

During the year the Mangahao-Waikaremoana system was operated in parallel with the Arapuni system, and the following figures relate to the interchange of power between the two systems :—

Units taken from the Arapuni system totalled 38,414,250 for this year, as against 51,889,765 for last year, while this year 319,901 units were supplied back to the Arapuni system. The maximum demand on the Arapuni system was 19,800 kw., as against 23,160 kw. last year.

Reliability of Supply.—During the year there were seventy-four faults causing interruptions to consumers, forty-one of which originated on the Department's system and thirty-three occurred on consumers' systems.

Due to faults on the Department's system, supply to Khandallah Substation was interrupted on six occasions during the year, of a total duration of fourteen minutes. On one further occasion, while urgent repairs were being carried out on the Mangahao-Khandallah transmission-line, Khandallah Substation was being supplied from the Wellington City Council's station at Evans Bay. During this period an interruption to supply of thirty-four minutes occurred to the other consumers supplied from Khandallah, owing to trouble on the Wellington City Council's system.

The average number of interruptions to each of the nineteen consumers was eight, faults on the Department's system being responsible for an average of five interruptions per consumer. The average duration of each interruption was thirty-five minutes, but, excluding ten major interruptions, this average is reduced to 5.4 minutes. Four of these major interruptions were caused by the gale on the 2nd February, 1936.

Storm on the 2nd February, 1936.—On the 2nd February a storm of unprecedented magnitude was experienced over a wide area, covering most of the Mangahao-Waikaremoana system. The greatest wind intensity was felt in the Manawatu-Oroua and Horowhenua districts, including Palmerston North, where plantations were levelled and many roofs torn off.

In certain parts of the Mangahao headworks practically all the large trees were levelled to the ground, and a large amount of damage was done to the telephone and indicator lines by these falling trees.

In the staff village at Mangaore the telephone and local service lines suffered severely, and severe damage was done to the young plantations and to the cottage fences.

Details of the damage to individual lines have been given under their respective headings.

With the exception of that due to a broken pole on the Tuai-Wairoa line, all interruptions were due to branches of trees and building material being blown across the transmission-lines. A considerable amount of tree-cutting has since been done, so that the telephone and transmission systems should be reasonably free from similar troubles in the future.

On the transmission-lines a great deal of work had to be done after the storm in straightening poles which were leaning over, particularly on the newly erected Bunnythorpe-Ashhurst section, where the ground had not had time to consolidate properly.

No trouble whatever was experienced on the sections where the lines are carried on steel towers.

The telephone-line also suffered severely from falling trees. The worst section was the double-circuit line between Bunnythorpe and Woodville, where long plantations of trees crashed across the lines, reducing them to a mass of wreckage. These lines had to be practically rebuilt.

A serious feature was the extensive disorganization of the communication system, but fortunately no serious interruption to supply was experienced as a result of this. As the Post and Telegraph Department's system was also seriously disorganized, communication between Mangahao and Tuai had to be maintained by radio during the storm. This was not altogether satisfactory owing to the poor reception experienced during the daylight hours. In order to meet such an emergency in the future, a scheme is now being investigated with a view to installing small emergency radio-transmitting sets at each substation. By this means communication will be possible at all times from substation to substation.

In addition to the trouble experienced on the Department's system, very considerable damage was caused on most supply authorities' systems, resulting in extensive interruptions to supply. Accordingly, as soon as the necessary repairs had been carried out on the Department's system, assistance was given by the two special maintenance gangs to the Horowhenua, Manawatu-Oroua, Dannevirke, and Taranaki Power Boards, and to the Palmerston North City Council. The assistance of these skilled linemen undoubtedly contributed very materially towards the restoration of electricity-supply in the storm-stricken areas with a minimum of delay.

I would like to pay a tribute to the work of the staff, and particularly to the linemen for their work during and after the storm on the 2nd February, 1936.

Transfer of District Office.—During the year, the district office was moved from Shannon to the new office building in Palmerston North, and the transfer was carried out expeditiously with very little interruption to the office routine. The working-conditions have been considerably improved for the staff by the more commodious quarters and better lighting and heating in the new office. Moreover greater efficiency is obtained, from an administrative point of view, by the accommodation of the whole of the office staff, stores, and test-room in the same building.

SOUTH ISLAND ELECTRIC-POWER SYSTEM.

The year ending 31st March, 1936, represents the twenty-first year of operation of the Lake Coleridge undertaking, and the first complete year of operation of the Waitaki Power-station. Since January, 1936, the Dunedin City Corporation plant at Waipori has also been in parallel with the Department's system, and this has led to a peculiar position regarding the annual returns. On one occasion a failure of the Waipori supply threw the major part of the Dunedin load on the Department's system for a few hours, and during this time the maximum system output of 40,100 kw. was registered. Apart