

Tuaiti-Gisborne Line.—There were three prearranged shutdowns, totalling 17 hours 58 minutes, of which two, of 16 hours 58 minutes, were required for insulator cleaning, and one, of 1 hour, for repairing the isolating-switch at Tiniroto, which had developed sparking at the contacts.

Tuaiti-Wairoa Line.—This line has given very good service during the year, having caused no interruptions to supply. Three prearranged shutdowns, totalling 10 hours 42 minutes, were required for cleaning insulators and overhauling the line.

Transmission-lines (11 Kv.).

Mangahao-Shannon.—During the year this line has been operated and maintained by the Horowhenua Electric-power Board.

During the year, as the Horowhenua Power Board wished to overhaul this line, temporary arrangements were made whereby the Department supplied power at 11 kv. over one of the power-house-Khandallah 110 kv. lines to a point near Levin, where the Power Board line was connected in. This enabled the Board to carry out their necessary work without cutting off supply to their consumers, except for the short times necessary to make the above change-over and to restore the normal connections.

Khandallah-Hutt Valley Power Board: Duplicate Circuit.—Two prearranged shutdowns, totalling 2 hours 27 minutes, were required during the year, one of these, of 41 minutes, being at the request of the Power Board. The other shutdown, of 1 hour 46 minutes, was required for replacing a faulty jumper on an air-break switch, and involved only one of the two circuits.

Khandallah-New Zealand Railways: Duplicate Circuit.—Fourteen prearranged shutdowns, totalling 106 hours 37 minutes, were required during the year, of which four, of 15 hours 4 minutes, were required for line maintenance; nine, of 83 hours 9 minutes, were at the Railway Department's request; and one, of 8 hours 24 minutes, was required for work on the Power Board lines.

Khandallah-Wellington Meat Export Co., Ltd.—Two prearranged shutdowns, totalling 8 hours 11 minutes, occurred. One of these, of 15 minutes, was required in order to remove a piece of wire which had been thrown on to the line; and the other, of 7 hours 56 minutes, occurred at the request of the Hutt Valley Electric-power Board.

General.—During the year the usual maintenance work has been carried out on all transmission-lines. This includes the annual cleaning and testing of all insulators, examination of poles for sap, and general tightening up. In addition to the above, a special gang has been engaged in desapping poles, shortening weak poles or stubbing them, and replacing defective poles. To date, the lines from Wellington to Bunnythorpe have been thus thoroughly overhauled and reconditioned. In addition, on all other sections, weak poles have been specially examined and, where dangerous, have been replaced. On sections of the lines where vibration breaks are liable to occur, the wire has been examined at each insulator and partial breaks repaired.

As a result of the special attention given to the transmission-lines, there were only five faults on the whole of the 110 kv. lines during the year. This represents 0.8 fault per 100 miles of line.

A large amount of this maintenance work is carried out with the line alive; but it has been necessary to have a considerable number of shutdowns for such work as the cleaning and changing of insulators and the renewal of poles and crossarms. With a view to reducing these shutdowns to a minimum, two officers are being specially trained in "live line" work. They will, in turn, train a special gang of men and it is thereby hoped to carry out practically all operations with the power still on.

There were twenty-three lightning storms recorded during the year.

III. CONSTRUCTION.

Mangahao Power-station.—The new relay equipment has been installed, tested, and placed in service. The new battery has been received and is now being installed.

Waikaremoana Power-station.—The new relay equipment has been finally tested and placed in service.

Four new cottages have been erected, and a worker's cottage transferred from Waikoau and reassembled.

Upper Developmental Survey, Waikaremoana.—During the past year further work has been carried out in tracing the various leaks through the barrier by means of dyes. A diver has also been employed on this work and, as a result, practically all the leaks have been located and their connection traced with the outlets.

Khandallah Substation.—The installation of the new relay system has been completed.

Melling Substation.—The permanent buildings have been completed and the low-tension switch-gear has been installed and put into service.

Bunnythorpe Substation.—The reconstruction of this substation, necessitated by the fire, has been completed. In addition to this work, a new transformer-bank has been installed to meet the growing load, and a new relay system has been put into operation.

Wanganui Substation.—The only construction work which has been done at this substation during the year is the installation of the necessary gear for the control of the new line to Taranaki, comprising the H.T. switch-gear, control-panels, battery, and charging-equipment.

A new telephone board was installed and the wiring of the telephones and alarm-bells in the substation was altered to suit the new conditions.

Hawera Substation.—During the year the 110 kv. apparatus was erected, and has since operated well.

Stratford Substation.—The 110 kv. structure and transformer-bank have been completely erected and put into service.