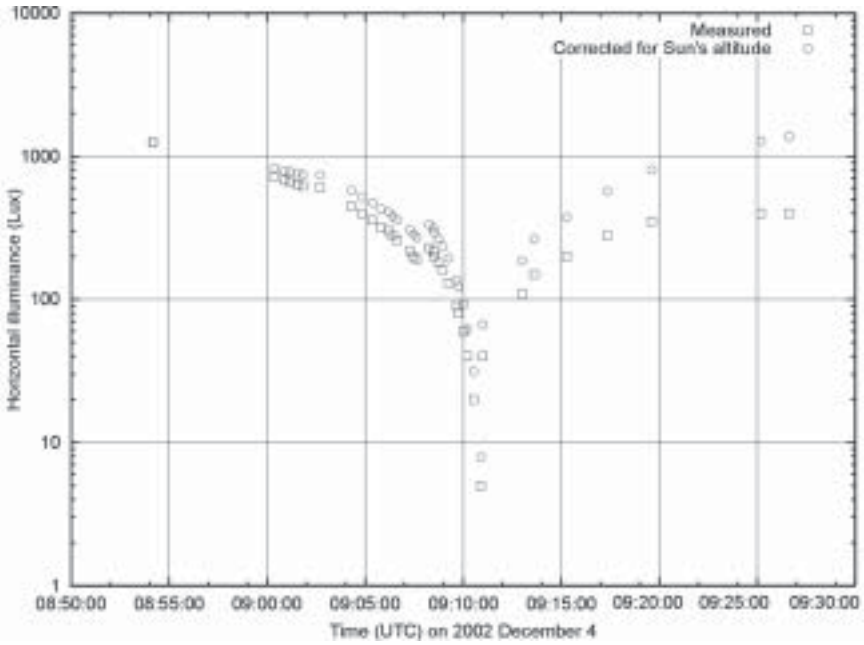
Letters

Light levels at the 2002 December 4 eclipse

From Nick James & Dr John Mason

We observed the total solar eclipse of 2002 December 4 from Koolymilka, South Australia at 136°31'32".8 E, 30° 57' 24".6 S. As with two previous eclipses[1,2] we recorded the horizontal light level on the ground using a calibrated light meter. The square points on the figure show the light level that was measured plotted against UTC (local time was UTC+10.5hr). Mid-eclipse was at 09:11:06 UTC from this location and the measured light level was around 5 lux, which is consistent with the other eclipses that we have measured.



It is clear that the measured points are asymmetric about mid-eclipse and this is due to the low altitude of the Sun from this location. From the first to last points shown on the figure the Sun's altitude decreased from 9° to 2°. Sunset occurred at 09:44 UTC with the eclipse still in progress. The circles on the figure plot the intensity corrected for the Sun's altitude using the ratio cos(zd) where zd is the Sun's zenith distance. This does not take increased atmospheric absorption into account, but the sky was extremely transparent on this occasion and the corrected curve regains the expected symmetry. The step at around 09:08 UTC was due to the sensor being repositioned.

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Manuscript saved from destruction

From the Director of the Aurora Section

At a recent Christian Aid book fair held in the church of St Andrew & St George, Edinburgh, there surfaced an original typewritten manuscript by W. B. Housman FRAS, who was Director of the Aurora and Zodiacal Light Section of the BAA from 1928 to 1951. The paper is entitled 'Recent observations of aurora and zodiacal light', and was presented to the Manchester Astronomical Society on 1938 October 5. The document is obviously original and contains a number of typing errors corrected in the manner used before the invention of Tippex, my own favourite word processor.

Housman describes in detail the various aspects of the aurora and the zodiacal light and how they differ. Observations of the zodiacal light are given. An ingenious method for observing it at the solar eclipse of 1938 June 9 was developed by M. Honda of Japan.

There follows a description of a number of active aurorae observed from the UK by Housman and others, and from Norway by Prof Carl Størmer and his associates. There are hints on how to observe, photograph and record auroral observations. Comparisons of auroral activity with geomagnetic activity are described. There is plenty of material in this paper useful for comparison with our recent records.

I am grateful to Jamie Shepherd for finding this document and for passing it to Dave Gavine and the Aurora Section.

Meanwhile, the meteorological office at RAF Kinloss recently discovered the station's aurora observation log books for the years 1953 to 1957, giving night by night details of every aurora event night recorded. The books were saved from destruction and passed to the Aurora Section by Dave Rutherford to whom I am also grateful. The records have already proved useful in dealing with a particular research enquiry.

I wonder how many other gems of value to the auroral and other astronomical archives are lurking out there waiting to be identified and brought in from the cold, before they are lost to posterity in the local landfill site or recycling centre?

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Subvisual Mercury

From Mr David Frydman

I was surprised to see the recent Mercury transit in ×3 opera glasses, after seeing it easily in 6×18 binoculars. Mercury appeared as a tiny black dot. Filters were of course used. It is probable that someone with very fine vision could have seen it in ×2 opera glasses.

Although I do not think it was visible to anyone with the (filtered) naked eye, it is probable that if Mercury passes close to a subvisual sunspot, both subvisual objects may be seen in combination as a single black spot. Mercury would not need to 'touch' the sunspot; the phenomenon could occur with a separation of up to one arcminute.

So although a Mercury transit is not a naked eye event, it is not far short.

David Frydman

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