, and also referred to the Town and Country Planning Bill.

Mr. Forbes Jackson, in proposing a vote of thanks to the speaker, said he thought Mr. Matthew would agree that

the outcome of the Bankside controversy did not represent a defeat for the planners and a victory for the engineers, but that the planners and the engineers had become one in co-ordinating the requirements of all services. It seemed to him it was a victory for all the planners and a victory for London.

Mr. M. Whitgift, "mate" and hon. secretary, announced that the guest-speaker at the next luncheon on Thursday, July 31, will be Maj.-Gen. Sir E. Bertram Rowcroft, who will talk on the formation and development of R.E.M.E.

Model Engineer Exhibition

THE twenty-second "Model Engineer" Exhibition will open at the New Royal Horticultural Hall, Vincent Square, Westminster, S.W.1, on August 20, for ten days. It provides a special opportunity for engineering firms to bring the latest developments in scientific appliances and workshop equipment to the notice of model engineers and technical education authorities. A special feature this year will be an arena for working models.

Electricity In Northern Ireland

"Coal Clause" Introduced—Need for Poles

RISING coal costs in Northern Ireland have resulted in a "coal clause" being applied to domestic as well as commercial consumers. Explaining this, the annual statement of the Electricity Board for Northern Ireland for 1946 states that it was decided that the increased costs of generation could be most equitably passed to consumers in this way. The charge takes the form of an addition at the rate of 0.11d. to the appropriate unit charge in respect of every shilling by which the cost of coal at selected stations supplying the Board's main transmission system exceeds 25s. per ton. During the year ending December 31, 1946, the average price of coal was 49.7 shillings per ton, resulting in an average coal clause charge for the year of .272d. per unit. In 1932, when the basic tariffs were formulated, the average price was 15.6 shillings per ton.

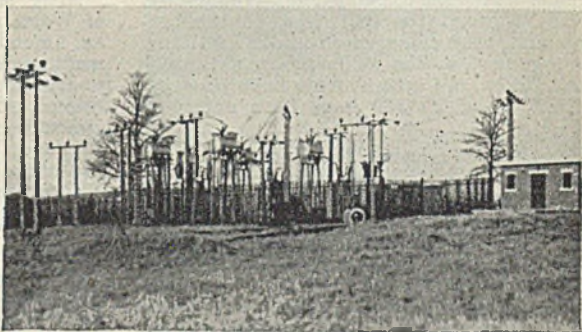
The Board's area of supply obtains energy from the Harbour power station of Belfast Corporation, the Ballylumford station owned by the Ministry of Commerce and operated by the Board, and the Londonderry Corporation station. At Ballylumford, a high pressure set was run on base load, and the total units generated at the station during the year were 206 807 000, the maximum load being 59 350 kW and the load factor (units generated) 39.8 per cent. The Board sold 111 135 000 units, an increase of 9.2 per cent. on 1945.

Final metering equipment for combined running of the major stations was installed and commissioned during the year. The 110 kV compressed-air operated automatic air-blast circuit breakers at Finaghy (referred to in THE ELECTRICIAN of June 7, 1946) gave satisfactory service, it is reported, as did also the Solkor protective gear, utilising a pilot cable embedded in the earth wire of the 110 kV tower circuits between the Finaghy and Rosebank and the Finaghy and Donegall substations.

Approximately 70 miles of e.h.t. lines were erected during 1946, including 17 miles of 33 kV line and seven miles of 11 kV line. At the end of the year, the e.h.t. lines comprising the Board's system were: 749 miles of 33 kV, 241½ miles of

11 kV and 47½ miles of 6.6 kV. The total length of l.t. lines and distributors was 594½ miles, and the total number of transformers in service, 873.

Supplies of materials, it is reported, fell



The Drummakelly 33kV sub-station near Portadown, supplied from the 110 kV system by a 15 000 kVA transformer

short of demand. At the end of the year, extensions and services outstanding for consumers who had signed applications for supply required 4 291 poles in excess of those available, and among those waiting were some whose applications dated back 18 months.

At the request of the Minister of Commerce, a special report was submitted by the Board to the Minister during the year, dealing with the present position and future prospects of farm and rural supplies.

Dealing with sales, the report states that the first full post-war year was one of steady progress, the anticipated decreases in industrial consumption being more than offset by increases in domestic use and by supplies to new industries. The demand for all classes of domestic appliances exceeded supply and there was a long list of applicants for hire and for sale of cookers, etc. During the year, 4 345 consumers were connected, the total at the year's end standing at 52 652.

The revenue account of the Board at the end of the year showed a credit balance of £148 253, out of a revenue income of £700 133. After adding interest on investments and bank deposits of £4 055, making £152 308, and deducting interest and sinking fund contribution of £151 538, a net surplus of £770 was left, to which was added a credit balance of £36 056 carried forward from 1945, making a total credit balance on net revenue account to be carried forward of £36 826.

The Electricity Bill

Third Reading Completed—Bill for House of Lords

ON Monday evening, the Electricity Bill was given its Third Reading in the House of Commons, after an Opposition rejection motion had been defeated by 321 votes to 173, and the Bill will now go before the House of Lords. The Report Stage had been concluded on Wednesday, June 25, and the first part of the proceedings were summarised in our last issue. Altogether, in the Bill's progress through the House, 854 amendments have been put down, of which 352 have been accepted.

The Report Stage continued with a number of routine Government amendments on the financial terms of the Bill, and during discussions, Mr. Gaitskell (Parliamentary Secretary, Ministry of Fuel and Power) gave an assurance that the accounts of areas boards should show the true state of affairs, and that there should be no hidden subsidies between one board and another. Another amendment, introduced by the Government, provided that different tariffs might be fixed for different area boards, and the Solicitor-General then agreed to the insertion in the Bill of a section ensuring that, in the provision of supplies, the boards should not "exercise any undue discrimination against any person or class of persons."

The effect of an amendment moved by Mr. Shinwell is that the accounts of the area boards shall give separate information as to generation, distribution, and "each of the main other activities of the board concerned." Its purpose, the Minister explained, was to prevent area boards which manufactured plant or fittings from competing unfairly with private manufacturers engaged in the production of these articles. Later, Mr. Shinwell said he accepted the principle of an Opposition amendment which would make the accounts of the Central Authority and the Area Boards available to the public at a reasonable charge.

RAILWAY SUPPLIES

Saying that it was not the Government's intention to subsidise nationalised railways by nationalised electricity boards, Mr. Shinwell agreed to have introduced an amendment to the general effect that transactions between the boards and railway undertakings should not, taking one year with another, result in a financial loss. Other matters concerned with railway supplies were considered, and the Government then rejected an amendment put forward by the Opposition, which, dealing

with negotiations between authorities and their staffs, would force the Central Authority to consult with "any organisation appearing to represent an appreciable number of persons employed by the Boards."

After some discussion on the position of Wales under the Bill, which arose from an amendment, rejected by the Government, seeking to place the whole of Wales under one area board, the Bill was re-committed in respect of a number of amendments put forward by Mr. Shinwell. These included the new clause to pay compensation up to £5 million to local authorities.

DISTRICT COMMITTEES

The debate on the Third Reading was opened by Mr. Gaitskell, who said that the area boards could not be elected bodies, and he thought it better that appointments to them should be made by the Minister, rather than by the Central Authority. The Government had now made it mandatory upon the consultative councils to appoint district committees, and had at the same time brought them into closer touch with the Minister by giving them a right of appeal against decisions by the area boards or the Central Authority.

The rejection was moved by Mr. R. S. Hudson, who claimed that the main defect of the Bill was its over-centralisation.

Continuing the debate, Sir Arnold Gridley protested against the unmerited aspersions which had been cast on directors of supply companies, and said there was no prospect of supply being made cheaper as a result of the Bill.

After many other speakers had taken part, the debate was wound up for the Opposition by Lieut.-Col. Elliott, who remarked, in the course of his speech, that about 75 local authorities and 30 companies handled 90 per cent. of the distribution of electricity, and he could not see the necessity for the extermination of this reasonable number of autonomous units.

Concluding the debate, Mr. Shinwell, amid interruptions, answered charges that the Bill provided for greater patronage, and said the primary object of the Bill was to promote expansion. The Central Electricity Board had been set up by a Conservative Government to nationalise generation. This Government were merely extending that principle.

Industrial Information

I.E.E. Southern Centre

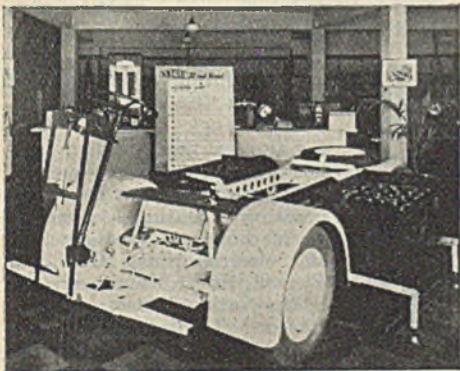
The summer meeting of the I.E.E. Southern Centre will take place at Salisbury, on Saturday, July 12. The programme includes an inspection of the equipment and control room at the C.E.B. sub-station at Quidhampton, Wilton Road, Salisbury, in the morning; a visit to Stonehenge in the afternoon and to Salisbury Cathedral after tea.

Electronics Exhibition

The second annual Electronics Exhibition, sponsored by the North-western branch of the Institution of Electronics, will be held in the great hall of the Manchester College on July 22 and 23, from 2.30 to 9 p.m. and 10 a.m. to 9 p.m., respectively. Admission will be by ticket obtainable from Mr. A. Coates, 16, Didsbury Park, Manchester, 20.

Exhibition of Electric Vehicles

Brush Coachworks, Ltd., are intensifying their production and sales efforts in respect of the various types of battery electric vehicles which they make. Beginning in Manchester last month, a series of exhibitions of "Brush-Bred" vehicles in distributors' showrooms in provincial centres will continue until the autumn. The following vehicles are being displayed: Battery electric four-wheeled vans, closed and open; a three-wheeled "pony" truck, closed and open; a three-wheeled 2-ton industrial truck with elevating platform; motor control gear, rear axle and differen-



Chassis of a 20-cwt. van in a display of "Brush-Bred" battery electric vehicles at Cardiff

tial unit showing working parts; the chassis of an industrial truck and the chassis of an 18/22 cwt. van. The vans are built in three sizes, namely: 10/14

cwt., 18/22 cwt., and 25/30 cwt. These vehicles can be seen at Cardiff, Epsom,



The new Secunderabad premises of the G.E.C. (India), Ltd. There is a showroom on the ground floor, and stores accommodation totals 1 000 sq.ft.

Lincoln and Maidenhead during July and August, and at Nottingham during September.

Northern "Design Week"

An open forum on "Design in the Home" will be held during Newcastle-on-Tyne's Design Week which runs from July 7-12. The first of a series to be held in the main industrial centres of the country, this Design Week has been planned by the Council of Industrial Design in co-operation with the F.B.I. and the Associations of Chambers of Commerce with the full support of the civic authorities. The programme includes conferences of industrialists and retailers, and there will be a number of exhibitions, including one by the British Electrical Development Association in the electricity showrooms. On Tuesday, July 8, at the day conference of industrialists at Connaught Hall, Col. B. H. Leeson, director of the British Electrical Manufacturers' Association, will be one of the speakers. For the open forum on "Design in the Home," organised by the women's organisations, in the City Hall, on Thursday, July 10, the panel of experts will include Miss Mary Gûbert of the E.D.A.

Signalling Lamp for Merchant Navy

Signalling lamps carried on British merchant ships will in future be electric daylight lamps, with not less than 60 000 candle power, giving a range of five miles

on a normal bright day in home waters. A sighting device is to be incorporated so that the beam can be directed on to the receiving station. These lamps will be similar to that developed by the Royal Navy and used extensively during the last war by the Merchant Navy. Manufacturers will be required to meet the conditions of the specification which has been approved by the Minister of Transport, and also to submit specimen lamps to the N.P.L. for testing.

Five-Day Week

On and from Monday, June 30, the staff at Century House, Shaftesbury Avenue, London, headquarters of Philips Lamps, Ltd., will operate a five-day week. Office hours, Monday to Friday, have been extended by 15 minutes a day—from 9.0 a.m. to 5.45 p.m. A five-day week in the stores and service departments and garage at Waddon, Surrey, became effective on Monday, June 16. Working hours are: Offices: Monday-Thursday, 8.45 a.m. to 5.30 p.m.; Friday, 8.45 a.m. to 5.0 p.m. Service department, garage and stores: Monday, 8.00 a.m. to 5.45 p.m.; Tuesday-Friday, 8.00 a.m. to 5.30 p.m.

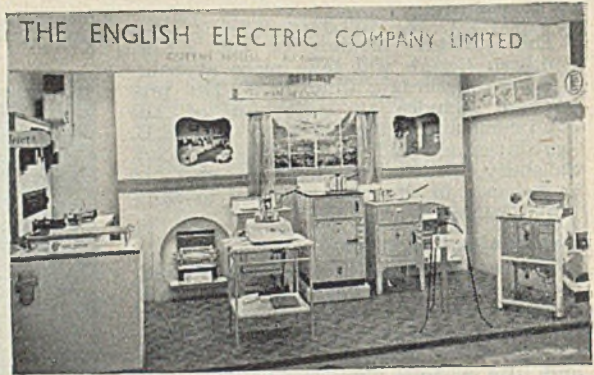
Change of Address

From July 1, the address of the London Office of Brookhirst Switchgear, Ltd., will be 54, Victoria Street, London, S.W.1. (Telephone: Victoria 7014.)

Torch Batteries

The Board of Trade have made an Order providing increased maximum prices

and is known as the Electric Torch Dry Batteries (Maximum Price) Order.



The English Electric Co.'s stand at the I.M.E.A. Exhibition at Bournemouth last week

Transmitters for Sweden

The Royal Swedish Telegraph Administration has placed an order worth more than £110 000 with Marconi's Wireless Telegraph Co., Ltd., for two 100 kW short-wave broadcasting transmitters for the Swedish broadcasting station at Hörby.

Hire-Purchase Agreement

E. K. Cole, Ltd., announce the conclusion of an agreement with Messrs. Bowmaker to provide hire-purchase facilities for all Ekco registered dealers, covering domestic receivers.

Notes for Contractors

Conveying to members information issued by the Commissioners of Customs and Excise with reference to the exemption from purchase tax of electric cooking stoves, boiling rings (not adaptable for use as fires), grillers and hot plates, electric kettles, and other cooking utensils incorporating heating elements, wash boilers, wash-coppers, and electric irons, Mr. L. C. Penwill, director and secretary of the National Electrical Contractors' Trading Association, Ltd., points out that the charge is retrospective to April 18, and repayment of tax should be claimed by the purchaser from the seller and not from the Customs and Excise Department. Members are requested to return cartons and other packages to manufacturers for re-use.



The stand of the Metropolitan-Vickers Electrical Co., Ltd., at the I.M.E.A. Exhibition

for certain types of electric torch dry batteries. It came into force on June 30,

Uganda's Power Resources

REPORT OF SURVEY BY MR. C. R. WESTLAKE, M.I.E.E.

IN November, 1946, Mr. C. R. Westlake, general manager and engineer of the



MR. C. R. WESTLAKE

Finchley electricity department, was invited by the Government of the Uganda Protectorate to undertake a survey of possible electrical development in that part of Uganda which could reasonably be supplied from a major hydro-electric power station situated at Owen Falls, and his report on this survey was released for publication this week.

It was announced at the same time that the Government of Uganda has, with the approval of the Secretary of State for the Colonies, decided to seek the sanction of the Uganda Legislative Council for the adoption of the recommendations contained in Mr. Westlake's report, which include, *inter alia*, the major hydro-electric development of Owen Falls and acquisition by the Government of the East African Power and Lighting Co.'s assets in Uganda.

This decision to seek authority to acquire the company's assets in Uganda has been taken on the grounds that capital expenditure involved by the Owen Falls hydro-electric scheme and the poor financial returns which must be expected for some years, are such that only a Government-sponsored body could successfully and economically undertake development of this magnitude. It is proposed, if this course is agreeable to the company, to negotiate a settlement with the company's representative and, failing a satisfactory settlement, to refer the basis of compensation for assessment by an independent arbitrator sitting in London. In this connection, it should be noted that figures of compensation in the report are for the purposes of calculation only. It is the intention that these proposals shall be debated by the Uganda Legislative Council towards the end of July.

In his report Mr. Westlake states that the public supply of electricity in the Protectorate of Uganda is confined to the three towns of Kampala, Entebbe, and Jinja. Outside these centres there exists a considerable demand for power that at present is being met by private plants. It

is possible to connect a considerable proportion of this demand to the transmission system outlined in the report. This system would enable supplies to be given to the large additional demands under consideration.

It is recommended that a hydro-electric power station be constructed at the Owen Falls to supply the transmission system. At the completion of the first stage of development, the station would have an installed plant capacity of 45 000 kW. The ultimate installed capacity would be 90 000 kW with an effective output of 75 000 kW. The construction of a hydro-electric station with its associated dam would enable the level of Lake Victoria to be controlled.

As an interim measure and pending the commissioning of the hydro-electric station it is recommended that two temporary thermal power stations be constructed, one at Kampala and one at Jinja. Each power station would have an installed capacity of 4 000 kW and they would be connected by a 33 000 V double-circuit line. The total capital expenditure for the first stage is estimated at £1 803 700. This covers the provision of the hydro-electric station, the two temporary thermal stations, the transmission, and distribution scheme, associated works, and the acquisition of existing undertakings.

It is recommended that the future control of the generation, transmission, and distribution of electricity supplies should be entrusted to a public corporation set up for the purpose. The corporation would have the benefit of Government financial guarantee and would be empowered to acquire the existing electricity undertakings.

The Foreign Office (German Section) announce that the first export trade fair for the display of goods produced in the joint U.S./U.K. zones of occupation in Germany will be staged in the Vereinigte Leichtmetall Werke factory at Lantzen, Hanover, from August 18 to September 7. The products displayed are expected to be immediately available for export or within a reasonable time. These will include: electrical machinery, equipment and domestic appliances. Firms wishing to visit the fair should apply in writing to the Board of Trade, German Division, I.C. House, Millbank, S.W.1, giving details of products in which they are interested. Applications should be sent not later than July 5.

Electricity Supply

Newport.—Construction of the first two sections of the new station near the mouth of the River Usk will cost £11 811 000.

Scotland.—The North of Scotland Hydro-Electric Board have announced new schemes for distribution in the Ullapool district of Ross-shire and the islands of Lewis, Islay and Shetland. The Electricity Commissioners are to give financial sanction for partial developments in the first place. This will permit the Board to proceed with a first stage of each scheme. In Lewis the first instalment covers the Eye Peninsula and North Tolsta, and in Shetland it is proposed as a first step to extend the Board's distribution line across the mainland from Lerwick to Scalloway. Diesel-electric sets will provide the supply at Ullapool and Islay.

Hammersmith.—Sanction has been received from the Electricity Commissioners to borrow £55 550 for distribution works and mains extensions, etc., and application is to be made for a further £200 for the erection of a sub-station in Sawley Road. Among tenders accepted are: Brush Electrical Engineering Co., Ltd., for 500 kVA and 1 000 kVA transformers, at £714 10s. and £1 194, respectively; J. G. Statter and Co., Ltd., for e.h.t. switchgear, at £3 656 10s.; and Ferguson, Pailin, Ltd., for extensions to switchgear at the Olympia sub-station, at £2 163. After successful trials with one unit at Hammersmith Broadway, four electrical air-conditioning units are to be installed in underground conveniences in the borough.

London.—The L. and H.C. J.E.A. reports that consents have been issued by the Electricity Commissioners for extensions at the Fulham Borough Council power station and at Littlebrook. At Fulham an existing 10 000 kW set is to be replaced by a 60 000 kW turbo-alternator, and at Littlebrook the Kent Electric Power Co. are to instal two 60 000 kW sets, four 360 000 lb. per hour boilers and the necessary buildings and civil engineering works. Consent has also been issued to the extension by the Croydon Borough Council of the site of its generating station off Purley Way, by the addition of a 3.32 acres plot of land. The Metropolitan Electric Supply Co., Ltd., have applied for consent to the establishment of a 25 kV main transmission line between the Willesden power station (London Power Co., Ltd.) and a sub-station at Wembley, a 25 kV feeder cable from the Heston and

Isleworth station to a sub-station at Hayes and a 6.6 kV underground cable from the company's Slough sub-station to the supply area of the Windsor Electrical Installation Co., Ltd., at Windsor.

Leeds.—The report and accounts of the electricity department for the year ending March 31, 1947, show that a record number of units were generated at both stations of the undertaking. At Whitehall Road, where in the previous year 35 million units were generated, the output for 1946-47 reached 53 million units; similarly, at the main station at Kirkstall, output rose from 590 million units to 636 million. The City Electrical Engineer (Mr. F. Nicholls) states that with the exception of units sold for private lighting purposes registered by prepayment meters, all classes of supply showed an increased consumption, particularly units sold for residential purposes, which increased from 108 million units to 140 million, against a 1939 consumption of 57 million. The m.d. on the undertaking during the year (January 27) was 167 650 kW, and the coal used was 1.482 lbs. per unit generated, the 140 MW station at Kirkstall registering 1.388 lbs. per unit. The total number of units generated by the undertaking was 688 654 300, of which 48 345 048 were lost in transmission and 403 345 048 sold to consumers in Leeds. Extensions were carried out at Kirkstall, and a new 30 MW set (No. 6) started preliminary running at the end of March, 1947, by means of temporary connections to existing 470 p.s.i. steam plant. One cooling tower was completed last summer, while a further tower and the building and roof fabric of a new boiler house are nearing completion. The 1947 extensions to Kirkstall include a further turbo-alternator (No. 7), expected to be in commission during the winter peak demand, and a high pressure boiler plant for both Nos. 6 and 7 sets, which is expected to be ready by the autumn. Site preparation at Skelton Grange is now in progress, and the first 60 MW Parsons set is due for commissioning by the autumn of 1949. A further 60 MW set will complete the initial installation, and directions have already been issued by the C.E.B. for a third set which, when completed, will give the station half its ultimate capacity of 360 MW. The accounts show an excess of income over expenditure of £42 586, compared with a deficit of £29 986 at the end of the previous year's working.

Company News

KEITH BLACKMAN, LTD.—Blee-sheet at March 31 shows stock, stores and work £356 432 (£320 668), sundry debtors £206 646 (£228 402), cash £88 851 (£86 273), creditors £198 355 (£192 866). Trdg. prft. for yr. £99 418 (£112 294).

BABCOCK AND WILCOX, LTD.—In his annual statement, the Chairman (Lieut.-Col. Sir John Greenly) referred to the Government's decision to standardise power-raising plant. Standardisation of steam-generating plant, he said, was no easy task, even when supplies of good coal were obtainable. If, however, regular supplies of graded fuel of known calorific value were available, and purchasers would be content during the next few years to accept types of steam-raising equipment of proved efficiency and design, much could be done to increase production. Utility, efficiency and economy should be the paramount consideration in design, but this did not mean that research and development should not be continued. Indeed, it was of all the more importance that research should be pushed forward in anticipation of more normal times in the future.

EDMUNDSONS ELECTRICITY CORP., LTD.—Addressing shareholders at the annual general meeting yesterday, the Chairman (Lord Royden) said that in the fiftieth year of the company it had six main subsidiaries and owned 12 other companies, covering a total area of more than 15 000 square miles. A great measure of uniformity of tariffs had been brought about in this area, which represented nearly a quarter of England and Wales. Speaking of the increase in the capital costs of erecting and equipping a power station to-day, compared with nine years ago, he said that the cost of a 120 000 kW station in 1938 was much less than half its counterpart to-day. He did not think people understood the nature and extent of the material shortages which were crippling the industry at present. The companies were now unable to connect more than 200 000 new consumers each year, compared with a pre-war rate of 800 000, and the wooden pole shortage was particularly acute. The new organisation proposed by the Electricity Bill, Lord Royden said, would have to operate under these conditions of country-wide and, incidentally, world-wide shortages. If on those grounds the industry was hard pressed to-day, the proposed electricity boards would be just as hard pressed. The large measure of dislocation which would inevitably follow nationalisation—it would mean a minimum of two years' delay for new electrification plans—was an additional menace to the service which

consumers received to-day. After dealing with the accounts of the company, and calling attention to what he described as the entirely inadequate basis for compensation proposed by the Bill, Lord Royden ended with a tribute to the managing director, Brig.-Gen. Wade H. Hayes, for his "outstanding leadership" in building up the company.

Company Meetings

Cable and Wireless (Holding) Wider Spread of Investments

The eighteenth ordinary general meeting of Cable and Wireless (Holding), Limited, was held on June 25 in London.

Sir Edward Wilshaw, K.C.M.G. (the Governor) said that this was the first occasion upon which he addressed the stockholders since the Government's expressed intention to nationalise Cable and Wireless, Limited (the Operating Company), was implemented on January 1 last. The shares owned by their company in Cable and Wireless, Limited, had now become the property of H.M. Government, and the control of the cable and wireless telecommunications system had passed from their hands. The other matter of outstanding interest during the year was the sale of their shareholding in Marconi's Wireless Telegraph Co., Ltd., to the English Electric Co., Ltd.

Turning to the consolidated balance sheet, they would see that the securities held at December 31, 1946, had a book value of £9 974 125 and a market value at that time of £11 274 700, an appreciation of about 13 per cent. The comparable figure at the end of 1945, eliminating the securities held by the Operating Company, was about 4½ per cent. The profits realised during the year amounted to £322 458, compared with £208 280, an increase of £114 178.

Successful Policy

After a careful consideration of the position, the policy of the directors had been to spread the companies' investments over a still wider field, and in making each choice to endeavour to hold a reasonable balance between caution and enterprise. The results shown were very satisfactory, but it would be generally agreed, he felt sure, that with the present uncertainties prevailing and all the hindrances to productive work and enterprise it was difficult to be confident about the economic outlook.

It was not possible to make any statement regarding the effect of the acquisition by the Government of the shares in the Operating Company upon the Holding Company's affairs. Attempts to reach agreement with H.M. Treasury had been unsatisfactory, and the matter would therefore be referred to an Arbitration Tribunal.

In reply to a question as to what the board proposed to do when they received from the Government the stock to be paid for the stock of the Operating Company, he said it would appear to him that at some stage a scheme of arrangement would have to be made between the preference and the ordinary stockholders for a readjustment of the present position. It would be impossible to do that before they knew the amount and the terms and conditions of the stock to be issued by the Government. Stockholders would be consulted before any decisive step was taken.

The report was adopted.

Commercial Information

Mortgages and Charges

NOTE.—The Companies Act of 1908 provides that every mortgage or charge shall be registered within 21 days after its creation, and that every company shall, in its annual summary, specify the total amount of debt due from it in respect of mortgages or charges. The following mortgages and charges have been registered. The total debt prior to the present creation, as shown in the annual summary, is given—marked with an *—followed by the date of the summary, but such total may have been reduced.

ROMER'S ELECTRONICS, LTD., Rishton.—May 23, charge, to Bingley Building Society, securing £800 and further advances; charged on 92, High Street and 2 and 4, Cliff Street, Rishton.

ELECTRICAL AND RADIOLOGICAL INSTRUMENT CO., LTD., London, W.—May 23, £2 000 debentures, part of a series already registered. *£500. November 14, 1945.

J. AND D. ELLISON, LTD., Barnoldswick, electrical engineers.—May 27, mortgage, to Midland Bank, Ltd., securing all moneys due or to become due to the Bank; charged on 33, Albert Road, Barnoldswick, and fixtures.

HANTS RELAY, LTD., London, E.C.—May 23, £5 400 debentures, part of a series already registered. *£23 600. April 9, 1947.

TRUVON ENGINEERING CO., LTD., Wembley.—May 12, £6,500 mortgage, to Abbey National Building Society; charged on properties. *Nil. January 13, 1947.

MULTITONE ELECTRIC CO., LTD., London, E.C.—May 14, £20 000 debenture, to Abchurch Nominees, Ltd.; general charge. *£35 000. January 14, 1947.

INSULATION EQUIPMENTS, LTD., Oswestry, May 16, first debenture, to Industrial and Commercial Finance Corporation, Ltd., securing £15 000 and premium of £2 per cent., or £1 per cent. in certain events; charged on land and factory, etc., thereon, Salop Road, Oswestry, with fixed plant, machinery, fixtures, and fittings (but not including the movable chattels). *£4 000. January 3, 1947.

RICHARD CRITTALL PROPERTIES, LTD., London, W.—May 13, mortgage, to Halifax Building Society, securing £25 875 and further advances; charged on properties.

County Court Judgments

NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not 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.

COVILL, G. (male), 47, York Street, Cambridge, electrician; £44 15s. 2d. April 23.

REID, WM. GEO., 11, Flore Cottages and 86, Embankment Road, Plymouth, wire-les engineer; £107 5s. 3d. March 24.

ROBINSON, s. (male), 1, Edward Place, Shurdington Road, Cheltenham (trading as Fairview Electrical), electrical dealer; £36 8s. 11d. April 22.

MCLEOD, GEO. HX., 7, Maitland Road, Beckenham, radio engineer; £21 13s. 3d. April 23.

OGDENBOND SOUND EQUIPMENT CO. (a firm), 43, Windsor Road, Manchester, 19; £29 5s. 11d. April 21.

PARADE RADIO AND ELECTRICAL SERVICES CO. (a firm), 505, Kingsbury Road, N.W.9; £38 3s. April 24.

TONS ELECTRICIAN AND EQUIPMENT CO., LTD., 106-108, Denmark Hill, Camberwell; £11 2s. 10d. April 30.

Receiving Order

LACKIE, William Leckie, residing and carrying on business at 38, High Street, Pwllheli, Caernarvon, radio dealer. Court, Portmadoc and Blaenau Festiniog. Date of Filing Petition, June 12, 1947. Date of Receiving Order, June 12, 1947. Debtor's Petition.

Winding-up Order

ATTRACTA ELECTRICAL AND ENGINEERING CO., LTD.—Address of Registered Office, 58-58A, Guilford Street, Russell Square, W.C.1. Court, High Court of Justice. Date of Order, June 16, 1947. Date of Presentation of Petition, May 29, 1947.

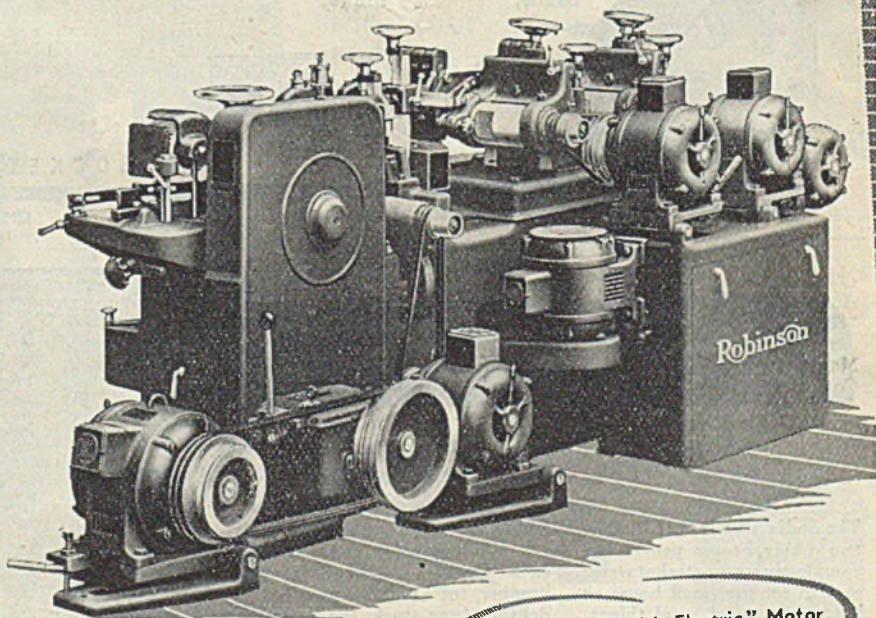
Metal Prices

	Monday, Price	Inc.	June 30 Dec.
Copper—			
Best Selected (nom.)...per ton	£135 10 0	—	—
Electro Wire bars ... "	£137 0 0	—	—
H.C. Wires, basals ... "	£155 0 0	—	—
Sheet "	£178 10 0	—	—
Bronze Electrical quality			
1% Tin—			
Wire (Telephone) basals per ton	£177 15 0	—	—
Brass (60/40)—			
Rod basals per lb.	1s. 2½d.	—	—
Wire "	1s. 6½d.	—	—
Iron and Steel—			
Pig Iron (E. Coast Hematite No. 1) ...per ton	£8 19 0	—	—
Galvanised Steel Wire (Cable Armouring) basals 0.104 in. "	£34 5 0	—	—
Mild Steel Tape (Cable Armouring) basals 0.04 in.) "	£21 15 0	—	—
Lead Pig—			
English "	£91 10 0	—	—
Foreign and Colonial... "	£90 0 0	—	—
Tin—			
Ingot (minimum of 99.9% purity) "	£412 10 0	—	—
Wire, basals per lb.	5s. 6¾d.	—	—
Aluminium Ingots ...per ton	£80 0 0	—	—
Spelter "	£70 0 0	—	—
Mercury (spot) per bott.	£17 3 6	—	—

Prices of galvanised steel wire and steel tape supplied by C.M.A.C. Other metal prices supplied by B.L. Callender's Cables, Ltd. The latter prices are nominal only, and do not include any allowances for tariff charges.

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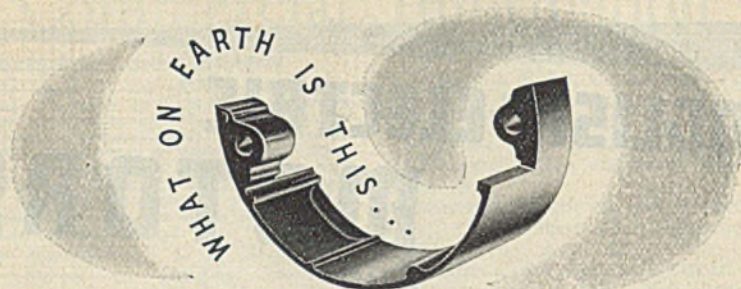


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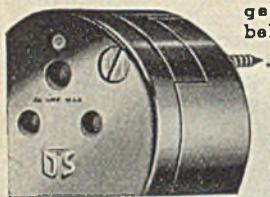
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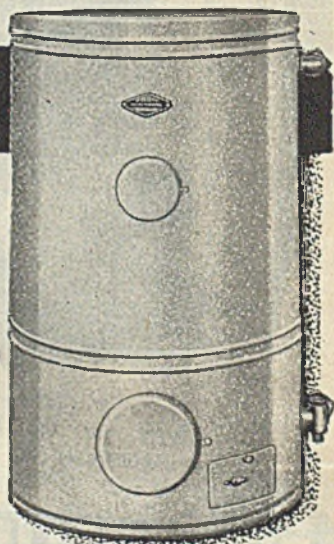
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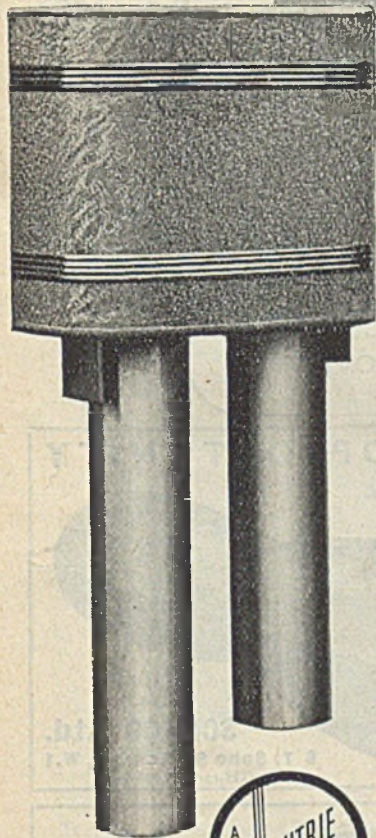
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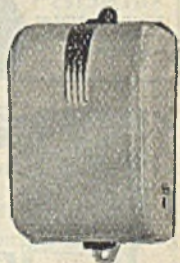
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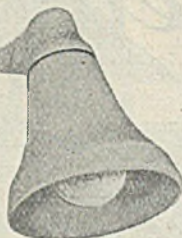
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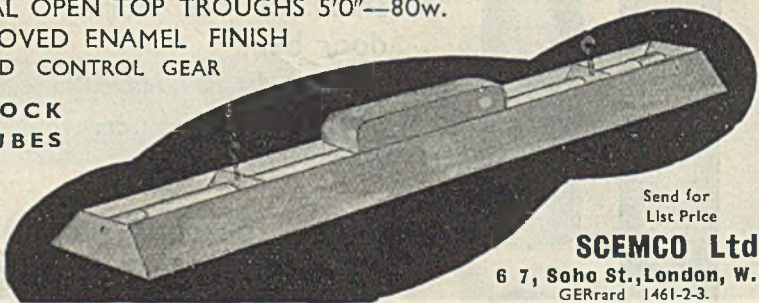
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- 4 Square and Rectangular Section Springs
- 5 Volute Springs
- 6 Conical Springs
- 7 Valve Springs
- 8 Surging of Valve Springs
- 9 Natural Frequency
- 10 Natural Frequency of a Single Mass System
- 11 Springs with Material Subject to Bending Stresses. (Helical and Spiral Torsion Springs)
- 12 Power of Clock Type Springs
- 13 Flat Springs
- 14 Multiple Leaf Springs or Laminated Springs
- 15 Belleville Washers
- 16 Circlips or Retaining Rings
- 17 Combined Axial and Horizontal Loading on Compression Springs
- 18 Spring Driving Belts
Tables
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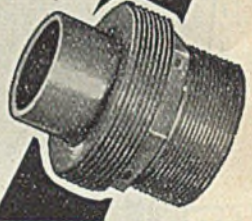



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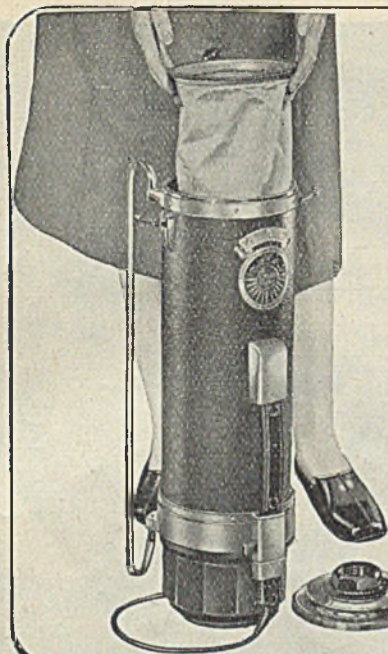

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my supplier?

WELL, I've been twenty years in the trade and I know the leading makers and wholesalers fairly well. They give a reasonably good service to people like me—they wouldn't remain very long in business if they didn't!

The first thing I want is QUICK DELIVERY—or as quick as it can be in these topsy-turvy days. Of course, I've got W.B.A.'s—loads of 'em, but the important thing is to place those W.B.A.'s where one can get *all* the material—conduit, cable, accessories and switchgear—and not just bits here and there.

The next thing then is to deal with reliable people, not just those who have come into the trade while the going is good, but the people who were in at the beginning and have stayed with the leaders ever since.

It's not often I want technical advice—I aim to give it, not take it—but when I do, I want that advice to come from someone with real knowledge and experience and not have it mixed up with a lot of sales talk.

What does all this add up to? Simply that, in my opinion,

. . . *it's worth while to have an account at the Sun!*

The SUN ELECTRICAL CO., LTD.,
118-124, Charing Cross Road, London, W.C.2.

Telephone: TEMple Bar 3500 (18 lines).

*Grams: SUNELEC, WESTCENT, LONDON.

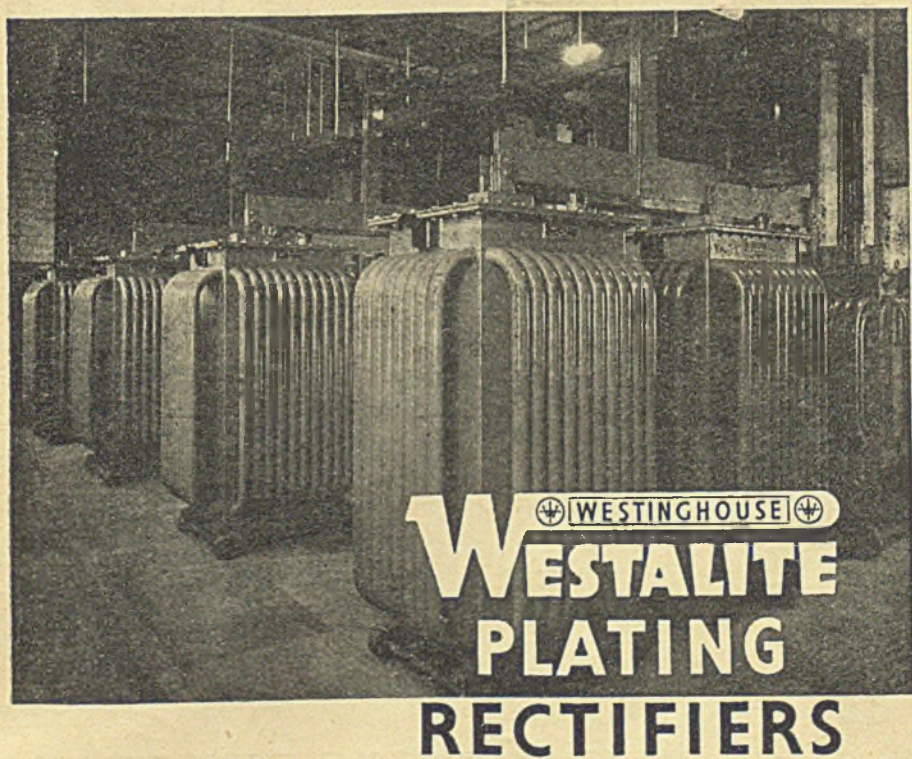
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LEEDS, SLOUGH, AND
NEWCASTLE-ON-TYNE.



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P O W E R

for electro-deposition
power supplies, including
nickel, chrome, copper, tin and precious
metals. Also for cleaning, etching
barrelling, anodising, electrolytic
polishing and refining, etc.



Write for Data Sheet No. 44, to Dept. E,
Westinghouse Brake & Signal Co., Ltd., 82, York Way, London, N.1.

The

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CENTRALISED
CONTROL SYSTEM



SHOP
WINDOW
LIGHTING

WATER
HEATERS
*(off peak
period)*

STREET
LIGHTING

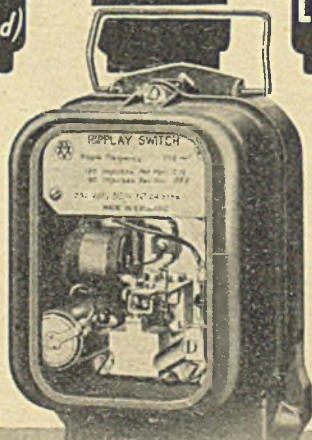
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Immunity from interference due to spillover signals from adjacent and interconnected networks.

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This method of selective remote control employs an M-V Ripplay injection equipment by which high-frequency ripple currents are injected into the e.h.v. system. These injections actuate suitably tuned M-V Ripplay Switches at any desired number of points on the associated l.v. supply system.



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