



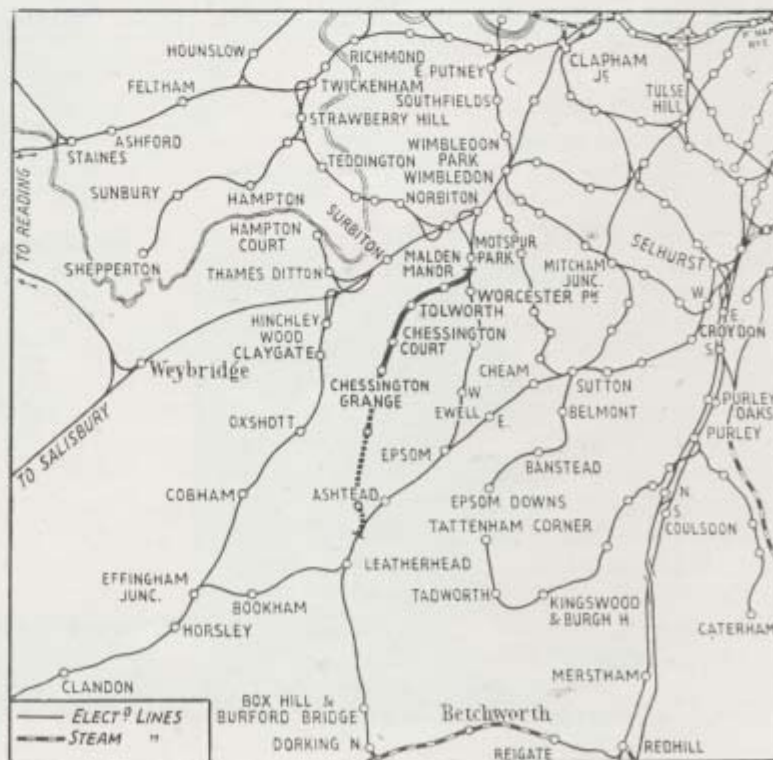
Double-span bridge over Ewell Road

## New Southern Railway Suburban Line

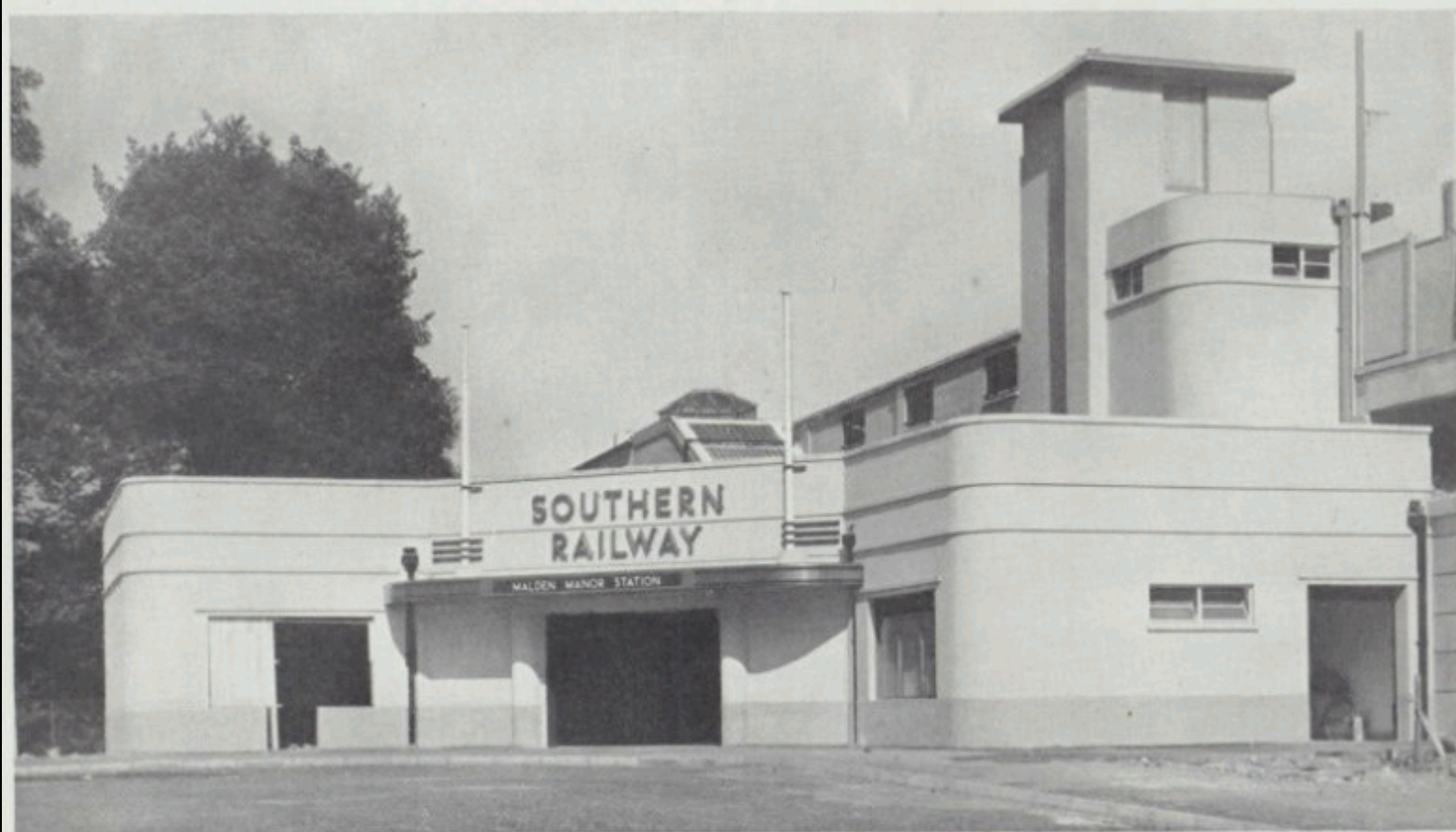
**O**N Sunday, May 29, the first section of a new line between Motspur Park and Leatherhead on the Southern Railway was

opened to traffic. When completed the total length of the railway will be  $7\frac{1}{4}$  miles, but at present only the first  $3\frac{3}{4}$  miles to Chessington Grange are being built, and the line is now open as far as Tolworth, the second station, two miles from Motspur Park. The country traversed is undulating and has a heavy clay subsoil, such that only the cores of the embankment can safely be formed of this material, the remainder, above 12 ft. high, being made up with dry filling. For the same reason special drainage has been installed in the cuttings, and the track has been laid above either a 6-in. slab of concrete or a 15-in. bed of ashes. There will be a depth of about 8 in. of broken stone

ballast between the bottom of the sleepers and the ashes or concrete. Excessive sulphates in the soil have necessitated the use of aluminous cement in all drainage



Key map showing the position of the new line relative to other sections of the Southern Railway



Main entrance to Malden Manor station, the platforms of which are on the embankment on the right



Platforms at Malden Manor station with Chisarc reinforced concrete awnings, free from pillars. Note the fluorescent lighting system

works where there will be running water. There are seven underbridges on the line, all of the same general type, namely steel plate girder spans encased in concrete and carried on mass concrete piers and abutments. At Chessington Grange there is a road overbridge. Special wire mesh fencing, with three strands of barbed wire above it, has been adopted wherever there is the risk of trespassing by children or cattle. The permanent way is of the standard Southern Railway type, with 95-lb. rails in cast iron chairs coach-screwed to creosoted wooden sleepers. The rails are joined by two-bolt short fishplates, with welded copper bonds to carry the return traction circuit. The 600-volt supply for the electric trains is carried in the usual third rail.

The stations are of striking and attractive appearance, with spacious booking halls and the usual offices. One of the most characteristic features is the Chisarc type of cantilevered reinforced concrete platform roofing, which although only about 3 in. thick has four layers of reinforcement. Small circular glass lenses are let into the roof to give lighting by day and fluorescent tubes provide illumination by night. The stations as a whole have been designed with the idea of minimising maintenance work. Tolworth and Chessington Grange have extensive goods yards. Signals and interlocking are to Southern Railway standards, the former being of the upper quadrant pattern. The train service consists of three electric trains an hour between Tolworth and Waterloo.