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From 13 May 1985 electric locomotives began hauling London-Norwich trains between Liverpool Street and Ipswich. 86233 'Laurence Olivier' is seen here heading the 12.30 departure from Liverpool Street to Norwich at Manor Park station, 19 October 1985. Photo: Stephen Williams

The Electric Railway Society founded in 1946 by the late Mr. J.W.Fowler
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(The Hon. Editor is not responsible for opinions expressed in the journal)

London indoor meetings are held at Fred Tallant Hall, 153 Drummond Street, N.W.1 at 7.00 p.m. on the first Wednesday of each month from September to June. Light refreshments are available from about 6.30 p.m. Birmingham meetings are held in the new lecture hall of the Museum of Science and Industry, Newhall Street, starting at 7.30 p.m.

SOCIETY PROCEEDINGS

The London meeting of the Society on 7 May was addressed by Mr R G Field, LT Project Manager for the extension of the Piccadilly line to the new Terminal 4 at Heathrow Airport. As project manager, co-ordinating the scheme and overseeing the expenditure, Mr Field was able to talk to us from first-hand about the background of the scheme and its undertaking. The talk was illustrated with some well chosen slides.

In the late 70's the decision was taken to build a fourth terminal at London's Heathrow Airport. Five schemes were then considered for the provision of public transport to the new terminal. These were: a) a British Rail link in twin tunnels to Terminal 4 continuing in a single tunnel to Terminals 1, 2 and 3; b) an extension of the Piccadilly line in twin tunnels from the existing station to the new Terminal; c) a single loop line from Hatton Cross via the new Terminal back to the existing station at Terminals 1, 2 and 3; d) a bus shuttle service from the main terminal area and e) a light rail link from Hatton Cross. The chosen option was the loop line on a basis of cost, operational considerations, proven technology and passenger convenience.

The 6.2km loop begins 130 metres west of Hatton Cross station in a box tunnel construction, runs under the main runway to Terminal 4, then to the vicinity of Bedford Road and Wessex Road and finally joining the over-run tunnels of the existing station. Most constructional problems arose simply because of the location of the tunnel under the airport. Work sites were located at such out-of-the-way places that a regular coach service was provided to link them, running every 30 minutes. Security passes were required for all workers. Any work involving cranes and high plant had to be done at night otherwise it interfered with the radar! The Bedford Road site lay next to the City of London Quarantine Station, therefore noise and general disturbance to the animals had to be kept to the minimum. A fanshaft was constructed on this site and towards completion of the works the BAA officially renamed the nearest road Sanctuary Road which necessitated the alteration of all plans, drawings and signs to conform with this name change. The Wessex Road site was adjacent to the main fuel store, the Army terminal and the parking bay for El Al and South African Airways. No wonder the security passes were needed! The central area site took over a Jumbo jet parking bay and its associated fuelling points.

Most of the problems, therefore, were at ground level so to speak, underground things went more smoothly. Tunnelling was through London clay, almost the ideal medium. Three mechanised and one hand-driven tunnelling shields were used. The clay will stay in place long enough to allow concrete segments to be inserted. There are a number of innovatory features compared with the existing underground tunnels. Due to the fact that the new tunnel is a single bore a dry fire main was inserted. Fluorescent tubes provide the emergency lighting. The normal two telephone wires were not installed. Instead there were telephones every 60 metres to discharge traction current. Concrete sleepers had to be used due to the non-availability of Jarra (wooden) sleepers. Two fan shafts have been built and provided with stairs to be used for evacuation purposes in the event of an accident. Trial evacuation tests in association with the Airport emergency services have been held. There are smoke extract arrangements in four locations which can suck or blow according to the location of the fire.

Where the new tunnel meets the original over-run tunnels a step-plate junction has been constructed. The junction was dug by hand in stages, each section larger than the previous one until the tunnel becomes large enough to accommodate two tracks to join the double over-run tunnel. (One wall of the tunnel remains continuous while the other becomes larger in steps, hence step-plate.) Just west of Hatton Cross station the tracks lie in a concrete box, and it was necessary to enlarge the box to install the junction. Here a large trench was cut to enable a larger box wall to be

built. From the box wall to the tunnel proper some 403 rings of iron segments were laid in the trench which was then backfilled. It was here that some earth movement was noticed later on and the segments were grouted to prevent any further problems. It is in fact the wettest part of the tunnel.

The Underground station has been built close to the surface underneath the car park at the new Terminal. Originally finance was not available so the station could not be built directly under the terminal building. It consists of two boxes, one for the ticket hall and the other for the platform. It is linked with the main terminal concourse by escalators and lifts and then a sloping passageway which leads into the circular LRT booking hall. This leads directly on to the platform on the same level to facilitate access by passengers with luggage. To prevent luggage trolleys being taken on to the platform (and thus on to the trains or even on to the track!) a barrier has been installed across the width of the entrance to the platform. It consists of a series of tubular metal posts twisted and shaped in such a way that a trolley cannot be negotiated through. At the moment there is a ticket barrier but eventually this will be an open station and only the trolley barrier will remain. It is the first station to have all the ticket machines located in the booking hall wall in secure suites. The ticket office has two levels, one for the machines and ticket windows and the other for the accommodation.

The platform, which is wider than normal underground platforms, is lined with cream marble. A solid style of roundel is affixed to wall which is decorated, at intervals, with a stylised "4" composed of straight line grooves. The roof, which has draught relief grilles at intervals, and track side wall are composed of aluminium panels. A dot-matrix indicator is provided giving the time to the next two trains to Central London and messages in not only English, but French, German and Italian. A large Piccadilly line map is provided opposite the entrance and is depicted in the vaguely geographic style of the full map instead of the usual vertical line. There is little platform advertising; instead there are three banks of nine (3x3) TV screens located on the track side wall above the level of the trains. These display constant advertising using simultaneous and individual projection in a most effective manner. (On a recent visit only two banks were operating - SW.)

The station was built by the British Airports Authority to the design of LRT and is leased to them by the BAA. Should a fifth terminal be built in the west of the airport then a station could be located on a section of straight tunnel. The new timetable for the Piccadilly line began on 7 April and the new station opened on 12 April 1986. The original track from Hatton Cross direct to Terminals 1, 2 and 3 will be retained for emergency use and a couple of non-service trains will use it to maintain driver knowledge.

The Society was extremely grateful to Mr Field for coming to talk to us on this timely subject and for providing a lot of interesting and valuable information on this important project.