

I. PHYSICS

Astrophysics

EYE OBSERVATION REPORT OF THE TOTAL SOLAR ECLIPSE ON 16 FEBRUARY 1980 AT PURI, ORISSA

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THE aim of the paper is to report the results obtained on a mere eye observation of the Total Solar Eclipse of February 16, 1980.

Keywords : Partial Phase; Baily's Beads; Chromospheric Flash; Corona; Diamond Ring; Contacts; Diamond Point.

SITE OF OBSERVATION

The roof of the one-storied building of the India Meteorological Department, Puri on the sea-shore. Observations were made through a thick X-ray film negative during partial phases. The totality was seen by the naked eye.

RESULTS

First to Second Contact

The sky was clear during the earlier part of the partial phases. The first contact could be detected only minutes after the predicted time 2-42 p.m.). At about 3-30, a high altitude diffuse cloud slowly approached the partially eclipsed sun (more than half-covered by then) and ultimately covered it, later 'eclipsing' the whole of totality and a major portion of the opening partial phases as well. However, the cloud was not so thick as to blot out the principal features of totality, but thick enough to blur the colour and the details of it. The illumination of the surrounding dropped considerably during the late partial phases.

Second Contact

Exact timing was missed.

Shadow Bands

Not observed. Baily's beads also could not be observed.

Second to Third Contact-Totality

Chromospheric flash could not be seen.

(i) *Corona* : A thin and unusually bright one (in comparison with photographs seen earlier)—sometimes giving the impression of an annular eclipse (experienced earlier). The corona was uniformly distributed around the lunar disc. However, throughout totality overlapping cloud films (not always detectable to the naked

eye) were passing over causing fluctuations in brightness at different sides of the corona.

(ii) *Illumination* : The surrounding was appreciably brighter than expectations—perhaps, only slightly darker than that of early twilight.

(iii) *Stars and Planets* : Venus was clearly visible for a long time from before, throughout and after totality.

Third Contact (Diamond Ring)

A small 'bead' was first formed at the position shown aside. The initial confusion (about whether it was a photospheric flash, or a part of the corona coming out of a thicker portion of the clouds) was wiped off in the next few moments—the bead grew quickly in brilliance by orders with all the magnificance and glamour of a real 'Diamond Point'. Again, the chromosphere and shadow bands could not be observed.

Third to Fourth Contact

The surrounding was considerably cooler and the wind-speed rose to some extent.