

section, except for the longer time delays necessitated by switching operations at Woodville; these interruptions totalled 5 hours 9 minutes. One, of 50 minutes, was due to a faulty rotating insulator on an air-break switch at Mangamaire Substation, while another, of 4 minutes duration, was due to a flash-over at a jumper on pole 1269 during a gale, which swung the jumper sufficiently close to the pole to cause arcing. Six interruptions, totalling 3 hours 42 minutes, were occasioned by switching operations when transferring load from the Mangahao Station to Waikaremoana; one, of 24 minutes, was due to transformer trouble at the Mangamaire Substation, when the conductor through a L.T. bushing broke at the insulator and allowed the cable to come in contact with the transformer-tank; two interruptions, of 7 minutes total duration, were due to causes which could not be ascertained, although it is suspected that one was due to trouble on the Tararua Power Board's system, which tripped the O.C.B. at Woodville.

The H Pole at the corner of Woodlands and Broomfield Roads has been replaced by a new structure, the one originally erected having decayed and was considered unsafe. Earth-strip has now been removed from all poles on the sections from which the earth-wire had previously been removed, and guy-wires have been tightened where necessary. Preparations are now in hand for "stubbing" weak poles on this section.

Mangamaire-Masterton Section.—Other than prearranged shut-downs, totalling 46 hours 33 minutes, there have been forty-five interruptions to service, totalling 11 hours 6 minutes. Of the remainder, forty-two were from the same causes as on the Woodville-Mangamaire section, and accounted for 10 hours 53 minutes, leaving three interruptions, of 13 minutes duration, which were traced to troubles on the Power Board's system. These had opened the O.C.B. at Mangamaire.

Woodville-Dannevirke Section.—Other than prearranged shut-downs, totalling 12 hours 27 minutes, interruptions on this line during the year totalled forty-eight, of 7 hours 42 minutes duration. Twenty-seven, of a total duration of 5 hours 5 minutes, were due to same causes as on the Bunnythorpe-Woodville section; three interruptions, totalling 10 minutes, were traced to weighted insulators on the Dannevirke-Waipukurau section being blown in towards the pole during a gale and arcing over; four, totalling 9 minutes, were caused by a cable on the Dannevirke-Waipukurau section working out of its clamp and making intermittent contact with the pole; six interruptions, totalling 1 hour 31 minutes, were entailed by switching operations when transferring load from Mangahao to Waikaremoana Station; while one, of 10 minutes duration, was due to the resulting surge when an O.C.B. at Woodville was closed on to a fault at Mangamaire. The causes of the remaining seven interruptions, totalling 37 minutes, could not be ascertained.

Dannevirke-Waipukurau Section.—Other than prearranged shut-downs, totalling 9 hours 56 minutes, there were forty-six interruptions recorded on this section during the year, totalling 18 hours 48 minutes. Forty-one were due to the same causes as on the Woodville-Dannevirke section, and totalled 18 hours 27 minutes. The extra time was taken in patrolling the line and holding this section out of service when a cable came out of its clamp. This fault occurred at night, and could not be located until day-break. Two interruptions, totalling 6 minutes, were caused by lightning, and one, of 4 minutes, was due to a fault on a Power Board's line, which caused the O.C.B. at Dannevirke to trip; two, of 11 minutes total duration, were due to causes which could not be traced.

Protection work at the foot of towers on the Tukituki River crossing has been continued, and periodical inspections of all river-crossings have been made. H poles have been tightened up and earth-strips removed from poles of the section from which earth-wire had been removed. A cotter-pin was replaced in a tie-down clamp under live-line conditions.

Waipukurau-Napier Section.—Other than prearranged shut-downs, totalling 19 hours 38 minutes, there were fifty-five interruptions on this section during the year, of 19 hours 47 minutes total duration. Forty-nine, totalling 19 hours 28 minutes, were due to same causes as on the Dannevirke-Waipukurau section; two interruptions, totalling 7 minutes, were caused by faults on the Power Board's 11,000-volt lines, while one of 6 minutes was due to lightning; three, of 6 minutes total duration, were due to unknown causes.

River-crossings have been inspected regularly, and pole No. 1005 near Raukawa has been straightened and concreted.

Transmission-lines.—11,000-volt Lines.

Mangaore-Shannon Section.—Other than prearranged shut-downs, totalling 2 hours 26 minutes, four interruptions to service, totalling 17 minutes, were recorded on this section during the year. Of the remainder, one, of 3 minutes, was occasioned by the manual operation of the switches in the powerhouse, to relieve the station of overload, which was lowering the frequency. Leakage relays have recently been installed on these feeders.

Khandallah-Hutt Power Board Section.—Forty-nine interruptions to service, lasting 13 hours 26 minutes, were recorded on the Hutt feeders during the year. Of these, twenty-five, totalling 5 hours 48 minutes, were due to troubles on the Power Board's lines; one, of 5 minutes, was due to the failure of supply on the main transmission-line, due to a flash-over at pole 629, while two, totalling 12 minutes, were due to insulator trouble on the main line; one interruption, of 4 minutes, was due to the operation of the overload relays on No. 1 feeder when the load was transferred from No. 2 feeder during trouble on the latter; two interruptions, of 2 minutes total duration, were caused by lightning; one, of 6 hours 28 minutes, was caused by the Ngahauranga line fouling the Hutt line when the former was damaged during a heavy gale—the Hutt feeder was kept out of service to minimize danger when repairing the Ngahauranga feeder; one, of 2 minutes, was due to the breaking of a jumper at an air-break switch on No. 2 feeder, while one, of 20 minutes, was caused by a fire at pole 78; one, of 5 minutes duration, was occasioned by switching operations at Khandallah Substation. The remaining thirteen interruptions, totalling 15 minutes, were due to causes which could not be ascertained.