

# EVER DECREASING CIRCLES

## A REVIEW OF THE DIFFERENT LONDON CIRCLE LINES OVER THE YEARS

by Eric Stuart

Probably, my first introduction to the London Circle lines was when my Grandfather referred to a journey on the 'Inner Circle'. To people of his generation, that would be normal, as there were more than one. But, being born after the Inner Circle became the only one, it was many years before I found out more.

As has been mentioned in previous articles, railway services that joined parts of London orbitally were fairly common in the mid- to late-1800s, as the different railway companies sought to build up their businesses. J. Graeme Bruce wrote back in the 1970s, when the (Inner) Circle was unique, that "the traces of these [the other Circles] ..... have now been lost". True at the time, that has now changed, but the earlier era is of interest.

One point to be made is that London Transport uses the nomenclature 'Outer Rail' for trains working clockwise around a circular line and 'Inner Rail' for those going the opposite way, using these terms for the Inner Circle and, later, the Hainault or Fairlop Loop. (Tell it not in Gath, but even the Traffic Circular got it wrong at least once!). Mind you, Metropolitan Line staff 25 years ago were to be heard using 'Up' for the Outer Rail and 'Down' for the Inner – although I don't know how far back such usage stems (Met. Railway days?).<sup>1</sup>

### OUTER CIRCLE

Recent articles in *Underground News* have mentioned orbital rail services around the capital. One not mentioned hitherto, ran for only two years from St. Pancras to Earl's Court, via Cricklewood and Acton, ceasing in 1880.

Longer lasting was what became known as the Outer Circle, which started as a service from Broad Street to Victoria main line station, via Willesden Junction, Kensington Addison Road and the West London Extension Railway. However, from 1872, the trains were diverted south of Addison Road to Earl's Court and then to Mansion House, which, at the time, was the Metropolitan District Railway's ('the District's') eastern terminus. The trains served Victoria on the way, of course, but at a lower level. This service was made possible by the District opening a connection from Addison Road to Earls Court on 1 February 1872.

These trains were made up of North London Railway (NLR) coaches and originally hauled by NLR locomotives throughout. To avoid steam operation, the District arranged for electric haulage on their line east of Earls Court from 4 December 1905. This was facilitated by the provision of box-like electric locomotives (*see Opposite, Top*). They looked like short versions of contemporary District electric multiple-unit (EMU) passenger vehicles, but with fewer side windows. These locos normally worked in pairs. However, this way of working was short-lived, as the Outer Circle was withdrawn on the District east of Earls Court from 1 January 1909, so the trains were again entirely steam worked<sup>2</sup>. However, from 1 May 1914, the London and North Western Railway, with which the NLR had amalgamated, began to operate the service with EMUs. This was the first section of the LNWR electrified network to open. It used the same 3rd and 4th rail DC electrification system as the Underground. At the same time, the service was further cut back and no longer operated between Broad Street and Willesden Junction, although connections to and from Broad Street and other stations on the ex-LNWR system were available at Willesden Junction. Such a truncated service could hardly be called a Circle at all! For a very short while, as the LNWR's own EMUs were unavailable, the District used their own electric

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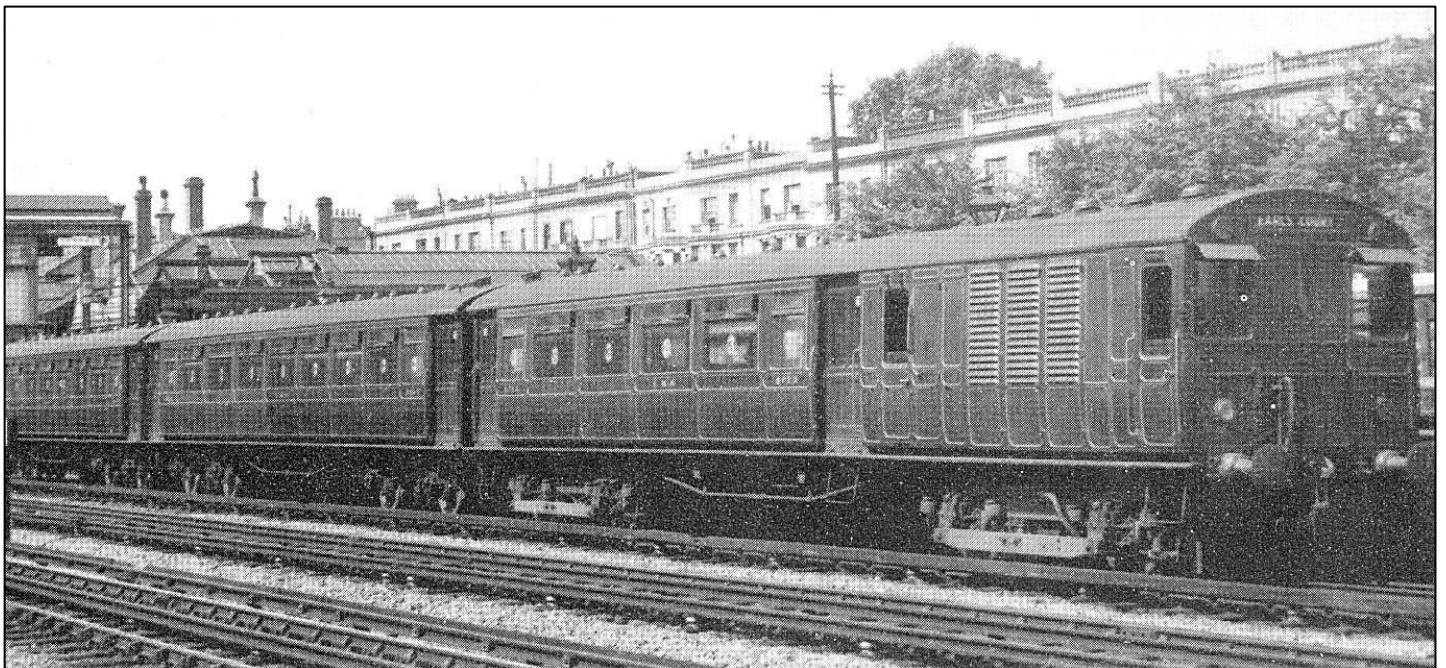
<sup>1</sup> The terms 'Up' (to London) and 'Down' (to the country) were used on the Metropolitan, Metropolitan District, Central London Railway (at least between Wood Lane and Ealing Broadway) and City & South London. It is thought that the C&SLR adopted north- and southbound when it was joined with the Hampstead in 1924. The District Railway adopted east- and westbound from 6 January 1929 "... except for foreign companies' lines", the Central London from September 1942 and finally the Met & GC Joint from 10 September 1951. *Editor's Note: The terms 'Up' and 'Down' were unofficially alive and well in the 1970s and was used by many Metropolitan Line signalmen, especially on the former 'Joint' line. It wasn't unknown, however, for the Wembley Park signalman to refer to the 'Up' [and 'Down'] Bakerloo' but that was taking it a bit too far!*

<sup>2</sup> Subsequently, three of the electric locos were scrapped and some used for a while with one at each end of four trailer coaches on 'normal' District trains. A number later found employment on the Ealing Broadway – Southend through trains between Ealing and Barking from 1 June 1910 until withdrawal of that service on 30 September 1939.

trains. The Willesden – Earl’s Court service continued until it ended with effect from 3 October 1940, as a result of air-raid damage on the West London Line. As with other ex-NLR/LNWR services, air-raid damage was the cause of withdrawal, as it was presumably thought that replacement was not a priority in war-time, and neither were they restored after the war.



However, as related in the article on the new, orbital London Overground services, matters have almost come full circle (excuse pun!). The Outer Circle is almost resurrected in its earliest form, running from Stratford to Clapham Junction instead of Victoria.



**Previous Page:** (Lower) Because the new Siemens EMUs were not ready in time for the Willesden Junction – Earl’s Court service from 1 May 1914, three three-car trains were loaned to the LNWR from the MDR and were based at Triangle Sidings. The new trains entered service from 22 November 1914 and one is seen in LMS days at Addison Road heading to Earl’s Court. Until the LNWR’s own depots became available, these were at first maintained at Lillie Bridge (LER) Depot.

**Below:** Although the Siemens Stock was provided for the Willesden – Earl’s Court route, Oerlikon trains also worked the service. This appears to be a six-car formation (train formations were lengthened during exhibitions at Olympia), also heading for Earl’s Court. It will be noted that the Oerlikon trains had only one opening sliding door per side on motor coaches, at the trailing end.



## MIDDLE CIRCLE

The story of the Middle Circle is bound up with that of the Hammersmith & City Line (H&C). The Hammersmith & City Railway, as it was then, was built as a feeder to the Metropolitan Railway. It became jointly owned by the Great Western (GWR) and Metropolitan.

The line was built from the GWR main line at Westbourne Park, curving southward to Hammersmith, with a branch at Latimer Road down to the West London Railway (WLR) that passed underneath the H&C there. The GWR worked trains from Moorgate, through Baker Street and Paddington (Bishop’s Road – later Suburban), then over the link to the WLR to Addison Road, next over the new link to Earl’s Court and thence through to Mansion House. This started on 1 August 1872. After 30 June 1900 the service did not run between Earl’s Court and Mansion House. It was also not quite a complete circle, but was considered such.



From 1 February 1905, the service was taken over by the Met. and revised to operate between Aldgate and Addison Road, thus even less qualifying as a circle! A year later (3 December 1906), the line began to be worked by electric trains, but was then further amended to be an Edgware Road – Addison Road shuttle from 31 October 1910. A three-car set of 1906 H&C ‘Saloon’ Stock is seen arriving at Addison Road, the letter ‘K’ denoting it is working the Kensington service.



The Hammersmith & City Line was worked by 6-car electric trains built in 1906, with the imposing title “GREAT WESTERN AND METROPOLITAN RAILWAYS” over the windows on each car on one side and “METROPOLITAN AND GREAT WESTERN RAILWAYS” on the other side (the “Railways” appendage was later dropped), as seen at Farringdon (*Left*) and in Neasden Depot (*Below*). The branch to Addison Road was worked by 3-car trains formed of half of a normal H&C train. Two such sets were required for the Edgware Road – Addison Road shuttle service.



Two single-car double-ended electric motor coaches (formed from accident-damaged vehicles in 1910) had been used on the Uxbridge branch in its early days. When traffic began to build up on the Uxbridge line, they were transferred to work the Addison Road trains from 12 May 1918. When electrification was extended beyond Harrow to Rickmansworth, they were moved to a new life working the Rickmansworth – Watford via North Curve service and, after that ceased, worked the Wembley Park – Stanmore shuttles until they were scrapped, one in 1938, the other in 1942. The latter had been stored after the Bakerloo Line had opened to Stanmore in November 1939.

Following bomb damage, the connection between the H&C and WLR ceased to be usable and so the remains of the Middle Circle ceased to operate with effect from 21 October 1940. The withdrawal of the remnants of the Outer and Middle Circles left Addison Road as a virtual ghost station, looking like those later seen in some parts of Berlin after the Wall was erected<sup>3</sup>.

## THE KENSINGTON/OLYMPIA SHUTTLES

The link between Addison Road and Earl’s Court was used by the District for a shuttle service from High Street Kensington from its opening and later by the Outer and Middle Circles. But, after the Circles ceased to use it, it was not used by passenger trains until London Transport Railways commenced a service after the Second World War, starting in December 1946. This ran at times of exhibitions<sup>4</sup> at the Olympia venue, which adjoined the station. Addison Road station was renamed appropriately. For

<sup>3</sup> See recent articles on the West London Line and its train services in *Underground News*.

<sup>4</sup> The shuttle service has also run at times of engineering work on BR main lines, such as the rebuildings/remodellings at Paddington and Euston in the 1960s. I believe they also ran in connection with the cheap-fare “Starlight Specials” to and from Scotland in the 1960s.

some time, the other terminus of the shuttles was Earl's Court, but later they were extended to High Street Kensington, whilst even more recently there have been trains between Olympia and stations further east on the District Line. These can hardly be considered as a resurrection of either the Outer or Middle Circles, although, when they operate, they do connect with the new London Overground services to and from ex-Outer Circle stations.

## INNER CIRCLE

Looking at the (Inner) Circle Line on a map suggests that the history of such a line was a fairly simple affair, but it was not.

The main line railway companies that served London in the earliest days had been forbidden to bring their trains into central London and were thus forced to build their London stations on what we would now consider a Green Belt. However, such was the speed of development of the capital, they soon became surrounded with development. With a desire to travel across Britain by train, there was a need to travel between the London termini.

When the Metropolitan Railway opened in 1863, it joined a number of the northern terminal stations: Paddington, Euston<sup>5</sup> and King's Cross – plus, subsequently, St. Pancras. After the extension to Moorgate (23 December 1865), the line was further extended into Liverpool Street (main line) station (1 February 1875)<sup>6</sup>. There had long been a desire to link all the London terminal stations, but connecting the northern half of what became the Inner Circle to the southern part came about only after a lot of wrangling.

One might think that building and operating a circular or oval railway line would be so easy that any child could do it (well – many do!). Although both the Met. and the District allowed trains of other companies to operate over their lines, things weren't quite so easy with relations between themselves. The Metropolitan extended westwards and southwards from Edgware Road until it reached South Kensington on 24 December 1868. However, when the District extended eastward from Earl's Court, instead of effecting a junction where the two lines met, the District continued their own double line, south of the Met's, to South Kensington.



Many readers will remember the parallel operation of Met. and District trains over that section until the 1950s, when the operations were integrated. In fact, the two services operated over their separate pairs of tracks as far as the junction just east of South Kensington until a thorough revision of the tracks in the Gloucester Road and South Kensington area

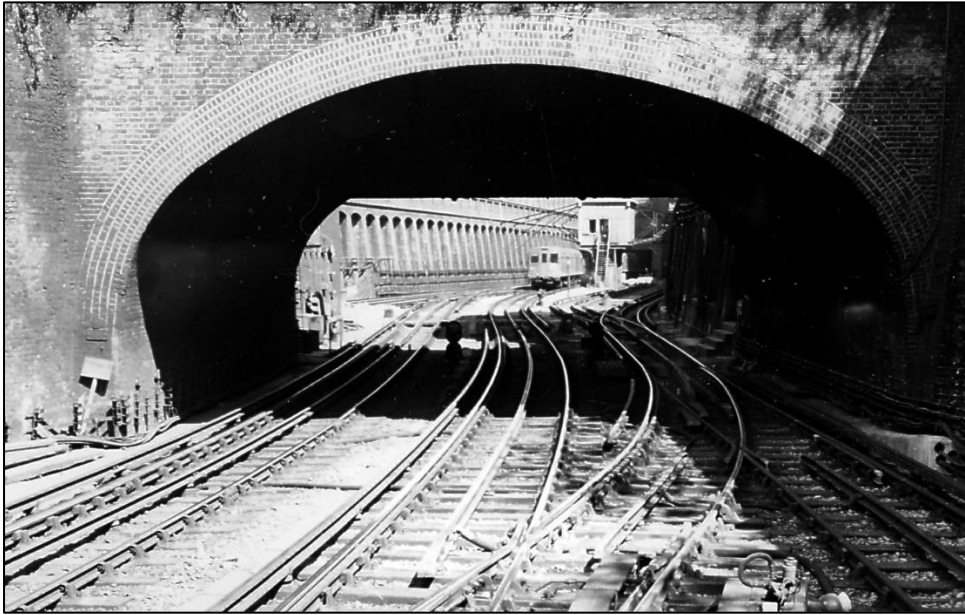
was made in 1957. From then, the two northern (ex-Met) lines became eastbound Circle and District, with one track allowing limited stop (which the Underground called 'Non-Stop') trains to overtake stopping ones. Westbound and Outer Rail Circle trains ran on the previously District double track. At this time, a space was left between the Inner and Outer Rail tracks beneath the West London Air Terminal, as if to allow for a future station there, as the Terminal was not well-served by public transport. However, none was ever built and, in fact, "the dog it was that died" and the Air Terminal shut. Some

<sup>5</sup> But only at a distance, which has irritated passengers for 150 years!

<sup>6</sup> For some reason, although Broad Street station adjoined Liverpool Street, as St. Pancras does King's Cross, Broad Street was never added to the Underground station name.

of the sidings at Cromwell Curve are seen (*Above*) before the 1957 track rearrangement, which includes the Rail Grinding train.

From 1969, the tracks in the area have been progressively simplified with just two platform faces on the District and Circle lines. Pre-1957 there were seven platform faces – District bay, westbound District, eastbound District, Circle Line bay (double-sided) outer rail Circle and inner rail Circle.



**Left:** The flat junction between the Metropolitan and District east of South Kensington with the District signal box seen in the distance (a separate signal box existed for the Circle Line's bay platform and crossovers). The track to the left is the eastbound District and to its right the westbound District, on which a westbound train of R Stock is approaching. The track to the right leads to two District sidings and behind to the District bay platform. Changes

to the layout in the area (which included Gloucester Road and Cromwell Curve) took place in stages in the summer of 1957.

**Photo: Alan A. Jackson**

Although the circle as such was not then complete, the Moorgate – South Kensington service was called the Inner Circle.

You need to hold on tight here, as the next stage can be confusing. At the other end of London, the Met. extended to Aldgate on 18 November 1876 and then to a station near Tower Hill on 25 September 1882. Their station was called Tower of London. After further negotiations between the two companies, the District extended through the Met. station to Whitechapel on 13 October 1884. This involved the replacement of Tower of London station by a new, joint Met. and District station called Mark Lane. As part of the extension to Whitechapel, a triangular junction was built between the current stations of Tower Hill, Liverpool Street and Aldgate East, with Aldgate on the south-west to north curve. Mark Lane station was renamed Tower Hill on 1 September 1946, but was replaced by the present Tower Hill station, on the site of the original Tower of London station, from 5 February 1967. So now that's clear!



The complete circle of tracks now being made, a fully circular Inner Circle train service commenced, jointly worked by the two companies. This ran with 100% steam traction from 6 October 1884. The simple option of 'going halves' with the supply and operation of trains was hindered by the fact that the mileage of the Inner Circle belonging to the Met. was greater than that belonging to the District. As a result, although the Met. operated all of the Outer Rail trains, it also worked some on the Inner Rail to make up the mileage difference.

Electrification of what we know as the Sub-Surface Lines followed on and was partially inspired by the electrified true 'tube' lines and had been considered from as early as 1896. On this the Met. and District were in agreement. Firstly, the Met. carried out its own experiments, although both companies appreciated that they needed a common system. Later, the two railways co-operated in a joint experiment between High Street Kensington and Earl's Court. To cut a long story short, matters reached the point where the Inner Circle commenced electric operation on 1 July 1905. Unfortunately, the day went badly.

Although the electrification system was common, the fitment of positive shoes to the Met. trains was different from the District's. Met. trains overturned positive current rails on the District and the electrified service was withdrawn the same day<sup>7</sup>. Steam trains replaced electric<sup>8</sup>, although the Met continued partial Inner Circle shuttles on their section between Aldgate and South Kensington via Baker Street on their own lines, where their shoe-gear and current rails interfaced correctly. As the Met. trains were modified, they were re-introduced to the service. The last steam Inner Circle train ran on 22 September 1905 and full electric operation resumed two days later. The GWR still ran a steam service along the north side of the Inner Circle, but that ceased on the last day of 1906, although subsequent through GWR trains ran, hauled by Met. electric locomotives, as previously mentioned in *Underground News*<sup>9</sup>.

Over the years, many of the changes to the Inner Circle were those of rolling stock. The Inner Circle was worked for many years by one kind of Metropolitan railway saloon stock, built in batches between 1904 and 1921. After the formation of London Transport, some saloon stock from 1913 and 1920/21s was rejuvenated and painted a smart red and cream livery. They then worked the service until the end of 1950. In the late-1930s, three similar train types began to be introduced on the Sub-Surface lines — the 'O', 'P' and 'Q' Stocks. With LT's tendency to give 'significant' lettering, it's a pity the stock which came to work the Circle was not called 'O' Stock, but were designated 'P' stock and they started to

<sup>7</sup> I think this is the second quickest withdrawal of a rail service I have heard of. We tend to think these situations only occur nowadays

<sup>8</sup> The Glasgow 'Blue Trains' *débauché* of 1960 was not the first replacement of electric by steam trains!

<sup>9</sup> For example, Aldgate to Glynccwrrog. The GWR and later BR (W) operated freight trains (mainly meat carcasses) to and from Smithfield until the 1960s. They were steam-hauled throughout until the condensing Pannier tanks used were replaced for the final years by class 08 shunters.

replace the earlier Met. trains in February 1947, with the last of the old, handworked doors' trains being withdrawn on New Years' Eve 1950. Later, the 'O's and 'P's became re-engineered as 'COP' stock. Circle Line trains (the 'Inner' was gradually dropped, although initially carried by 'P' stock trains), which had been five cars for many years, were lengthened to six. From April 1970, the 'C' (for Circle) Stock arrived<sup>10</sup> and so things remained until the S7's arrived and now the line includes Hammersmith. However, as some Circle trains were worked by the District, the various kinds of District stock could arrive as their contribution.



**Left:** The odd "Inner Circle" destination plate survived into the 1970s, this one being found when on the District Line.

**Opposite:** On Circle Line trains operated by the Metropolitan, the destination displays were either 'Circle Line' (over) 'Metropolitan', 'Circle Line' and blank, or possibly two 'Circle Line' plates. For District Line Circles (Sundays only from 1 November 1926) the display was generally 'Circle Line' (over) 'District', as seen on this outer rail train arriving at Farringdon with a CO Stock driving motor car leading.

**Both photos: Brian Hardy**



A couple of Circle 'quirks' need mentioning:

Until May 1990, the District retained an interest in Circle train operation, although latterly only on Sundays and Bank Holidays. But the train numbering system was interesting. The first train on the Inner Rail could be 211. This signified a Met train (2); an Inner Rail train (1 = I) and the first train of the sequence (1). The second train would be 212, the next 213 and so on, with 201, 202 and so on, on the Outer Rail, with 0 = O. But if a District Line train was in the sequence, the first digit would be a 1. So the sequence could be 201, 202, 203, 104, 205 etc., or 211, 112, 213, 114 etc.

<sup>10</sup> Originally, the A Stock were fitted with destination blinds including "CIRCLE LINE", but they were never used on the service, partially because of clearance issues.



With these trains going around the Circle so often, the wheels were likely to wear unevenly. So a 'Circle-Plus' train operated. Reaching Edgware Road on its last Circle trip, it would become a Whitechapel via Victoria train. On reaching the terminus, it would proceed direct to Hammersmith (Met) via Baker Street, having turned itself around!

May I make some more personal comments about the (Inner) Circle? I think it is a great idea: to be able to get on one train and go to another London terminus or other destination without using long escalators or changing. So don't get me talking about 'Tea Cup'! As train crew, I loved a session on the Circle. It was normally busy and always had a 'buzz'. And, for me, the C Stock was the best Underground train of its generation<sup>11</sup>. Slick door operation and an excellent, reliable Westinghouse brake. And a C Stock train could be very nippy: the fastest I timed one of them was just short of 70mph, admittedly downhill and not going around the Circle!

One little anecdote. When Dot Matrix indicators were being trialled, there were a pair at St. James's Park. One day, when I arrived on the Inner Rail, it said "CIRCLE LINE 1 min". On the next trip, it said "CIRCLE LINE 2 mins". On the third time, it said "CIRCLE LINE 4 mins". This was serious. Was I proving Einstein's Theory of Relativity? Was I going around so fast, I was getting ahead of myself? What if I, in relative time, arrived at the same moment as a District train in real time!? Well, a Circle driver has to think of something apart from the signals!!

## THE PRESENT AND FUTURE

We now have a new version of the Outer Circle. The Middle Circle seems unlikely to return, and even the Inner Circle has gone after over 100 years. Of course, with the new signalling for the Sub-Surface lines and possible automatic working in the future, the (Inner) Circle could return in its previous form (here's hoping!). With more cross-London lines being built, the need could be seen to be less, although I personally think there is still a need for it. We shall see.

## POSTSCRIPT

I previously mentioned that the A Stock was considered for Circle Line work and that the blinds included an appropriate entry. Recently, I had a look at a blind amongst my memorabilia recently and the entries are as shown opposite. Strangely, 'Chalfont' was not included.

From the list, one can see that complete and partial Circle trips are provided for, as are destinations on the proposed Uxbridge – Barking service, plus a good number of City destinations.

It seems odd that the unsuitability of the A Stock for the Circle was not appreciated earlier – and what was the 'story' behind the Barking service? I'd like to know.

Of course, there were other blinds subsequently produced over the years, all of which excluded Circle and H&C destinations, with later ones including the East London Line. These are, however, out of the scope of this article.

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ALDERSGATE
ALDGATE
AMERSHAM
BAKER ST.
BARKING
CHESHAM
CIRCLE LINE
EDGWARE RD
FARRINGDON
GLOUCESTER RD
HARROW
LIVERPOOL ST.
MOORGATE
NEASDEN
NORTHWOOD
RAYNERS LANE
RICKMANSWORTH
UXBRIDGE
WATFORD
WEMBLEY PK
WHITECHAPEL
SPECIAL

**Below:** A60 Stock at Watford when the stock was still fairly new. The date of the photo is unknown but there must have been a blind-winding session going on, as one of the 'Circle' destinations is shown in the original thin lettering style as referred to above.

<sup>11</sup> I would probably have been an F Stock aficionado if I had known them better!

