

## Remote Supervisory Control of Electricity Supply System, Borough of Hornsey, London

THE Borough of Hornsey Electricity Department is changing its distribution system from D.C. to A.C. Change-over commenced towards the end of 1936 and there is now plant for 4350 kVA installed on the A.C. network. The present maximum load on the whole undertaking—10 000 kW—is met by bulk supply drawn from the Grid, with three turbo-alternators brought into operation and capable of supplying up to 6 000 kW at times of peak load.

In the total of some 24 000 consumers, nearly all represent domestic loads. The requirements over the next few years as envisaged in a scheme drawn up by Mr. F. C. Orchard, A.M.I.E.E., Borough Electrical Engineer and Manager, are plant for 25 000 kVA on an A.C. system meeting a demand for approximately 20 000 kW. These figures are substantially greater than those of, say, ten years ago, when there were 7600 consumers making a maximum demand of 3600 kW.

The A.C. network, when complete, will incorporate eighteen substations disposed about the area of the undertaking as shown in Fig. 1 and fed at 6.6 kV for distribution at 400/230 volts. In changing over, the opportunity is being taken to modernise the plant in every way and to secure maximum efficiency and economy in administration by introducing remote supervisory control.

Completion of the scheme will provide for the entire control of all substations from the Electricity Works and will be reached in progressive stages. Substations will be converted or added as necessity demands

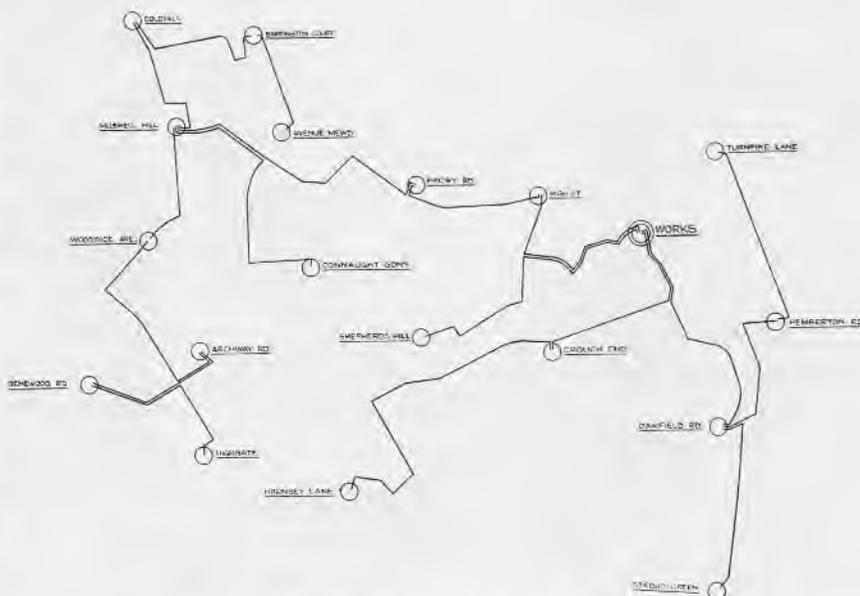


Fig. 1.—Routes of existing pilot wires, Hornsey.





Fig. 4.—Remote supervisory control apparatus at Avenue Mews substation.

modifications to inter-panel wiring and the mimic diagram being all that is necessary.

With a considerable number of pilot wires already in position between substations, a four-wire system, rather than a two-wire, was permissible for remote control. The substations are linked in tandem by the pilots and the control system operates on the well-known G.E.C. principle\* of selection of station, selection of gear, check-back, operation, followed by a confirmatory signal that the desired operation has been performed.

\*G.E.C. Cat. No. 19—"Remote Supervisory Control".

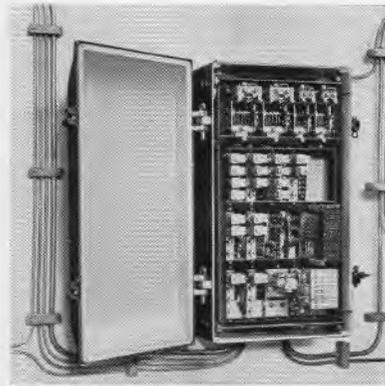


Fig. 5.—Near-view of apparatus cabinet, Avenue Mews substation.

At the Works, all the selective apparatus is accommodated in glass-fronted cabinets beneath the control panels, whilst a small cast-iron box houses the corresponding apparatus at a substation (Fig. 4). Adjacent to this, on the wall of the substation, is a cabinet in which are fitted the contactors interposed between the selective apparatus and the tap-changing gear controlled. A dry-plate rectifier is also mounted on the wall and charges the operating battery seen in the corner.

As the number of panels increases as conversion proceeds, and the semi-circular layout becomes complete, the control board thus formed, in the steel and glass room to be erected about it, will be one of the most striking features of the Electricity Works and will suggest by its very appearance the important place it holds in the undertaking.

