

THE ELECTRIFICATION OF THE METROPOLITAN RAILWAY.

No. 1.

OUR readers will remember the controversy which took place some three years ago on the question as to the method of electrification to be employed on the systems of the Metropolitan and District Railways.

The equipment of such a line as the Metropolitan Railway for electrical working is an undertaking of considerable magnitude. For one thing, it is a line which is largely used by the trains of other companies which have running powers over its network.

The fixing of the conductor rails is proceeding fast, and there are several things in connection with these rails which are worthy of attention. In the first place it will have been noticed that both lead and return rails are being laid. The advantages of this can be readily appreciated.

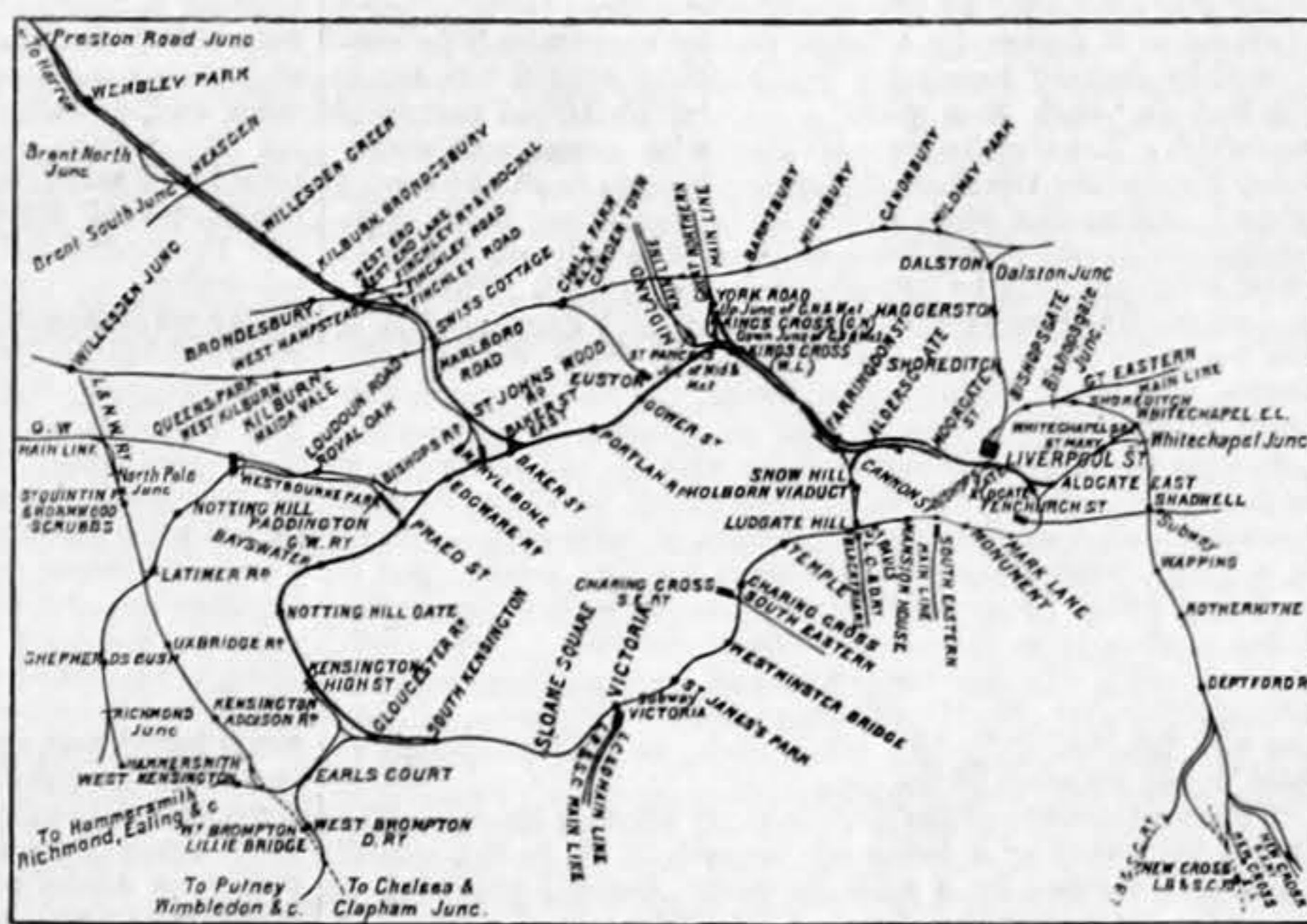
The main spring of a conversion scheme such as the present may well be said to be the central power-house. It should be centrally placed, so that fall of potential may be minimised.

The power-house building at Neasden has been practically complete for some time, sub-stations are being built in various places, cables are being laid, and the insulated conductor rails are being fixed.

material, be it said, which closely resembles puddle clay—an artificial reservoir has been constructed. This is about an acre in area, and, at the moment, it is filled with water to a depth of some 5ft., which gives a storage of over 1½ million gallons.

The system adopted is to generate the electricity at 11,000 volts three-phase, to transmit the current at this voltage to sub-stations, to convert it at these sub-stations into direct current at between 500 and 600 volts, and to supply it to the conductor rails, of which the positive is being fixed on the outside, and to the left of the metals, looking in the direction of motion of the trains, with the return rail laid midway between the running rails.

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THE METROPOLITAN RAILWAY SYSTEM

In the first place there is practically no chance of leakage to earth, and the production of earth currents, with their accompanying evils of electrolysis and interference with observatory instruments, to say nothing of pecuniary loss. The insulators are of a form specially designed for this work, and we shall describe them in detail in a later article.

The power-house will present some novel features. It

is a building 318ft. long by 101ft. wide, divided by a wall placed centrally down its length into engine and boiler-houses. Running at right angles to and placed in the centre of the length of the boiler-house is an economiser building, containing also induced draught fans.

A number of coaches, very much the same in design as those in use on the Central London Railway, are being constructed, and some have already been delivered. Exterior and interior views of these coaches are shown on page 159, as also is the power-house and a portion of the fully equipped track.

COPPER.

SINCE appearances point to an interference, owing to the war, in the production of copper in the Far East, with a consequent probable hardening of prices, it would seem to be advisable for engineers who are in need of supplies of this metal to make early purchases.

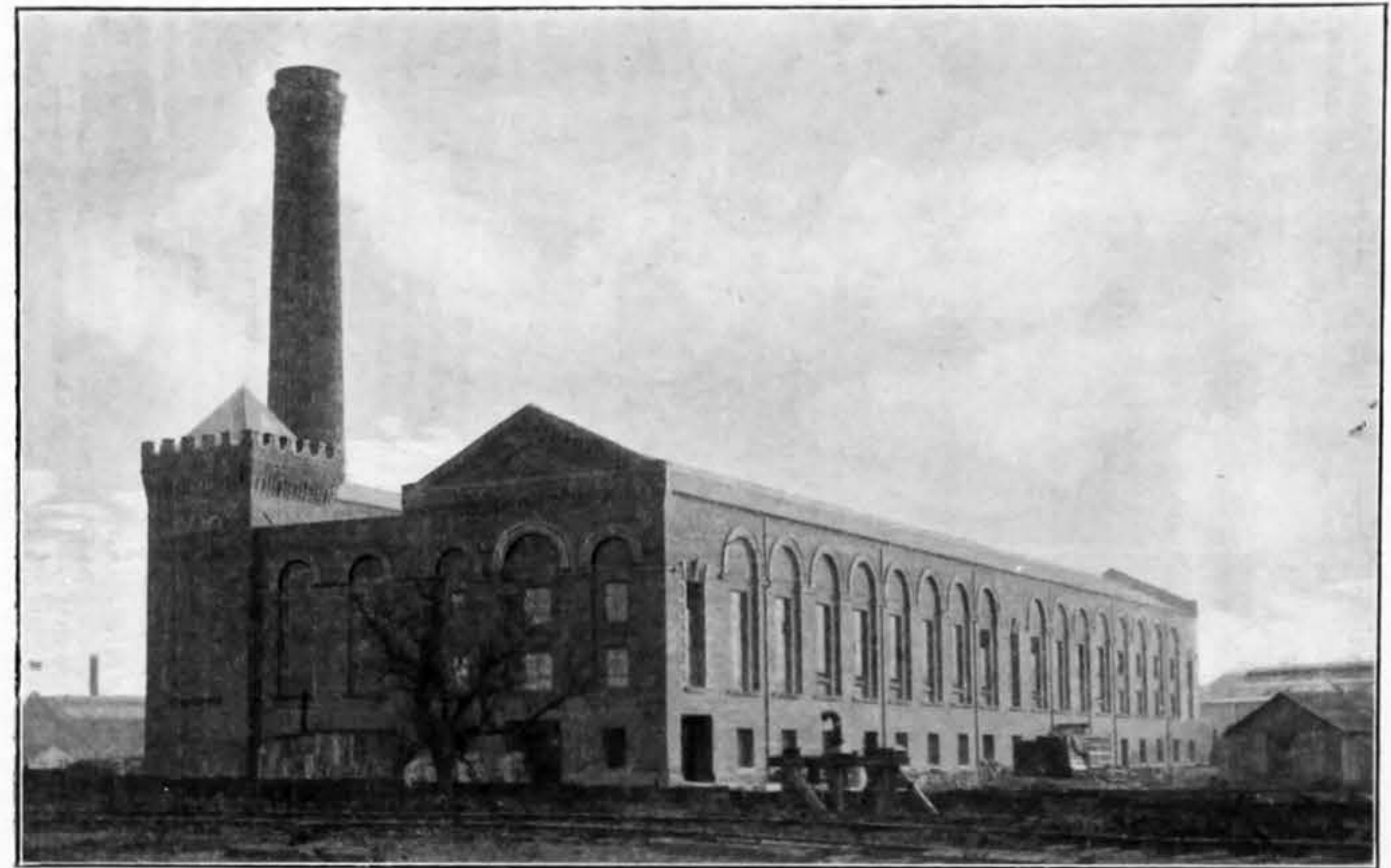
THE accounts of the Great Northern Railway for the half-year ending December 31st, after applying £40,000 to the permanent-way renewal suspense account, which is finally extinguished, indicate that a dividend may be declared at the rate of 4 per cent. per annum on the ordinary capital of the company.

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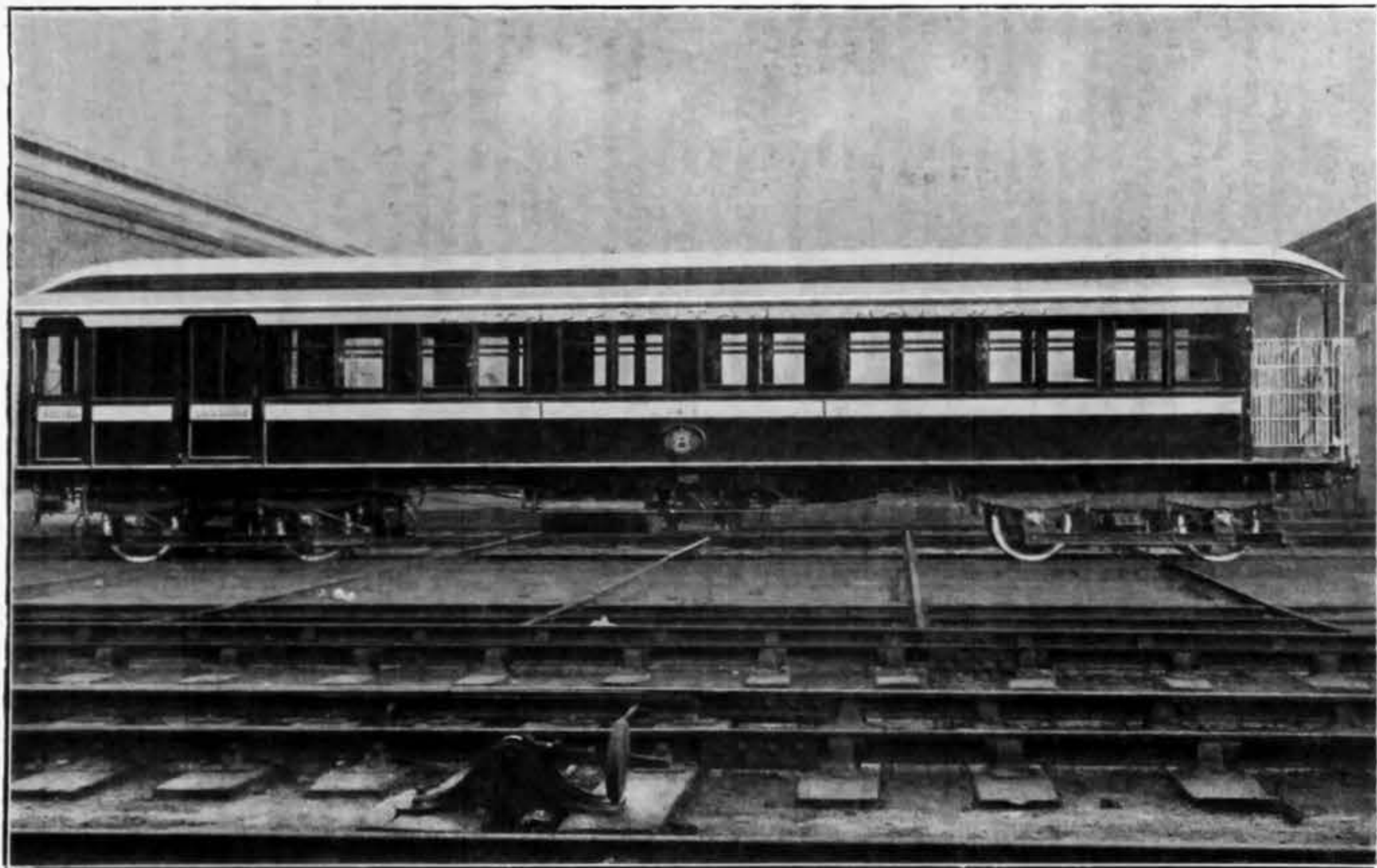
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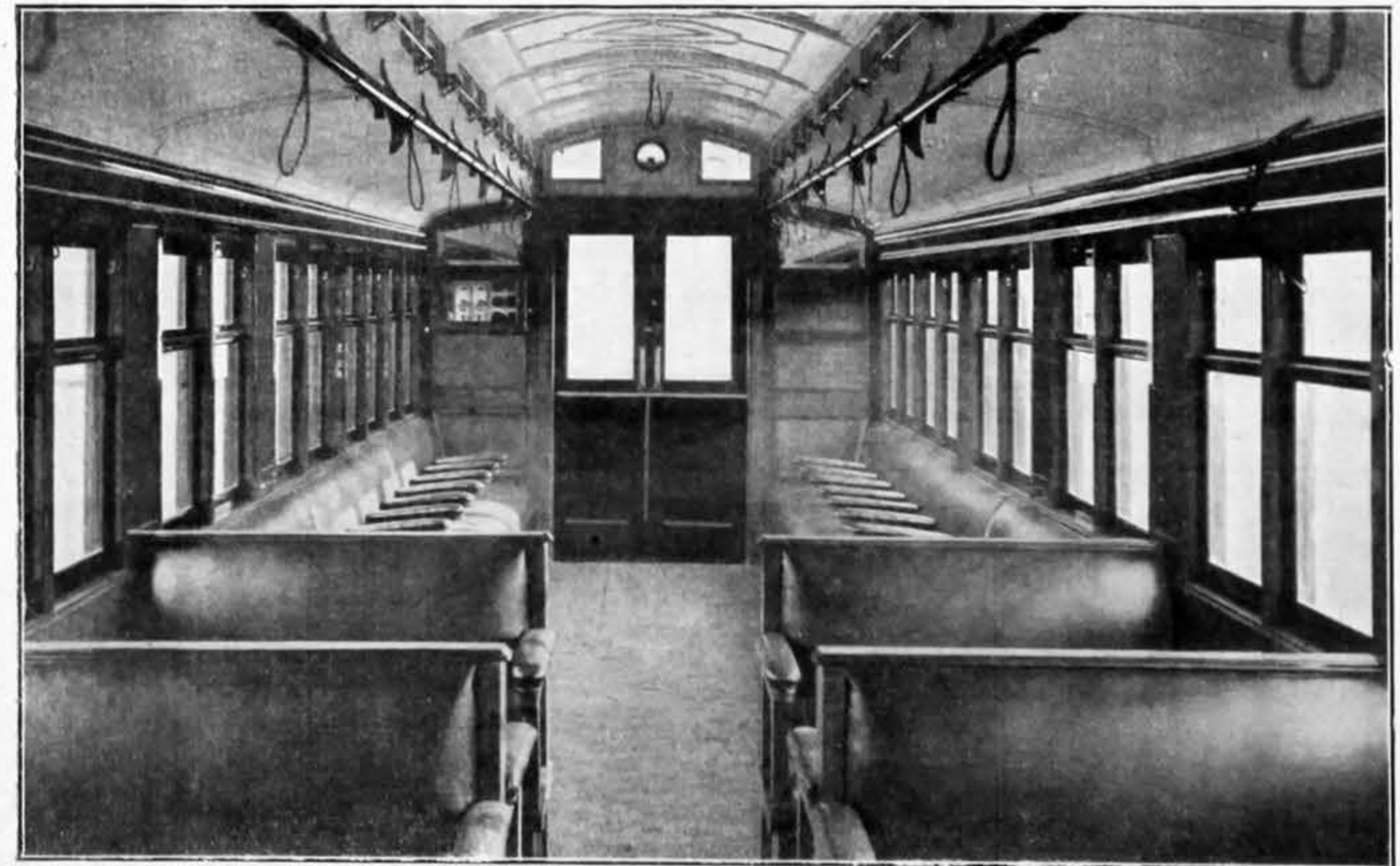
PERMANENT WAY, SHOWING CONDUCTORS



POWER HOUSE BUILDING AT NEASDEN



MOTOR COACH



INTERIOR OF MOTOR COACH