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I. PHYSICS'

Astrophysics

OBSERVATION OF TOTAL SOLAR ECLIPSE ON 16 FEBRUARY 1980

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AIM was to observe the total solar eclipse of 16 February 1980 and to study any change that may associate with the eclipse.

Keywords : Magnetic Dip; Velocity of Wind.

EXPERIMENT

Equipment

(*i*) Dip Circle (pivoting needle type); (*ii*) two magnetic needle compasses; (*iii*) five mercury-in-glass thermometers; (*iv*) one astronomical telescope with a tripod stand; (*v*) one pair of binoculars (Zeiss); (*vi*) four cameras : (*a*) one Olympus 35mm loaded with colour film, (*b*) one Yashica-D-120 with colour film, (*c*) one Kodak 35mm with B and W film and (*d*) one FED-4 35mm with B and W film; and (*vii*) one racer stop-watch accurate to 0.1 sec.

RESULTS

The author might have been late in observing the time of first contact, because it was only at 1455 hours that he observed the beginning of the much awaited ordeal. The Dip at the place of observation showed a steady reading of 38 °N. The temperature of the locality at the time of setting up the apparatus was 31 °C, and fell to 29.5 °C at 1455 hours. No spectacular change was observed as a whole. Photographs were taken off and on to capture the different phases of the Sun. The temperature continued to fall non-linearly when mercury thread touched 23°C at 1600 hours when we observed the total eclipse During totality, the following were observed and noted :

(*a*) The Dip as well as the magnetic needle compass remained steady throughout and we concluded that the change in the Earth's magnetic field is NIL or beyond detection by our dip circle.

(*b*) There was a non-linear drop of temperature as shown in Table I.

(*c*) There was a sudden increase in the velocity of wind during totality but we did not possess the instrument that will measure its velocities.

(*d*) The behaviour of the birds seemed to change during the total eclipse. They were chirping and flew around seemingly looking for shelter at the time of sudden darkness.

(*e*) The duration of the totality was clocked to be 1 minute 42.9 Sec. After ten minutes of total eclipse, the temperature recorded was as low as 22 °C when the author left the place of observation.

TABLE I

Time in IST	Mean Temp. in centigrade	Time in IST	Mean Temp. in centigrade
1442 hours	31.0	1540 hours	24.5
1455 „ *	29.5	1550 „	24.0
1505 „	29.0	1600 „ **	23.0
1515 „	28.0	1610 „	22.0
1530 „	25.0	1700 „ ***	25.0

*Time of beginning of the eclipse.
**Beginning of Total eclipse.
***End of eclipse recorded at Thingfal.

LOCATION

Lawngtlai, Mizoram.

PARTICIPANTS

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