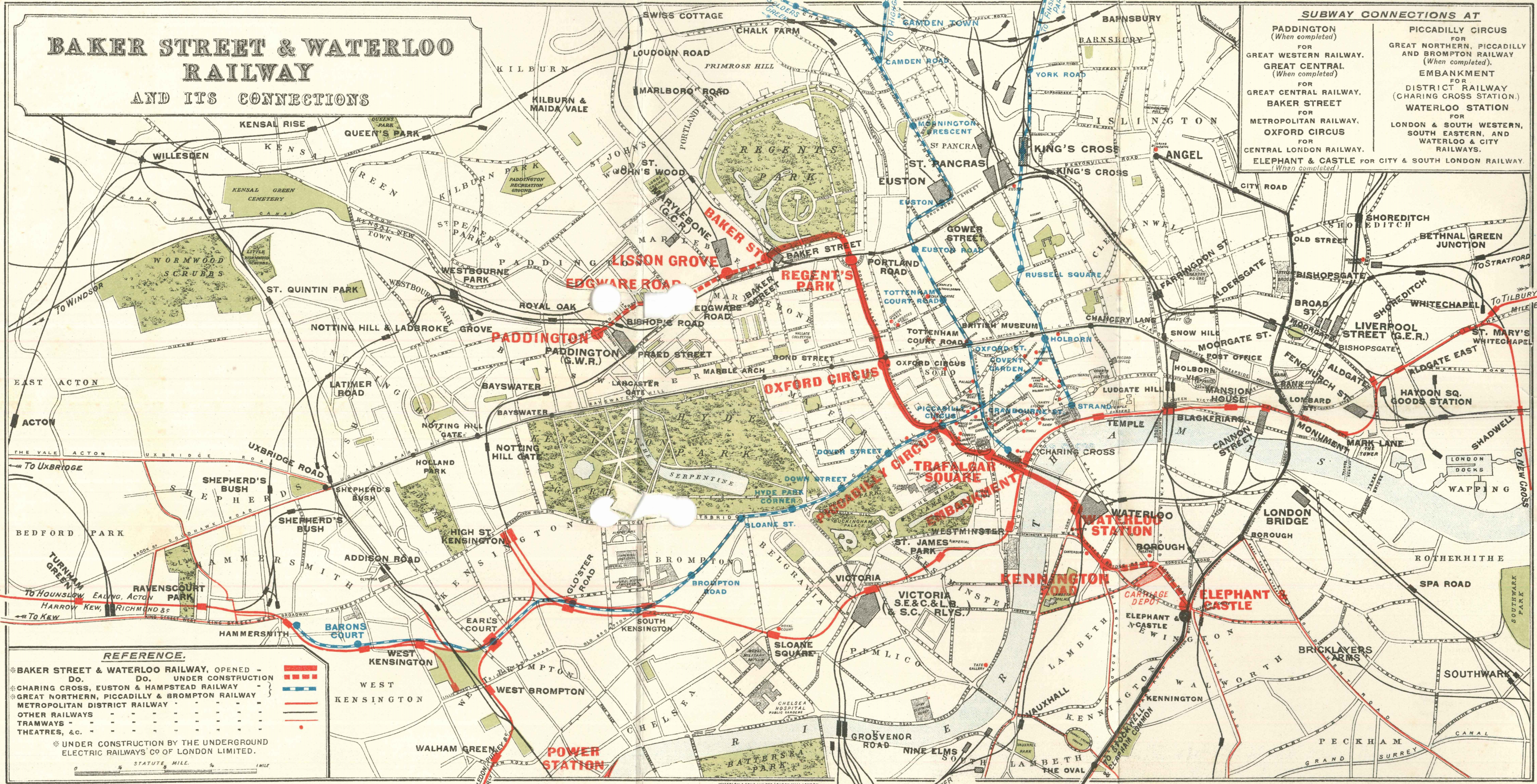
Short History and Description of the Baker Street & Waterloo Railway

Opened by

SIR EDWIN CORNWALL, M.P.

Chairman of the London County Council,

10th March, 1906.


BAKER STREET & WATERLOO RAILWAY
AND ITS CONNECTIONS
SUBWAY CONNECTIONS AT
PADDINGTON (When completed) FOR GREAT WESTERN RAILWAY.
GREAT CENTRAL (When completed) FOR GREAT CENTRAL RAILWAY.
BAKER STREET FOR METROPOLITAN RAILWAY.
OXFORD CIRCUS FOR CENTRAL LONDON RAILWAY.
PICCADILLY CIRCUS FOR GREAT NORTHERN, PICCADILLY AND BROMPTON RAILWAY (When completed).
EMBANKMENT FOR DISTRICT RAILWAY (CHARING CROSS STATION.)
WATERLOO STATION FOR LONDON & SOUTH WESTERN, SOUTH EASTERN, AND WATERLOO & CITY RAILWAYS.
ELEPHANT & CASTLE FOR CITY & SOUTH LONDON RAILWAY (When completed)
REFERENCE.
※BAKER STREET & WATERLOO RAILWAY, OPENED
Do. Do. UNDER CONSTRUCTION
※CHARING CROSS, EUSTON & HAMPSTEAD RAILWAY
※GREAT NORTHERN, PICCADILLY & BROMPTON RAILWAY
METROPOLITAN DISTRICT RAILWAY
OTHER RAILWAYS
TRAMWAYS
THEATRES, &c.
※ UNDER CONSTRUCTION BY THE UNDERGROUND ELECTRIC RAILWAYS Cº OF LONDON LIMITED.
STATUTE MILE.
PADDINGTON
EDGWARE ROAD
LISSON GROVE
BAKER ST.
REGENT'S PARK
OXFORD CIRCUS
PICCADILLY CIRCUS
TRAFALGAR SQUARE
EMBANKMENT
WATERLOO STATION
KENNINGTON ROAD
ELEPHANT & CASTLE
POWER STATION
CARRIAGE DEPOT
SWISS COTTAGE
CHALK FARM
CAMDEN TOWN
CAMDEN ROAD
MORNINGTON CRESCENT
EUSTON
EUSTON ROAD
TOTTENHAM COURT ROAD
OXFORD ST.
COVENT GARDEN
HOLBORN
RUSSELL SQUARE
YORK ROAD
KING'S CROSS
ST. PANCRAS
ANGEL
ISLINGTON
BARNSBURY
STRAND
CHARING CROSS
DOVER STREET
DOWN STREET
HYDE PARK CORNER
SLOANE ST.
BROMPTON ROAD
SOUTH KENSINGTON
GLO'STER ROAD
EARL'S COURT
BARONS COURT
WEST KENSINGTON
HAMMERSMITH
RAVENSCOURT PARK
TURNHAM GREEN
WEST BROMPTON
WALHAM GREEN
VICTORIA
SLOANE SQUARE
ST. JAMES PARK
WESTMINSTER
TEMPLE
BLACKFRIARS
MANSION HOUSE
CANNON STREET
MONUMENT
MARK LANE
LONDON BRIDGE
BOROUGH
LIVERPOOL STREET (G.E.R.)
BISHOPSGATE
MOORGATE ST.
ALDERSGATE
FARRINGDON ST.
ALDGATE
ALDGATE EAST
SHOREDITCH
WHITECHAPEL
SHADWELL
WAPPING
ROTHERHITHE
SPA ROAD
SOUTHWARK
BRICKLAYERS ARMS
KENNINGTON
THE OVAL
VAUXHALL
NINE ELMS
GROSVENOR ROAD
BATTERSEA PARK
HYDE PARK
REGENTS PARK
SERPENTINE
KENSINGTON GARDENS
WORMWOOD SCRUBBS
KENSAL GREEN CEMETERY
WILLESDEN
KENSAL RISE
QUEEN'S PARK
KILBURN & MAIDA VALE
ST. JOHN'S WOOD
MARLBORO' ROAD
LOUDOUN ROAD
PRIMROSE HILL
MARYLEBONE (G.C.R.)
PORTLAND ROAD
GOWER STREET
BRITISH MUSEUM
CHANCERY LANE
ROYAL OAK
WESTBOURNE PARK
BISHOP'S ROAD
PADDINGTON (G.W.R.)
PRAED STREET
BAYSWATER
LANCASTER GATE
MARBLE ARCH
BOND STREET
NOTTING HILL GATE
NOTTING HILL & LADBROKE GROVE
LATIMER ROAD
ST. QUINTIN PARK
UXBRIDGE ROAD
SHEPHERD'S BUSH
HOLLAND PARK
HIGH ST. KENSINGTON
ADDISON ROAD
ACTON
EAST ACTON
BEDFORD PARK
To WINDSOR
To UXBRIDGE
To HOUNSLOW, EALING, ACTON
HARROW, KEW, RICHMOND &c
To KEW
TO EXETER
To STRATFORD
To TILBURY, SOUTHEND, &c
To NEW CROSS
TO STOCKWELL & CLAPHAM COMMON
TO WIMBLEDON
TO HIGHGATE
TO FINSBURY PARK
TO GOLDERS GREEN
LONDON DOCKS
HAYDON SQ. GOODS STATION
PECKHAM
GRAND SURREY CANAL
WALWORTH
NEWINGTON
LAMBETH
PIMLICO
CHELSEA
BROMPTON
BELGRAVIA
KENSINGTON
HAMMERSMITH
SHEPHERDS BUSH
NOTTING HILL
PADDINGTON
MARYLEBONE
SOHO
CLERKENWELL
THAMES
WATERLOW & SONS LIMITED LONDON WALL LONDON

THE

BAKER STREET and WATERLOO RAILWAY.

THE idea of constructing a railway from Baker Street to Waterloo originally arose from the desire of a few business men in Westminster to get to and from Lord's Cricket Ground as quickly as possible. These gentlemen, on seriously examining the merits of the scheme, realised that this important line would not only enable them to see the last hour's cricket at Lords without leaving their offices too early, but would also provide a long-felt want of transport facilities for the vast flow of North and South traffic (which, until now, has had to cross the river by omnibus and on foot), and would therefore prove a great financial success. The possibility of realising such a project had then been demonstrated by the construction of the City and South London Railway by means of an apparatus for driving tunnels

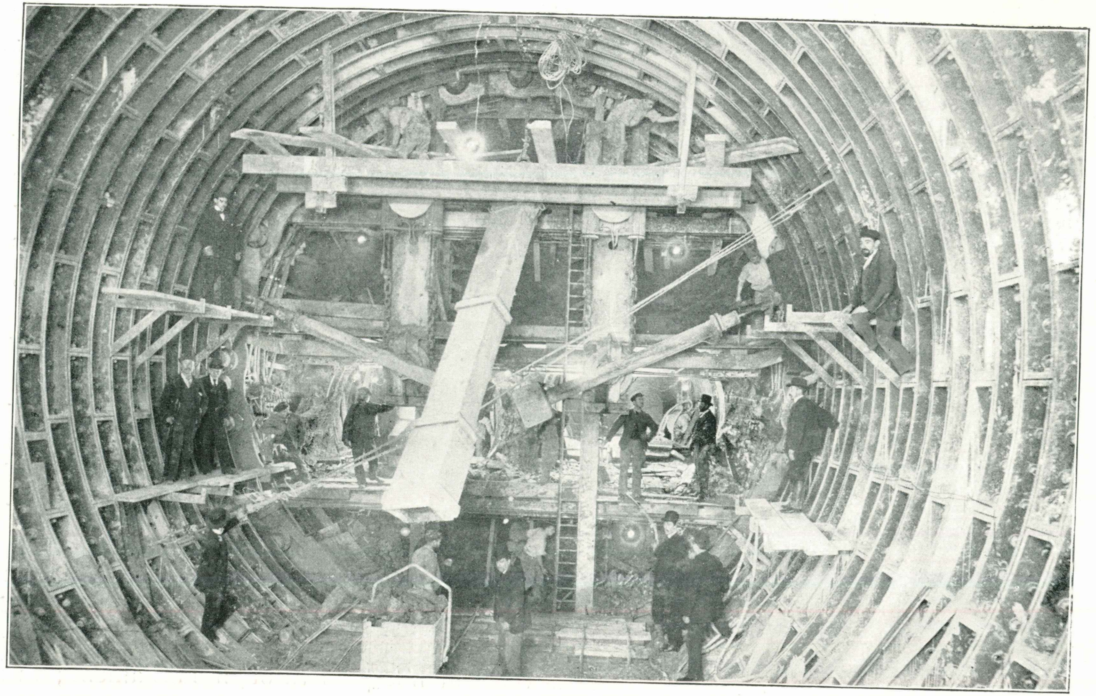
STAGING IN THE RIVER.

at deep levels, known as the "Greathead Shield." This method was first devised by the late Mr. Peter Barlow, and developed by the late Mr. Greathead, who was the Engineer for the construction of the original City and South London Line.

Such is the origin of a Bill which came to be promoted in the year 1891 for an Underground Railway from Baker Street to Waterloo. This Bill, together with the Bills of the Central London, the Great Northern and City and Waterloo and City Railways, was, in the Session of 1892, referred to a Joint Committee of both Houses of Parliament. After careful enquiry, this Committee reported favourably on the scheme, and, in 1893, the Act of Incorporation was granted.

In 1898 a commencement was made. Work was started in the river, near Hungerford Bridge, by the erection of a large staging, on which was built a small village of workshops and offices and an electric generating station to provide the power for driving the machinery and for lighting purposes during construction. From this staging two vertical shafts were sunk into the bed of the river for the purpose of removing excavated soil and taking in the requisite material, thus avoiding the necessity of carting the traffic through the streets.

In 1899 the Company promoted a Bill for three extensions, namely, to the Elephant and Castle, to Paddington, and to Euston, the object being to tap the large traffic of the South London Tramways, and to link up by a direct Line several of the most important Railway termini. That Bill, however, did not pass through Parliament; but

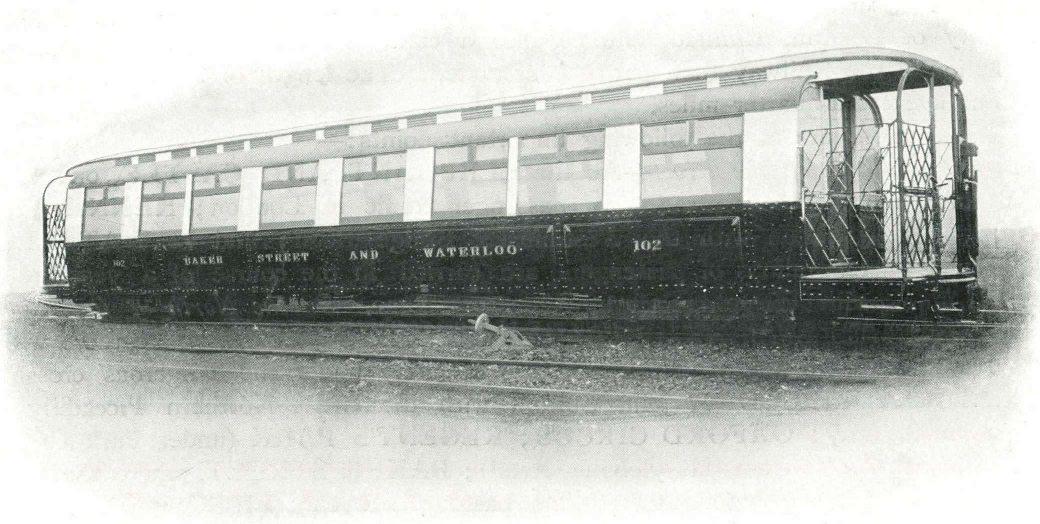


A GREATHEAD SHIELD AT WORK.

in the following year an Act was obtained for extensions of the line to the Elephant and Castle and Paddington. In March of 1902 the Underground Electric Railways Company of London, Limited, entered into a contract with the Company for the completion of the Railway then partly constructed. The length of the authorised Line is about five-and-a-quarter miles.

The Stations are at the following important points:—

On the South of the River—At the ELEPHANT AND CASTLE, one of the points of the largest concentration of passenger traffic in London; KENNINGTON ROAD, at its junction with the Westminster Bridge Road; and at WATERLOO, where over thirty millions of passengers are carried in the course of a year by the London and South Western Railway Company alone. *On the North of the River*—At the THAMES EMBANKMENT; TRAFALGAR SQUARE, where there will be public subways to enable passengers to pass in safety under the dangerous crossings; PICCADILLY CIRCUS—A joint Station with the Great Northern Piccadilly and Brompton Railway; OXFORD CIRCUS; REGENT'S PARK (under Park Crescent Gardens, with access from Marylebone Road); BAKER STREET, where the Metropolitan Railway carry some sixteen million passengers a year; LISSON GROVE, close to Lord's Cricket Ground; EDGWARE ROAD, one of the main arteries of traffic from the north-west outskirts of London; and at PADDINGTON, adjoining the Great Western Company's Station.

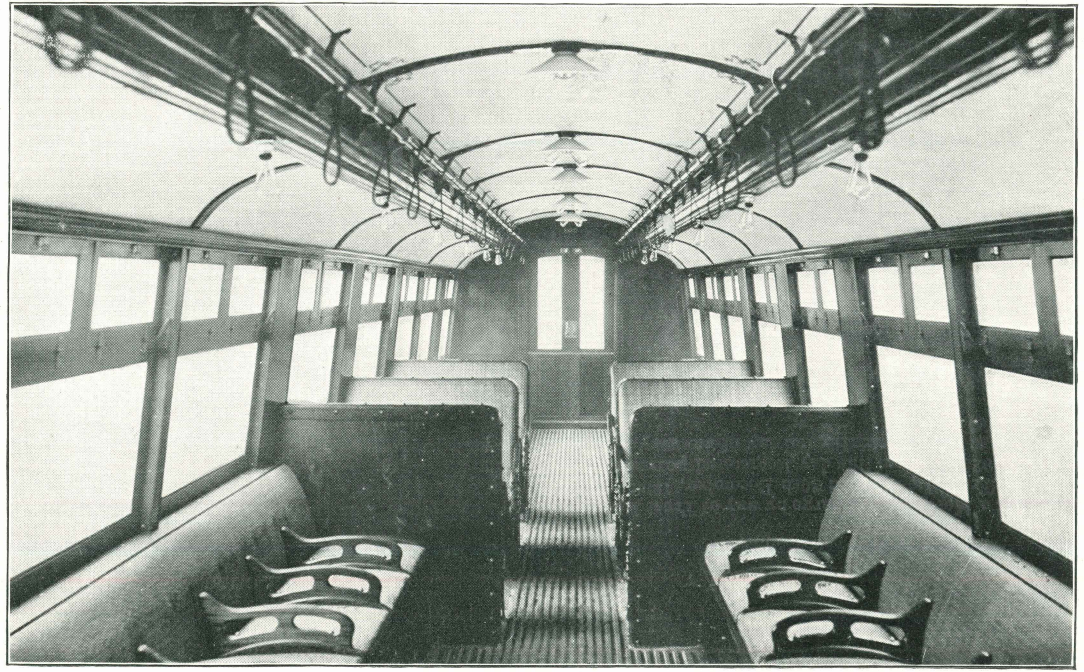


TRAILER CAR.

Facilities for the interchange of passenger traffic with other Railways will be provided by the construction of subways or footbridges connecting with the following Railway systems :—The City and South London Railway, at the Elephant and Castle—thus placing Clapham Common within easy reach of Central London ; the London and South Western, Waterloo and City, and South Eastern and Chatham Railways, at Waterloo ; the Metropolitan District Railway, at Charing Cross ; the Great Northern Piccadilly and Brompton Railway, at Piccadilly Circus ; the Central London Railway, at Oxford Circus ; the Metropolitan Railway, at Baker Street ; the Great Central Railway, at Lisson Grove ; and the Great Western Railway, at Paddington. The termini at Charing Cross of the South Eastern and Chatham and the Charing Cross Euston and Hampstead Railways will be within half-a-minute's walk of Trafalgar Square Station.

It will thus be seen that the advantages which this line will afford for getting quickly and cheaply from one point of London to another are without parallel. It will link up many of the most important Railway termini, give a connection with twelve other Railway systems, and connect with the vast tramway system of the South of London, thus bringing the Theatres and other places of amusement, as well as the chief shopping centres, within easy reach of outer London and the suburbs.

A notable fact which cannot be too widely known is, that once at a station of the Baker Street and Waterloo Railway, it will be possible for the public to travel by means of that line and its connections quickly, cheaply, and under cover the whole time



INTERIOR OF CARRIAGE.

to within a few hundred yards of any point in London. This will also be true of the Lines with which this Railway will connect; but these facilities can only be taken advantage of to their fullest extent by using the Baker Street Services.

The Depôt for the Rolling Stock and the Repair Shops are on the site (some three acres in extent) lately occupied by the Indigent Blind School at St. George's Circus.

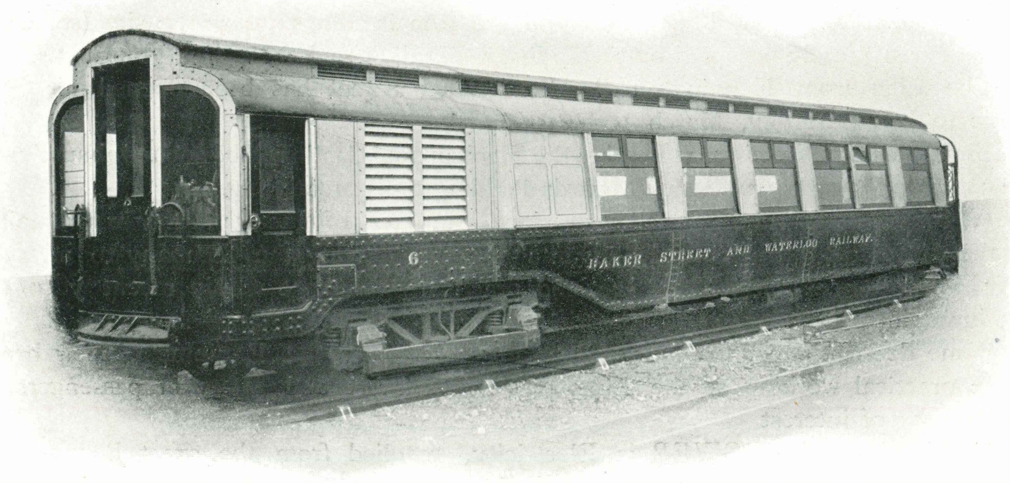
The Line from Kennington Road to Baker Street has been opened for Public Traffic to-day, Saturday, March 10th, 1906.

The Line from Kennington Road to the Elephant and Castle will be opened about August. The construction of the extension towards Paddington is proceeding.

A considerable time has elapsed since the Act of Incorporation was obtained; but the delay has been distinctly advantageous in enabling the Company to adopt the many improvements which science and practical experience within recent years have introduced into the working of Electric Railways.

Some description of the more important features of the Equipment, their bearing on the practical working of the Line, and the comfort and safety of passengers, will doubtless be of interest.

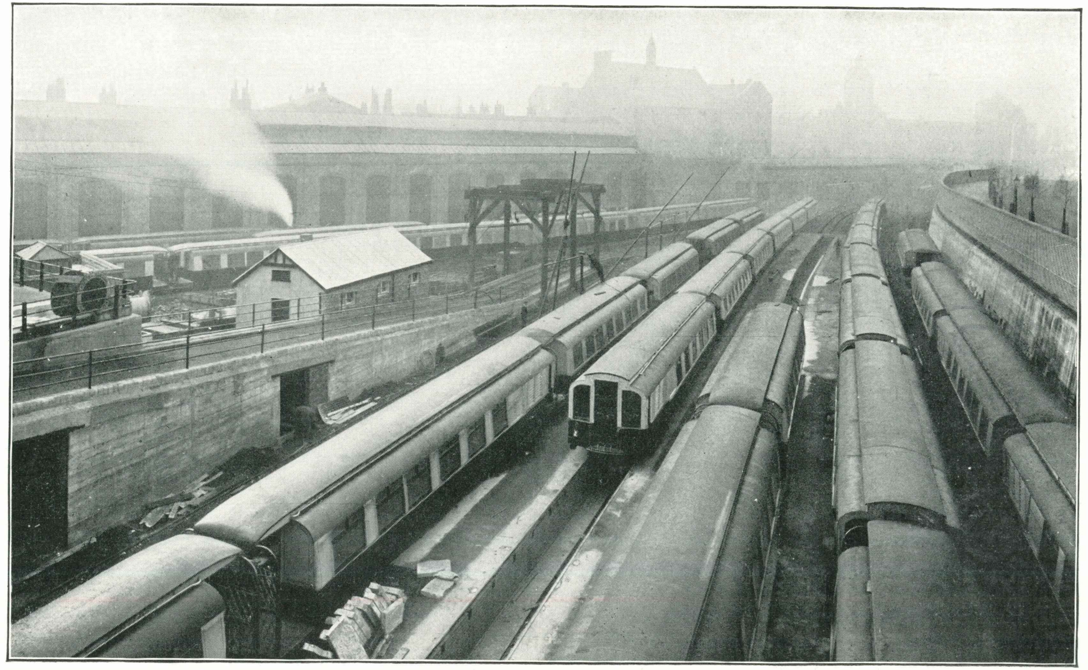
THE MOTIVE POWER is Electricity, supplied from the great Power House belonging to the Underground Electric Railways Company of London, Limited, which is situated at Lots Road, Chelsea, and is capable of generating and distributing three hundred million units of electricity per annum.



MOTOR CAR.

A COLLISION may be said to be IMPOSSIBLE. The Up and Down rails are laid in separate tunnels. In the signalling arrangements, all the latest improvements have been introduced. The system comprises both automatic and semi automatic working of the signals and points, and a complete scheme of interlocking has been provided. Each train works the signals as it proceeds in the following manner:—A signal is placed inside the forward end of each of the block sections, and is automatically thrown to danger as the train passes it. When the train reaches the end of the block section, it automatically throws the signal at the backward end of the next preceding block section to "Clear," so that there is always a danger signal at a sufficient distance behind each train, to enable the next train following to be pulled up by an *Automatic Stop*. This stop prevents trains from running past a danger signal, and consists of an iron arm between the track rails, actuated by a compressed air motor acting in unison with the adjoining signal motor. When the signal goes to danger, this arm is raised to a position in which it engages with the cock on the air brake system of the train. Thus the brakes are instantly and automatically applied if for any reason the driver should disregard the signal. Should a driver release his controller for an instant, the current would be automatically cut off the motor, and the continuous brakes applied.

An EMERGENCY TELEPHONE SYSTEM has been provided for the use of the Drivers. A pair of bare copper wires has been installed between all passenger stations in each tunnel, terminating in a local switchboard on the station platforms.



DEPOT AT ST. GEORGE'S CIRCUS.

These wires are so placed in the tunnels as to be within easy reach of the motorman's cab. Telephone instruments with suitable means of ready connection to these wires are installed on every motor car, by means of which connection from a train in any part of the tunnels can be quickly and easily established with the nearest passenger station, or with any of the exchanges used in connection with the Power House at Chelsea, or with the City exchanges.

THE RISK OF FIRE is practically non-existent. The Station Platforms are constructed of concrete and iron, and the Permanent Way sleepers of Jarrah, an Australian wood which is non-combustible. The Rolling Stock is built almost entirely of steel, the small quantity of wood used being rendered nonflammable.

THERE IS A LIGHTED FOOTWAY FROM END TO END OF THE LINE. Special Electric Lamps are placed in the tunnels at intervals of 40 feet. The wires for lighting these lamps are entirely independent of the power cables. The space between the rails has been filled in with cement and granite chippings. Should a train come to a standstill and be unable to proceed, the power current would at once be cut off, and passengers would only have to walk a few hundred yards along an easy and well-lighted footpath to the nearest station.

A VERY FREQUENT SERVICE of trains is made possible by the adoption of the automatic signalling system already described. The lift accommodation at the stations is ample. Passengers leave the lifts by the opposite gate to the one by which they enter. The lift gates are opened and shut by compressed air. There will therefore be no delay in getting passengers up and down to the platforms. There is a staircase at every station.

The tiles of the lower station walls are coloured and arranged in various designs, each station having a different colour scheme, so that passengers should easily be able to distinguish their destination and leave the train without delay.

Ventilation is provided by six exhaust fans placed at intervals along the line, which draw out 18,500 cubic feet of air per minute from the station and running tunnels. The out cast of the fan is through the roof of the surface building. By these fans drawing out the quantity of air named, which amounts to a total of 6,600,000 cubic feet per hour, a corresponding amount of fresh air comes down from the surface at each station viâ the lift shafts and staircase shafts, so that the air in the tunnels is thus completely changed at least every hour.

Every known device has been employed to eliminate the possibility of danger to passengers, to provide for their comfort, and to ensure a frequent and regular service of Trains.

The Engineers responsible for the construction of the Line are Sir Benjamin Baker, Messrs. Galbraith & Church, and Mr. Dalrymple-Hay, Mr. James R. Chapman being responsible for the equipment.

When the Great Northern, Piccadilly and Brompton, and the Charing Cross, Euston

and Hampstead Railways, also being constructed by the Underground Electric Railways Company of London, Limited, have been completed, London will have probably the finest system of Underground Railways in the world, and one which will provide ample accommodation for the travelling public for many years to come.

TRAINS.

WEEK-DAYS.

From 5.30 a.m. to 7.30 a.m.	...	every 5 minutes.
From 7.30 a.m. to 11.30 p.m.	...	every 3 minutes.
From 11.30 p.m. to 12.30 a.m.	...	every 6 minutes.

SUNDAYS.

From 7.30 a.m. to 11. 0 a.m.	...	every 6 minutes.
From 11. 0 a.m. to 12. 0 p.m.	...	every 3 minutes.

FARE 2d.