

provision of shed for housing batteries at Christchurch; improvements to bridges Nos. 148 and 150, North Auckland line; fitting-up new central booking-office at Wellington; improved water-services at several stations; and equipment of frame levers in lieu of "gooseneck" levers at crossing loops.

Expenditure.—The expenditure for the year was as follows: Maintenance (charged to working expenses), £1,147,067; new works (charged to capital), £946,336.

The maintenance expenditure charged to working expenses amounted to £359 per mile compared with £338 in 1926–27, £369 in 1925–26, £362 in 1924–25, £373 in 1923–24, £342 in 1922–23, £367 in 1921–22, £350 in 1920–21, £280 in 1919–20, £252 in 1918–19, £240 in 1917–18, £243 in 1916–17, £251 in 1915–16, and £254 in 1914–15.

Mileage.—The mileage open for traffic on 31st March, 1928, was 3,193 m. 37 ch. During the year 16 m. 67 ch. additional lines were opened for traffic.

Staff.—Maintenance Branch: Working staff, 4,635; office staff, 220: total, 4,855.

SIGNAL AND ELECTRICAL.

Fixed Signals at Officered Stations.—Fixed signals have been superseded by automatic signalling between Wiri and Pokeno inclusive.

At Papatoetoe and Helensville the fixed signals have been superseded by power interlocking.

The total number of officered stations (including tablet stations) is 483, of which 319 are equipped with fixed signals, 9 are equipped with light signals as unattended crossing loops, 121 are interlocked, and 34 are unequipped.

Automatic and Power Signalling.—Double line automatic signalling has been brought into use between Petone and Waterloo, 2 miles 70 chains; Otahuhu and Papatoetoe, 2 miles 27 chains. Single line automatic signalling has been completed between Papatoetoe and Mercer, 31 miles 66 chains; Addington and Middleton, 1 mile 54 chains.

In connection with the above installations unattended crossing loops have been provided and equipped with light signals at crossing stations between Wiri and Pokeno, inclusive.

At Waterloo Station special terminal automatic signalling scheme was provided.

The total mileage now equipped with automatic signalling is: Double line, 37 miles 57 chains; single line, 159 miles 11 chains.

Automatic signalling between Mercer and Frankton is now in hand.

The total number of unattended crossing loops equipped with automatic signalling is now thirty, and switch-locked sidings twenty-five.

The following stations have been equipped with power interlocking and colour-light signals: Woburn, Middleton, Papatoetoe, Helensville, Addington North (partial scheme), Frankton North End (partial scheme), and Kensington Station (partial scheme).

Alterations to signalling and interlocking have been carried out at: Frankton South, Addington South, Hornby, Mercer, Dannevirke, and Papakura.

Electric Tablet.—Block working: Tablet instruments were removed from twenty-two stations during the year either on account of the installation of automatic signalling, or that tablet working was no longer considered necessary at certain stations.

The number of tablet instruments now in use is 883 at 371 stations.

The total number of automatic exchangers in use is 333.

The total mileage equipped with electric tablet is 1,709 miles of single line out of a total 3,193 miles.

The total mileage equipped with lock and block is 16½ miles of double line. The number of lock and block instruments in use is twenty-six at twelve stations.

Telegraph and Telephone Facilities.—Fifty-eight miles of poles have been erected, and 1,242 miles of wires during the year. One hundred and seventy-one connections to railway telephone circuits have been provided. Nineteen new connections to public exchanges have been provided. Metallic circuiting of telephone lines has been completed on the following sections: Palmerston North–Waipukurau, Omakau–Cromwell, Frankton–Cambridge, Dunedin goods–Kensington, Invercargill–River-ton, Invercargill–Wairio, Hawera–Wanganui, and Waihi–Taharoa. A Morse circuit has been super-imposed on existing telephone lines between Wellington and Palmerston North. A train-control telephone metallic circuit in connection with the automatic signalling has been installed between Auckland and Mercer, comprising thirty-one telephone stations. The traffic train-control telephone between Wellington and Marton is now in operation comprising forty-five telephone stations, 232 miles of wire. The traffic train-control telephone between Christchurch and Oamaru has also been brought into use, comprising fifty-five telephone stations, and 302 miles of wire. The totals now in use are: Morse instruments, 293; telephones, 2,097; electric bells, 388; miles of wire, 11,239; miles of poles, 2,937; separate connections to public exchanges, 555.

Electric-lighting Installations.—During the year flood-lighting has been installed in the following station-yards: Frankton Junction yard, Greymouth yard and wharf, Otahuhu, Westfield, Middleton, Timaru, Marton, Thorndon, and Auckland yards.

The following stations have been equipped with electric lighting: Cromwell station and yard, and locomotive-shed; Upper Hutt station and yard, locomotive-shed, and signals; Clyde station and yard; Papanui station and yard and signals; Lower Hutt station and yard and locomotive-shed; Paekakariki station and yard, locomotive-shed, and signals; Otahuhu station; Penrose station and yard, F.O.W. depot, and signals; Huapai station; Helensville station and yard, goods-shed, and locomotive-shed; Green Lane station and yard; Lepperton station and yard, and signals; Waikouaiti station and yard, and signals; Dannevirke station and yard, locomotive-shed, and signals; Takapau station and yard, and signals; Waitati station and yard, and signals; Middleton station and yard.