

Completion of Brighton Line Colour-Light Signalling



The new signalbox at South Croydon, with the old South Croydon Junction box, one of the two it has replaced on the left

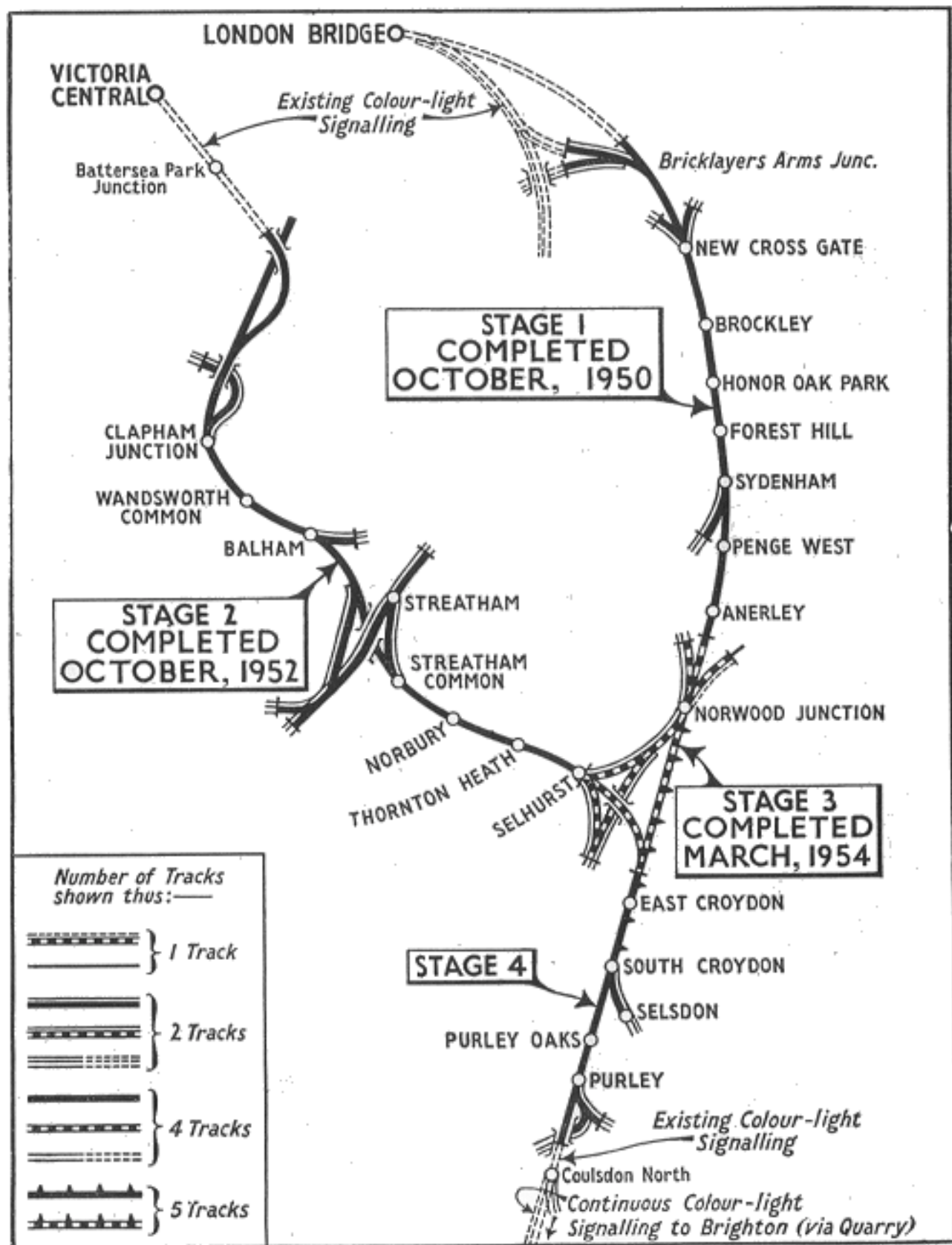
COLOUR-LIGHT signalling is now in operation throughout the main line from Victoria and London Bridge to Brighton. The final connection was made at East Croydon, at 7 a.m. on Sunday, May 8, by Mr. C. P. Hopkins, General Manager of the Southern Region of British Railways. This operation completed the scheme, of which Stage 4 covered the area between East Croydon and Coulsdon North. The earlier stages were brought into use in October, 1950, October, 1952, and March, 1954.

The final stage included the provision of three new signalboxes, with all-electric lever frames, at East Croydon, South Croydon, and Purley, and 16 automatic sections covering 23 track miles of continuous track circuiting. At the London end, it joins the Gloucester Road Junction installation, inaugurated in 1954, and between Purley and Coulsdon North it meets the Brighton line colour-light signalling, brought into use when electrified services were introduced, more than 20 years ago. The area carries all trains

to Brighton and the nearby South Coast resorts, and frequent suburban services to Tattenham Corner and Caterham, which branch from the main line at Purley, and to Coulsdon North. In all 5,600 trains pass through the area in a week.

The signalbox at East Croydon has 103 levers, and replaces the boxes at East Croydon North and South, each of 84 levers. South Croydon Signalbox, with 31 levers, replaces the station and junction signalboxes of 32 and 55 levers, respectively. Between South Croydon and Purley, the signals are automatic, and Purley Oaks Signalbox (56 levers) has been abolished. At Purley, the new signalbox has 71 levers, and replaces the North and South boxes of 52 and 54 levers respectively.

The signalbox structures, of familiar Southern Region design, incorporate stores and staff accommodation as well as the relay and accumulator rooms. At East Croydon there is also space for the Chief Mechanical & Electrical Engineer's equipment for the signalling supply current,



The colour-light signalling scheme in the suburban area of the London-Brighton main line. Stage 4 was brought into operation on May 8

but at South Croydon and Purley the current is drawn from the nearby traction substations. The all-electric lever frames and other equipment in the signalboxes are similar to those provided in the earlier stages of the scheme.

Traffic is controlled by 70 signals of the multiple-aspect long-range type, of

which 28 are carried on tubular steel posts; the remainder are carried on nine signal bridges and seven structures of cantilever or other design. The signal spacing provides for a 2½-min. headway for following stopping trains. Shunting movements are controlled by 60 solenoid-operated floodlit disc-type signals. Tele-



The approach to East Croydon Station from the south, shortly before the changeover, with new colour-light signals on concrete cantilevers



Interior of the new signalbox at South Croydon, showing the 31-lever frame and illuminated diagram

phones are provided at all automatic and most controlled signals, giving the train crews direct communication with the signalbox concerned.

There are 100 point machines, mostly operated from 120-volt accumulator batteries at the three new signalboxes. The batteries are trickle charged by rectifiers, but there are also standby rectifiers at these boxes for direct point operation if necessary. The installation includes 130 condenser-fed track circuits, single and double rail, incorporating 145 impedance bonds. Track relays are so far as possible placed in the signalbox relay rooms, local control rooms, or the apparatus cases of automatic signal locations.

The civil engineering work involved in the final stage of the scheme consisted of

the completion of the signalbox at East Croydon (commenced in Stage 3), the signalboxes at South Croydon and Purley, and the erection of nine steel signal bridges, three other steel structures and four precast concrete cantilevers.

The three new signalboxes are of brick construction with reinforced concrete roofs. They are provided with central heating and steel sliding sashes which give the signalmen excellent views of the approaching trains. The box at South Croydon was built on normal strip footings, but because of the poor nature of the ground at the other sites, the box at East Croydon was built on a reinforced concrete raft, and that at Purley on concrete piles with a depth of 25 ft.

The signal bridges are of welded steel of varying spans between 50 and 65 ft. The two largest span five tracks, and the remainder four tracks. They are of pleasing appearance, constructed in the main, with shaped joists reducing in depth towards the supports; the stanchions are of the single welded box type. All bridges have a chequer plate floor to allow maintenance fitters access to the signals, and a light steel protective handrailing is provided. Two steel signal gantries were erected at East and South Croydon, and a small steel wall bracket for one signal affixed at East Croydon. All the steel structures were fabricated by a contractor, transported to the site, and erected under possession on previously prepared concrete bases in a minimum of time by the railway staff. Provision has been made in their design for adjustment in level, should it become necessary to raise the track level in the future.

The signalling changeover was carried out within a 7½ hours' possession of all lines through the area concerned, and entailed the abolition of over 120 signal arms and fittings and a number of signal dolls and posts. One hundred sets of points were disconnected from the old signalboxes and reconnected to the electric point machines which had been previously installed and tested. Nearly 500 men of the Signal Engineer's staff drawn from all over the London area were required to bring the new installation into service and to carry out essential demolition.



Photo]

[John Alves

Up local line signal at Purley Oaks in March, 1955

The semaphore signal on the left was installed when the erection of the new colour-light signal obscured the view of the repeater arm on the post on the right