Mutual Eclipses of Jupiter's Satellites.

Through the courtesy of the British Astronomical Association, predictions of the mutual eclipses of Jupiter's satellites were forwarded to this Observatory, with the result that on two occasions—30th September and 2nd October—two of these eclipses were observed.

Precision Pendulum.

The precision pendulum made by Mr. E. C. Isaac, Wellington, was installed at the Observatory in November, 1926. The pendulun is supplied in a metal cylinder, and this will be exhausted to a fairly low vacuum. An electric impulse dial is in use with the pendulum.

Interferometer.

A research grant from the New Zealand Institute is available for the construction of an interferometer to be used on the 9 in. telescope. The four mirrors have been made at the Mount Wilson Observatory, California, and are now in Wellington. Steps are being taken to have the instrument constructed in England.

Photographs of Moon and Surrounding Stars.

This research was begun by the Dominion Astronomer at the Lick Observatory in 1915, and has been continued from time to time in Wellington. The method is available for—

(1) Fundamental determination of the position of the moon, and was undertaken originally in response to an invitation from Professor Ernest W. Brown to provide material for testing his tables of the motion of the moon.
(2) This method may also be used as an independent one in the determination of longitude.
(3) In the determination of latitude.

In (2) and (3) the errors are different from those in the determination of longitude by wireless telegraphy and in the determination of latitude by zenith telescope observations.

Residential Accommodation.

Residential accommodation at the Observatory is necessary to provide facilities for undertaking astronomical work at night with the equipment now available. With the uncertainties of the climate, it is a difficult matter to take advantage of the clear sky, as it is found that frequently after a hurried journey to the Observatory the sky clouds up and no work can be done. The Dominion Observatory stands alone among British observatories in having no residential accommodation at the Observatory; accordingly its activities are very much reduced from this cause.

Solar Eclipse.

An annular eclipse of the sun, 1927, June 3rd, was visible in New Zealand, and an expedition consisting of the Government Astronomer and two members of the New Zealand Astronomical Society went to Russell, but heavy rains at the time prevented observations there. Successful observations and photographs were secured by members of the society at Kaitaia and at Wellington.

Lunar Eclipses.

The lunar eclipses of June 15th and December 8th were observed generally in New Zealand.

Transit of Mercury, 1927, November 10th.

The transit of mercury was observed at Wellington, a kinematograph record being obtained through the 9 in. city telescope, while photographs of the projected images through the 5 in. and 4 in. telescopes of the Wellington Philosophical Society and the Dominion Observatory were also taken. Mr. R. C. Hayes, in Samoa, obtained a good observation of the first internal contact at 3 h. 03 m. 09 s. G.M.T. For the convenience of New Zealand observers, radio time signals were sent from the Dominion Observatory at every hour and half-hour from 2 h. to 4 h. G.M.T., on a wave-length of 600 metres.

Comets, 1927.

Comet Gale, 1927, was observed by Mr. Townsend, a member of the New Zealand Astronomical Society, at Hawera, on 25th June.

Comet Pons-Winnecke was observed by the Wellington Observatory staff and members of the Astronomical Society in June and July.

Comet 1927K was independently discovered by sixteen New-Zealanders, and numerous observations were made from December 4th to 10th by the Observatory staff and members of the Astronomical Society. A good orbit was computed by Mr. P. W. Glover.

Summer Time.

The Summer Time Act, 1927, provided for the time in New Zealand being one hour in advance of New Zealand standard time for the period beginning at 2 a.m., New Zealand standard time, on Sunday, 1927, November 6th, and ending at 2 a.m., New Zealand standard time, on Sunday, 1928, March 4th.

The only alteration necessary in the work of the Observatory was in the time at which the morning time signal was sent to the Post and Telegraph Department and to the Railway Department. The great advantage of summer time to the Observatory arose from the fact that the office opened in the morning early enough to receive the wireless time signal from the Paris Observatory.

SEISMOLOGY.

The Observatory has three seismographs in use—one Milne and two Milne-Shaws. These are all horizontal component machines, and with them very excellent records are obtained. The records from the twin-boom Milne seismograph at Suva, Fiji, are sent to this Observatory for working up, and are valuable in supplementing the records obtained at Wellington.