

# THE JOURNAL OF THE LONDON UNDERGROUND RAILWAY SOCIETY

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## WIND OF CHANGE ON THE HEATH?

Leaving aside for the moment the hilarious aspect of our fit and active Prime Minister (otherwise known as Yachtsman Ted) getting so hot under the collar over having to walk 400 yards that he thought it worth having a phone call made to Tokyo to talk to Sir Desmond Plummer to tell him that his feet were killing him, or words to that effect, when all is said and done the episode may do some good. There is an old saying to the effect that it does not matter what you know - only who you know; this might be adapted to the present situation to read that it does not matter how many people you hold up in traffic jams - only who you hold up.

Of course, the generality of Londoners have known for years what is wrong with the city's traffic - far too many unnecessary private cars in the central area and too many lorries, both too big and too heavy, in streets they have no need to use and which they should not be allowed to enter. Now that the PM has had to abandon his car and walk (lucky man to have a chauffeur so that he could do so) something may happen.

A lot of irreverent suggestions have been made since this episode took place; one is that Mr. Heath should be inveigled into a short journey on the Underground during a rush hour - on the principle that we should get £200m-worth of new lines as soon as Ted got his breath back. It has its points . . .

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### OFFICIAL RAILWAY SECRETS

Some weeks ago, the Sunday Times published a document containing some revolutionary proposals affecting the future of British Rail's lines. This document was not intended for publication, and did not affect the Underground in any way. The incredible aftermath affects every Journal, including this one, which publishes material

affecting railways which has not been supplied by official sources. The Office of Richard Hope, Editor of The Railway Gazette, was searched by Scotland Yard officers, apparently trying to find the original of the offending document (which they failed to do) and now Harold Evans, Editor of the Sunday Times, has been told that he may have committed an offence under the Official Secrets Act, for not revealing his source.

That the Government should so abuse the Official Secrets Acts (which has one proper object - to protect the security of the State) is a grave political scandal, and cannot be condemned strongly enough. A democratic authority should be ashamed of such immoral conduct.

In an attempt to protect themselves against criticism, BR have said that this scheme was only one of several they had prepared; if the Government want to redeem themselves they should drop all threats of action against anyone and, as a token of good faith, have these other reports published. There is no reason for them being secret anyway.

As your Editor has no intention of stopping the publication of information from sources not cleared by authority, there could be a strong likelihood of his being run in at any time if he prints the news that "the O7xx train from Watford Central has been cancelled on Mondays in February without any official announcement of the cancellation". Readers should not be surprised if some future editorial appears under the dateline "The Tower . . . "

#### NORTHERN LINE LIGHTING PLANS

All the Northern Line stations south of the Thames which are below ground are to be relit at a cost of about £140,000 except those which already have fluorescent lighting. Also two stations will be given new booking hall equipment. Stations to be completely relit are Tooting Broadway and Clapham Common. South Wimbledon, Collier's Wood, Tooting Bec, Balham, Clapham South, Clapham North, Oval, Kennington, Elephant & Castle and Borough will have new platform lights, while the passages at Elephant will also have improved lighting. The cost of the programme is being partly financed by the Greater London Council and an application has been made for a Government grant.

## MATTERS TECHNICAL

No. 4

Brakes

Part 1

H.C. Lynes

As I have mentioned earlier in this series the subject of train braking has been covered in a booklet, published a few years ago, called 'Background to Brakes' by B.J. Prigmore. This article, and the next, may be regarded as a supplement to the booklet, and have been written in consultation with the Booklet's author. As the booklet was written with both British and foreign railways in mind, I will deal with those points which affect the Underground and its rolling stock past and present.

To begin with the Westinghouse quick acting pneumatic brake has virtually reigned supreme on the Underground since its introduction on the District in the 1870's. The exception was the Metropolitan, which first used the simple, and later the automatic vacuum brake on all its loco hauled stock. However, it fitted all its multiple-unit electric stock with the Westinghouse brake, except for six T Stock motor coaches which were formed into 3 x 7-car trains with suitably adapted 'Dreadnought' coaches. As the 'Dreadnoughts' were originally vacuum fitted, the new motor coaches were provided with the vacuum brake to suit, but in 1935 the three trains were converted to Westinghouse.

The Westinghouse brake is adequately explained on pp. 12-16 of 'Background to Brakes' and one of its main disadvantages - the inability to obtain a partial release - is mentioned on p.15. This means that too much brake will cause the train to stop short in a station, and valuable time can be lost trying to position a train correctly. Actually, with a little practice, the Westinghouse brake is quite easy to use (witness the way that drivers used to get an 8-car T Stock into the tight platforms between Baker Street and Aldgate without mishap), but the problem of how to get a partial release was recognised very early on, and so to effect this a 'graduating release valve' was provided on each car of the District's B Stock of 1905. This valve, supposed to be sensitive to very small air pressure changes, was not a success, and much trouble was experienced when trying to release the brake. In many cases it just remained on, and the driver had to release the brakes on each car individually by means of the valve

provided on each brake cylinder. A further cause of trouble at this time was that the air pressure in the brake pipe and the main reservoirs was allowed to be equal, and there was insufficient excess reservoir pressure to quickly and fully recharge the brake pipe. This problem was overcome by fitting a 'feed valve' which maintained the brake pipe pressure at 65-70 lbs/in<sup>2</sup> regardless of the main reservoir pressure (usually 75-90 lbs/in<sup>2</sup>).

In 1928 an 8-car train of District F Stock was equipped with a new type of air brake controlled electrically by the driver. This was the Westinghouse Type 20 electropneumatic brake, and the success of the experiment led to the fitting of the Type 21 e.p. brake on the whole of the F Stock by 1930. This 'production model' e.p. brake became known as the Type A brake, and is explained on pp. 17-20 of 'Background to Brakes'. It became the standard Underground brake until 1938, and was fitted to the Q Stock and Standard tube stock.

With the introduction of the experimental tube stock of 1936 a new version of the e.p. brake appeared: the 'self-lapping' type D brake, in which brake cylinder pressure was proportional to brake handle movement. The main new features were this self-lapping device, and the provisions of mercury retardation controllers to prevent locking and skidding of wheels. Both these developments are explained on pp. 20-25 of 'Background to Brakes'.

The D. type brake was fitted to virtually all stocks built between 1938 and 1962, with the exception of the O Stock and the Q Stock. To make it compatible with older Q cars the Q 38 Stock was fitted with the earlier type of e.p. brake, but mercury retarders were added and the brake became known as the A5 type. The F Stock and Standard tube stocks were also modified in this way, but in some cases the work was not completed until after the war. The D type brake is substantially the same today as when first introduced, but certain technical improvements have been incorporated with each new batch of stock. For example, cam-operated poppet valves were introduced on the R Stock to regulate the air brake, in place of the old 'face-plate' type of driver's brake valve, and new 'plug-in' e.p. valves were fitted on cars built from 1960 onwards. Some modifications have also taken place in triple valve design, but the method of operation remained largely unchanged until the introduction of the 1967 tube stock.

One type of brake which is not mentioned in 'Background to Brakes' is the dynamic (regenerative or rheostatic) brake. When considering this type of brake it is useful to consider exactly what happens to the train during motoring, coasting and braking. During motoring the electrical energy from the line is supplied to the motors, which convert it to mechanical energy to turn the wheels and drive the train. During coasting a very small amount of this energy is lost in the resistance of the moving parts of the train, friction between wheels and rails, etc. During braking on a conventional train, the remaining energy is quickly disposed of by pressing blocks against the wheels. The friction between wheel and brake block causes the mechanical energy to be converted into heat, and causes wear on the brake blocks. The same principle can simply be demonstrated on a road vehicle by feeling the warmth of the brake drum after braking. In the case of electrical braking applied to a train, the mechanical energy is converted into electrical energy by the motors (which are now reconnected to act as generators), and this electrical energy is disposed of as heat by feeding it into the power resistors on the train. A simple example of electrical energy becoming heat is in the ordinary domestic electric heater. In this case the element in the fire (the resistance) becomes hot when connected across the supply. Of course the resistors on the train don't glow as does the household fire, but they can become pretty warm.

The type of braking I have just explained is called rheostatic braking, but another kind of brake - the regenerative brake - has been used on the Underground. In this case the electrical energy generated by the motors was fed into the line instead of into the resistors, the idea being that other trains drawing current from the line could use it and reduce the total output required from the power stations. The O and P Stocks were fitted with Metadyne control, which incorporated regenerative braking. An unusual form of variable-voltage motor-generator set (the Metadyne) gave smooth control, without starting resistances, during acceleration, and its action was reversed, to accept energy from the motors (reconnected to act as generators) and return it to the line, during braking. The trains were also fitted with e.p. and Westinghouse brakes, the O Stock having a variation of the A5 type brake, the P Stock of type D.

About 1951 the O Stock had its e.p. equipment modified so that it was similar to that of the P Stock.

A complete description of the Metadyne control and braking system appears in Vol. 2 of 'Electric Trains' by W.A. Agnew, and it makes very interesting reading. In addition, a concise technical explanation was published by B.J. Prigmore in 'Transport World' for 10th October 1946. When reading Agnew it should be remembered that the description applies to the O Stock. The P Stock was similar but there were detail variations.

From 1956 onwards the Metadyne equipment was gradually removed from these trains and standard P.C.M. control and type D e.p. brakes were fitted. The Metadyne machines required constant attention to enable them to function properly, and the increasing maintenance costs were largely the reason for their withdrawal. Upon conversion the stock became known as the CO/CP Stock.

With the introduction of the 1967 tube stock on the Victoria Line the rheostatic brake has become standard on the Underground. It is used in conjunction with the e.p. brake on all modern stocks, but the e.p. brake control system has been modified and the self-lapping system is no longer incorporated. Instead there are four service braking positions on the driver's controller handle, in addition to the usual Westinghouse positions. These are: 'Rheostatic 1 and Holding', which allows a low rate of rheostatic brake with e.p. braking on non-motored axles (limited to a low pressure by a pressure valve); and 'Rheostatic 2 and E.P. Application' which is divided into 'Minimum', 'Normal' and 'Maximum' positions. These positions give minimum, normal and maximum retardations (not brake pressures), for they bring into use the appropriate one of three retarders to give the required rate of braking. It was pointed out in 'Background to Brakes' that a mercury retarder measures retardation, and controls the brake cylinder pressure to give the required retardation. Each of the 'Minimum', 'Normal' and 'Maximum' retarders thus gives the required rate of retardation and will fully compensate for the variation in train weight caused by variation in the passenger load.

The Rheostatic 2' retardation is increased compared with that given by Rheostatic 1, but it remains constant in minimum, normal or maximum positions. The selection of the braking position will be either by the driver, or by the auto driver box on an autotrain.

As the brake sequence for the station stopping of an automatic train is based upon a choice of known retardations, the use of mercury retarders, rather than the self-lapping system of a conventional train, is necessary.

The braking on the C69 Stock has been further complicated by the use of load valves which vary the brake cylinder air pressure and the rheostatic brake rate, according to the load. I shall be dealing with this and other new developments in my next article.

LETTERS TO THE EDITOR

5 November 1972

Sir,

Connection at New Cross Gate

I understand the physical connection between the East London Line and the Southern Region main line situated at the south end of New Cross Gate station was taken out on Sunday 17 September 1972.

This was the last connection between the East London Line and British Railways. At one time there were six physical connections; five suitable for through running, the sixth being a connection by a hoist with Spitafields Goods section.

I have been told that the connection with B.R. at Ealing Broadway has been removed, but I am unable to confirm.

H.V. Borley.

167, Cornwall Road,  
Ruislip.

Note See the item headed 'Isolation of IIT' on P. 11 of this issue.

9th November 1972

Dear Sir,

The confusion in the mind of Mr. J.J. Clarke seems to be self inflicted; the points he raises can be answered, I hope to his understanding as follows:-

1. Driving Command Control - The essence of the London Transport A.T.O. system is the fact that it involves two independent controls:

- (a) the Driving Commands which are produced by "spots" on the track at cycles per second
- (b) the safety commands which are continuous pulses throughout the running rails at 470, 270 or 180 pulses per minute (not per second).

These two systems have been chosen to have absolutely no interference whatsoever with each other.

- 2. Rheostatic Braking - I suggest that Mr. Clarke reads the final chapter "A note on Electric Braking" in my book "Steam to Silver" where I tried to explain in simple terms electric braking in all its aspects as it applied to direct current traction. In simple terms a resistor is required to absorb the electrical energy developed by the traction motors when called upon to brake the train. The higher the resistance the lower the braking rate and the lower the resistance the higher the braking rate.
- 3. Braking - 3 different modes - I find it very difficult to understand the point being made in connection with the use of three different settings for mercury retarders. Train weights differ from each other due in the main to the load of passengers carried at the time. This weight not only affects the braking distance required, but will affect the maximum speed achieved after acceleration at a given point and will subsequently affect how much speed is lost in coasting without the power on. It is therefore not possible to predict accurately except within specified limits the speed of even an automatic train at the braking point. The braking command expects a certain speed, if it is above this, maximum braking rate is applied, if it is reasonably near it, the normal is applied and if it is below the minimum is applied. The action of the appropriate mercury retarder then ensures that this rate is not exceeded until the next checking point re-adjusts the braking rate as necessary. It has been found that under normal conditions this system ensures a train will stop within plus or minus 5ft of the agreed stopping mark.

Yours faithfully,

London Transport, Acton Works, J. Graeme Bruce  
130 Bollo Lane, Rolling Stock Engineer (Railways)  
London, W.3.



11-11-72

Dear Mr. Davis,

I am working on files available at the Public Record Office in connection with matters associated with motor bus history. From time to time items catch my eye which relate to Underground history and yesterday I came across two subjects which do not appear to have received mention in the Journal.

The first concerns the closure of Underground stations on the outbreak of war because of danger from water main or sewer flooding. A reference to this subject occurs in a letter from Frank Pick to Air Vice-Marshal Sir Philip Woolcott Game dated 4 Sep. 1939 offering the use of closed stations for police purposes. Attached to this letter on the police file is a handwritten list of stations (probably dictated over the 'phone by Frank Pick). They are Arsenal, Balham, Bank (Central Line) Interchange maintained, Bond Street, Chancery Lane, Charing Cross (except District), Clapham Common, Green Park, Hyde Park Corner, Kings Cross (Met open), Knightsbridge, Maida Vale, Marble Arch, Old Street, Oval, Oxford Circus - Interchange maintained, Tottenham Court Road - Interchange maintained, Trinity Road, Waterloo (Northern Line).

The police inspected the stations I have underlined and reported on their suitability as stores or group reserve centres. It soon became clear that the original offer would have been too generous if public service at these stations was to have been resumed. By the end of November a very much reduced scheme was being considered and Frank Pick indicated that Hyde Park Corner was likely to re-open on 8 Dec. 1939 and Knightsbridge on 1 Jan. 1940. The police turned down the whole idea then, but it was again raised in January 1940 when their use of Wood Lane (Met) was considered with four on the original list. Eventually in March 1940 the police settled for a very small amount of accommodation at Marble Arch and Knightsbridge West booking hall.

The file makes interesting reading and may be called for under reference MEPO 2/3426. Also in the file are scale plans of Green Park, Knightsbridge, Marble Arch and Hyde Park Corner booking halls as originally built in 1932-3.

Can any member give the dates of closure and re-opening of the stations listed?

The second matter is one which I feel sure is known to members well versed in Underground affairs but since I cannot find a reference to it in the Journal index I felt it should be given a mention. This is the Ordnance Survey made of the whole system (with some exceptions) on the scale of 1 : 1056 in the year 1948.

The Public Record Office file OS 1/135 gives "a depiction of the details" and then the various sections of the map are listed as a series of subsequent files. I have not seen any of this material myself but have noticed it in the P.R.O. index. It is possible that it would be regarded as closed under the 30 year rule until 1978 but application to the Ordnance Survey for access might be given favourable consideration in such a case.

I was surprised that the existence of these maps was not mentioned in John M. Crowhurst's notes on "The Subterranean Structure of London: How to Map It" which appeared in April 1969 Journal page 60.

Please forgive me if I am referring to a commonplace matter as if it were something special, but my main interest is on the ground with underground coming a very good second.

139 Brighton Road,  
Purley,  
Surrey, CR2 4HE.

Yours sincerely,  
A.G. Newman

5th December 1972

Dear Sir,

Mr. Solan's letter in the December 'Underground' appears authoritative, but is in fact wrong on several points.

1. There has never been any intention to have the spur opened by January 1973. This is the date of the completion of the earthworks. The spur will not be commissioned for several months.
2. The primary use of the spur is to transfer long rail trains to the Fleet and other lines. It will certainly ease the transfer of stock from Ruislip to Acton or Northfields but this is a subsidiary benefit; the transfer of about one train a fortnight to the Piccadilly would not justify the cost of construction.

3. The crossover and neck will be controlled from Rayners Lane as stated. West Ruislip cabin will have nothing to do with controlling the crossover. Indeed, it is hard to imagine why it should.
4. There is no intention at present to construct three platforms at Rayners Lane or Ruislip.
5. The statement that it is the intention to extend some Piccadilly Line trains from Rayners Lane to Ruislip is sheer conjecture at this time.

London Transport, Ruislip Depot,  
West End Road,  
Ruislip Gardens, Middlesex.

Yours faithfully,  
H. Clarke,  
Line Engineer (Central)

Editor's Note While it cannot be expected that every item of information picked up by members is absolutely accurate, it is rather alarming to find there are so many errors in one letter. Future correspondents are asked to check their sources as carefully as possible before supplying items for publication.

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#### ISOLATION OF LT

For a number of years now it has been London Transport policy to sever all connections with British Railways' Lines, inevitably to the detriment of the flexibility of the London railway system viewed as a whole. This policy has been taken several stages further recently with the following connections being broken:

Widened Lines The connection with the Southern Region at Farringdon has been removed. Work started on 13-9-1972, and by 16-9-1972 points 22, 23, 24A and 24B had been taken out and replaced with plain track, and the relevant signals, junction indicators and the plunger adjacent to signal OH5 taken out of commission and the corresponding route buttons removed from Farringdon box control panel. Point removal was completed by 07.00 17-9.

Metropolitan Line - East London Section The trap points south of the platform at New Cross Gate were removed during the night of Saturday/Sunday 16/17-9-1972 and have been replaced by a sand drag and buffer stop with fixed red light.

Central Line Also on the night of Saturday/Sunday 16/17-9-72 the crossover from the westbound Central Line track to the Western Region tracks east of Ealing Broadway were removed and replaced by plain track.

No doubt London Transport can justify these removals in the short term on grounds of economy, as they are all used rarely if ever; in view of changes which are likely to London's public transport system during the rest of the decade it is harder to defend the imposition of greater rigidity on the system.

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#### TWO-WAY UNDERGROUND RADIO LINKS

Tests of equipment providing two-way communication between Underground drivers and a central control point commenced on the Bakerloo Line between Stanmore and Elephant and Castle during November 1972. Later these were to be extended to the Hammersmith and City Line and parts of Neasden Depot, the section of the H. & C. involved being between Hammersmith and Farringdon.

The purpose of these experiments is to test two-way radio communication in all four main conditions found on the Underground - in deep-level tube tunnels, in cut-and-cover tunnels just below the surface, in open-air city sections, and on open sections in the suburbs - and to compare the system with the carrier-wave installation using the current rails in use on the Victoria Line.

Hitherto, on all tunnel sections of the Underground except the Victoria Line, a motorman has only been able to speak to the line controller by clipping leads to two wires on the tunnel wall when the train is stationary: on open sections he has to use a trackside telephone to telephone a station or signal cabin.

The new equipment involves trackside antenna cables throughout the tunnel sections of the lines involved - Paddington to Farringdon on the H. & C. and Finchley Road to Elephant and Castle on the Bakerloo - connected to transmitters placed at intervals of about two miles. The open-air sections of the two lines are each to be served by a transmitting/receiving station linked to radio masts - one at Neasden for the Bakerloo Line and the other at the LT offices by Edgware Road station for the Hammersmith & City Line.

Four trains on the Bakerloo Line had been fitted with transmitting and receiving equipment at the start of the experiments including a robust aerial and a telephone-type handset, and four H. & C. trains were also being similarly equipped.

The equipment enables drivers to speak direct to the Traffic Controller and receive messages from him at any point, while at Neasden Depot a separate transmitting/receiving station is for communication between trains being shunted around the depot and one of the depot cabins.

The radio-telephone equipment is supplied by Storno Limited of Camberley and has cost about £30,000. The overall cost of the experiment, about £80,000 is expected to rank for grant from the Greater London Council and also for a government research grant.

One of the greatest values of the new system will be to speed up emergency action in the event of breakdowns - thereby perhaps putting an end to the appalling delays in rescuing passengers from trains stranded in tunnels to which reference has been made frequently in this Journal, and in fact receives yet another airing in this month's News Flashes.

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#### BUILDING OF HEATHROW CENTRAL STATION STARTS

Construction of Heathrow Central station on the Piccadilly Line Extension commenced on 31st October 1972. The contract for this work is worth about £1.2m and has been granted to Taylor Woodrow Construction Limited. The new station will be in the centre of the airport, under the car park in the triangle between the airport control tower and the main terminal buildings, and constructing it will involve excavating an enormous box below ground with demensions of 400 feet in length, 80 feet in width and a depth of 50 feet which will be supported by 3ft thick reinforced concrete walls.

Within this box there will be an island platform at the lower level, linked with the ticket hall at upper level by two pairs of escalators; from there another pair of escalators and a fixed stairway will lead to ground level. In addition there will be an intermediate floor which will house a substation and staff facilities. Provision will be made for the British Airways Authority to build direct subway links from the ticket hall to the main airport terminal buildings.

The civil engineering work on the station will take about two years, after which the installation of escalators and substation equipment, together with the general equipping of the station must be provided for. It is anticipated that the station will open in 1976 - with the first part of the extension line, to the intermediate station at Hatton Cross, coming into service early in 1975.

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## REVIEWS

### Pamphlets

Electric Transport Development Society; The Divergence of Fares in London; London, 1972; 5pp duplicated foolscap + 1p diagram; no price stated.

A well thought out appraisal of the present chaotic state of public transport fares in London, which draws attention to the fact that this situation is contrary to all the pronouncements which have been made by the experts, all of which have pointed out that fare disparity produces artificial traffic distribution and prevents economic utilization of the available facilities. A useful publication, which should be considered seriously by the authorities.

### Films

Death Line; Gary Sherman; British, 1972.

Quite an original story, but much overplayed so that the horror becomes comical. Russell Square station is the scene of passenger disappearances, and the solution lies in the story that when the line was built part of a tunnel caved in and trapped some workers who have survived in air pockets for generations. There are all the usual unpleasantnesses, plenty of blood and disease, and a ghoul with rape in mind who only knows three words - "Mind the doors". Not very exciting - in fact a bit below standard as well as below ground. The film has an X certificate.

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## NEWS FLASHES

1190 Fire damaged three high-voltage circuit breakers at Gloucester Road switchhouse on 19-11-1972, and almost completely disrupted the Underground services on the whole system. The Circle Line was stopped completely, while the Metropolitan and

Bakerloo were cut off south of Wembley Park, the District between Acton and Aldgate East, and the Central between Liverpool Street and White City. Generally, the service was interrupted for about three hours, and it is believed that twelve trains were stopped in tunnels - and (as usual) the passengers had to wait up to two hours to be escorted on foot to the nearest station.

1191 A petition was presented to the Greater London Council on 3-10-1972 requesting the Council to negotiate with the London Transport Executive with a view to a car park at Willesden Green station being used for night-time lorry parking.

1192 The western section of the R.E.R. in Paris has been opened to the public between LA DEFENSE and SAINT GERMAIN EN LAYE since the beginning of October 1972. It is also understood that the station serving the Nanterre University is not entirely completed.

1193 Because LT has a main electricity supply cable running beneath Eleanor Street and has objected to a proposed Greater London Council order extinguishing public rights of way over part of the street, the council has decided to withdraw the order proposed on the grounds that the cost of diverting the cable would eliminate any advantage to be gained from the closure.

1194 In reporting on the proposed new Parliament Building the GLC Environmental Planning Committee has suggested that the plans for Westminster Underground station should be reconsidered in view of "the prominent part the station could play in this centre of tourism".

1195 In reply to a question at the GLC meeting on 31-10-1972 it was stated that LT are examining the question of extending the Bakerloo Line from Elephant and Castle to Lewisham or making equivalent improvements in public transport in the area, and that the GLC can expect a report in the new year.

1196 The Greater London Council has revealed that the closure of the Museum of British Transport is expected to take place on 23-4-1973.

1197 A report has been called for by the GLC on the feasibility of an underground freight railway in London as an additional facility to relieve traffic on the road arteries.

1198 The skeleton of Finsbury Park (High Level) station was demolished in September 1972 - 33 years after erection and 28 years after the Alexandra Park branch plans were abandoned.

## SOCIETY NOTICES

Officers The Committee are pleased to announce that this year's Vice-President, Charles F. Klapper, FCIT, FRGS, has accepted the Presidency for 1973/74, and that to fill the vacancy in the Vice-Presidency for that year the Society is fortunate to have secured the services of the well-known writer and lecturer on railway subjects, Harry W. Paar. Further details of these two gentlemen will appear in the March issue.

Sales Department News "The Tower Subway: The First Tube Tunnel in the World" by Charles E. Lee.

The Society has recently obtained a very few more copies of this paper which was presented to a joint meeting of The Newcomen Society and The Institution of Mechanical Engineers on 18-11-1970. Consisting of 24 duplicated pages with card covers, copies are available to members from the Sales Manager, 203 Popes Lane, Ealing, London, W5 4NH. These are likely to be the last copies the Society will have, and as numbers are very limited, they will be sold on a strict 'first come first served' basis. Although no actual charge will be made, a donation to Society Funds plus 5p postage and packing would be appreciated.

## THE TIMETABLE

19.00 for 19.15 Friday 12th January at Hammersmith Town Hall.

Members' Slide Show; slides may be either colour or black and white but must be 35mm unless the member can provide his own projector. We would like advance notice of slides to be shown if possible - so please drop a note to D.F. Croome, 6 Launceston Gardens, Perivale, Greenford, Middlesex, stating how many slides you will be showing.

19.00 for 19.15 Friday 9th February at Hammersmith Town Hall.

At this meeting it is hoped to have a talk by a member of London Transport's Civil Engineering staff, but this is subject to confirmation.

19.00 Wednesday 7th March at Fred Tallent Hall, 153 Drummond Street, London, NW1. Joint meeting with the Electric Railway Society at which our Society's Treasurer Piers R. Connor will be speaking on 'Underground Joint Stocks'.

19.00 for 19.15 Friday 9th March at Hammersmith Town Hall.

A Talk by H. Clarke: 'London Transport Railway Service Vehicles'.

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