

2. SUBSTATIONS

(a) 110 kV.

Palmerston.—An outage occurred when, owing to incorrect alignment of the transformer tap-changing equipment, the tap-changers on two units overran the last tap on a very low primary voltage. On the type of tap-changing equipment concerned there is no individual external indication of the tap in operation on each unit.

Gore.—Supply was interrupted seven times, the longest interruption of 3 hours 4 minutes being due to the failure of a bushing on the bus-coupler during testing. Five were due to the failure of the 110 kV. supply and one to a failure of the 110-66 kV. auto-transformer bank.

Milton.—The supply was interrupted three times, two of the interruptions being due to faults outside the area, and one occurred whilst testing.

(b) 66 kV.

Addington.—An interruption of 42 minutes in supply to the northern 33 kV. area occurred when insulators were damaged by a flash-over during buzz-stick testing.

Invercargill.—Supply was interrupted on twelve occasions, the longest of 17 minutes' duration being due to a fault outside the area; one through a faulty lightning-arrester, six due to overload and line faults, and one due to an unknown cause.

One of the regulating transformers failed in service, a flashover occurring in the tap-changing mechanism box, rupturing bushings and severely damaging contacts. Repairs were made by the workshop staff.

Ohai.—The new substation came into operation during the year and has operated satisfactorily.

Winton.—One regulator and the "B" bank of transformers were thoroughly examined and transferred to Ohai Substation, leaving Winton with 2,250 kVA. transformer capacity in place of 4,500 kVA.

(c) 33 kV.

All substations operated satisfactorily.

(d) General

On substations 10,656 insulators were tested by buzz-stick, and 68 found defective were replaced. Of the defective insulators, 18 were located at Glenavy, 13 at Waitaki, and 10 at Oamaru.

3. TRANSMISSION AND DISTRIBUTION

(a) 110 kV. Lines

On the Ashburton-Timaru lines an outage on both lines occurred when an aerial earth wire on the Rangitata River towers broke during a heavy north-west gale and fouled the phase-conductors. When a boy climbed a tower at the Temuka River crossing, contacted a conductor, and was electrocuted, a brief interruption to supply occurred.

On the Glenavy-Oamaru lines further protection work is being carried out at the Waitaki River crossing.

(b) 66 kV. Lines

Outages were caused by a variety of faults, including a gorse fire, leakage over an insulator resulting in the burning of the pole, a ground fire which damaged conductors, cutting of lines by a rock off a hillside, breaking of a span by snow, and several presumed due to lightning.

On the Otira-Arahura lines a deviation of approximately two and a half miles was constructed to avoid a section threatened by the Teremakau River.