

On the Horahora-Waikino line (Mountain section) new towers were packed out and got ready to replace some of the original towers, which were badly rusted. Also, on this line, the No. 14 phosphor-bronze telephone wire was removed and replaced by No. 8 galvanized iron, on the Hinuera-Halfway and Waiorongomai-Waikino portions. This change had been made previously on the other portions of this line with good results in preventing breakage and contact of phone and power wires.

#### *Substations.*

*Penrose.*—The temporary installation of transformers from 50,000 v. to 6,600 v. has been in operation throughout the year, supplying a maximum of 3,200 kw. to the Auckland Power Board.

With the exception of a breakdown in the cable from the transformers, and its replacement by cable of higher capacity, there have been no special operating troubles.

The Auckland Power Board's plant at King's Wharf has been running in parallel through Penrose Substation with the Horahora and the McLaren's plants during most of the year. On one or two occasions there have been indications of hunting, apparently due to some accidental and temporary causes.

*Te Awamutu.*—An 11,000 v. current-transformer broke down, and oxide-film 11,000 v. arresters were substituted for compression chamber type. Trouble was experienced on the 50 k.v. arresters, due to a bird earthing it with nesting-material.

*Arapuni.*—One of the 50 kv. transformer bushings broke down and was replaced, and there was a failure on the 11,000 v. cable during a thunderstorm.

Generally speaking, apparatus at all substations has been satisfactory. There have been no troubles with main transformers or other more important apparatus.

#### *11,000 v. Lines and Substations.*

Little trouble has been experienced on these during the year. Six defective poles were replaced on the Horahora-Leamington-Hamilton line. The duplicate cable under the railway at Pukekohe on the Bombay-Pukekohe line was installed.

#### *Power purchased.*

Power purchased during the year amounted to 7,398,942 units, at a cost of £8,787 5s. 9d., including 7,217,830 units from McLaren's Falls for £7,489, and 162,700 from the Grand Junction plant for £1,250, as shown in Tables F and H. This compares with totals for the previous year of 1,590,511 total units purchased for £2,562.

#### *General.*

The McLaren's Falls plant has been supplying practically daily on week days throughout the year, and the Junction plant was called on regularly in March, 1927. Supply from the other sources was given only in emergency, during overhaul work on lines.

The Auckland steam plant has on several occasions supplied power as far as Bombay, Hamilton, and Te Awamutu Substations, and to Henderson and Takapuna.

The Tourist Department's plant at Okere (200 kv.a.) has been run at peak-load hours since October, 1926, supplying as much of the Rotorua load as it can.

### MANGAHAO ELECTRIC-POWER SUPPLY.

#### FINANCIAL RESULTS.

The capital outlay at the close of the year was £2,242,871, as against £2,022,315 for the previous year, an increase of £220,555, and is analysed in Table P. The total revenue for the year was £101,897 1s. 4d., as against £76,856 11s. 10d. for the previous year, an increase of £25,040 9s. 6d., or 32.6 per cent. Working-expenses were £26,921, an increase of £5,055 12s. 1d., mainly due to maintenance work on transmission-lines and the coming into operation of Wanganui Substation (Table Q).

The table below shows the main sources of revenue for the year:—

|                                       | 1926.                |    |    | 1927.               |    |    |
|---------------------------------------|----------------------|----|----|---------------------|----|----|
|                                       | £                    | s. | d. | £                   | s. | d. |
| Wellington City Council .. ..         | 41,289               | 17 | 9  | * 29,740            | 8  | 1  |
| Horowhenua Power Board .. ..          | 9,299                | 13 | 6  | 14,020              | 14 | 6  |
| Wanganui-Rangitikei Power Board .. .. | ..                   | .. | .. | 9,049               | 7  | 10 |
| Manawatu-Oroua Power Board .. ..      | 7,747                | 16 | 9  | 12,752              | 0  | 0  |
| Hutt Valley Power Board .. ..         | 7,953                | 5  | 2  | 11,877              | 2  | 0  |
| Other Power Boards .. ..              | 8,493                | 5  | 0  | 18,672              | 10 | 1  |
| Other sources .. ..                   | 2,072                | 13 | 8  | 5,784               | 18 | 10 |
|                                       | <u>£76,856 11 10</u> |    |    | <u>£101,897 1 4</u> |    |    |

\* Reduction due to amount of power purchased from Wellington City Council.

After allowing for interest, £98,881, and depreciation £32,997, there is a net loss of £56,901, being £10,387 less than in 1925-26. The system earned 4.0 per cent. on the capital in operation during the year. The financial results are analysed in Tables O and S herewith.