SESSION 1910-1911

President : Sir David Gill, K.C.B.

Visit to the Central London Railway Power Station, Shepherd's Bush, W.

Saturday Afternoon, June 11, 1910.

On Saturday, June 11, the Junior Section of the Institute paid a visit to the Power Station of the Central London Railway, Shepherd's Bush, W.

The railway runs from Shepherd's Bush to the Bank, in deep tunnel all the way at depths varying from 60 to 90 feet, the two tunnels being side by side except at the General Post Office, where one is above the other. The total length is about 14 miles. Each tunnel is 11 ft. 6 in. in diameter and encased in an iron tube. A peculiar feature of the line is that each station is placed upon an eminence, so that the speed of the out-going train is accelerated and that of the incoming train retarded, the up gradient being 1·66 per cent. and the down gradient 3·2 per cent. By this arrangement the general average of speed is increased while the work on the motors is greatly reduced. The power is generated at the large station in Shepherd's Bush, and distributed through the tunnels to three converting and distributing stations.

The party first visited the carriage repair shop, where a lathe arranged for rapidly re-turning worn wheels aroused much interest, also the system of ventilating, by means of which warm air is circulated through the sheds in winter and cool air in summer.

The station itself is of considerable size. The engines are all of the horizontal type, some being fitted with Corliss gear and others with drop valves. There are six cross-compound

engines in all, each with cylinders 24 in. and 46 in. in diameter by 48 in. stroke, making 94 revolutions per minute. By means of an emergency governor, the steam is completely cut off if the speed exceeds 105 revolutions per minute. The normal indicated horse power is 1,300, increasing up to 1,900 on overload. Each engine is direct-coupled to an alternator of the revolving field type, the field magnets being mounted with the flywheel, a wheel of 18 ft. diameter and weighing 100,000 lb. The alternator fields are separately excited by means of small direct-current machines driven by a high speed vertical engine. The generators are of the three-phase alternating current type, and each has an output of 850 kilowatts at 5,000 volts and 25 periods per second. The commercial efficiency at full load is 95·5 per cent. and upwards of 96 per cent. on overloads.

Steam is supplied from a battery of sixteen Babcock & Wilcox boilers, fitted with water softeners, Green's economisers, feed water filters, and mechanical stokers, some of the latter being arranged for burning steam coal and others for burning slack. The mechanical stokers require very little attention and their adoption has made for economy. Barometric in addition to surface condensers are fitted, the barometric type being a recent addition to the power plant. Two large chimneys, 250 ft. high and 10 ft. diameter inside, supply the draught.

The visitors then inspected the elevated switchboard, fitted with the usual instruments, including some very ingenious switches and interlocking gear. From this board four mains carry the current, at a pressure of 5,000 volts, to the Notting Hill Gate, Marble Arch and Post Office sub-stations.

An inspection of the workshop brought to a conclusion a very enjoyable visit.

INSTITUTE OF MARINE ENGINEERS

INCORPORATED

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President: SIR DAVID GILL, K.C.B., F.R.S., etc

VOL. XXII.

VISIT TO THE NAVAL, MERCANTILE MARINE AND ENGINEERING EXHIBITION, OLYMPIA, W.,

On Saturday, September 17th, 1910.

PAPER OF TRANSACTIONS NO. CLXIX.

ELECTRO-MAGNETIC TRANSMISSION FOR MARINE PROPULSION

By MR. JULES LECOCHE (MEMBER).

PAPER OF TRANSACTIONS NO. CLXX.

THE TELEMOTOR

By MR. W. G. GIBBONS (MEMBER).

Read at the Naval, Mercantile Marine and Engineering Exhibition, Olympia,

On Saturday, September 17th, 1910.

CHAIRMAN: SIR DAVID GILL, K.C.B., F.R.S., etc. (PRESIDENT).

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INSTITUTE OF MARINE ENGINEERS
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