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Director Mr. R.T.A. Innes
(Union Astronomer)

Staff. There has been no change. Mr. E.L. Johnson has been absent the whole year on military service in Europe.

9-inch Refractor (Mr. Innes). - Measurements of double stars and observations of the eclipse of Jupiter's satellites have been continued. A few miscellaneous observations were also made.

Franklin-Adams Star Camera (Mr. Wood).- The following minor planets have been photographed:- 5, 26, 44, 75, 173, 409, 451, 692, and an unidentified one; comet Wolf and a new comet discovered by Mr. Reid at Cape Town have also been photographed. Plates have also been taken for reproduction in the Observatory Circulars.

Twin Telescope (Mr. Worsell).- A long series of photographic spectra of Nova Aquilae has been obtained. A few parallax plates have also been taken.

2.5/8-inch Talcott Telescope (Mr. Worsell).- This instrument has been used throughout the year for the purpose of maintaining the time-service.

Blink Microscope. - As in the previous year, work with this instrument has been almost continuous. The Greenwich Zone of $+66^{\circ}$ has been finished, and the results, published in Circular No.43. The Sydney Zone of -55° has been finished, and that of 57° to 14° . By kind permission of H.M. Astronomer at the Cape, Mr. Wood paid a second visit to the Cape for the purpose of taking repeat chart plates, and got 116 pairs; these are now being blinked. Two further visits to the Cape will be required to fill gaps in this zone. Incidentally some pairs of plates covering a portion of the larger Magellanic Cloud have been blinked, and the results (proper motion and variable stars) have appeared in Circular No.43.

Meteorological and Seismological Observations. - These have been continued on the same lines as in 1917.

Observatory Circulars. - Nos. 41 to 43 were issued during the year. The chief contents of these are:- No.41, measures of Southern double stars, dichotomy of Venus, positions of comet 1917 a (Mellish) and of several minor planets; No. 42, variable stars; No. 43, proper motions found with the blink-microscope in the Greenwich Zone $+66^{\circ}$ and in the region of the Nebecula Major. With these circulars the following maps were

distributed:- - 46°, No. 80; -70°. Nos. 54 and 56; -34°, No. 38. Map -34°, No. 40, was also prepared for distribution with Circular No.43, but was omitted by the Government printer; it will be included in the next distribution.

Miscellaneous. - Some progress has been made with the literal theory of Jupiter and Saturn. Further difficulties in Hill's theory were adverted to in the *Astronomical Journal* for 1918 March 30, but they have aroused no comment, and it is feared that at present there is no interest in this work. Further progress has been made in comparing the eclipses of Satellites I and II observed here with Sampson's Tables, and also with a provisional eclipse table so far as concerns Satellite I. At present it seems impossible to reconcile the observations with any theory; the most plausible explanation at the moment is that the rotation of the Earth is not constant, and, as far as the evidence goes, the variability is fairly close to that which would account for the irregularities of the motion of the Moon as published in the Greenwich volumes since 1908.

If the rotation of the Earth is not constant, it would appear - as previously stated by Newcomb (*Astron. Papers*, 60, 247-8) - that one of the best tests resides in the eclipse observations of Satellite I.