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LTR technicians joining cables in one of the seven-ft diameter tunnels beneath Oxford Circus. Each tunnel is about 300 yards long. All tunnel shafts and manholes are electrically lit and ventilated.

Underground at Oxford Circus

By W. H. LAMB

ONE of the most unusual and complex tasks which the London Telecommunications Region has been involved in for many years—the re-siting and re-construction of the network of ducts and cables which carry telecommunications services under Oxford Circus—is nearing completion.

Reconstructing the cat's cradle of pipes, cables, ducts, sewers, drains and subways under the Circus became necessary when it was decided in the early 1960s to rebuild Oxford Circus Underground Station, the inter-change station for the Central and Bakerloo lines and soon to become the inter-change station for the new Victoria line as well.

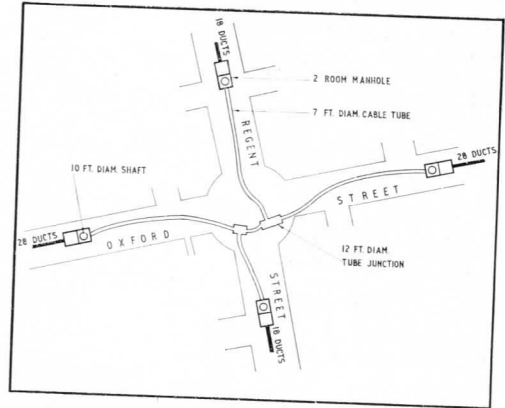
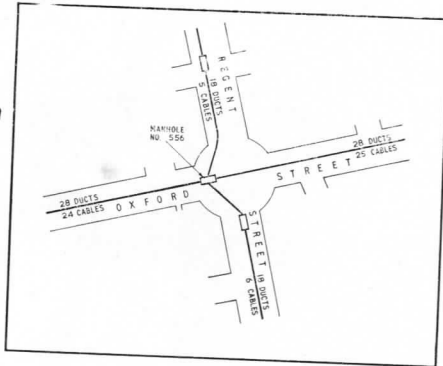
The pattern of Post Office ducts and cables below the Circus was similar to that under many road junctions in London. But moving the network presented some difficult and unusual

problems since there are no practical alternative routes around the junction and the structural features of the booking hall of the new station, which occupies all the space under Oxford Circus, do not allow pipes to be laid over, under or around it.

After a detailed study of several possible alternatives, however, LTR decided to install the cables in special Post Office cable tunnels dug underneath the new booking hall and threaded between the new escalator shafts and other station tunnels.

Work on the Post Office task began early in 1965 when four large, two-room manholes were built—two under Regent Street and two under Oxford Street. The existing ducts and cables were passed into the first room in each of these manholes. New cables were joined on and led

Right: Diagram showing the plant system as it was and (far right) as it is now.



down 40-ft deep, 10-ft diameter vertical shafts from the second room. The bottoms of the shafts were then linked by seven-ft-diameter tunnels—each about 300 yards long and all manually dug—through which the new cables now run.

Entry to the manholes is obtained through normal manhole covers at ground level and to the tunnels by ladders and platforms built into the shafts. To prevent gas and water entering the tunnels, the two rooms in each manhole are isolated by gas-tight doors and the cables pass from room to room through pipes fitted with gas-tight glands. The tunnels, shafts and manholes are drained, ventilated and electrically-lit and the cables and joints are supported on steel cable bearers bolted on to the cast-iron tunnel linings.

The tunnels, shafts and manholes, drainage and ventilation systems were designed by Sir W. Halcrow and Partners, consulting engineers to the Post Office, in co-operation with the Engin-

earing Branch of London Telecommunications Region, and constructed by London Transport. The electrical installation was carried out by the LTR Power Section and all cabling and jointing work was done by staff of the Centre Area Telephone Manager.

Among other advantages which the completion of this long and difficult task will bring is that the Post Office should never again need to dig up the road at Oxford Circus to put in new cables and ducts or to carry out repairs to the existing network.

THE AUTHOR

MR. W. H. LAMB joined the Post Office as a Youth-in-Training in the old London Engineering District and is now a Senior Executive Engineer in the Engineering Branch of the LTR. Before World War Two he was seconded to the Colonial Office to install automatic exchanges in East Africa. In World War Two he served with the Royal Signals in the Middle East, attaining the rank of Lieutenant Colonel.



A MANCHESTER MILESTONE

A milestone in the development of the Manchester director system was reached at the end of February when the last manual exchange in the director area was converted to automatic.

With the opening of a new £160,000 exchange at Marple, Cheshire, automatic service was given to all the 400,000 telephones served by the 48 exchanges in the director area.

The Manchester director system is one of six serving Britain's principal cities; others are in London, Birmingham, Liverpool, Edinburgh and Glasgow.

The first three exchanges in the Manchester director system, ARDwick, COLlyhurst and MOSs Side, were opened in 1930. The system developed throughout the Greater Manchester area and now includes 235,000 exchange lines in South Lancashire and North Cheshire.

Telephone users in the Manchester director area make nearly 25 million calls each month. Subscribers on a typical exchange in the director area can dial 100 local exchanges, 3,000 exchanges in this country on STD and many exchanges on the Continent by way of the International subscriber dialling system.