

Ramsgate and Dover Electrification



New electric train for the Kent Coast services leaving St. Mary Cray

THE Southern Region of British Railways introduced electrified services on June 15 to Ramsgate, *via* the Kent Coast line, between Faversham and Dover, and on the branch from Sittingbourne to Sheerness. This is the first phase of the electrification on the third-rail system of lines in Kent undertaken as part of the railway modernisation plan. The scheme was part of the extensive programme planned by the former Southern Railway, and was completed as far as Gillingham in the summer of 1939, but the second world war caused the remainder of the work to be postponed.

In addition to the installation of the electrical equipment on 78 route miles east of Gillingham, major civil engineering works were necessary on several parts of the line, including sections already electrified. Platforms at the principal stations had to be lengthened to take twelve-coach trains, and at some stations, where the layout interfered with high-speed running, complete rebuilding was necessary.

On the portion of the line already electrified, the major works were between Shortlands and Swanley. From Shortlands Junction to Bickley Junction, double tracks from the main and Catford loop lines ran side by side as two down

and two up lines. To avoid conflicting movements of trains, the four tracks were re-arranged to form pairs of up and down lines. The opportunity also was taken to ease some sharp curves to allow higher speeds. The quadrupling has been extended for some five miles from Bickley Junction to Swanley, where the line to Ashford *via* Maidstone diverges.

Between Bickley Junction and St. Mary Cray, the loops connecting the main lines from Victoria and Charing Cross have been re-aligned with easier curves. These connecting lines were brought into use in 1902 and 1904, and were subject to severe speed restrictions. The junction at Bickley was improved in 1914.

East of Swanley, there were no major engineering works or track alterations until Rainham, three miles beyond Gillingham, was reached. Between Rainham and Newington, however, loops have been provided to enable stopping trains to be passed by expresses. Newington Station has been extensively altered, and the platforms at Rainham extended. On the branch from Sittingbourne to Sheerness, double track has been provided for some three miles. The civil engineering works associated with the electrification were described and illustrated in

articles in our issues for January and May, 1958.

To enable the new services to operate to the maximum advantage, colour-light signalling has been installed from Factory Junction (Battersea) to Ramsgate via both Herne Hill and the Catford loop, with three or four-aspect signals, as required by local circumstances, and junction or route indicators. The signal

spacing provides for a 2½-min. headway between London and Swanley for stopping trains, and 3 min. through the Medway towns, and between Margate and Ramsgate. Elsewhere the figure is generally 3 min. for non-stopping trains. There are eight power signalboxes—at Shepherds Lane, Brixton (lever frame type); Beckenham Junction; Shortlands; Chislehurst Junction; Rochester; Rain-



Map showing the two stages of the extension of electrification in Kent

ham; Sittingbourne; and Faversham (panel type). Semaphore signalling has been retained between Faversham and Dover.

The existing box at Farningham Road now works electrically the points at Fawkham Junction, where the Gravesend West branch, closed to passengers, and now single and operated by key token instruments, leaves the main Chatham line. The new Sittingbourne box remotely controls by electronic equipment almost the whole of the Sheerness branch. Elsewhere the original signalboxes have either been abolished, or modified to control the new signals, or been reduced to the standing of ground frames. Twenty-three modified boxes continue to function as such, but not all of them are open continuously; when they are closed their signals work automatically for through running movements. At Rainham Station, oil-hydraulic actuation of the level crossing gates has been installed.

Magazine-type train describers have been installed throughout, with selective telephones from signal posts to the nearest open signalbox in advance. Although the track circuiting was completed right through to Ramsgate before the introduction of the new services, it was not possible to bring the colour-light signals into service beyond Westgate by June 15, but it is expected that they will be working by the end of the present month.

Power for the electrified lines is supplied at 33 kV. a.c. by the Central Electricity Generating Board, and fed through oil-filled cables to substations, where it is transformed and rectified to 750 V. d.c. Twenty-three sub-stations, spaced at intervals of $3\frac{1}{2}$ miles, have been provided for the first phase of the scheme. About 160 miles of conductor rail, and 87 miles of cable, have been required for the newly-electrified lines.

Fifty-three four-car units have been built at Eastleigh Works for the fast trains to Ramsgate and Dover. They are almost identical with the units completed in 1956, and all the features contributing to simple and flexible operation introduced to Southern Region stock in recent years have been incorporated. The motors are of the same power as those of the earlier units, and give the same level balancing speed of 72 m.p.h., but

the acceleration rate has been raised slightly. Layout and general construction of the coaches also is much as in the earlier units, although both electrically and mechanically there have been some changes.

The bogies are identical with those of the Hastings diesel-electric units. They have been fitted with lateral shock absorbers, shear-type rubber auxiliary springs and rubber bonded spherical bearings for the bolster swing hangers. The gangway stems are now rubber mounted and the gangway face plates lined with anti-friction material to eliminate periodical lubrication which previously necessitated the separating of the coaches of units every month. These changes are also being made to the older express units. Windows are double glazed, and heat and sound insulation has been installed for the body sides, ends, roofs and floors. The capacity of the heaters has also been increased.

The four-car units are made up of a second class motor brake coach, with compartments for the driver and the guard, a trailer composite coach, either a second class trailer coach, or (in the case of ten of the units) a buffet car, and then another second class motor coach. Two or three four-car units can be coupled together to form an eight or twelve-coach train.

The layout of the passenger accommodation of the motor coaches consists of two saloons separated by a centre transverse glass panelled screen. There are vestibules at each end with access from both sides of the car, and centre bodyside doors in one of the saloons on both sides of the car. The car seats 56 passengers and has a centre gangway running the length of the saloons. The corridor second consists of eight second class compartments seating 64 passengers, with side corridor and twin lavatories at one end of the coach and with end and centre vestibules.

The corridor composite vehicle consists of four first class compartments seating 24 passengers and three second class compartments seating 24 passengers, with side corridor. There are lavatories and vestibules at each end and a centre vestibule with corridor dividing doors between the first and second class accommodation.

Ten of the 53 units will have buffet cars in place of the second class compartment trailer cars. The buffet cars in these units will be of steel construction to the British Railways steam stock 9-ft. profile and their general layout and equipment is much as in those of the earlier units and the Hastings diesel-electric units. The layout of the vehicle is in three main parts, the dining saloon at one end, kitchen and staff quarters in the middle, and the bar and buffet at the other end of the car. A corridor

be 98 diesel locomotives, mainly for freight services on both the Kent Coast and Hastings lines.

The train service is on an even-interval basis. An express leaves Victoria hourly from 7.40 a.m. to 10.40 p.m., calling at Bromley South and Chatham (44 min.) to Gillingham, where it divides. The first portion continues non-stop to Whitstable (75 min.) and Herne Bay (81 min.), calling thereafter at all stations to Margate (100 min.) and Ramsgate (114 min.). The second part



The rebuilt station at St. Mary Cray

with a service counter from the kitchen connects the saloon and buffet ends. The dining saloon seats 17 passengers.

For the intermediate services there are 62 two-car units for phase I. They consist of a semi-saloon second class brake motor coach and a composite driving trailer with lavatories for both classes. There is no corridor connection between coaches. Construction is similar to the express units but without double-glazed windows. There also are some motor luggage vans, similar both mechanically and electrically to the multiple-unit coaches but with the addition of a traction battery to allow them to work for a limited period over quayside lines which cannot be electrified.

In addition, 24 electric locomotives are being built to haul freight and certain passenger trains. Eventually, these locomotives will be used on the "Golden Arrow" and the "Night Ferry," and all will be fitted with overhead gear for use in sidings. There also will

of each express proceeds to Sittingbourne, Faversham, Canterbury East (88 min.), and stations to Dover Priory (114 min. from Victoria). There also are morning and evening residential expresses between the Kent Coast and Cannon Street.

At 40 min. past every hour, a train leaves Charing Cross for Woolwich, Dartford, Gravesend, Strood, Rochester, Chatham and all stations to Ramsgate. With the London expresses these provide a half-hourly service between Herne Bay, Margate and Ramsgate, and a direct service between Gravesend line stations and the Kent Coast. Connecting with these at Faversham are hourly all-stations trains from Sheerness to Sittingbourne, Canterbury East, and Dover, which give an hourly service from Sheerness to the Kent Coast and also help to provide a half-hourly stopping service between Faversham, Canterbury and Dover.

In addition, the hourly stopping trains

formerly leaving Victoria at 16 min. past the hour now start one min. earlier and are extended from Gillingham to Sheerness. The second portions of the expresses from Victoria have Sheerness connections from Sittingbourne, so that Sheerness also has a half-hourly service from London.

The fastest train of the day is the 5.14 p.m. from Cannon Street, calling at Whitstable (65 min.), Herne Bay (72 min.), Margate (86 min.), Broadstairs (92 min.) and Dumpton Park (96 min.) to Ramsgate (99 min.), so for the first time on record providing a daily time of less than 1½ hr. between London and Margate.

On summer Saturday mornings and afternoons there are a succession of nine relief trains to the expresses from Victoria, with first stop at Herne Bay, two taking 87 min. to Margate, one 88 min., three 90 min. and three 94 min.

The up service follows the same pattern, with the hourly expresses leaving Ramsgate at 10 min. past each hour from 9.10 a.m. to 10.10 p.m., and the connecting Dover services also at 10 min. past; the journey times are 115 min. from Ramsgate and Dover, 102 min. from Margate, 84 min. from Herne Bay, and 45 min. from Chatham to Victoria.

The second phase of the electrification (scheduled for completion by June, 1962) extends over 157 route miles. It embraces the lines from Sevenoaks, through Tonbridge and Ashford, to Folkestone, Dover, Deal, and Ramsgate; from Maidstone East to Ashford; from Ashford to Ramsgate, *via* Canterbury West; from Paddock Wood to Maidstone West; and from Ashford to Ore, where connection will be made with the lines serving the Sussex Coast, electrified in 1935.