

# Ministry of TRANSPORT and CIVIL AVIATION



PRESS  
NOTICE

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## DARTFORD-PURFLEET TUNNEL

### MEETING OF THE UNDER-RIVER WORKS

During the weekend engineers and miners working on the £11,000,000 Dartford-Purfleet Tunnel broke through the last few feet of chalk separating the Essex and Kent halves of the main tunnel.

The meeting of the two halves, 25 feet below the river bed, is the climax of the two years' work carried out by teams of picked men working in compressed air from both sides of the river.

The length of the tunnel from portal to portal is nearly one mile, while the under river section, now nearing completion, is more than half a mile. A pilot tunnel, 12 ft. in diameter, was built before the war and the main underwater tunnel has been constructed around this by driving two giant shields inwards towards the centre of the river from shafts sunk on the Kent and Essex banks.

The Kent shield, having completed its drive, has been partially dismantled, and the Essex shield has come to rest within 15 ft. of the chalk face on the other side. As the remaining ring of chalk is dug away, the final cast-iron segments of the lining will be bolted into position.

About 400 men, on an average, have been engaged in the construction of the tunnel. Although many of them have been working in compressed air, the standard of health has been high.

Regulations have been strictly observed and excellent welfare amenities maintained by the main contractors.

### SPECIAL CONSTRUCTION DIFFICULTIES

Before the tunnelling work started, pre-treatment on some of the more difficult strata was undertaken by means of special grouting. In places the grouting material was discharged from the pilot tunnel. Most of the treated ground has now been traversed during the tunnel operations and the conditions experienced have confirmed the effectiveness of this treatment.

As a safety precaution, observations on the river bed have been made from the surface of the river. Echo soundings were taken continuously in advance of the tunnelling operation and at one period it was discovered that tidal erosion had dangerously reduced the thickness of cover above the level at which the tunnel was to be driven. The area of the river bed in question was restored to its former profile by depositing some twenty thousand tons of clay from hopper barges. The shield passed under this area safely and without incident.

### OUTWARD DRIVE TO TUNNEL ENTRANCES

While the major excavation and structural feat of forming the under-river part of the tunnel nears its end, there remains much to be done. The entire underground working will continue to be air locked, the pressure being maintained above that of the atmosphere to prevent water entering. This is necessary because tunnelling between the shafts and the tunnel portals is still going on. On the Kent side the work is being done by driving a shield outwards, away from the river, while on the Essex side the compressed air work is comparatively short and the tunnel will be formed by enlarging a triple cluster of pilot tunnels.

Tunnelling operations are expected to be completed in about a year's time. This will be followed by the construction of the 21ft. carriageway through the tunnel, together with the internal finishing, the lighting, the installation of ventilation and other machinery and the equipment of

the tunnel with its services and communications system.

#### COMPLETION IN 1962

During the present year work will start on the construction of the three miles of roadway forming the approaches to the tunnel. The first of these works, a viaduct carrying a part of the Essex approach road, will be put in hand shortly. The tunnel is expected to be ready for traffic in 1962.

The tunnel and its approach roads will make a four mile north-south link between the London-Rochester Road, A.2, and ~~to~~ the Barking-Southend Road, A.13, carried on a viaduct over A.126. All the approach roads will have two <sup>se</sup>parated carriageways. Ultimately the system will connect the projected North and South Orbital roads, which will form a circle round London at a distance of about 15 miles from the centre.

The Essex and Kent County Councils will each contribute £250,000 towards the cost of the tunnel and the Minister of Transport and Civil Aviation £2,625,000. The remainder of the cost amounting to some £8,000,000 will be defrayed from central funds provided for new roads and will be repayed from toll revenue.

The consulting engineers for the scheme are Messrs. Mott, Hay and Anderson and Messrs. Coode and Partners; the main contractor for the tunnel works is Edmund Nuttall, Sons and Company (London) Limited.