

DOMINION OBSERVATORY.

REPORT OF THE DOMINION ASTRONOMER AND SEISMOLOGIST FOR THE YEAR
ENDED 31st DECEMBER, 1933.

BUILDINGS AND EQUIPMENT.

The buildings and equipment have been kept in good order and condition. The Observatory grounds have been kept in good order by the Wellington City Corporation.

ASTRONOMY.

Time Service.—The Observatory signal clock has been controlled mainly by the reception of radio time signals.

A special series of meridian transit observations was carried out during October–November, 1933, in connection with the international longitude programme. Observations were made with No. 1 transit instrument on every clear evening during the period, and daylight transits were also taken when weather permitted; 365 transits of stars were observed, and 63 special radio time-signals were received.

Reception of Radio Time Signals.—The following radio time signals have been received for the purpose of checking the Observatory signal clock :—

Station.	Call Sign and Wave.	Hour (G.M.T.).	Number of Times received.	Greatest observed Error of Observatory Clock.
Nauen	DFY (LW)	00	193	0.46 seconds fast, June 1st.
Norddeich ..	DAN (SW)	00	73	0.30 seconds slow, July 26th.
*Malabar	PKX (LW)	0030	19
Malabar	PKX (LW)	01	139	1.99 seconds fast, August 29th.†
Honolulu	NPM (SW)	03	100	0.45 seconds slow, August 15th.
Arlington	NAA (SW)	05	1	0.05 seconds fast, October 4th.
Arlington	NAA (SW)	08	20	0.29 seconds slow, November, 19th.
Annapolis	NSS (LW)	08	11	0.28 seconds slow, March 31st.
Bordeaux	FYL (LW)	08	141	0.41 seconds slow, August 15th.
Rugby	GBR (LW)	10	28
*Saigon	FZA (LW)	11	8
Nauen	DFY (LW)	12	8
Rugby	GBR (LW)	18	1	0.54 seconds slow, November 2nd.‡
Saigon	FZA (LW)	19	1	0.76 seconds slow, November 2nd.‡
Annapolis	NSS (LW)	21	47	0.38 seconds fast, January 1st.
Arlington	NAA (SW)	21	65	0.59 seconds fast, October 22nd.
Honolulu	NPM (LW)	24	65	5.59 seconds slow, October 8th.§

* Special signals in connection with international longitude programme during October–November. Differences from Observatory clock not yet available. † Large difference apparently due to an error in PKX signal.
‡ Large differences due to an error in Observatory clock caused by the strong local earthquake on November 2 d. 17 h. G.M.T. § Large difference apparently due to an error in NPM signal.

The total number of radio signals received during the year was 920. The signals received comprise both mean time and rhythmic signals from Nauen, Norddeich, Malabar, Bordeaux, Rugby, and Saigon; and mean time signals only from Honolulu, Annapolis, and Arlington.

It is not possible to make regular use of the British time signals from Rugby radio, owing to the unsuitable times of transmission (5.30 a.m. and 9.30 p.m. N.Z.M.T.).

In connection with the reception of radio time signals, the Marconi magnetic drum recorder was installed at the Observatory during the year. The recorder was first used on November 17, when the Honolulu (NPM) time signal at 3 h. G.M.T. was automatically recorded on the tape chronograph.

Time Signals sent out from the Observatory.—The time service has been maintained as previously, and the regular time signals sent out. The present routine at the Observatory provides for the following time signals, most of which are sent automatically by the Observatory clock, the error of which seldom exceeds a quarter of a second of time.

Automatic time signals have been sent to—

- (1) The General Post Office and the Railway Department, Wellington, by telegraph daily, except on Sundays and Government holidays.
- (2) Ships and to the general public at Wellington, by electric lights at the Observatory, daily :
- (3) The Auckland Harbour Board, by electric lights at Auckland, on Tuesdays and Fridays, except on Government holidays :
- (4) The South Island telegraph offices, by telegraph, on Tuesdays and Fridays, except on Government holidays :