

Troubles on Department's System.—The following table gives an analysis of troubles on the Department's System for the last three years :—

Description.	Year ending 31st March,		
	1937.	1938.	1939.
6·6 or 11 kV. lines—			
(1) Defects	..	1	3
(2) External causes	1	3	..
33, 50, or 66 kV. lines—			
(3) Defects	3	5	10
(4) External causes	4	2	3
110 kV. lines—			
(5) Defects	..	..	3
(6) External causes	3	..	..
(7) Lightning	20	11	6
(8) Storms, nature of trouble not discovered	1	2	..
(9) 5, 6·6, 11, or 22 kV. apparatus	8	12	6
(10) 33, 50, or 66 kV. apparatus	3	6	8
(11) 110 kV. apparatus	1	3	2
(12) Generators or synchronous motors	..	..	1
(13) Relays	..	..	1
(14) Control circuits and batteries	3	..	..
(15) Operation: Mistakes	4	3	8
(16) Operation: Accidents	2	3	2
(17) Other causes	1	..	4
(18) Cause unknown	2	..	2
Totals	56	51	59

Circuit miles of transmission lines in operation : 11 kV., 71·14 ; 33 kV., Nil. ; 50 kV., 431·36 ; 66 kV., nil ; 110 kV., 491·92.
Number of substations in service : 11 kV., 3 ; 33 kV., nil ; 50 kV., 17 ; 66 kV., nil ; 110 kV., 3.
Number of consumers : Bulk, 12 ; wholesale, 5.

B. PALMERSTON NORTH DISTRICT.

1. CONSTRUCTION.

(a) POWER-STATIONS.

Mangahao Power-house and Headworks.—During the year six new cottages with garages, one five stall, one two-stall, and two single garages, and a new boat-house at No. 1 dam were erected.
A site for cottages at No. 1 dam was investigated.
Two three-phase 11/11 kV. auto-transformers with auto tap-changing equipment have been ordered to replace induction regulators at present supplying the Horowhenua Electric-power board.
Waikaremoana Power-house and Headworks.—New buildings erected during the year were as follows : 6 garages and 1 single men's quarters.
Work has commenced on the erection of a new social-hall and on a departmental stable.
The pipe-line for No. 3 unit was completed, and the erection of this unit is nearing completion.
A substation was designed for the lower development at Piripaua, and erection has commenced.
Air-conditioning equipment was installed to condition the air-supply to the control-room.
At Piripaua five cottages with garages were erected.
Tenders have been called for a 10,000 kVA. 110/50 kV. transformer bank as an alternative supply for the Gisborne-Wairoa line, and for a 1,000 kVA. 110/11 kV. transformer bank with 11 kV. structure to supply the lower development and all existing 11 kV. load.

(b) SUBSTATIONS.

Bunnythorpe.—The necessary increase in transformer capacity has been investigated, and orders placed for two three-phase, 7,500 kVA. tap-changing-on-load banks with one spare single-phase unit.
Dannevirke.—Two new bays of steelwork have been ordered for the Woodville-Napier line duplication. Two private garages were built for Nos. 2 and 3 cottages.
Gisborne.—At this substation one cottage, three single garages, and a single men's quarters were erected during the year.
A new distribution board was installed.