

indexed diary forms a pleasing addition to this blotting pad, which has now become an established adjunct to the office furniture of an electrical engineer.

Salt Chemicals Syndicate, Limited.—This Company has been registered with a capital of £5,000 in £1 shares. Its objects are to acquire any patents, inventions, etc., relating to improved methods of producing caustic soda by electrolysis, or other kindred methods, and to develop and work the same. The first directors are to be elected by the signatories, and no qualification or remuneration is specified.

Aberdeen.—It has been reported at a meeting of the Gas and Electric Lighting Committee that the Secretary of State for Scotland had sanctioned further borrowing powers in respect of the electric lighting undertaking in the city. The committee have resolved to fit up shafting in the Corporation gas-stove depot in Union-buildings, and to invite makers to send various kinds of electric motors for exhibition.

Chelmsford.—The committee of the Arc Works Relief Fund having met, Mr. H. C. Hawkins, who attended on behalf of Messrs. Crompton and Co., stated that practically all the men were at work again. It is probable that no further relief will be needed, but it was decided to hold over the £100 subscribed by Messrs. Crompton and Co., and four other sums, and the meeting was adjourned for a fortnight.

Madiera Electric Lighting Company, Limited.—This Company has been registered by Mr. R. J. Twyford, 44, Finsbury-pavement, E.C., with a capital of £20,000 in £1 shares. Its object is to enter into a certain agreement with Messrs. Ullathorne and Hartley for the acquisition of a concession to supply the city of Funchal with electricity for light, power, or other purposes. The directors are to be elected by the signatories.

Houghton Main Colliery (Yorks).—The electric lighting plant which has just been installed for the management by Messrs. Crompton and Co. consists of six large arc lamps, four of which are 15-ampere, 3,000 c.p. two 10-ampere, 2,000 c.p. and 200 incandescents, with a dynamo giving an output of 240 amperes at 110 volts. The dynamo is driven by an engine of the ordinary horizontal type, giving about 40 h.p.

J. C. Howell, Limited.—This Company was registered December 20 by Messrs. Deacon and Co., 9 Great St. Helens, E.C., with a capital of £10,000 in £1 shares. The Company is to acquire all the property of the firm of J. C. Howell, and intends to carry on business as producers of and suppliers of electricity for the purposes of light, heat, power, etc. Mr. John C. Howell is to be sole managing director, his remuneration as such being £800 per annum.

Lockwood's Builders' Price-Book.—We have received from Messrs. Crosby Lockwood and Son, 7, Stationers' Hall-court, E.C., a copy of this book for 1896. About 30 pages are devoted to electric lighting prices, and the general conditions of supply of the City of London Electric Lighting Company are given as illustrating what the architect and builder have to provide for. In addition to this, the Phoenix Office Rules are added in full in an appendix.

Seamless Copper Steam-Pipes.—We are informed that the Marine Department of the Board of Trade have completed an exhaustive series of tests upon electrolytically formed seamless copper steam-pipes made by Elmore's Patent Copper Depositing Company, Limited, Leeds, and as a result the Board's inspectors have been instructed to pass this company's steam-pipes for use in passenger and other steamships built under Board of Trade survey.

Scotland and Electricity.—It has been noted that, while in England parliamentary powers are to be sought during 1896 by quite a number of municipalities and companies for the construction of electric tramways, from Scotland no such applications are announced. A similar large number of notices of applications for parliamentary powers for the supply of electric lighting have been lodged by English towns, while not a single application has been made from any town in Scotland.

Fareham.—The poll of the parish on the question of purchasing the undertaking of the Fareham Electric Lighting Company or the paying of the damages (£3,800) awarded in the recent lawsuit for nonfulfilment of contract has taken place. Contrary to expectation, the poll was not a heavy one, more than one-half of the electors not voting. The result was: for the purchase of the works, 431; payment of damages, 235—majority, 196. There were 16 spoilt or unmarked papers.

Dublin.—The burgesses' meeting to consider the Corporation Improvement Bill is fixed for February 5. At this meeting the burgesses will also be asked to pronounce upon the schemes embodied in the Rathmines, Dundrum and Blackrock District Tramways Company's Bill; the Dublin United Tramways Company's Bill; and the Dublin Southern District Tramways Company's Bill. The executive of the Dublin Trades Council have issued a circular recommending that the scheme of the Southern District Company should be supported.

Wimbledon.—The Urban District Council have received a letter from the Local Government Board, stating, with reference to the Council's application to borrow £32,000 for the purposes of electric lighting, that in view of the early expiration of the electric lighting license of 1889, the Board would not be in a position to sanction the loan for any period longer than the unexpired term of that license. The chairman and clerk were appointed to wait upon the secretary of the Local Government Board. Wimbledon, with a population of 34,000, is at present lighted by means of paraffin lamps.

Kamm's Zerograph Syndicate, Limited.—This Company has been registered by Messrs. Osborn and Osborn, Exchange-chambers, Copthall avenue, E.C., with a capital of £12,000 in £10 shares. Its object is to enter into an agreement with L. Kamm, and to carry on business as manufacturers of and dealers in telegraphic apparatus, or any other apparatus to be used for the transmission of messages. The directors are S. Reuschel and L. Kamm. The qualification is £100. Remuneration, £100, divisible; and the registered office 133 and 135, Old-street, E.C.

Tunbridge Wells.—The Lighting Committee have resolved that the thanks of the committee be given to the electrical engineer for the manner in which he carried out the arrangements in connection with the recent electrical exhibition, and that he be given a gratuity of £10 10s from the exhibition fund for his services. It was also resolved that gratuities be given to the subordinate staff. On the discussion of the report of the Lighting Committee in the Town Council complaint was made of the neglect to light the side streets at night, and Mr. Boot, the electrical engineer, explained that new machinery would soon be ready at the central works to meet extensions and the promised full 24 hours' pressure.

Elmore's Wire Manufacturing Company, Limited.—At the annual meeting of this Company, held in Leeds, the chairman (Mr. J. J. Atkinson) explained a financial arrangement whereby the Company would start the new year unencumbered by any old losses. He said the Company's sales had steadily improved since the beginning of 1895, when the sales of copper sheets were only a few tons monthly. Now further progress was only stopped by shortness of capital. In a short time a scheme would be propounded for largely increasing the Company's resources to meet the demand for high-class and higher-priced products. It has been decided to issue £7,000 worth of 6 per cent. debentures, more than half of which have been already applied for.

Sheffield.—The condition of the tramways question is at present as follows: The statutory town's meeting has been held to approve the Corporation's Bills for the working of the tramways of the city. The present company—the Sheffield Tramways Company—are applying for a renewal of their lease, and a new company—the Sheffield and District Tramways Company—have given notice of their intention to apply for powers to acquire the present system and to make numerous new lines all over the city, the new system to be worked by electricity. The town's meeting approved the decision of the Council to promote their Bill, and also consented to opposition to the applications of the two companies. At an informal meeting which followed, the Council were requested to apply for a provisional order so that in case they obtain possession of the tramways they may proceed with extensions at once. The Rotherham Corporation have also decided to oppose the Sheffield and District Company's Bill.

Glasgow.—Satisfactory reports are to hand concerning the working of the electrical power distribution plant put down a few months ago at the ironfoundry of Messrs. R. Maclaren and Co. Here a gas-engine of 180 h.p., supplied from gas from a producer, drives a dynamo from which an electric current is distributed to motors in various parts of the works. These motors vary in power from 3 h.p. each to 25 h.p. each, and the coal consumption is stated to be about 1½ lb of anthracite coal per hour per actual horse-power delivered by the motors at the points required. Sheriff Guthrie has given judgment in an action by the National Telephone Company, Limited, against Hugh Wilkie, watchmaker, Glasgow, for recovery of a year's rent for an instrument supplied by them to Wilkie. From the evidence it appeared that Wilkie was somewhat deaf, but the Sheriff found that it was an implied condition of the contract that the telephone was to be made suitable to his special case, and that this was not done, despite repeated complaints. He therefore gave judgment for the defendant with costs.

Edinburgh.—At a meeting of a sub-committee of the Lord Provost's Committee of the Town Council, a letter of the manager of the National Telephone Company suggesting that the Corporation should lay down underground tubes for telephone wires at the expense of the company was considered, and the sub-committee resolved to recommend that the proposals made by the Telephone Company should not be entertained. The Electric Light Committee have resolved to recommend that the following streets should be lighted by electricity: (1) from the Literary Institute to Salisbury-place, eight lamps, at a cost of £144; (2) from Waterloo-place to Abbeyhill, 16 lamps, at a cost of £288; (3) from Lauriston to Tollcross, 14 lamps at a cost of £252; (4) Dalry-road from Haymarket to Ardmillan-terrace, 20 lamps, at a cost of £360; (5) Fountainbridge from Freer-street to Viewforth, eight lamps, at a cost of £144; (6) Greenside to Pilrig, 25 lamps, at a cost of £450; (7) Frederick-street to Comely Bank, 18 lamps, at a cost of £324; (8) Hanover-street to Canonmills, 20 lamps, at a cost of £360; (9) Cowgate from the Grassmarket to St. Mary-street, 14 lamps, at a cost of £306.

Direct Electro-Generator Syndicate, Limited.—This Company was registered December 20 by Ashurst, Morris, Crisp, and Co., 17, Throgmorton avenue, E.C., with a capital of £100,000, divided into 100,000 shares of £1 each. Its object is to adopt and carry into effect (with such modifications, if any, as may be agreed upon) an agreement expressed to be made between Charles P. Shrewsbury, John Cooper, Frank L. Marshall, and John L. Dobell of the one part and the Company of the other part, the said agreement being referred to in Clause 3 of the Company's articles of association, and generally to carry on in all or any of their respective branches the businesses of electricians, generators, and suppliers of electricity, mechanical engineers, and manufacturers of and dealers in all apparatus and things required for or capable

THE
ELECTRICAL ENGINEER.

No. 1, Vol. XVII. LONDON, JANUARY 3, 1896.

PRICE 3d.

NOTES.

Back to Electricity.—The Avenue de l'Opéra in Paris is to be again lighted by electricity instead of gas. In the early days of electric lighting the Jablochhoff candle was used for a time in the Avenue.

A New Year's Dinner.—On New Year's Eve a dinner was given by Mr. Robt. W. Paul, of 44, Hatton-garden, to all his employés. The dinner took place at the Holborn Restaurant, and a very pleasant evening was spent.

C.M.G.—In the list of the New Year honours occurs the name of Mr. Henry Charles Fischer, controller of the Central Telegraph Department of the General Post Office, who is made a Companion of the Order of St. Michael and St. George.

A New Use for Electric Tramways.—According to the *Street Railway Journal*, the Sioux City Electric Tramway Company have been running a car which carries no passengers, but is exclusively devoted to the display of advertisements.

The Electrical Standardising, Testing, and Training Institution.—Mr. James Swinburne will commence his usual course of lectures on "Dynamo and Transformer Construction" at this institution, Charing Cross-road, on Thursday, January 9.

Electricity in Dentistry.—Dr. M. G. Jenison, of Minneapolis, reports that electricity has been successfully employed by him in checking hemorrhage from the extraction of teeth. The current, he states, caused instant coagulation of the blood and gave relief where the usual remedies were without effect.

Electricity at Christmas.—It is noted that the Christmas tree at the University College Hospital, Gower-street, was this year illuminated by a number of little Edison-Swan lamps. There may not be quite so much sentiment about the electric light as with the time-honoured candle, but it is certainly much less dangerous.

Telegraphs in Turkey.—The authorities of Aleppo have petitioned the Central Government to lay a telegraphic line between Marash and Enderin. Several localities situated on the Turko-Persian frontier, in the district of Suleimanieh, are about to be connected by telegraph lines with each other and with the network of the empire.

High-Voltage Tramway Lines.—With the increase in the length of tramway systems in America comes the desire to raise the pressure above 500 volts. The *Street Railway Review*, in advocating this, says that, in view of past experience, it is not unreasonable to consider that 1,000 volts direct current might be used with safety on long trolley lines.

Aluminium.—It is stated that the Pittsburg Reduction Company are about to increase their producing capacity at Niagara Falls to a very important extent. A contract has just been concluded with the Cataract Construction Company whereby the Pittsburg Company's new plant, estab-

lished at the Falls last year, will be doubled in capacity, making it the largest aluminium works in the world.

The Nile as a Motive Power.—According to the *Politischen Maschinen Constructeur*, the problem of using the Nile as a source of energy is being seriously considered in Egypt. If a reservoir is constructed at Assouan a fall of 15 metres (49ft.) would be available, and another fall of 5 metres (16½ft.) could be utilised in the neighbourhood of Cairo. The proposal is to set up at these places electric power distributing plant which would serve a series of cotton mills.

Indian Government Telephones.—The *Indian and Eastern Engineer* says that a much improved system of telephone apparatus will shortly be introduced into some of the Indian Government offices. The apparatus is of the type first exhibited at the late Chicago Exhibition, which does away with the necessity of ringing the bell to signify one's intention of making a communication. In the new apparatus it is claimed that it is only necessary to speak and the communication will be heard for a good space around the instrument at the other end.

The Turin Exhibition of 1898.—From *L'Electricità* it appears that the committee entrusted with the organisation of the electrical section of the Turin Exhibition of 1898 has passed a resolution to the effect that as the electric industry in Italy has nothing to fear from comparison with foreign work, and, moreover, since being of scientific as well as manufacturing and mechanical interest, the province of an electrical exhibition is world-wide, the committee have determined that the electrical section of the exhibition should be open to all nations.

Telegraphs in Central Africa and China.—The telegraph line is now completed from Cape Town to Blantyre, and before Major Forbes leaves the Chartered Company's northern territory it will be laid to Tanganyika. Dr. Robert Laws has trained Atonga converts to become skilled signallers at Karonga, Koudowi, and Bandawe. On the Asiatic side, the direct route to China overland, through Mora and Burma, by Bhamo, is in working order, and it is reported from Calcutta that the traffic is steadily increasing, and that the route only needs to be tried more largely to lead the Chinamen signallers to do still better.

Trolley Patents in the States.—Judge Townsend, of the United States Circuit Court, has sustained the fundamental patent of Van Depoele on the trolley, and declared void a subsidiary patent applying to the rotating support on which the trolley arm swings. The decision will be appealed against, but the *Electric Railway Gazette* thinks that in the meantime its effect will be to direct greater attention to underground electric traction systems in the United States. If the decision is sustained, it practically gives the General Electric Company the right to manufacture and sell the under-running trolley as it is used on most American tramroads.

Genoa Tramways.—A paragraph has been going round the papers to the effect that the electric tramways in

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SUPPLEMENT TO "THE ELECTRICAL ENGINEER," JUNE 26, 1896.

THE
ELECTRICAL ENGINEER.

A WEEKLY JOURNAL OF ELECTRICAL ENGINEERING,

WITH WHICH IS INCORPORATED

"ELECTRIC LIGHT."

VOL. XVII. (NEW SERIES.)

FROM JANUARY 3, 1896, TO JUNE 26, 1896.



LONDON :

Printed and Published for the Proprietor by BIGGS & Co., at "THE ELECTRICAL ENGINEER" Offices, 139-140, Salisbury-court
Fleet-street, E.C.

1896.