

ANNUAL REPORT OF THE REPUBLIC OBSERVATORY

JOHANNESBURG

1966

Acting Director: J.Hers

STAFF

Dr W.H. van den Bos remained guest astronomer, with the aid of a Research Grant from the S.A. Council for Scientific and Industrial Research, and continued his observations of visual double stars until prevented by illness in June 1966.

Dr W.S.Finsen continued his interferometer programme as guest astronomer.

On public nights invaluable assistance was again rendered by Messrs J.H.Botham, I.R.H.Brickett, M.D.Overbeek and J.Vollmer.

ASTRONOMICAL RESEARCH

With the 26-inch refractor 2170 micrometer measures of double stars were obtained, the observers being van den Bos (548 measures on 39 nights), Knipe (945 measures on 60 nights) and Newburg (677 measures on 61 nights). The telescope was also used by Finsen on 143 nights for interferometer measures of close pairs, and by Knipe and Newburg for observations of the rings of Saturn.

With the Franklin-Adams telescope at the Hartbeespoort Annexe Bruwer obtained 165 plates on 16 nights, resulting in 215 minor planet and comet positions. At the request of Dr P.Herget of the Cincinnati Observatory he also remeasured 9 minor planets on plates taken in earlier years. Messrs J.Wolterbeek-Muller and K.J.Sterling obtained 24 plates, as part of a search for novae in the Magellanic Clouds.

The 9-inch refractor was used by Knipe for photoelectric observations of visual binaries with known orbits. 7 occultations were observed.

TIME SERVICE

Most of the electronic time equipment has been transferred to the new building.

In 1966 October a caesium beam frequency standard was installed and since that time all other frequencies have been referred to this standard. The ZUO frequencies continued to be controlled by a quartz crystal oscillator but the frequency of this

oscillator has been compared daily with the caesium standard, and corrected, if necessary, adjusting a continuous phase shifter, so as to keep it within about 1 part in 10^{10} of the nominal value.

The ZUO time signals were compared on 1966 November 18 with those of the U.S. Naval Observatory, by means of a portable caesium clock. The measured time difference was found to correspond to a mean propagation time between WWV and Johannesburg which was 0.9 millisecond less than the value of 46.3 millisecond originally adopted on the basis of measurements made elsewhere. The ZUO time signals were adjusted to coincide with those of the U.S. Naval Observatory to within about one microsecond.

PUBLICATIONS

Republic Observatory Circular No.125 and twelve *Time Service Bulletins* were issued during the year. The following paper appeared elsewhere

Knipe, G.F.G. and Newburg, J.L., 1966. Seeing conditions in Johannesburg, *Mon. Notes astr.. Soc. sth. Afr.*, 25, 18.

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