

## NOTES FROM OBSERVATORIES

OBSERVATIONS OF THE OCCULTATION OF BD  $-5^{\circ} 5863$  BY PALLASBy *S. D. Sinøhal, N. B. Sanwal and M. C. Pande**Uttar Pradesh State Observatory, Naini Tal, India*

An occultation of the star BD  $-5^{\circ} 5863$  by Pallas on 1961 October 2 had been predicted<sup>1</sup>. Subsequently, a circular to that effect was also received by us from Mr. G. E. Taylor of the Royal Greenwich Observatory. At the Uttar Pradesh State Observatory the occultation was observed both visually and photoelectrically.

The visual observations were carried out on a 15-inch reflector with a focal length of 225 inches. While the emergence of the star from behind the planet could be timed with some certainty, its immersion could not be judged accurately since one could not be certain at any instant that the dimming of light had reached a stage beyond which the light would not decline further. As such the visual observations, as compared with photoelectric ones (to be described below), were considerably in error.

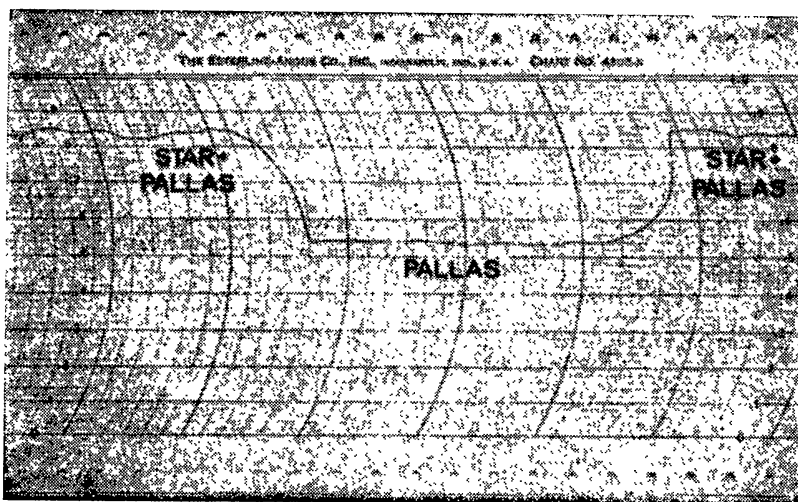


FIG. 1

Trace of the occultation by Pallas of the star B.D.  $-5^{\circ} 5863$ .

The photoelectric observations were carried out on a 10-inch refractor, using a photometer with a  $V$  filter and a 1P21 photomultiplier. The output of the photomultiplier was fed on to an Esterline Angus recorder *via* a d.c. amplifier. To increase the spread of the observations, the recorder was run at its fastest speed. The timings were noted on a Cambridge pen chronograph, one of the pens of which recorded seconds pips from a quartz clock. One second on the chronograph tape averaged 26.75 mm. A second pen on the chronograph as well as the side pen on the recorder were operated

by a common switch. This switch was actuated manually to put marks,  $M$ , simultaneously on the recorder chart as well as on the chronograph tape. Time estimates were transferred from the seconds-pips marks on the chrono-

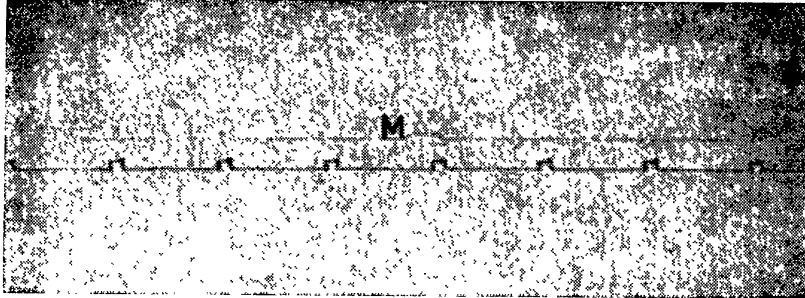


FIG. 2

Trace of seconds-marks and mark  $M$  on the chronograph.

graph tape to the recorder chart via the marks,  $M$ , described above. Photographs of recorder-chart and of the chronograph-tape are given in Figs. 1 and 2 respectively. Necessary corrections for clock-error and for the phase-shift between the two pens on the chronograph were applied. The following results have finally been obtained:—

Start of occultation: U.T. 1961 October 2<sup>d</sup> 18<sup>h</sup> 56<sup>m</sup> 56<sup>s</sup>.23  
Duration of occultation: 25<sup>s</sup>.53.

The co-ordinates of the place of observation (correct to the nearest half-second) as estimated from a six-inch to a mile map<sup>2</sup>, are:—

Longitude : 79° 27' 57".0 E.  
Latitude : 29° 23' 15".5 N.

An estimate of the minimum value of the diameter is given in the following note by Taylor.

#### References

- (1) *H.B.A.A.*, p. 55, 1961.
- (2) Survey of India Six-inch Naini Tal Guide Map, First Edition.

#### DIAMETERS OF MINOR PLANETS

By Gordon E. Taylor

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A programme of searching for occultations of stars by minor planets was started in 1952, by a comparison of the planetary ephemerides with star catalogues. Predictions of possible occultations are published annually in the *Handbook of the British Astronomical Association (H.B.A.A.)*.