

DOMINION OBSERVATORY.

REPORT ON THE ACTIVITIES OF THE DOMINION OBSERVATORY DURING THE YEAR ENDED 31ST DECEMBER, 1937.

BUILDINGS AND GROUNDS.

The Observatory buildings have been kept in good order. During the latter part of the year some of the officers of the Geophysical Survey were stationed at the Observatory, but in order to accommodate them arrangements had to be made with the Wellington Philosophical Society for the ante-room of their Observatory to be used temporarily as an office.

The Observatory grounds have been attended to periodically by the Wellington City Council.

TIME SERVICE.

Observatory Clocks.—During 1937 a total of 350 short-wave wireless time signals were received, from abroad, for checking the Observatory clocks. These were supplemented by 26 local transit observations. Interruptions in the daily checking due to disturbances in short-wave radio transmission made it more difficult to maintain the required accuracy in the time service, and errors exceeding half a second in the outgoing radio time signals occurred on three occasions during the year.

These circumstances point to the necessity of installing a precision clock at the Observatory, and as a step in this direction one of the Synchronome Co.'s Type B Slave clocks was installed in December. Just after the installation of this clock Mr. F. Hope-Jones, managing director of the Synchronome Co., London, visited the Observatory in the course of a world tour. He examined the clock, and expressed satisfaction with its installation.

Time Signals sent out.—The Observatory provides the following time signals, most of which are sent out automatically by the signal clock:—

(1) Time Signals by Radio:—

(a) Through Wellington Radio Station ZLW, daily at 10 h. 30 m. N.Z.M.T. (= 23 h. G.M.T.).

In transmitting radio time signals the call sign of the Observatory is ZMO.

The following table indicates the order of accuracy of the ZLW signals during the year 1937:—

Number of times error did not exceed 0.25 sec.	351
Number of times error between 0.25 and 0.50 sec.	11
Number of times error between 0.50 and 1.00 sec.	3
Number of times error exceeded 1.00 sec.	0

Total number of signals sent out 365

The errors of individual signals can be obtained on application to the Observatory.

There was a partial failure of the signals through ZLW on February 16, and a complete failure on April 13, both due to faults at the radio station. There was also a partial failure on April 24 due to a faulty clock contact at the Observatory.

(b) Through the National Broadcasting Stations, 2YA, Wellington, and 3YA, Christchurch, at 10 h. 30 m.; 15 h. 30 m.; and 19 h. 30 m. N.Z.M.T. (=23 h.; 4 h.; and 8 h.; G.M.T.) on week days and at 15 h. 30 m. N.Z.M.T. (=4 h. G.M.T.) on Sundays.

(2) Time Signals by Telegraph:—

(a) To the General Post Office and the Railways Department, Wellington, at 9 h. daily (except Sunday), for transmission to telegraph offices throughout New Zealand and railway-stations in the North Island.

(b) To the General Post Office, Wellington, for transmission to Auckland, at 20 h. 30 m. N.Z.M.T., on Tuesdays and Fridays. This signal was discontinued after October 31, 1937.

(3) Time Signals by Lights:—

(a) By signal lights exhibited at the Observatory daily at 20 h. 30 m., up to October 31, 1937.

(b) By signal lights exhibited at the Ferry Buildings, Auckland, transmitted to Auckland by telegraph, on Tuesdays and Fridays at 20 h. 30 m., up to October 31, 1937.

The time signals by lights at Wellington and Auckland were discontinued after October 31, 1937. These signals were instituted in the early days of the Observatory for the benefit of seamen and others, but they have now been superseded by radio time signals.

(4) Time Signals by Telephone:—

Time signals are given in response to telephone calls. If specially required, the time is given to the nearest second; otherwise to the nearest minute only. During 1937 times to the nearest second were given on fifty-three occasions, and to the nearest minute on seventy-five occasions.