



Mercury and Venus Section

The transit of Mercury on 2003 May 7

The planet Mercury crosses the face of the Sun thirteen or fourteen times a century, and this year's transit was the first to be visible from the British Isles since 1973 November 10, when most observers were clouded out. It occurred at Mercury's descending node with the planet crossing the northern part of the Sun's photosphere. In the British Isles the transit was visible in its entirety from 05h 00m UT until 10h 33m, the least distance of centres ($11'42''$) occurring at 07h 52m, and it was widely seen, the weather conditions being generally favourable. During a transit, Mercury appears as a small black dot silhouetted against the brilliant disk of the Sun. Due to the large eccentricity of the planet's orbit, there is a considerable variation in the circumstances of its transits; the duration of a central transit ranging from $5\frac{1}{2}$ hours in November when Mercury's apparent diameter is 10 arcseconds, to 8 hours in May when the apparent diameter is 12 arcseconds. In either case Mercury is too small to be visible without optical aid, but its progress across the Sun may be followed by projecting an image through a small telescope onto a screen.



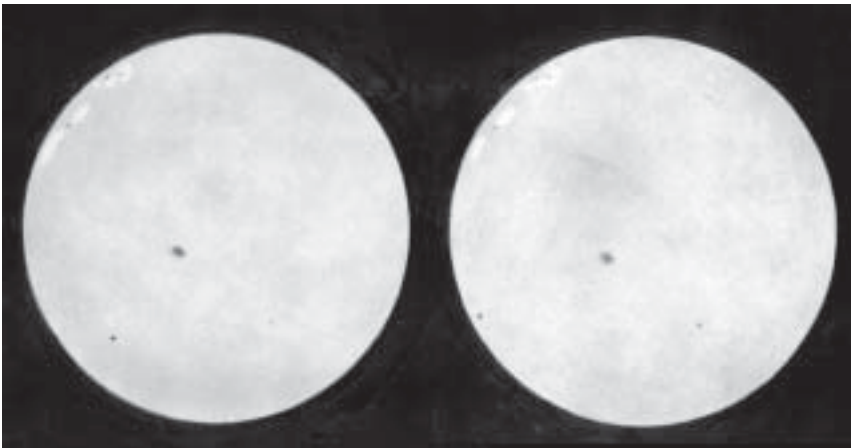
Drawings by Massimo Giuntoli, Pistoia, Italy, using an 80mm f/5 achromatic refractor stopped at 40mm, $\times 40$, with 45° erecting prism and astrosolar filter. **I: Ingress.** *Left:* 05.17 UT, transparency poor, seeing IV. *Centre:* 05.20 UT, tr. poor, seeing IV. *Right:* 05.32 UT, tr. fair, seeing III. The observer notes that the disk of Mercury is slightly darker than the umbra of sunspots.



II. Egress. *Left:* 10.28 UT, transp. poor, seeing II. *Centre:* 10.30 UT, tr. fair, seeing II. *Right:* 10.31 UT, tr. fair, seeing II. Massimo Giuntoli, as above.

Reports have been received from about a dozen observers. Although the Sun was well clear of the horizon at first contact, none of the British observers saw the ingress as their view was obscured either by low cloud or buildings. At the egress most obtained a sat

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Egress observed by Alan Heath, Long Eaton, Nottingham with a 250mm reflector $\times 50$ and Orion solar filter. *Left:* 08.25 UT; *right:* 09.38 UT.

isfactory image and some noted the 'black drop'. This is an illusion which sometimes occurs at both interior contacts when the planet's limb appears to drag, causing an ill-defined image and making timing impossible. Its appearance may be due to meteorological conditions, for example Alan Heath (Long Eaton, Nottingham) observed the egress but did not note the black drop, while Richard McKim (Oundle, Peterborough) recorded the drop at third contact. Massimo Guintoli (Pistoia, Italy) was fortunate in observing both the ingress and the egress and noted the black drop on both occasions. A notable feature of the transit was a large sunspot toward the centre of the disk.

For British observers Mercury's next transit is due on 2016 May 9. It will be visible in its entirety, mid-transit occurring at 14h 57m UT.

Observers took the opportunity to use this Mercury transit as a trial run for the much rarer transit of Venus which occurs on 2004 June 8. It too is visible throughout from the British Isles and is most eagerly awaited. Details of this event may be found in the *Journal* for 2002 December, pages 319–324.

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