

ANNUAL REPORT OF THE UNION OBSERVATORY

JOHANNESBURG

1958

(Director, Dr W. S. Finsen, Union Astronomer)

Staff.

Mr J. Churms, Assistant Professional Officer, resigned on 1957 December 31 to take up an appointment at the Royal Observatory, Cape. Mr G. F. G. Knipe was appointed Professional Officer on May 26. Miss E. M. Bernardy, Library Assistant, resigned on January 31 and Mr W. J. F. Nel was appointed Library Assistant on February 1. Miss D. M. Howe was transferred on July 31 and was succeeded by Mrs A. R. Canavesio on September 29.

Additional posts of Professional Officer and Clerical Assistant were authorized during the year but remain unfilled; two other professional posts were vacant throughout the year.

It is a pleasure to acknowledge again the valuable help rendered by the group of amateurs associated with the Observatory, especially Messrs. H. C. Lagerweij, J. H. Botham, I. R. H. Brickett, M.D. Overbeek, C. N. Williams, A. Johnston, J. VolLmer. Without their loyal support and assistance this would indeed have been a difficult year.

Instrumentation.

The Markowitz Dual Rate Moon Camera was found to require alterations and modifications which were carried out as time permitted during the year, but it was not found possible to bring it into regular use.

Five "Apogee" telescopes for observation of faint artificial satellites were obtained on loan through the South African National Committee for the I.G.Y.

Astronomical research.

The 261-inch refractor was used by Finsen for short periods on 124 nights, principally for interferometer measures of double stars. Towards the end of the year Knipe began a programme of micrometer observations of double stars and obtained 31 measures on 13 nights.

The Franklin Adams Telescope at Hartbeespoort was used by Bruwer on 22 nights and 185 plates were obtained, mainly of minor planet fields.

With the 9-inch and Franklin Adams Twin Telescopes 8 occultations were observed, while physical observations of Jupiter, Saturn and Mars were made on 49, 33 and 27 nights respectively; the principal observers were Brickett and Botham. In addition Knipe used the 9-inch telescope on 46 nights for photoelectric photometry of δ Indi, Saturn, RS Ophiuchi, Parthenope and the Moon. Meteor counts were made with "Moonwatch" telescopes on 9 nights by Botham, Vollmer, Overbeek, Johnston and Mrs Johnston.

Artificial earth satellites.

Attempts were made to observe artificial earth satellites on 347 occasions, 134 of which were successful. Staff members took part in most sessions of the "Moonwatch" team and in addition prepared predictions and carried out most of the clerical work. Close contact was maintained with the Baker-Nunn Camera Station at Olifantsfontein under the direction of Mr R. C. Cameron.

Time service.

Seligmann remained in sole charge of the Time Service with occasional assistance from other members of the staff.

In August a notable advance was made in the distribution of accurate time in the Union with the commencement of continuous transmission of time signals and standard frequencies by the Post Office transmitting station at Olifantsfontein, with a power of 4 kilowatts. Both the 5 Mc/s carrier frequency and the modulation frequencies are controlled by one of the standard oscillators at the Observatory through a 100 Mc/s VHF link. The Observatory's low-power transmitter ZUO now operates on a frequency of 10 Mc/s; a Techrad transmitter with a power of 200 watts was acquired during the year to replace the transmitter formerly in use.

ZUO time and frequency deviations have from the beginning of the year been published monthly in the Transactions of the S.A. Institute of Electrical Engineers.

Publications

Union Observatory Circular No.117 and six time signal and standard frequency bulletins were issued during the year.

Civil astronomy.

The popular demand for artificial satellite predictions in addition to normal routine duties severely taxed the Observatory's resources.

The Observatory was open to the public on 23 nights and as in previous years amateurs gave invaluable help as demonstrators and guides.

The Union Astronomer was an official delegate to the Fifth Meeting of C.S.A.G.I. and the Tenth General Assembly of the I.A.U. held in Moscow in July and August.