

APIA OBSERVATORY.

(NOTE.—The Observatory is a branch in Western Samoa of the Department of Scientific and Industrial Research of New Zealand. It became the property of the Government of New Zealand under the New Zealand Reparation Estates Order, 1920. In view of the wide interest in the activities of the Observatory and the peculiar value of its observations, a report by the Director is included here for general information.)

The programme of work in terrestrial magnetism, atmospheric electricity, seismology, and meteorology has been generally maintained during the year 1931–32 as in former years.

TERRESTRIAL MAGNETISM.

Absolute observations of the earth's magnetic field were obtained regularly with the Tesdorpf magnetometer and the Schulze earth-inductor, and continuous records of declination and horizontal intensity were given by the Eschenhagen variometers. The variometer for vertical force remained out of action throughout the year, and the autographic records were interrupted in March, 1932, by a break-down of the driving-clocks. A few experiments were made with stereograms as a means of representing terrestrial magnetic changes. With the exception of March, 1932, the year as a whole was free from magnetic disturbance.

SEISMOLOGY.

The seismographs are of Wiechert design. Both the horizontal and the vertical instruments were out of action for a time during the year pending the arrival of new parts from Germany. The parts were eventually received, but the larger instrument still showed a certain amount of stiffness and defect of balance.

The following analysis shows the character of the records of earthquakes obtained during the year 1st April, 1931, to 31st March, 1932: Total number of shocks registered, 122. Of these, 10, or 8.2 per cent., were felt by residents in and around Apia. The epicentres of the most prominent earthquakes have been determined, and are located as follows: Solomon Group, 7; near New Hebrides Group, 2; between Samoa and Fiji Groups, 1. None of these latter was felt by persons resident in Samoa. Of the total number of shocks registered, 80 originated within 9 degrees of Apia, 65.6 per cent.; 17 originated from greater distances than 9 degrees, 13.9 per cent.; 25 originated from indeterminate distances, 20.5 per cent.

METEOROLOGY.

The work in meteorology included surface observations twice a day as in previous years and some measurements of upper winds from time to time using pilot balloons. The hygrograph did not function very well in spite of its being fitted with new hairs. Lieutenant Warrant, of H.M.S. "Veronica," kindly undertook the inspection of the stations in the Union Islands on behalf of the Observatory during the visit of His Excellency the Administrator. A weather diary was commenced to supplement the observations at fixed hours at the Observatory, and a trial was made of Bergeron's method of measuring visibility. In the autographic records of pressure millimetres were discarded in favour of millibars.

Preliminary mean values of meteorological elements for the year 1931 are as follows:—

Month.	Pressure.	Temperature.	Rainfall.	Humidity.	Sunshine.	Wind.
January	29.709	80.2	17.20	84	159.8	5.4
February	29.689	80.1	19.97	83	126.9	3.2
March	29.823	80.4	10.47	81	164.5	3.6
April	29.823	79.7	15.94	78	205.4	4.6
May	29.858	79.3	13.90	81	161.3	4.4
June	29.882	78.1	10.87	79	195.7	4.9
July	29.898	78.4	3.90	74	259.2	5.6
August	29.862	78.8	2.00	77	219.1	5.3
September	29.882	79.0	5.48	77	216.2	4.5
October	29.851	78.6	8.34	74	227.7	3.4
November	29.795	79.0	5.82	74	234.6	3.5
December	29.793	78.6	8.98	76	177.0	2.9
Mean or total ..	29.822	79.2	122.87	78	2,347.4	4.3

There were three tropical cyclones in the vicinity of the islands during the wet season. On 18th January, 1932, a cyclone passed over the Tonga Islands; on 6th February, 1932, a cyclone occurred near the Tonga Islands which ultimately developed into a storm covering a wide area to the south of these islands; and on 12th March, 1932, a cyclone passed over the Tonga Islands having previously developed northward of Samoa.