

UNDERGROUND NEWS

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THE TIMETABLE

Through December until 10 January 1981

'Metro-land in Pictures' - Ruislip Library, Manor Farm, High Street, Ruislip. Open during normal Library hours (0930 to 2000). The pictures are taken from the two books of our Vice President, Dennis F. Edwards, and there are a number of newly discovered views.

Tuesday 2 December

Library Evening, 1830. The Society's Library open for inspection at 9A Dunrobin Court, 389 Finchley Road, London, NW3 6HE.

Friday 12 December

Talk 'Experience of the Great Northern Suburban Electrification' by Mr. John Cronin, Area Maintenance Engineer, BR. 1900 for 1915 at the Lancaster Room, Caxton Hall.

1981

Friday 9 January

Talk 'Bar and Circle' - Station Name Signs, by Dr. H. L. Clarke. 1900 for 1915 at the Tudor Room, Caxton Hall.

Saturday 10 January

Convention 'Electric Trains into the Eighties'. 1000-1700 at the Science Museum, London, SW7. Admission by ticket only. For further details see UN 226, page 331.

Monday & Tuesday 2 & 3 February

Library Evenings, 1830. Other details as for 2 December.

Saturday 7 February

The Society will be operating its Sales Stand at the Transport Enthusiasts' Bazaar, Islington Town Hall, Upper Street, N1. 1100-1500. Admission 25p. Nearest station, Highbury & Islington.

Friday 13 February

1900 for 1915 at Caxton Hall. Details to be announced.

For further Timetable items, see following page.

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THE TIMETABLE (Continued)

Wednesday 4 March

Society trip to Paris. FULLY BOOKED. Return on Saturday 7 March.

Thursday 12 March

LURS Members are invited to a meeting of the Wight Locomotive Society, which is a talk 'The Future of London Transport' by Mr.M.Foulkes. 1900 at the Abbey Community Centre, Marsham Street, SW1.

Friday 13 March

Talk 'Liverpool's Underground' by Mr.B.R.Hardy. 1900 for 1915 at Caxton Hall.

OCTOBER CAXTON HALL MEETING

For the October meeting at Caxton Hall, Peter Davis gave his Presidential Address on 'Thoughts on the future of L.T. Railways'. He introduced the subject by explaining that although his own main interests in the Underground were its history, architecture and services, he had concluded from the Society's current publications that the majority of members did not share these interests, so he had decided to examine the present position and future of L.T. railways. The examination would be from an ordinary passenger's point of view, for which he had good experience by commuting to work and travelling on the Underground on business.

The first part of his talk covered the immediate future. He considered that the facilities presently offered did not add up to a service. The most important task was to get back to providing the public with a service. In his view, the essential parts of a service were reliability, adequate frequency, a balanced service (same frequency in each direction), reasonable speed, a regular service, and safety. After these features came comfort, courtesy, reliability of information and cost.

His experience had convinced him that the worst feature of the present-day underground was its complete lack of reliability. It was impossible to estimate a realistic overall time for any underground journey, because of cuts or curtailments. On some lines there was overcrowding even when a full service operated. A balanced service in both directions was important, as passengers were rightly annoyed when they saw three or four trains passing in the opposite direction before their own arrived. The speed of travel ought to be determined by the performance of the oldest rolling stock on the line, but in practice other factors intervened, e.g. regular long delays to eastbound trains at Barking in the evening peak, or inevitable 7-10 minute delays for crew changes at Barking later in the evening. When services were disrupted, information to passengers was usually either absent or incorrect. Trains still did not wait to allow cross-platform interchange in the off-peak, despite the recent notices to staff. He understood that Sir Peter Masefield had a notice on his desk at British Caledonian 'Our passengers are the purpose of our business, not an interruption of our work'. He thought that this slogan should appear on the front page of every L.T. rule book.

Turning to rolling stock, he could see much room for improvement in cleanliness, comfort and the reliability of stock. The D stock was a great improvement, but the air-conditioning system was unreliable.

In the immediate future, political interference with L.T. distracted attention from the fundamental problems, but it would be difficult to end such interference as long as L.T. needed a subsidy. On the other hand, Paris was properly subsidised, and worked well.

For the more distant future, Peter examined some familiar and unfamiliar proposals for extensions of the underground network, his order of priority for the first three being:-

- (i) Aldwych-Waterloo shuttle service.
- (ii) Bakerloo extension to Camberwell or further south.
- (iii) Resumption of a regular Bakerloo service to Watford Junction.

He also mentioned other schemes, some official, some unofficial:-

- (i) Hackney-Chelsea-Wimbledon.
- (ii) Fleet Line to Lewisham.
- (iii) Extension of District trains to Cranham via Upminster depot.
- (iv) Take-over of BR Romford-Upminster shuttle.
- (v) New line from Harold Hill via Collier Row, Hainault loop and Hackney, then as (i).
- (vi) River Line to Beckton, South Dagenham and Rainham.
- (vii) Reintroduction of cross-London services via Snow Hill.

Other, less expensive improvements that were needed included:-

- (a) More route-finders for passengers, as at Heathrow Central.
- (b) Better public address systems on stations and in trains, and more consistent use of the latter by train staff.
- (c) More destination indicators with the next three trains.

Following the conclusion of Peter's talk, the discussion ranged over many subjects, including a Bakerloo extension to Camberwell, staff discipline, morale and motivation, the calibre of L.T. management, the Paris system of self-regulation by motormen, the proposed Piccadilly extension to a loop at Terminal Four, subsidies and the G.L.C., the practical top speed of D stock, and 'management' as a profession separate from what was managed. The Barking peak delays were due to Metropolitan trains only having one platform to reverse in (and possibly departing late) and the slow detraining of terminating District trains. The crew change delays probably arose from excessive running time and lack of supervision.

Finally, the Chairman thanked Peter for such a thought-provoking address.

DFC

METAL FRAMED SIGNS

by H.L.Clarke

Although the majority of bar-and-circle station name signs on the Underground have displayed the device on a square or rectangular background (usually of enamelled steel sheet, although glass and wood have both been used), there have always been some signs without such a background. At least three types of solid-circle signs were of this arrangement, and one made up of three metal sections is currently in use as a replacement for older signs. The bulk of these signs have, however, been of notice because of a metal outline framing to the sign, and, except in the case of miniature signs, additional framing to the blue bar which bears the station name.

When the stations of the former C & SLR were modernised about 1924, most were given the then current Underground decor of panels of white tiling which, with advertising panels and station signs, were enclosed by strips of coloured tiles. The signs used for these stations were

rectangular (Reg. Design 659,814). It was not practicable, however, to give this treatment to the stations with deep level island platforms, and for these, the earliest type of metal framed sign was introduced - still to be seen at Angel, Clapham North and Clapham Common.

The signs are double sided, on tubular stands. On each side the roundel and bar are made up from a single piece of sheet steel. The sign framing is of aluminium, that of the roundel being $1\frac{3}{8}$ " from one face to the other, and of the bar $1\frac{1}{2}$ ", the framing of the bar thus protruding further forward from the enamelled part of the sign than that of the roundel.

The outside diameter of the roundel framing is 42", and its width on the face of the sign is $\frac{1}{2}$ ", which includes a bevel of $\frac{1}{8}$ " on the inner side. The red ring, 6" wide, has an outside diameter of $40\frac{1}{2}$ ", and outside it is a thin white ring extending to the aluminium frame. Inside the red ring is a $\frac{1}{4}$ " thick black line separating it from the inner white semicircles.

The outside measurements of the bar framing are $63\frac{1}{8}$ " x 12", the framing being $1\frac{5}{16}$ " wide (including a $\frac{3}{16}$ " bevel on the inside). The station name is in white lettering on the blue bar, and at Angel (where the above measurements were obtained) is in 6" lettering in Johnston sans-serif capitals.

Examination of damaged signs seems to indicate that the blue bar usually has a white margin, which is not visible unless the framing is damaged. However, signs at Clapham North (Clapham Road until 1926) have had signs renamed by screwing blue plates with the new name on to the bar, and one of these with damaged framing, shows no concealed white margin to the original bar. The sign at the north end of the platform, however, has not had a new name added in this way, and must have been installed or replaced in or after 1926. This sign does have the white margin visible where the framing is broken.

The prototype of the modern Underground surface station, based on then contemporary Scandinavian architecture, was Holden's design for Sudbury Town (1931). New signs for the station buildings were designed as part of the structure (although signs used on the open part of the platforms were of the 659,814 design). These signs are incorporated into metal framed windows between vertical concrete members, and have bronze framing, all $\frac{3}{4}$ " wide. The framing to the roundel has an outside diameter of $40\frac{1}{2}$ ". The plain red ring is 5" wide with another bronze ring on the inside. The white semicircle inside this ring is of white translucent glass. The outside measurements of the bar framing are 44" x 10", so that it only projects a short distance outside the roundel. Lettering is in 4" Johnston capitals with serifs.

Two other stations were constructed to 'one-off' Holden designs, with signs specially designed for them. These were Cockfosters (1933) and Uxbridge (1938). At Cockfosters the red ring is bounded inside and out by a white ring, while at Uxbridge the signs are similar apart from a $\frac{1}{4}$ " black line separating the red from the white. As with Sudbury Town, signs within the station are placed between two vertical concrete members, but are on concrete panels which have a central raised portion outlining the sign. Some signs are on buildings or plain concrete walls. The most striking thing about these signs is the absence of an inner white semicircular area, the concrete or other wall being visible inside the inner metal ring. The framing is of bronze, all 1" wide. Dimensions of the signs at Uxbridge are:-

Outside diameter outer bronze ring -	42"
Outside diameter inner bronze ring -	26"
Outside diameter red ring -	$39\frac{1}{4}$ "
Width of red ring -	6"
Outside of framing to bar -	58" x 12"
Lettering (Johnston sans-serif capitals)	6"

The standard pattern of metal framed sign had meanwhile been introduced in 1932. In this, the inner bronze ring was suppressed, giving a sign superficially similar to the early aluminium-framed signs described above, but the enamelled portion was made up from three plates. Two of these bore a half-roundel, while the third was the blue bar bearing the station name in Johnston san-serif capitals. In the event of a station being renamed, or a sign transferred to another station, only this plate needed renewal. Framing was of bronze, 1" wide.

Usual dimensions for a sign with a single line of lettering are:-

Outside diameter bronze ring -	42"
Outside diameter red ring -	38 $\frac{3}{4}$ "
Width of red ring -	6"
Outside framing to bar -	60" x 12"

The red ring was bounded inside and outside with a $\frac{1}{4}$ " black line. The outer margin and inner semicircular area were white. The size of lettering depended on the length of the station name and was from 4" to 6" high.

On the new deep-level stations of the Cockfosters extension these signs were mounted alternately high and low along the platform, and at car-window height along the facing tunnel wall. They were applied to walls finished with 6" square biscuit-coloured tiles, as at Holborn Central Line (completed at the same time). In the open, the signs were screwed (with bronze-finish countersunk screws through the framing) on to brickwork or mass concrete walls, or on to free-standing precast panels on island platforms, or precast panels incorporated into concrete fencing.

Later, on stations built or modernised under the 1939/40 New Works Programme, these signs were used extensively, but with some modification as to their location. Full-size signs were no longer used on tunnel walls facing the platform, nor were alternate signs on the deep-level platforms at high level. At surface stations, precast lighting standards were employed which incorporated precast panels to carry signs, having a raised portion outlining the sign as in the structure at Cockfosters. In a few cases, signs were incorporated into platform seats.

Generally, the convention was followed that these signs were only used on a backing of brick, tiling, or concrete. This convention was not always easy to apply where older stations were being re-equipped. Sometimes, as at Rislip, installation of standard LT lighting and concrete fencing facilitated matters. At some ex-GE stations short lengths of brick wall appear to have been built just to carry signs. Below ground there were less problems, with neat installations on 9" x 3" glazed white tiles on platform extensions on the Central and Bakerloo lines.

Up to the 1939/45 war the frames were made of bronze. On the many signs installed since 1946, it would appear that most, if not all, had aluminium frames with a bronze finish, while the enamelling appears less weather-resistant than the prewar product. The first major innovation was made at White City in 1947, where some signs were mounted in double-sided tubular stands. These stands had a rounded outline, to conform to which the upper corners of the blue bar and its framing were replaced by 3" radius curves. By 1950 many new signs were required to replace older signs (including the surviving Metropolitan and main-line signs) while station rebuilding was in many cases indefinitely deferred. The concrete platform furniture of the 1930s was not wearing well, and tubular steel lighting standards were coming into use. Many installations were therefore made of metal-framed signs mounted in rather utilitarian stands of welded mild-

Captions to photographs - Top left: One of the earliest types of metal framed signs at Clapham North - note the nameplate screwed over the original, which was 'Clapham Road' until renamed Clapham North on 13.9.26. (H.L.Clarke). Centre left: The unique metal framed signs at Sudbury Town. The white 'centres' are of white translucent glass. Lower left: One of the unique station signs at Cockfosters (H.L.Clarke). Top right: The also unique signs at Uxbridge, with the hollow centres, showing the concrete behind. Centre and lower right: Comparison of signs to be seen at Sudbury Hill. Note the different letter-spacings between each type. (Photographs not credited above, B.R.Hardy).

steel angle. On island platforms, there could be two signs back-to-back in a single stand, or if preferred, two separate stands with a lamp-standard between.

The installation of new metal-framed signs had ceased by about 1959, with the introduction of the current patterns of rectangular signs with unlined roundels. The durability of the metal frames and the very large number of signs involved made it desirable to provide new enamelled plates to replace those that had deteriorated through weathering or vandalism. There was no change in the design of the blue bar, but the replacement half-roundel plates have a plain red ring with no black lining and no white outer margin. There is little change in the appearance of the sign to the casual observer. At some locations, only one half-roundel has been changed, thus producing a hybrid sign.

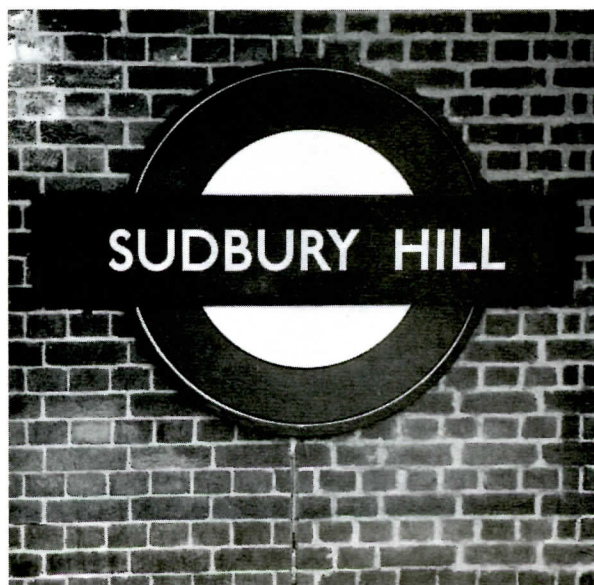
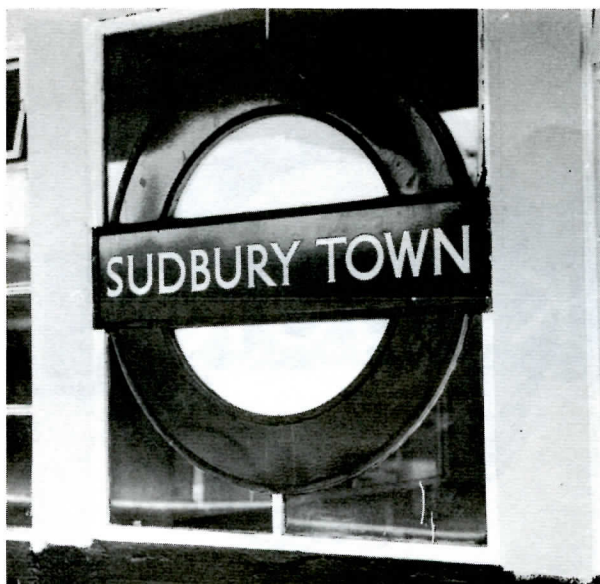
Where metal frames have deteriorated through corrosion (or theft, as at Shoreditch about 1970) new signs of current pattern are usually substituted. At Ongar, most of the signs have the frames painted, presumably to prevent corrosion in a very exposed location.

Miniature bronze-framed signs were used on tunnel walls facing platforms at Highgate, Swiss Cottage, St.Johns Wood and Baker Street (former Bakerloo southbound Stanmore line, since removed with the modernisation of this platform, with the opening of the Jubilee Line). In these signs, the bronze frame outlines the sign, with no framing to the central portion of the bar, a white line on the enamel plate being substituted. These signs have not been used on tunnel walls facing platforms at other stations, although there are a number just inside tunnels at stations on the Circle. Similar signs have been used in many places on stanchions etc., and at one time were common on passimeter booths. At Hammersmith there are some miniature signs with full framing, whilst at Liverpool Street (Circle) there were signs of miniature form nearly as large as some of the smaller standard signs.

VIA EAST PUTNEY

by M.H.Kennard

It is generally thought that the only passenger service now provided on the section of line between East Putney and Wimbledon is provided by the London Transport District Line service. This, however, is not strictly true, as British Rail run a staff train over this section (two between Wimbledon Park station and Wimbledon) each night except for Sunday nights. In addition to the staff trains, there are many empty carriage stock trains of the Southern Region running to and from Wimbledon Park depot via the East Putney line. It should be noted also that one or two freight trains use this route and that the line is used for quite frequent diversions of all types of trains, but mainly freight and van trains. Special empty stock and excursion trains are often routed via East Putney to gain access to Wimbledon Park sidings or as a link between the main line and the Kensington/South Eastern Division lines at Clapham Junction.





Captions to photographs - Top left: The 'perfect' LT bullseye! One of the original standard design incorporated in a concrete advertisement display and lamp-standard. Other versions comprise a concrete lamp standard without the advert 'wings'. All signs at Eastcote are in original condition and are (at present) grafitti-free. Centre left: The tubular stands incorporating the bar-and-circle station name at White City. This is the later type of sign which has no $\frac{1}{4}$ " black lining and no white outer margin. Lower left: The later type of sign again, as applied to a concrete stand. Top right: The hybrid type formed of one later type of half roundel (top) and original lined half roundel (lower). Compare the letter spacing of the station name with the photograph at lower left. In recent months, Ruislip station has acquired several 'hybrid' signs. Centre right: At Kilburn, with the station name taking up most of the height of the blue bar. Lower right: An example of the miniature aluminium-framed sign, at (now) Embankment station, but during the interim period of its renaming from Charing Cross to Embankment. This station name of 'Charing Cross Embankment' is a plastic sticker over the original 'Charing Cross'. (All photographs, B.R.Hardy, except lower right, R.J.Greenaway.)

STAFF TRAINS

Time	From	To	Time Due	Booked Stock	Train No	Head-code
23.24 M-F	Waterloo (W) Plat.20	Wimbledon Plat. 1 or 2	23.42	4VEP & 4CIG	2Y51	86
23.58 M-F	Wimbledon Plat. 1 or 2	Wimbledon Park station	00.01	4VEP & 4CIG	2Y50	86
00.05 Tu-Sa	Wimbledon Park station	Wimbledon Plat. 1 or 2	00.08	4VEP & 4CIG	2Y53	86
00.13 Tu-Sa	Wimbledon Plat. 1 or 2	Wimbledon Park depot	00.16	4VEP & 4CIG	2Y54	86
23.24 Sat	Waterloo (W) Plat.21	Wimbledon Plat. 1 or 2	23.42	8VEP	2Y51	86
23.48 (ECS Sat)	Wimbledon Plat.1 or 2	Wimbledon Park depot	23.51	8VEP	5Y70	34 *
00.05 Sun	Wimbledon Park depot	Wimbledon Plat. 1 or 2	00.09	4VEP	2Y53	86
00.13 Sun	Wimbledon Plat. 1 or 2	Wimbledon Park depot	00.16	4VEP	2Y54	86

It will be noted that on a Saturday/Sunday night the short trips between Wimbledon and Wimbledon Park run direct to Wimbledon Park depot and not to Wimbledon Park station. This also applies when Wimbledon Park signalbox is closed out, and at other times if circumstances prevail. Note * above indicates the empty stock working after working 2Y51 on Saturday night only, 5Y70 is not a staff train but is included for the sake of completeness.

IT MUST BE STRESSED THAT THESE TRAINS ARE NOT ADVERTISED AND ARE NOT OFFICIALLY AVAILABLE TO MEMBERS OF THE GENERAL PUBLIC.

The following is a list of empty carriage stock workings that run via East Putney, in between District Line passenger trains. This is taken from the current S.R. Working Timetable, which ends on 10.5.81.

Note that all trains listed are those scheduled, and in the order of running via East Putney. W.P.S. denotes Wimbledon Park Sheds.

Time	From	To	Train No.	Head-code	Notes
<u>'Down' trains, Mondays to Fridays</u>					
04.20	Stewarts Lane	Bournemouth	5Y85	55	As Required
08.20	Waterloo	W.P.S.	5Y30	03	
08.22	Waterloo	W.P.S.	5Y31	03	From 6.10.80
08.27	Waterloo	W.P.S.	5Y34	03	
08.32	Waterloo	W.P.S.	5Y32	03	
08.33	Waterloo	W.P.S.	5Y33	03	
08.48	Waterloo	W.P.S.	5Y36	03	
08.54	Waterloo	W.P.S.	5Y44	03	
09.03	Waterloo	W.P.S.	5Y37	03	
08.59	Waterloo	W.P.S.	5Y35	03	
09.04	Waterloo	W.P.S.	5Y38	03	
09.31	Waterloo	W.P.S.	5Y58	03	
09.28	Waterloo	W.P.S.	5Y42	03	
09.37	Waterloo	W.P.S.	5Y48	03	
09.44	Waterloo	W.P.S.	5Y47	03	
10.14	Waterloo	W.P.S.	5Y39	03	
11.11	Waterloo	W.P.S.	5Y40	03	
11.31	Waterloo	W.P.S.	5Y57	03	
11.55	Waterloo	W.P.S.	5Y45	03	
12.07	Clapham Yard	W.P.S.	6Y22	55	Stores Unit
(Th0)					
11.40	Slade Green	Eastleigh Works	6Y22	09	Stores Unit
(MO)					
13.33	Waterloo	W.P.S.	5Y59	03	
20.43	Stewarts Lane	W.P.S.	5Y74	55	As Required
20.54	Waterloo	W.P.S.	5Y50	03	
21.32	Waterloo	W.P.S.	5Y55	03	
21.50	Waterloo	W.P.S.	5Y54	03	
<u>'Down' trains, Saturdays</u>					
04.20	Stewarts Lane	Bournemouth	5Y85	55	As Required
06.57	Waterloo	W.P.S.	5Y30	03	
08.06	Waterloo	W.P.S.	5Y32	03	
09.43	Waterloo	W.P.S.	5Y34	03	
12.15	Clapham Yard	W.P.S.	5Y69	03	
12.27	Waterloo	W.P.S.	5Y39	03	until 6.9.80
<u>'Down' trains, Sundays</u>					
21.52	Waterloo	W.P.S.	5Y56	03	
22.34	Waterloo	W.P.S.	5Y57	03	
<u>'Up' trains, Mondays to Fridays</u>					
00.30	Bournemouth	Stewarts Lane	5Y86	55	As Required; East Putney at 02.48
05.19	W.P.S.	Clapham Jctn.	5H84	06	
05.47	W.P.S.	Waterloo	5K12	32	
05.57	W.P.S.	Waterloo	5C03	38	
06.18	W.P.S.	Waterloo	5K14	32	
11.22	W.P.S.	Stewarts Lane	5Y62	55	As Required
11.40	W.P.S.	Stewarts Lane	5Y82	55	As Required
10.56	Fratton	Folkestone	5E12	07	Ran on 12/6, and 11/9 to 2/10. East Put- ney at 12.43
(Th0)					

Time	From	To	Train No.	Head-code	Notes
<u>'Up' trains, Mondays to Fridays (continued)</u>					
16.10	W.P.S.	Waterloo	5J51	87	
16.31	W.P.S.	Waterloo	5N29	26	
16.55	W.P.S.	Waterloo	5J53	87	
17.14	W.P.S.	Waterloo	5U59	58	
17.22	W.P.S.	Waterloo	5C27	38	
18.04	Eastleigh Works (TFO)	Stewarts Lane	6Y05	55	Stores Unit; East Putney at 19.43

'Up' trains, Saturdays

00.30	Bournemouth	Stewarts Lane	5Y86	55	As Required; East Putney at 02.48
05.06	W.P.S.	Waterloo	5H92	58	
06.03	W.P.S.	Waterloo	5U11	87	
06.23	W.P.S.	Waterloo	5C05	38	
07.22	W.P.S.	Waterloo	5C07	38	
10.53	W.P.S.	Stewarts Lane	5Y62	55	As Required
18.10	Eastleigh Depot	Stewarts Lane	5Y16	55	As Required

There are no 'up' trains scheduled on Sundays.

A CHRISTMAS DOODLE

by Clive R. Johnson

There can be few Londoners who are not familiar with what is surely one of the world's most famous and most used maps: the London Underground Diagram of lines. Go virtually anywhere in the metropolis and it's there, facing you. So simple and effective it is, that most people who use the system regularly - be they commuters, shoppers, theatre-goers or whoever - have the basic route pattern printed in their minds. The most effective way of gaining an understanding of the geography of London and environs is to acquire a knowledge of London's Underground system.

Foreign visitors to the Capital have a right to be jealous of our map - or can they seriously argue that the topological maps for New York, Paris and Munich are as attractive as the one produced for London? Perhaps we take it for granted, and don't truly appreciate how fortunate we are to own such a fine piece of art perhaps we should reflect briefly the effect of this most successful map.

Curiously enough, the current design evolved almost by accident. Had it not been for the apparent tediousness of one Christmas which inspired the author, Paul E. Garbutt, to put pen to paper in an attempt to improve the old map, would we still be staring at the original on the walls of tube stations, which paid too much attention to the real geography of the metropolitan region and wriggled too much? This, Garbutt aimed to avoid, and achieved from his simple doodle what other earlier projections lacked - clarity and simplicity. Garbutt's masterpiece is striking.

Since the formulation of that original doodle, more than 18 million copies of the map have been printed - not to mention the countless times it has appeared on the back of guide-books, diaries and atlases. For many years, Paul E. Garbutt maintained copyright of his gem, before passing that right to London Transport Executive. He has since risen to high office in the administration of the Executive.

Several basic observations may be made about the map. Firstly, it is not as simple as it may appear. As we all know, the system did not grow up in a planned, logical way - but rather a number of independent companies seeking to exploit new areas, built the lines which now constitute the system in the late nineteenth and early twentieth centuries. This unplanned development aids an explanation of why there is no central point to the system, from which lines radiate in all directions like the spokes of a cart-wheel. But perhaps the system has a heart - I would like to suggest the area bounded by the Jubilee (Bond Street - Charing Cross), Northern (Charing Cross - Leicester Square), Piccadilly (Leicester Square - Holborn) and Central (Holborn - Bond Street) lines. A central focal point is not a characteristic of other systems of the world, incidently, but in cities which have well-developed systems, radiation of lines from a central core is.

Examination of a map showing the extent of the urban area which is Greater London reveals that, by and large, the River Thames bisects the area into two near-equal halves (perhaps the northern half is slightly greater than the southern half), yet there are far more miles of line north of the river than south of it. If, then, our knowledge of London is to be based on the Underground map, we must be aware of the fact that not all parts of the metropolis are served by the system. This bears out another point; the system of Underground lines is superimposed on a system of bus routes, superimposed on a system of British Railways lines, and, in part, superimposed on a system of tramway and trolleybus routes. Areas where the tube system is lacking are provided for by the other systems. Thus in south London, where there are relatively few tube lines, the Southern Region of British Railways provides for the high population who live there - and of course London Transport buses.

If we take the River Thames as a base-line, it is difficult to see any geometric similarity about the map. However, D. Rhind, Reader in Geography at the University of Durham, recently compared the topological diagram with the Ordnance Survey impression. Rhind discovered that the scale diminished outwards from near the map centre surprisingly regularly - he explains there is a surprising amount of geometric consistency in the map.

Perhaps the key to the success of the map lies in its apparent simplicity. Routes are represented by horizontal, vertical and 45° lines (mostly), while the sense of proportion is not lost. A kind of target impression is given by the cross and circle formed by the Euston - Waterloo Northern Line / Liverpool Street - Notting Hill Gate Central Line and Circle Line (...and who would like to say what the system map would be like without the Circle Line forming part of its framework?) The overall effect is striking.

So clever is the design, that later accretions to the system (of which the Jubilee and Victoria lines are obvious examples) have been easily represented on the diagram without fundamental changes to the structure of the map being necessary. The problem of drawing Central and District lines close to each other (thus altering the perspective of the map) to show interchange at Bank and Monument has been avoided by separating the stations, although an escalator link is shown to exist there.

Now we look to the future. One consideration is what colours the designers will choose to represent new lines when they are constructed. We might remember the words spoken by Mr. Michael Robbins in 1972, remarking that the colour of the Jubilee Line, silver-grey, was 'about the only colour left'. The colours selected so far have a pleasing effect - will the brighter colours (presumably) used in the future be over-powering, or am I just being facetious?

One wonders what the designers will do when (or should it be if?) the Jubilee Line is extended to Fenchurch Street. The line through Aldwych

and Ludgate Circus can be easily represented, but it is hard to imagine what will happen when Cannon Street and Fenchurch Street are reached. Will the links here also be shown by escalator links? Will the link shown between Bank and Monument be bisected by the Jubilee Line? Further, if the River Line is built beyond Fenchurch Street, through Dockland, and on to Thamesmead, involving at least three river crossings, will the direction of the River Thames have to be changed to accommodate for this, or will the River Line snake from one side of the Thames to the other? Would the construction of the Chelsea - Hackney line complicate the central London pattern?

...Perhaps we should advise London Transport Executive not to build any more lines through the centre of London as they might spoil the image of their pretty map. Or does the Society contain any would-be Garbutts, with time to spare this Christmas, who can produce a new design which accommodates for future additions, but maintains the obvious, striking impression which the present map gives? Personally, I doubt that Paul E. Garbutt's map will ever be improved - but have a happy, map-drawing Christmas!

THE PARIS METRO - THE PRESENT & FUTURE

by B.H. Steinkamp

On the basis of the 1979 number of passengers, inclusive of those transferring from the RER, the league table of the various lines is (in millions):

Line 4	154.2	Line 8	83.2	Line 13	75.0	Line 11	32.5
Line 1	120.7	Line 3	83.1	Line 2	70.9	Line 7bis	4.4
Line 9	112.5	Line 6	78.1	Line 5	64.0	Line 3bis	2.3
Line 7	103.6	Line 12	77.1	Line 10	36.1		

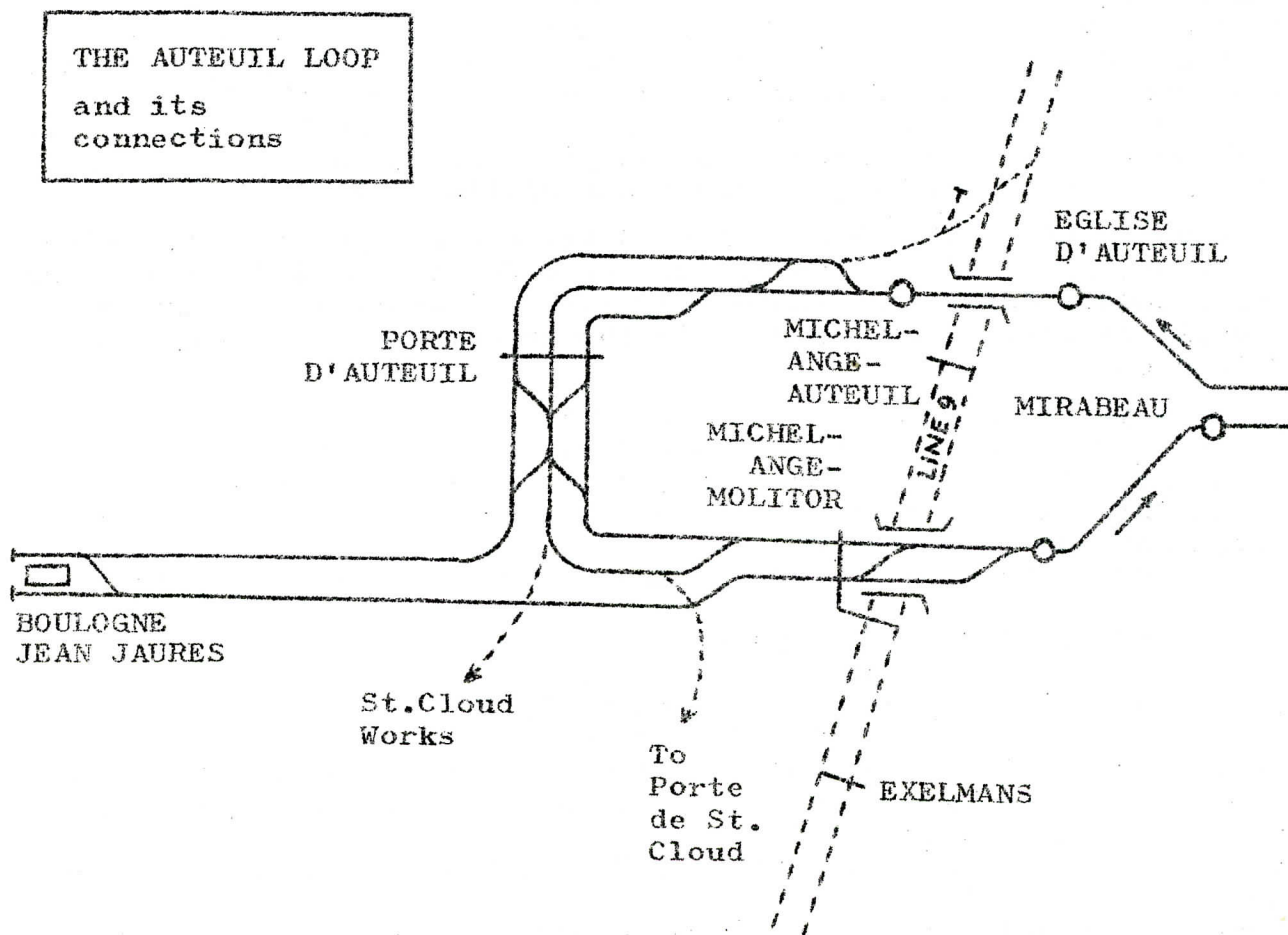
Modifications to lines have their effects in these figures; the junction of lines 13 and 14 in December 1977 brought about an increase in the number of passengers at stations at the extremities of the line of between 2.8 and 8.9%. The extension of line 7 (October 1979) produced a drop of over 60% at the former terminus of Porte de la Villette, mainly because of the simultaneous cutting back of suburban bus routes. The total traffic at the former terminus plus the two stations on the extension rose, however, by just under one million, or 14%.

For the seventh time, RATP has published its annual update of the five year plan, or 'Plan d'Entreprise', this time for the period 1981-5. The 120-page document deals very thoroughly with all aspects of transport in the Paris region. As far as rail is concerned, the following points are of interest:

- After many years of rapid growth, traffic is now evening out as a result of a stabilising population and economic stagnation.
- Over the past 15 years public transport capacity has risen by 50%. The voluminous investments of this period result in rapidly increasing repayment and interest charges.
- Operating expenses tend to rise quicker than the cost of living index.
- Extension of the RER will be pursued.
- Metro extensions under construction are:
 - Line 7 to Kremlin Bicetre (open end of 1982)
 - Line 10 to Pont de Saint Cloud (open end of 1981)
- In active preparation are those of line 1 to La Defense, 4 to Bagneux, 5 to Bobigny, 7 to La Courneuve in the North and Villejuif in the South and of line 13 to Chatillon.
- Further extensions for the period 1985 - 1990 are being studied for lines 8, 9, 11 and 13.
- To increase capacity line 7 or line 13 may require platform extensions to accommodate 7-car trains.

- The service level on the RER is to rise from 48.6 million car kilometers in 1980 to 67.8 million in 1985; on the Metro from 190.5 to 200 million.
- On the rolling stock side, in 1985 there will be:
RER: 381 coaches of MS61 stock and 432 of MI79.
Metro: 928 of MP stock, 1583 of MF67 and 1035 of MF77. Part of the articulated stock of 1951-3 origin (now on line 10) will be phased out by 1985.
- It is considered unrealistic to use public transport fares for the transfer of social justice. Therefore the difference between the fare unit for the single ticket - bought in multiples of ten in 'carnet' form - now at F1.75 - and that of the weekly ticket - now at F1.70 - will be abolished and in 1985 brought at a level of F2.23 (at 1980 prices). The passenger's contribution to the real cost of his fare will rise from 37% to 45%.
- Plans have been worked out for an energy crisis, resulting in 20% of car journeys transferring to public transport. This would result in 42% more passengers on the RER in peak hours (34% outside them) and 26% (36%) on the Metro. Lines 4 and 7 are considered to be unable to cope with such a situation!

Back to the present day, where the line 10 extension (1.6 km) came into passenger service during the afternoon of 3 October 1980; alternate trains continuing beyond Porte d'Auteuil, except after 1900 when all trains run through. This latter situation robs the station concerned from a service to the City, as will be clear from the diagram below. The number of Monday to Friday trains remains unchanged at 23, but the maximum frequency has dropped from 2 mins 20 secs to 2 mins 25 secs. On Saturdays and Sundays there is one train more. The running times for line 10 are now 26.05 (max) and 23.50 (min).



ENGINEERING WORKS

Wood Green, 5.10.80

Because of signalling modernisation at Wood Green, no Piccadilly Line services operated between Kings Cross and Arnos Grove on Sunday 5th October 1980, until 0930. The work involved commissioning new equipment at Wood Green in the old signal cabin, and the removal of the temporary relay room on the eastbound platform. At the same time, the automatic signalling on the westbound line from Wood Green to Manor House was also renewed. The cabin code letters for the Wood Green area were altered from 'G' to 'PG'. It is the ultimate aim that the signalling will be monitored from the Regulating Room at Earls Court, but instead of being worked by Programme Machines, on-site computers will be commissioned.

Until 0930, a normal interval service was provided between Heathrow and Kings Cross - every 7½ minutes, with the usual 'shuttle' every 15 minutes between Rayners Lane and Acton Town. Between Arnos Grove and Cockfosters, a 7½ minute service was provided (normally every 15 minutes). Between Kings Cross and Arnos Grove, a substitute L.T. bus service was provided, running at about every 7-8 minutes and being scheduled to take 38 minutes for each single journey. For this, 14 buses were required, all of the DM/DMS type, coming from Muswell Hill (3), Palmers Green (3), West Ham (5) and Wood Green (3) garages.

Parsons Green, 26.10.80

Your Editor was hoping to start this report with 'First Class on the District - Again', but this was not to be so, for reasons that will come clearer below. On Sunday 26th October 1980, no District Line service operated between Earls Court and Wimbledon until about 2000 (scheduled until 1800) due to point renewal work at Parsons Green. Between Earls Court and East Putney, a substitute L.T. bus service operated every 4-5 minutes (every 10 minutes before about 0845) using 29 buses borrowed from six garages, as follows: 6 DMS from Battersea, 6 DM/DMS from Brixton, 3 DMS from Putney, 4 DMS from Sutton, 2 DM from Wandsworth and 8 MBA/SMS from Gillingham Street. District Line trains on the Edgware Road service (2xC stock) were diverted at Earls Court to run empty to Olympia to reverse. Between East Putney and Wimbledon a 20-minute service was provided by the Southern Region, reversing in the disused 'up' platform, adjoining the westbound District platform. Last time a service was provided between East Putney and Wimbledon by the S.R. (April 9th 1978), two units were provided, each having first class accommodation (q.v. above) and were 4-CEP 7198 and 4-VEP 7738. This time, however, the service was provided by two new class 508 sliding-door units, 508009 and 508016, having all 2nd class seats.

As stated above, the work was scheduled to be finished by about 1800, but due to a short-circuiting bar being left on the track at West Brompton when current was being switched on, this became welded to the track, hence the two-hour later start. To augment the two C stock trains on the Edgware Road service from 1800 to four trains, two trains started from Ealing Common depot, and were restricted to six-cars because of the short lengths of Notting Hill Gate, Bayswater and Paddington. As C stock trains are not allocated to Ealing Common, these trains could therefore be only formed of 6-car CO/CP or 5-car R stock. In the event, only one six-car train was available, and worked train No.62 - 53217+53048. This is the first time since 29.8.78 that CO/CP stock has worked to and from Edgware Road. Train 61, also scheduled to be a 6-car, was in fact formed of 7-cars R stock, and thus did not work beyond High Street Kensington. To enable further engineering work to be carried out, Wimbledon services were suspended after midnight, and for this, substitute coaches ran in the train timings from Earls Court (at 0010 and 0015) and from Wimbledon (at 2349). The coaches were supplied by Maybury Ltd.

Throughout Sunday 2nd November 1980, there was no Central Line service between North Acton and Marble Arch, due to crossover renewals at White City. It was originally proposed that trains should reverse west to east at Queensway, involving a double reverse, but with the severe curves into and out of Queensway siding, it was decided instead to reverse at Marble Arch. Throughout the day, a 20-minute service was provided from North Acton to Ealing Broadway and West Ruislip, with four trains working the service, working alternate trips to Ealing and West Ruislip. Beyond Marble Arch to the east, a reduced central area service operated - the normal 5-minute interval service being replaced with a 7½ minute service due to the restricted reversing facilities at Marble Arch. East of Leytonstone, a 15 minute service operated as on a normal Sunday to each branch. Between Marble Arch and North Acton, however, a substitute L.T. bus service was provided, and comprised 77 buses - the largest since the bridge renewal work at Ravenscourt Park in February 1979 - see UN 208, page 77. Again, the buses came from far and wide, as follows: Alperton 2 M, Battersea 6 DMS, Chalk Farm 4 RML, Cricklewood 2 M, Edgware 6 DMS/SMS, Fulwell 6 M, Hanwell 3 DM/DMS, Harrow Weald 6 LS, Hendon 2 M, Hounslow 6 LS, Norbiton 10 M, Putney 2 DMS, Southall 4 M, Uxbridge 6 LS/SMS/DM/DMS, Gillingham Street 10 MBA/SMS, Wandsworth 2 DM/DMS. Between Marble Arch and North Acton, the buses provided the following frequencies:

	North Acton- Shepherds Bush	Shepherds Bush - Marble Arch
Until 0930	5 mins	5 mins
0930 to 1900	5 mins	2-3 mins
1900 to 2100	4-6 mins	3-4 mins
2100 to finish	5 mins	5 mins

REVIEWS

a) Books

LONDON TRANSPORT PASSENGERS COMMITTEE - ANNUAL REPORT 1979. Published by the Committee (Office at 26 Old Queen Street, London, SW1H 9HP - price not stated).

The Committee is an independent consultative body set up under the Transport (London) Act 1969 to consider services and facilities provided by LTE, except for fares and charges and the permanent closure of railway stations or lines. It is, in effect, a 'Court of Appeal' for passengers who are dissatisfied with LT's answer to their original complaint.

As in previous years, the majority of complaints or suggestions were about bus services, and several others were about common services. However, some of the Underground matters are of considerable interest:

- (a) The Committee is peeved that the GLC has again been unable to agree to its requests that the GLC give directions to London Transport on particular matters. One of the two 1979 requests was that the GLC direct LT not to make a final decision on the design of 1983 Jubilee Line stock until practical experiments with single doors had been carried out.
- (b) The Committee concluded that complaints about the concept, patronage and operation of the Jubilee Line were unjustified, but it was perturbed that the Bakerloo Line service between Waterloo and Baker Street had been reduced concurrently, and that demolition of BR buildings at Queens Park would be necessary before the service could be improved.

- (c) The Richmond and Putney Bridge-Wimbledon sections of the District Line were considered. The Committee was unhappy about BR control of the section south of Putney Bridge, as LT had proposed extending off-peak Edgware Road trains to Wimbledon, but BR had rejected this as likely to cause a net financial loss.
- (d) L.T. had agreed to show the North Woolwich-Camden Road service on the Underground map from 1980.
- (e) The Committee recommended that L.T. adopt Brussels Metro pictograms to encourage visitors to 'stand on the right' on escalators.
- (f) The Committee was very unhappy that the plans for the rebuilt Kings Cross Midland (formerly Widened Lines) station did not allow easy interchange to Circle or Metropolitan stations west of Kings Cross.
- (g) The Committee had continued to urge Herts, Bucks and Essex County Councils to apply for a 70% Transport Supplementary Grant for Underground services in their area, but only Herts had applied for, and received, a grant for L.T. rail services in the past two years.
- (h) The Committee welcomed the proposed refreshment kiosk at the new Harrow bus station (adjacent to the Metropolitan Line station).

LONDON'S INDUSTRIAL ARCHAEOLOGY No.2 - 1980. Published by the Greater London Industrial Archaeology Society. 46 pages and thin card covers. A4 format. Price £1.50 including postage from GLIAS, c/o Tom Smith, 74 Lord Warwick Street, Woolwich, London, SE18 5QD, or price £1.25 at GLIAS meetings.

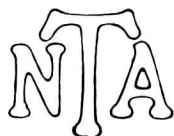
This occasional publication, printed and fully illustrated, contains articles embodying the results of careful field studies by GLIAS members, reinforced by detailed research into documentary evidence. The articles in this issue comprise:

- (i) Commercial Road goods depot (LT & SR).
- (ii) Low-pressure gas storage.
- (iii) London and the steam engine, part 2 - The Engine Builders.
- (iv) Cast-iron cow stalls at Cane Hill Farm, Coulsdon.
- (v) The London Small Arms Company, Gunmakers Lane, E3. (An interview with a foreman in the factory in WW1).

The first article will probably be of most interest to LURS members. The six-storey warehouse and depot opened in 1887, and they were linked by a spur viaduct to the main line into Fenchurch Street. Five railway tracks ran right through the depot at first floor level to a small goods yard at the Commercial Road end. Three hydraulic wagon hoists connected the first floor to the ground floor where there was a simple gridiron of tracks connected by turntables. A second, smaller depot was linked to the main depot by tracks crossing Hooper Street on the level. The depot had its own hydraulic pumping station, powered by two steam engines, supplying hydraulic power to the hoists, lifts, capstans and cranes. The warehouse was built by the LT & SR at the instigation of the East & West India Dock co., which had opened a new dock at Tilbury. It was demolished in 1975 to make way for a computer centre, but the hydraulic pumping station, and several other small relics, still remain.

The second article gives a comprehensive history and technical description of gasholders, with the locations of examples of the different types that still remain in the London area. The third article mentions the plaque in Lambeth North station, recording that Henry Maudslay's workshops were on that site.

All articles are fully illustrated by photographs, plans, etc., and have a list of references to sources of information. Recommended.



THE NATIONAL TROLLEYBUS ASSOCIATION

The National Trolleybus Association is recognised as the country's foremost Society for trolleybus enthusiasts; its principal aim is to establish a working Museum like the successful Tramway Museum at Crich, Derbyshire, and at the present time, negotiations are proceeding with the owners of a suitable site.

If you are interested in trolleybuses and would like a free specimen copy of 'Trolleybus Magazine', the Association's fully printed and illustrated journal, please write (quoting this advertisement) to the Sales Officer, 37 Petworth Drive, Burgess Hill, Sussex.

SA11/228/80

THE BATTLE OF BRITAIN: THEN AND NOW

Editor: Winston G. Ramsey

Battle of Britain Prints International Ltd.

Published 1980. Price £24.95

Northolt

On page 243 in the section dealing with Northolt RAF Aerodrome, there is a recent photograph (1) taken outside Ruislip Manor station on the north side and showing the 'Oxfam' shop and estate agents next to the station. The accompanying text reads: 'On May 16 1940 plans had been set in motion for the dispersal of (Northolt) Sector operations by the requisitioning from London Transport of a shop in Victoria Road next to Ruislip Manor underground station. It was empty at the time but now houses an estate agent. Operations moved there in August being visited by the King on September 26 (2) by which time the (now) 'Oxfam' shop had been taken over. Facilities were primitive for although toilets had been added for the WAAFs, airmen had to use the station WC! The operations table itself almost filled the shop. Also it was only possible to receive communications from the pilots necessitating a telephone relay back to the aerodrome for messages to be transmitted to the aircraft. The delays this caused together with the cramped conditions led to the return of operations to building 27 (at Northolt aerodrome until more adequate premises could be found. This came with the takeover of Eastcote Place (3) a mansion set in its own grounds in Eastcote Road. In 1968 it was converted into flats and town houses were built in the grounds'. A picture of 'Eastcote Place' now is shown.

Other items from the book of interest are:-

- (i) An aerial view taken in October 1979 of North Weald, in which the Epping-Ongar line can be seen.
- (ii) A 'Then and Now' comparison - 'Hedgehog': a 'Hurricane' which had overshot the north-south runway onto the Epping-Ongar road, and a 'Roadhog': LT trainer bus RM63 at the same site.

References:

- (1) Purely for the LT Underground enthusiast, the picture is interesting as it does show a glimpse of part of an eastbound train; a CO/CP pilot motor coupled to a 'D' end UNDM of new D stock.
- (2) During the King's visit to Northolt aerodrome, Nos. 229 and 303 Squadrons were 'scrambled' to intercept a raid on the Supermarine

Works at Woolston, Southampton and the King visited the operations room before returning to Northolt to watch the aircraft return.

- (3) Presumed to be 'Highgrove House' or 'Lady Warrender's House' as it was known at the time.

NJCH

RAILS AROUND GLASGOW by W.A.C.Smith, published by the Scottish Steam Railtours Group. A5 size, 56 pages, 97 photographs, Price £1.80 including postage. Available from STMS Sales, P.O.Box 78, Glasgow, G3 6ER.

This interesting card cover book comprises mainly photographs of steam locomotives and trains in and around the Glasgow area during this century, with a few pre-1900 photographs. There are, however, a few photographs of Underground interest, being of the Central Low Level line in 1959 shortly before closure, and of the same in 1979 after electrification and reopening as Clyderail's Argyle Line. A page is also devoted to 'trains and trams'. The contents of the book are varied and there are many interesting photographs. The only criticism is that some photographs are rather dark.

Ed.

b) Magazines

MODERN RAILWAYS, November 1980. Price 50p.

Continuing the occasional, but very fine series of 'London's Branch Lines' by J.G.Glover, this issue contains a three-page article on the High Barnet and Mill Hill East branches of the Northern Line of London Transport. There are nine photographs, all of 'modern-day' rolling stock, including four of 1972 MkII tube stock before transfer to the Jubilee Line. Apart for Woodside Park station (which the author explains was illustrated on the front cover of the May 1977 issue), all stations within the scope of the article are illustrated, as is also the Dollis Brook viaduct on the single line branch to Mill Hill East.

Ed.

THE HORNBY RAILWAY COLLECTOR, October 1980.

This issue includes (pages 180-1, 184-6) an article by Bruce Bosbell entitled 'Hornby Book of Trains 1926'. Practically a whole page is devoted to the Hornby 'Metro' locomotive. The author suggests 'that they were such a significant advance in the developing Hornby series, that they rate a long comprehensive article on their own merits'.

Enquiries concerning membership of the Hornby Railway Collectors' Association should be addressed to Bob Field, 2 Ravensmore Road, Sherwood, Nottingham, NG5 2AH. Tel: Nottingham (STD code 0602) 625693.

EDC

LONDON BUS MAGAZINE No.34, Autumn 1980. Published by the London Omnibus Traction Society. Price 70p.

This issue contains the first instalment of an article on the genesis of Edward Johnston's typeface for the Underground Group posters, produced in 1916, and subsequent developments, including the bullseye, bus destination boards and blinds, vehicle fleet names, the short-lived LPTB 'double circle with wings' and bus stop flags, standard and experimental. Other articles in this issue cover the Green Line Golden Jubilee Rally, and developments in the London bus scene.

Obtainable from the Society Sales Stand, or from the Assistant Sales Manager, 21 Chestnut Grove, South Ealing, London, W5 4JT.

DFC

Captions to photographs - Top left: The exhibition at Ruislip depot in July 1980 included a variety of BR rolling stock. SR class 508 EMU 508029 stands in the depot near the 1973 tube stock ETT (894-694-895) which was being prepared for test train duties. Centre left: Most, if not all of the BR exhibits were placed into position, and later taken away by BR locomotives, LT at West Ruislip trainmen's depot providing 'pilot' crews. The Leyland 4-wheeled experimental Railbus is seen passing scrap CO/CP stock (left) in the depot, being manoeuvred into position by class 25 diesel 25320. Note the 'ghetto shields' on the windscreen of the railbus, fitted when this vehicle went to the USA prior to this exhibition. Lower left: The 'star of the show' was six cars of the Advanced Passenger Train, which is due to enter service on the Euston-Glasgow main line in the near future. The APT is seen on the LT/BR stock connection line at West Ruislip with class 47 diesel locomotive 47008 hauling the train. Coupling to the APT was done by the 'nose' of the APT being raised. Top right: There are now two Personnel carriers of former Pre-1938 tube stock in yellow livery. PC852 and PC855 are seen coupled in Ruislip depot. Centre right: Leaf clearing in the autumn of 1980 is being done with the ex-T stock sleet unit with flat wagon F311 marshalled in between. Crew training took place from 9.9.80 to 3.10.80, while actual leaf clearing commenced on 13.10.80. Whilst on a crew training run on its first day, the formation is seen at Wembley Park, waiting to return to Neasden depot. Lower right: With the introduction of the new Piccadilly Line timetable from 6.10.80, the two morning 'Hillingdon' trains ceased to operate, although there are still two in the evening, at the end of the peak. One of the last morning workings approaches Ruislip Manor. (Photographs, B.R.Hardy).

c) Television

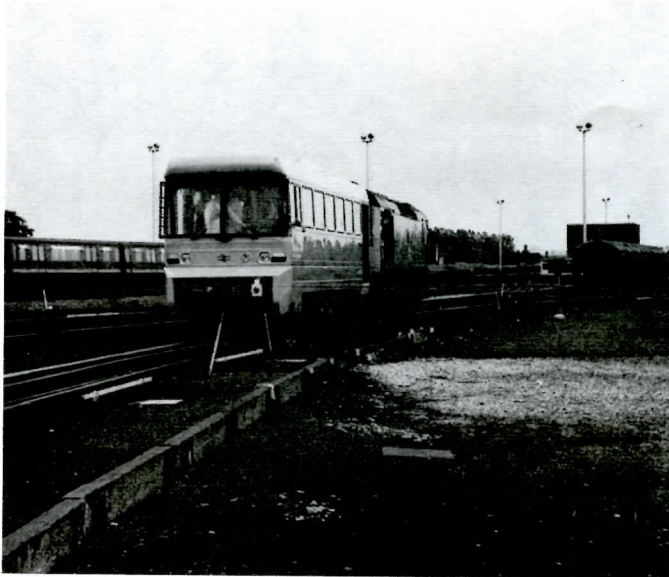
LONDON TRANSPORT: THE WAY OUT, shown in the BBC2 Horizon series on 13 October 1980, and repeated on 19 October.

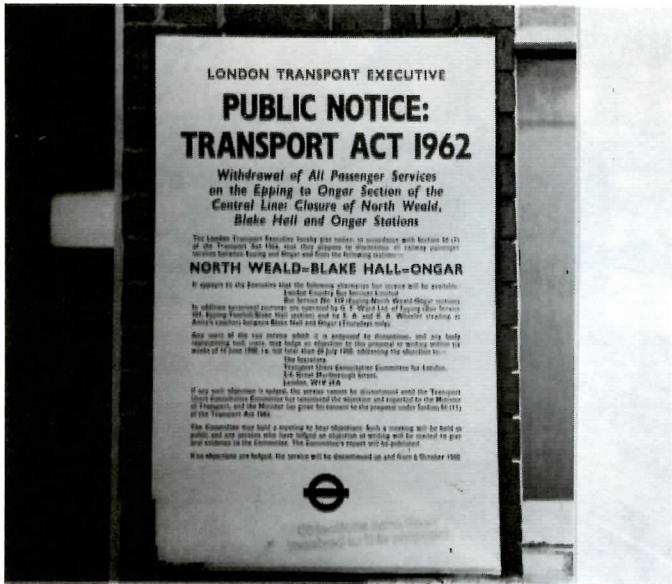
This 50-minute programme dealt with the problems facing LT, and the means by which they might be overcome. Although much of the programme understandably was devoted to the buses, the Underground was not neglected. Its historical background was outlined, the Pick era and the development of the Underground map were covered, and there were some interesting snippets of archive film. However, the message which came across was that today, on both the Underground and the buses, Pick's famous legacy is 'cracking under the strains of old equipment, rising prices, and a crazy fare structure which can't even meet running costs', with the Underground's main problems being ticket queues, equipment failures and fare increases.

Modern technology is playing its part to combat these problems: LTs electron microscope was shown scanning a defective silicon chip from the Piccadilly Line signalling system, and manufacturing defects were also shown to be responsible for cracks developing in 1973 stock traction motor gears. On the other hand, traditional craftsmanship is still very important, although now expensive and hard to find in London.

There were shots of moquette seats being rebuilt by hand at Acton Works, of programme machines at Edgware, and of Cobourg Street control room, where experimental computerised control equipment has been 'blacked' by the union concerned. Modernisation, it was pointed out, is a very sensitive issue: witness the one-man operation saga. There has been very little progress on de-manning the Underground recently.

Although a flat fare would not work on the Underground due to the length of journeys, a zonal fare was suggested which would simplify automation of ticket issue and checking; however, automatic ticket





Captions to photographs - Top left: Before the D stock tour could be finalised, 'clearance' tests had to take place over certain sections of line normally only worked by 'tube' trains. This included to Hounslow Central on the Piccadilly Line and to Stanmore on the Jubilee Line. The test train is seen passing Hounslow East on its return from reversing at Hounslow Central on 18.5.80. Top right: The actual D stock tour took place on Sunday 21.9.80 and the special train is seen passing C69 stock at Farringdon. Centre left: Notice posted on Central Line stations, stating the intended closure of the Epping-Ongar branch. The decision currently rests with the Minister of Transport. Centre right: If the Epping-Ongar line is closed, this scene will become a view of the past. The track on the left is the little-used east siding at Epping, while a train approaches Epping from Ongar on the single line on the right. Lower left: The tunnel cleaning train leaving Ruislip depot on 22.7.80, returning to Northfields depot after the exhibition earlier in the month. Note the newly painted set number of '707'. Lower right: Some new units of D stock have been delivered with 'Metro-Cammell' stickers in white or black. The first to have this was DM 7029 seen in Ruislip depot shortly after delivery. It is understood that they will not enter service with these on.

(Photographs, B.R.Hardy).

collection was dropped some years ago, partly because of lack of capital. Another scheme which may never be realised for the same reason is the modernisation of the original CLR station platforms: there were shots of the mock-up design for this on the disused platform at Aldwych.

London's transport subsidy, measured as a percentage of running costs, had dropped dramatically over the last five years, whereas it had risen in other European capitals, it was stated. In recent years, revenue from tourists had baled out the Underground. The conclusion (title) depends on the political will to subsidise public transport.

Altogether an interesting, well-presented and thought-provoking programme.

NHGM

HISTORICAL BOOK REVIEWS

by Peter Bancroft

Number 2: UNDER LONDON, A Chronicle of London's Underground Life-lines and Relics, by F.L.Stevens, with an introduction by Herbert Morrison, P.C., M.P. (Leader of the London County Council), 204 pages plus 21 illustrations, published by J.M.Dent and Sons Ltd. (London) 1939. Printed by The Temple Press, Letchworth.

To quote Mr.Morrison's introductory words, 'It is part of my business as leader of the London County Council to encourage any enterprise designed to tell the people anything they ought to know about the capital city of the British Commonwealth.'

So he introduced Mr.Stevens to appropriate officers of the LCC, in order that he might prepare a series of talks on underground London for the BBC, which eventually led to the publication of this book. Mr.Morrison regarded the book as '...Part of that large and growing literature about London which helps to keep the public mind informed about what is going on in this city of ours.'

Of course the book is intended to be a general work about underground supply mains, sewers, rivers, canals, roads and rail tunnels, and buried history and relics of London. There are chapters on a wide

variety of subjects therefore, such as: the Fleet Drain; the great pipe and cable ducts at such locations as Piccadilly Circus; Roman London; Crypts and Vaults; London's hidden rivers and canals; wells and water services.

But any general work about what goes on under London, must necessarily contain more than a passing mention about the Underground Railways, and it is only the chapters about these which require to be reviewed in detail. They are Chapter III entitled 'Walking Tour in the Tube', (pages 48-69) and part of Chapter VI entitled 'Thames Tunnels', (pages 99-119).

Chapter III 'Walking Tour in the Tube'

This chapter begins with a very lively account of the Author's visit to some night-time engineering works in the vicinity of the old York Road station (Piccadilly Line). It describes the complexities of renewing one forty-two-foot length of running rail. The work is carried out by fourteen men using '...what looked like giant dentist's forceps.' (The 'Iron Man'). This lifts the old rail out and the new rail in. The author was told that such a team could relay a hundred and thirty tons of rail in a week. The same night he motored to Aldgate East, where the station was 'getting ready to move a hundred yards or so up the line.' This work enabled the junction to be extended saving a few seconds in passenger time. To do this the track was lowered from five to seven feet, for a length of one thousand four hundred feet, by shifts of three hundred men. Work had taken two years up to that time, but without interruption to the train service. This was only now necessary for one period from Saturday night to Monday morning, little more than twenty-four hours. Mr. Stevens vividly describes the scene, filled with searchlights, pneumatic drills, workmen, surveyors, a considerable quantity of timber used to support the old track, three tons of steel joists and one hundred feet of corrugated iron hoarding!

Sometime later his researches led him to ask how an escalator works. So he was taken to Leicester Square tube station and gives a detailed account of what he saw, including a '...neat tray behind the scenes', to collect your 'half a crown' if you drop it on the escalator. At the time of writing the Underground had one hundred and forty-three escalators, varying in depth from fifteen to eighty-one feet, and travelling the equivalent of one million two hundred and forty-eight thousand miles a year. They could carry one million two hundred and sixty-five thousand passengers an hour. Some of the more lightly-used escalators had been provided with speed ray control which is briefly described.

Tube train door operation, emergency evacuation from lifts, lift safety mechanisms, are also described. You can also find an answer to the question of whose voice used to say 'Stand clear of the gates' at Strand and other stations. Brief mention is also made of London Transport Railways' statistics and the New Works Programme.

The chapter ends with a nearly eight page description of the construction and working of the Post Office tube.

Illustrations included in this chapter are: (1) Building a tube station tunnel; (2) Lifting a rail with the 'Iron Man'; (3) A stage diagram entitled 'The Working of an Escalator'; (4) Lowering the track at Aldgate East, and (5) The Post Office Railway.

Chapter VI 'Thames Tunnels'

This chapter contains descriptive accounts of the Woolwich Tunnel (for foot passengers); Blackwall Tunnel, opened in 1897; Greenwich Subway (for foot passengers), completed in 1902; Rotherhithe Tunnel, completed in 1908; and Dartford Tunnel, under construction at that time.

But of purely Underground interest are a nine page description of the construction and opening of Brunel's Tunnel together with its later railway use, and a five page description of the construction and operation of the Tower Subway.

Mr.Stevens describes the Thames Tunnel's story as one '...with all the elements of suspense, fortitude, and romance.' and suggests that somebody will one day make a film about it, which will be '...a tribute to two of London's most brilliant servants - Sir Marc Isambard Brunel, and his son, Isambard Kingdom Brunel.' The tunnel was opened on 25 March 1843 after endless problems, the first brick having been laid on 2 March 1825. 'The bells rang out, and, at the dinner to mark the occasion, the guests were delighted to see a model of the Thames Tunnel in sugar.' Mr.Stevens continues with a very readable and well narrated account.

(A booklet entitled 'Brunel's Tunnel - and where it led' (new 1980 edition), was reviewed in the October 1980 issue of Underground News, page 321. Readers of that booklet may like to study Mr.Stevens short account by way of a contrast).

A visit to the Tower Subway is then described. 'I stepped off Tower Hill, through a door, on to a grating. I could see below - it looked a fair distance below - hurricane lamps hanging on the wall of the shaft, and the iron ladders going down, down.' But of course the shuttle tube railway was no more, though its operation is described. Then, as now, the subway only carried hydraulic and water mains. Not so interesting a use for '...an under-river tunnel which is the parent of all tube railways.'

The Author's style is refreshingly non-technical and human in all these Underground topics, but such an approach does not, in my view, detract from the interest. Indeed the whole book is well worth reading and may well provide Underground travellers with a greater perspective of what lies on the other side of their tunnel walls as they travel swiftly to and from work. Also it gives a complete picture of the hazzards and obstructions which both cut-and-cover, and tube construction have and can still meet during their progress.

A copy of the book is available in the Surrey County Library store, which can be requested through your local library, if they don't already have a copy. A small charge is usually made for this service, and it may take a few weeks.

If anyone would like further information or has problems obtaining a copy, please write, enclosing a stamped addressed envelope for reply to:

Peter Bancroft, 16 Gosden Road, West End, Woking, Surrey, GU24 9LH.

FROM THE PAPERS

Harrow Observer, 3.10.80

A photograph is shown of the new LT bus station currently being built outside Harrow-on-the-Hill station, with the Metropolitan Line tracks beneath and to the right of the new building. To be known as 'Interlink House', an artist's impression is then shown as to how it will look when completed.

In the same edition, there are comparison photographs taken in 1930 and now, of under the Piccadilly Line viaduct between Rayners Lane and South Harrow, in Welbeck Road. The 1930s photograph shows cows grazing on the (then) rapidly disappearing farmland, while the 1980 picture shows the houses that have been built over the years, and that industry has taken over some of the arches.

Evening Standard, 28.10.80

Mr. Peter Young, a Government inspector appointed by the Environment Secretary to report on the London Transport/Bredero scheme for a £70 million office block, bus garage, bus and Underground station at Hammersmith Broadway has recommended that the scheme be rejected because the 700,000 square feet office block will create an over-dominant building mass in the town centre to the detriment of the scale and character of the surroundings. He suggests instead, the inclusion of homes for single people and childless couples, an idea proposed by objectors at a public enquiry in June and July. The recommendation may create a precedent for similar schemes elsewhere in London.

SMALL ADVERTISEMENTS

Researcher Wanted:

Any member who is able to undertake research for a fellow member, please contact D.Lomas, 224 Oval Road, Croydon, Surrey, CR0 6BP.

SA12/228(f)/80

Prisons:

Wanted, worldwide prison badges, prison insignias, prison postcard views etc.

Mr.G.Ewing, 22A Old Town, London, SW4 0LB.

SA13(7/3)/228/80

For Sale:

Mr.N.J.C.Hyde has single copies of the following:

C.Baker: The Metropolitan Railway (Oakwood Press 1951)
E.J.S.Gadsden: Duke of Buckingham's Railways (Bledlow Press 1962)
Atkinson/Adams: London's North Western Electric (ERS 1962)
Itinerary of 'The Metropolitan' railtour 1 October 1961.

Anyone interested in these items are asked to make Mr.Hyde an offer for them in whole or in part, by writing to him at:

Fullbrook School, Selsdon Road, New Haw, Weybridge, Surrey, KT15 3HW.

Please enclose an SAE for reply.

SA14/228/80

For Sale:

The London Transport Sales Section at Chiswick Works have recently issued tenders for the Train Simulator at White City Railway Training Centre. This was built by Rediford and is based on the cab of a 1959 tube stock. By projection of cine film onto a screen in front of the cab window and by using rams worked by compressed air, driving conditions and movements of a train in motion are reproduced. The machine is in working order, and stands about 15 feet high. Further information regarding the sale of this simulator is available from Mr.P.Bradley at the London Transport Purchasing Office, 566 Chiswick High Road, London, W4. (Tel: 01-994 3641).

SA15/228/80

SOCIETY SECTION

Underground News No.227

Underground News No.227 was posted on Sunday 2nd November 1980. We regret that this was a week later than normal, but was due to illness, and nobody being able to help at short notice. Apologies to all who missed the Library Meeting on 3rd November.

Corrections

To UN 226, NF 314/80 - the 4th line should read 'six 8-car trains of A stock...'

Apologies to all those who have been searching (in vain) for 6-car A stock trains!

To UN 227, page 346, 3rd line: penultimate word should be unnecessary.

Subscriptions for 1981

Subscriptions for 1980 expire on 31st December 1980, and we should be grateful if members would renew their subscriptions by that date, sending them to the Registrar, 67 Weltmore Road, Luton, LU3 2TN, with the completed renewal form.

The rates for 1981 are £7.00 for full members and £4 for associate members (aged 12-15 years inclusive on 1st January 1981) with a supplement of £2 for overseas members to cover overseas postage costs. Renewal notices were sent with the October issue of Underground News for overseas members and with the November issue for home members.

End of Financial Year

All officers and members holding funds belonging to the Society, or being owed money by the Society, are asked to send their remittances and claims respectively, made up to 31st December 1980, to the Treasurer, 6 Launceston Gardens, Perivals, Greenford, Middlesex, UB6 7ET, to reach him NOT LATER than 7th January 1981. Membership subscriptions should NOT be sent to the Treasurer, but to the Registrar, see above.

Preservation Meeting

Sixteen members and one visitor attended the meeting at Caxton Hall on 21st October 1980. Piers Connor, in the chair, asked Bob Greenaway to outline what had been achieved so far. Bob began by summarising the history of each preserved car:-

- (1) N-class composite trailer, No.08063, built by Metro-Cammell group (Q35 stock) in 1936. It was withdrawn from service in 1971 and purchased by the Society in 1973. It moved to its present location in 1979.
- (2) C & SLR steel-bodied trailer (body and underframe only) No.163. This was built in 1907 and withdrawn in the 1920's. It was purchased by the Society in 1974 and moved to its present location in the same year.
- (3) C & SLR wooden-bodied trailer (body and underframe only) No.135. This was built in 1902 and withdrawn also in the 1920's. It was purchased by the Society in 1977, during which year it was also moved to its present location.

He then stated that most of the preservation effort so far had been in the fields of transport, insurance and storage. In particular, the transport of the Q stock car from Ashford to Ruislip took a great deal of administrative effort.

The Society had entered into negotiations with London Transport about parties of Society members working on the cars at Ruislip depot. London Transport had agreed in principle to such parties, but several

details (including insurance) had to be settled before organised preservation work could begin. Safety was of paramount importance, and parties would be limited to six members, one of whom must be a member of L.T. staff.

Those present then took part in a wide-ranging discussion of all aspects of the Society's car preservation activities, from which it emerged that week-ends were the most popular time for parties to work, with about equal preferences for Saturdays or Sundays.

When the outstanding points had been settled with L.T., the Preservation Sub-Committee would make the arrangements for the working parties.

Subsequently, the LURS main Committee resolved that the Sub-Committee should consist of four members, as follows: Messrs. R.J.Greenaway, F.W.Ivey, V.J.Smith, I.J.Dyckhoff. Any further volunteers for working parties should write to Bob Greenaway at 26 Fishery Road, Boxmoor, Hemel Hempstead, Herts, HP1 1ND.

DFC

ROLLING STOCK ALTERATIONS

ADD for September 1980:

Service Stock, new conversion: L140 (ex. 1938 tube stock DM 10182) in yellow livery.

October, 1980

1967 Tube Stock

From Northumberland Park to Hainault

3067-4067-4167-3167 1st

1975 Tube Stock

From Northfields to Ruislip

894-694-895 1st (GEC ETT)

CO/CP Stock

From Ealing Common to Ruislip (Condemned cars)

53000-014064-54000 10th

From Ealing Common to Acton Works (Stores cars)

53268-54239+53220-54264 9th

D Stock

From Metro-Cammell, Birmingham, delivered to Ruislip

7034-17034-8034+8035-17035-7035 8th

7036-17036-8036+8037-17037-7037 20th

From Ruislip to Ealing Common

8031-17031-7031 6th

7032-17032-8032 24th

Entered Service, District Line

7026-17026-8026+8023-17023-7023 3rd

7028-17028-8028+8025-17025-7025 22nd

Miscellaneous Movements

L152+1514-2514+L153 Ruislip to Acton for Overhaul 2nd

L38 Acton to Ealing Common (ex.collusion, overhaul and mods.) 15th

L53 Acton to Ealing Common (ex.collusion) 17th

L18+L140 Acton to Ealing Common (ex.collusion/conversion) 24th

L130+1193 L131 Acton to Golders Green (ex.derailment) 29th

Units to Acton for Overhaul

Central	1654-2654-9655-1655	1st
Metropolitan	5542-6542	2nd
Northern	1258-2258-1259	7th
Metropolitan	5044-6044-6045-5045	10th
Victoria	3058-4058-4158-3158	14th
Central	1622-2622-9623-1623	20th
Northern	3213-4213-4313-3313	21st
Northern	1212-2212-9213-1213	22nd
Metropolitan	5504-6504	23rd
Metropolitan	5050-6050-6051-5051	28th
Northern	1146-2146-1147	30th

Units from Acton After Overhaul

Northern	1238-2238-1239	7th
Metropolitan	5544-6544	9th
Metropolitan	5048-6048-6049-5049	10th
Victoria	3072-4072-4172-3172	14th
Central	1540-2540-9541-1541	20th
Northern	1200-2200-9201-1201	22nd
Northern	3211-4211-4311-3311	23rd
Metropolitan	5548-6548	23rd
Metropolitan	5012-6012-6013-5013	28th
Northern	1222-2222-1223	30th

Reformations

From	To	
1192-2192-9193-1051	1192-2192-9193-1193	(1051 to store)

Sleet Locomotive Movements

ESL106 Golders Green to Highgate 5th

NEWSFLASHES

NF 358/80 On October 15th 1980, a public meeting was held for people protesting about the proposed closure of the Epping-Ongar branch. It was organised by the Transport Users Consultative Committee, who were concerned with the hardship closure of the line would cause to the relatively few people that use the line. The final decision, however, rests with the Minister of Transport.

Regarding the Epping-Ongar Railway Society, plans are in hand for the winding up of the Society, in favour of a single body to be known as 'The Epping Forest Railway Ltd.' Regarding the motive power to provide the commuter service, it is understood that the main committee have decided on operating continental DMUs, and examinations of both French and German varieties are to be arranged.

The Sunday Observer colour supplement for 19.10.80 featured the line with a two-page article and also included three photographs. One of these showed the red-fronted unit of 1962 tube stock in service on the branch.

NF 359/80 Further to NF 347/80, D stock units 7054/5 have black Metro-Cammell stickers, on the red cab ends.

NF 360/80 Further to NF 341/80, a 'Farewell Tour' on Liverpool's class 502 EMUs of 1939-41 origin was made on Saturday 4th October 1980. It is understood that the enthusiasts were taken into the centre reversing siding at Sandhills.

- NF 361/80 On Friday 10.10.80, a diesel locomotive and B.R. Divisional Manager's Inspection Saloon coach ran from Aylesbury to Marylebone in the afternoon, on LT metals between Amersham and Harrow.
- NF 362/80 Recently observed in the arrivals lounge at Gatwick Airport, a London Transport display stand bearing two poster maps. One was Visitor's London dated 5 October 1974; the other was London's Railways dated January 1976. Both these maps are somewhat out of date, and potentially misleading to arriving visitors.
- A similar situation existed on the French SNCF cross-channel boat 'St.Eloi' observed on 27.10.80. The LT Underground map was of 1976 origin (776/2420M/7500) and shows the 'Fleet' Line under construction, also the Heathrow extension, but open as far as Hatton Cross. Drayton Park is shown as a BR terminus, with the section to Finsbury Park 'opening in 1976'. At that time, the North London BR Line had not been included.
- NF 363/80 A visit to the Paris Metro on 27/28.10.80 revealed the following:
- Line 3bis continued to be operated by Sprague stock throughout the day. Line 2 also had Sprague workings during the day (8), with a total of 23 in the morning peak and 25 in the evening peak. However, all of these were stabled by 2000, in favour of new stock continuing until the close of traffic. Other Sprague stock was limited to peak-hour workings only on lines 9 and 12.
- NF 364/80 A 36-minute delay occurred to the northbound Northern Line service on Monday 13.10.80, when a northbound train stalled leaving Kennington siding, shortly before 0900. Two trains were reversed south to north at London Bridge.
- NF 365/80 Notes on 1938 tube stock: End cab interiors are being painted light blue at Stonebridge Park depot (10179, 10211, 11186 and 11188 being noted so far). 'J' door security locks are also being fitted, with 10116, 11116, 11174 and 11297 being noted. Destination plates bearing 'Paddington' in the form of stickers have been noted on cars 10308 and 11116.
- NF 367/80 Colindale siding was fitted with a 15 mph approach-controlled trainstop from 24.10.80.
- NF 368/80 After being taken out of commission about 18 months ago, the crossover from the southbound Metropolitan Line to the southbound Jubilee Line south of Willesden Green station was finally removed during the last week of September 1980.
- NF 369/80 On the City Widened Lines, work continues with the Midland Suburban Electrification. Hoardings have been erected at Moorgate, separating platforms 5 and 6 from the rest of the station, while at Barbican, the canopy on the down platform has been erected in line with that on the up/LT platform. Track ballast has also been laid in the platform area and platform 'edging' is progressing.
- NF 370/80 Further to NF 344/80, all C77 stock cars (including car 5585) have been fitted with modified heater panels in blue aerowalk.
- NF 371/80 Lambeth North station has been repainted in pale blue and brown.

- NF 372/80 An unusual move was made at Harrow-on-the-Hill on 4.11.80, when a pair of BR DMUs were 'changed over'. The 1422 at Harrow to Aylesbury had a brake defect. On arrival of the 1429 to Marylebone, Aylesbury passengers changed to this train which reversed back from No.2 platform. After, the defective DMU in platform No.1 shunted to platform No.2 and took passengers south to Marylebone.
- NF 373/80 On 30.10.80, the District Line service was suspended between East Ham and Upney from 1722, due to a 1 foot length of broken rail. Three trains were detrained, passengers walking back to East Ham. Detraining was completed by 1930. Eleven buses went to Plaistow from West Ham garage to take passengers, while a coach service was provided between Plaistow and Upney. Occasional trains worked beyond Plaistow to East Ham. Three trains shuttled between Upminster and Upney. As the stock was at the wrong end of the line, 3 x R stock and 3 x D stock stabled at Northfields overnight. Services between East Ham and Upney were restored at 2300.
- NF 374/80 On 31.10.80 at 1918, westbound District train 125 was given the wrong signal at Hanger Lane Junction. However, the correct signal could not be obtained and the train proceeded to North Ealing, where passengers were detrained. The train then continued empty to South Harrow where it reversed, before returning to Ealing Common depot.
- NF 375/80 From 22.9.80, the Glasgow Subway opened for 'normal' hours on Mondays to Saturdays, up to about 2330 instead of closing at 1900. There is still no Sunday service, and it is thought that there is not likely to be in this financial year (ending in March 1981), although Sunday services are advertised on the publicity card. A trip round the circle takes only 22 minutes, as against about 30 previously, and the time is now printed on tickets when purchased - an innovation since the opening in April 1980.

The following services are scheduled:

	Frequency (Minutes) Each Circle	Trains in service Each Circle
Monday-Friday		
peaks	3½	6
midday off-peak	5	4
evening	8	3
Saturdays		
before 0930 and)		
after 1800)	8	3
0930 to 1800	5	4
Sundays *		
before 0930	12	2
0930 to finish	8	3

Note * no service as yet.

The Underground is currently estimated to be carrying about 40,000 passengers a day. For the first time on 4.11.80, a three-car train was put into service on the outer circle. A three-car train was in service on each route on 5.11.80.

- NF 376/80 The latest R stock car line diagrams include BR interchange at West Ham, and Jubilee Line interchange at Baker Street. Otherwise they are similar to their predecessors. The reference number is 679/2484M/5000R.

- NF 377/80 On Saturdays and Sundays 20/21 and 27/28 December 1980, the Tramway and Light Railway Society's large-scale model tramway layout will be on display at the L.T. Museum at Covent Garden. The 1:16 scale models of trams represent vehicles which travelled the streets of many cities and towns. They are powered by electric motors working on 24V d.c. and run on tracks set in a realistically reconstructed street scene nearly 40 feet long.
- There will also be a free film show each day from December 29th to January 10th in the Museum's lecture theatre at 1130, 1430 and 1600.
- Members are reminded that the Museum is open every day except 25th and 26th December, from 1000 to 1800.
- NF 378/80 Further to NF 251/80, gauging runs have been taking place most Sunday nights in recent weeks. On Sunday night/Monday morning 28th/29th September, the train (L130+G663+L131) worked between Putney Bridge and Wimbledon.
- NF 379/80 It has been reported that the first three coaches of a 6-car class 313 EMU from Moorgate to Welwyn Garden City were derailed outside New Barnet station in the evening of 17.10.80, by concrete slabs placed on the track. The cars remained upright, and apart from some minor bruises, there were no injuries to passengers.
- NF 380/80 It has been reported that the whole of the Southend Pier electric railway is up for sale. This includes all the passenger vehicles, track and 600V electrical switchgear.
- NF 381/80 The line diagrams at the foot of the stairs at both Belsize Park and Colindale shows interchange with the 'Fleet' line at Charing Cross. The diagram at Finchley Central, which used to show interchange at Bank (!) has been painted over with white paint.
- NF 382/80 Still out of service is 1972 MkII stock unit 3235, which was one of the units involved in the Neasden 'riot' of March this year. A60 stock unit is also out of service at Neasden, being cannibalised for spares, unit 5036.
- NF 383/80 Further to NF 343/80, the station car park at Ruislip was reopened to the public from Monday 27.10.80.

The Society's Main Committee, and the Periodicals team, wish all LURS members and their families a happy Christmas, and a prosperous New Year. We look forward to your support during 1981.

The Editor wishes to say 'thank you' to all those who have contributed to Underground News during 1980, whether in the form of articles or newsflash items. Please keep up this superb work!

Underground News is printed and published by the London Underground Railway Society. Correspondence for this journal should be addressed to the Editor Underground News, 'Heidi', 13 Castleton Road, Eastcote, Ruislip, Middlesex, HA4 9QQ. Members who require a reply to their correspondence are asked to enclose a stamped addressed envelope.

For non-receipt of journals and changes of address, correspondence should be sent to the Despatch Officer and Registrar, 67 Weltmore Road, Luton, Bedfordshire, LU3 2TN.