

## ANNUAL REPORT OF THE UNION OBSERVATORY

1923

*Director Dr R.T.A. Innes*

*(Union Astronomer)*

There have been no changes in the staff. Professor E. Hertzsprung, of the Leyden Observatory, arrived on November 26 on a six months' visit, for the purpose of investigating variable stars in the Greater Magellanic Cloud and other Southern regions. Professor W.J. Hussey, of the Ann Arbor Observatory, Michigan, who is visiting South Africa to investigate the suitability of the climate for double-star work, spent a few days at the Observatory in November, before going to Bloemfontein.

The mechanical parts of the 26-inch refractor arrived at the Observatory in October, and the work of erection was at once commenced by the Public Works Department. A crown glass disk has been approved and is now being figured by Messrs. Grubb, but at the moment of writing an approved flint disk has not been procured.

There has been considerable correspondence with Dr. F. Schlesinger of the Yale Observatory, who proposes to erect a 26-inch refractor in the Southern Hemisphere for determination of stellar parallaxes. An official invitation from the Union Government to erect the telescope in the grounds of the Union Observatory has been sent to Dr. Schlesinger.

During the year Union Observatory Circulars, Nos. 56, 57, and 58, have been issued. With these were included 38 maps of portions of the Southern Sky.

Several attempts were made to photograph D'Arrest's comet with the Franklin-Adams Star Camera before perihelion passage, but apparently without success. After the rediscovery of the comet by Mr. Reid of Rondebosch in November, an orbit was computed and the position of the comet deduced for the times of the earlier photographs, with the result that very faint images of the comet were found on plates taken on September 5 and 7. The search-ephemeris prepared by Mr. F.R. Cripps was practically exact, but the comet was very much fainter before and at perihelion passage than it was two months after perihelion.

The minor planet 1 Ceres was observed visually over a long arc at the request of Mr. G. Merton.

In all, 109 occultations of stars by the Moon were observed by one or more observers; these have been fully reduced, but many of the adopted star places could be improved upon, if recent observations were available.

During 1923 the clock-corrections used were obtained in the usual way, viz. from star-transits. A large number of comparisons was made with the W/T signals from overseas, principally with those from Bordeaux and Lyons, and it was found that the signals from Bordeaux can be received so easily and certainly that, commencing from 1924 January 1, the Greenwich Sidereal Time, as signalled by Bordeaux, will be used for obtaining the clock-corrections. For convenience of use the sidereal clocks are kept 1h 52m 18s in advance of the time received from Bordeaux, and the G.S.T. of an observation is obtained by deducting this amount from the clock time and then applying the correction indicated by the Bordeaux signals. Occasional meridian time-observations will still be made, but the results will not be used for obtaining the clock-corrections.

Our longitude, which is probably between 1h 52m 17s.85 and 1h 52m 18s.00, is now of importance only in computing the Moon's parallax, and an error of 0s.2 is tolerable.

During the earlier part of the year (until May 15) the Union Astronomer was absent on leave in England, the Chief Assistant, Mr. H.E. Wood, M.Sc., being in charge.

The work in hand comprises (1) a Reference Catalogue of Southern Double Stars south of  $-19^{\circ}$  practically finished, but awaiting the completion of the Henry Draper Catalogue; (2) maps of the Southern Sky, 175 published, 23 in the Government printer's hands and 358 still to be made; (3) photographic spectra of Nova Aquilae, 1918, showing the red end including  $H\alpha$ ; (4) an ephemeris of Neptune from 1846, based on Newcomb's Tables of that planet; (5) a re-reduction of the Transits of Mercury, also based on Newcomb's Tables; Newcomb's published investigations finished with the Transit of 1881, and the forty odd years since elapsed should furnish some evidence as to the constancy of the rotation of the Earth or otherwise; (6) a large mass of proper motions of faint stars determined in the Cape Astrographic Zone with the Blink microscope, and practically ready for publication.