Don't miss the transit of Venus

Figure 1. *The Sunspotter: sturdy and easy to use.*

Figure 2. *The Solarscope: cardboard construction.*

During the transit of Venus on 8 June the planet will cross the disc of the Sun between about 5.20 am and 11.23 am (viewed from the UK). The transit should be visible across most of Europe and Asia.

There are many ways to view the disc of the Sun, although the absolute safety of some of these methods is in doubt (p232). New devices are now available that are designed specifically for viewing the disc of the Sun safely, which are much easier to set up and use and generally give a much bigger and better image than you can achieve with binoculars. These devices use a small telescope and a series of mirrors to project a magnified image of the Sun onto a piece of paper.

Remember the following golden rules:

- never look directly at the Sun with unprotected eyes;
- always be sure to use the correct optical filters to protect your eyes;
- never look directly through a telescope towards the Sun, even with filters.

Learning Technologies' Sunspotter (figure 1) is a sturdy wooden device that, although quite costly, is elegant and easy to use. As an alternative the Solarscope is cheaper and is housed in a cardboard

box, although a more expensive wooden version is available.

Weather permitting, both of these instruments should allow a reasonably large number of people to gather round and observe the transit. They have paper screens held in position with clips, which will be excellent for sketching and timing the passage of Venus across the Sun.

Both enable you to track large sunspots and thus calculate the rotational speed of the Sun. They also allow a number of other measurements that could form the basis of project work by older students.

If I had to choose, my preference would be for the Sunspotter, which seems more robust, allows more people to see an image at one time and might well be a better investment for longer-term use.

A number of excellent websites explain the science behind observations of the transits. One of these offers a free poster to those who complete a short quiz. See www.transit-of-venus.org.uk.

Bernard Taylor, *St John's School and Community College, Marlborough*

The Sunspotter

Learning Technologies

Rating: ★★★★ very good

Price: $335

Available from Learning Technologies; Web: www.learningtechnologiesinc.com

The Solarscope

Light Tec Optical Instruments

Rating: ★★★★ very good

Price: €49 (standard), €88 (education) €290 (wooden)

Available from www.solarscope.org

WEB WATCH

Venus transit to occur on 8 June

Figure 1. *Occurrence and visibility.*

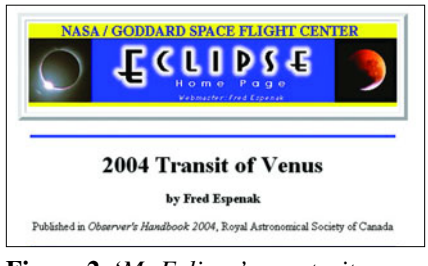

Figure 2. *'Mr Eclipse' expert witness.*

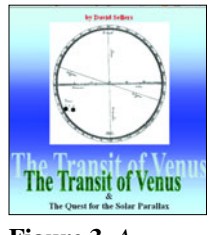

Figure 3. *A worthwhile read.*

Many of the best websites relating to this year's transit of Venus, or just to Venus, are listed at the end of other articles in this issue, but here are some others.

http://www.venus-transit.de/ has links to some very good applets relating to the occurrence and visibility of transits. Much of the material and many of the links here are in German, but this shouldn't deter the enthusiast (figure 1).

Any overview of such things must include a recommendation to visit the site of 'Mr Eclipse' himself, Fred Espenak: sunearth.gsfc.nasa.gov/eclipse/OH/transit04.html. He's a NASA astrophysicist interested in planetary atmospheres. Having witnessed more than 20 solar eclipses, his Transit of Venus tour to Greece is now sold out (figure 2).

David Sellers, one of this month's authors (p298) has written a wonderful book about the transits of Venus that I thoroughly recommend: homepage.ntlworld.com/magavelda/. Get a taste of the

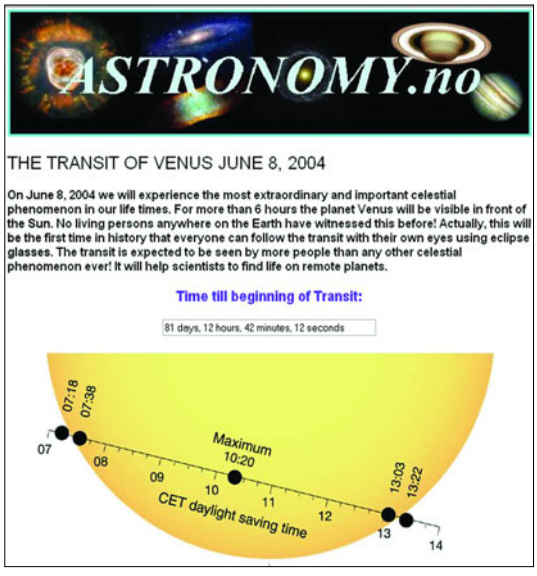

Figure 4. *Classroom exercises and animations.*

Figure 7. *Kepler mission: searching for planets.*

Figure 5. *Io casting a shadow onto Jupiter.*

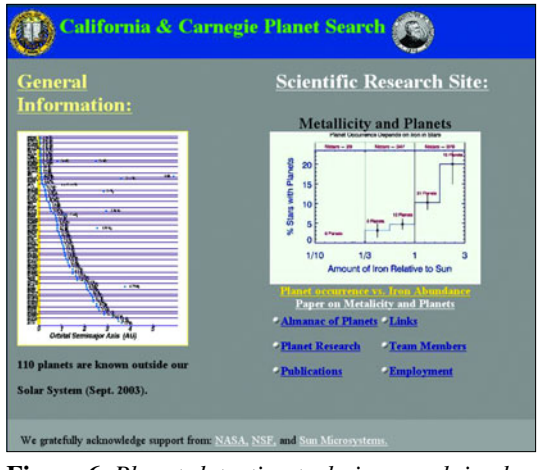

Figure 6. *Planet-detection technique explained.*

book by visiting www.dsellers.demon.co.uk/venus/ven_ch1.htm (figure 3).

Finally on this front a Norwegian site contains some excellent classroom exercises as well as a few impressive transit animations (in Quicktime format), though some of the files are rather large (e.g. 32 Mb for only 22 s): www.astronomy.no/venus080604.html (figure 4).

Further general information about 'things getting in the way of other things' can be found on the homepage of the Occultations and Transits Special Interest Group site at trfn.clpgh.org/aaap/sigs/sigOccultation.shtml, which is also worth visiting for the stunning image of Io casting a shadow onto Jupiter: www.esa.int/export/esaSC/SEML0XWLDMD_index_2.html (figure 5).

Amazingly the transit of an extrasolar planet across the face of its 'sun' and the consequent dimming of the light received by a telescope now represents a technique for detecting such objects. More information can be found at exoplanets.org/ (figure 6; click on General Information and then Other Detection Methods).

The Kepler Mission, which is scheduled for launch in 2006, is designed to track down more extrasolar planets using this very technique: www.kepler.arc.nasa.gov/ (figure 7).

David Smith