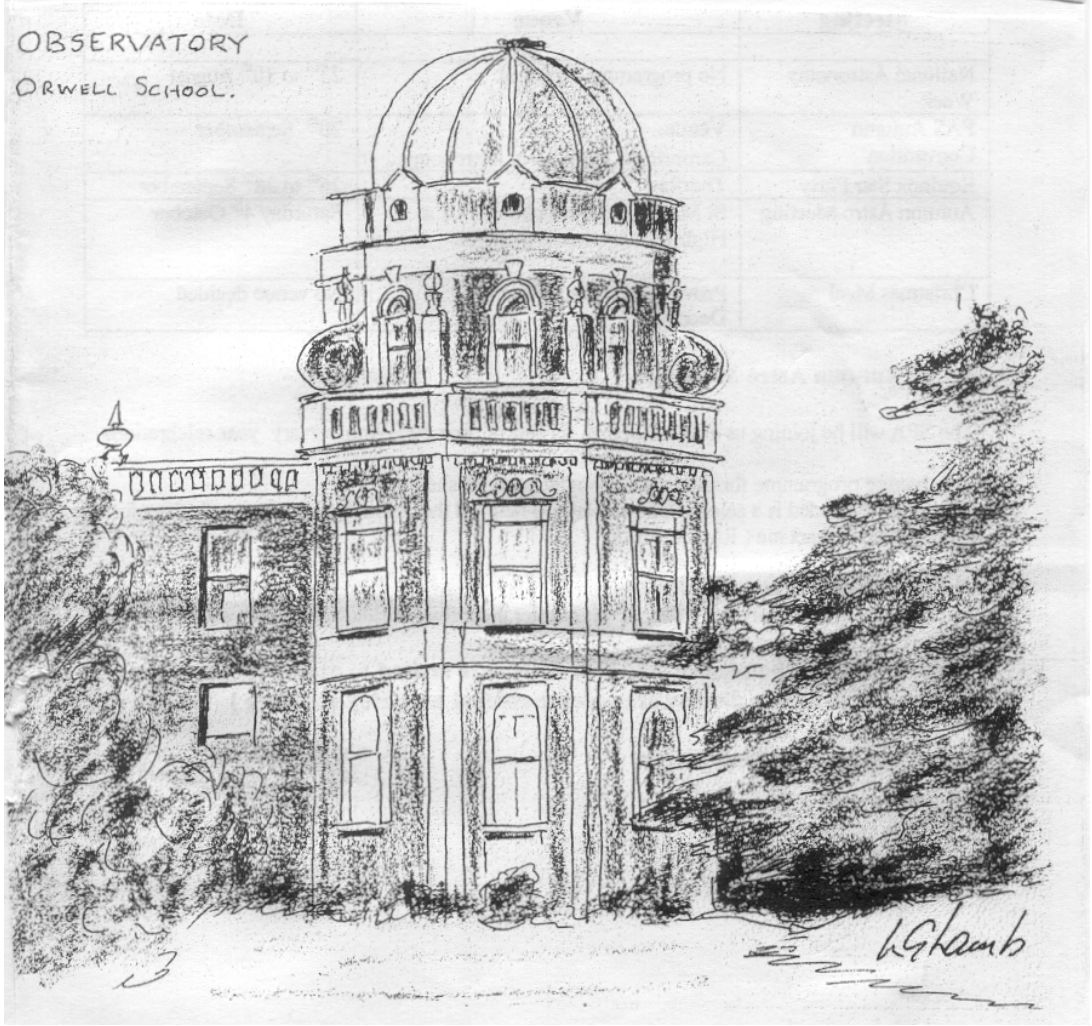
ORWELL ASTRONOMICAL SOCIETY IPSWICH

Charity No 271313

OCTOBER 2004



Society News

1 Events for 2004

Meeting	Venue	Date
FAS Convention	Institute of Astronomy Cambridge	Saturday 2nd October
Astronomy Workshops	Double Stars By Pete Richards	Wednesday 6th October 19:45
Lecture Meeting Friend's Meeting House, Fonnereau Road	Astronomical Imaging from Mauna Kea Hawaii By Nik Szymanek	Friday 22nd October 20:00
Beckland Astronomical Society	This is still in the planning stage	Saturday in November?
Lecture Meeting Venue not yet arranged	Members short talks	Friday 26th November
Christmas Meal	Red Lion Martlesham	15th December at 20:00

2 Find Your Way Round the Night Sky Meetings (The new Night Sky Section)

For want of a better name, I will call these meetings the " Night Sky Section".

I plan to start these meetings in October on Wednesdays from 20:30. on evenings when the Astronomy Workshops are not meeting. There will not be any formal dates when these meetings will take place as it is so dependent on the weather, and my availability.

If on a clear Wednesday members would like to have meeting, it can be convened straight away. The proposed observing site is on Nacton shores. This is about a 7or 8 minute walk from the observatory. **It is important that members bring along a good torch**. The track to Nacton shores can be muddy, so suitable footwear would be advisable. Other items that may be useful are binoculars and simple star maps such Planispheres.

3 Proposed Meeting with the Breckland Astronomical Society

I am trying to arrange a meeting with them for a Saturday in November. Breckland AS have for a reply to my email, but at the time of writing they have not yet given me a date.

In my email I invited Breckland AS to visit us. They seem keen to do so. I will recommend that they wait until the new year when the planets are visible in the evening sky again.

4 Dark Field Site Sort

Many years ago the society use to hold field trip meetings, principally to observe meteors and graze occultation's. As the skies are progressively getting brighter from Nacton, Martin Cook has proposed holding observational evenings with portable telescopes from a dark sky site, preferably within about 10 miles of Ipswich. Martin's first suggestion is at Rendlesham forest. If you know of any alternative observing sites please contact either Martin Cook or Roy Gooding. The site needs to have room for several cars and an area to erect telescopes.

5 Another Proposed Meeting, this time with the Lyra AS in Lowestoft .

Richard Jewels has recently contacted me about the address to which they should sent the Lyra AS newsletter. Richard mentioned that we could visit their observatory in Lowestoft whenever we wished

6 Christmas Meal Wednesday 15th December Red Lion Martlesham at 20:00

Cost £19.99 per person Deposit £10:00 per person.

Menu

Starters
Roasted Cherry Tomato & Butternut Squash soup laced with Basil
Smoked Salmon Crème Fraiche & Crab Parcel
Warm Salad of Crispy Duck, Walnut, Spinach & Pomegranate
Port & Stilton Rarebit
Main Courses
Traditional Turkey & Honeyed Ham
8oz Sirloin Steak with Bearnaise Sauce
Fresh Haddock sat on Walnut & Stilton crushed New Potatoes
Half a Roast Duckling
Mediterranean style roasted Vegetable Spinach & Brie Calzone
Desserts
Christmas Pudding & Bandy Sauce
Festive Palova
Tarte au Citron
To Finish
Coffee & Mince Pies

For booking and deposits please contact Roy Gooding

Night Sky (October)

All times GMT

Sun

The sun will be rising approximately between 06:10 and 07:00
The sun will be setting approximately between 17:50 and 16:30

Moon

3rd Quarter	New Moon	1st Quarter	Full Moon
6th	14th	20th	28th

Mercury. Mercury will be at superior conjunction on the 5th. When it moves back into the evening sky it will be to close to the sun to be observed this month.

Venus Venus remains a striking object in the morning sky. Magnitude –4.0

Mars Mars will be rising sat about 05:30 by the end of the month. Magnitude 1.7

Jupiter Jupiter will be rising at about 04:00 by the end of the month. Magnitude –1.7 in the evening twilight sky this month, setting about 1 hour after sunset by the end of the month

Saturn Saturn will be rising at about 21:30 at the end of the month. Magnitude 0.2

Uranus Uranus will be setting at about 01:00 by the end of the month. Magnitude 5.7

Neptune Neptune will be setting at about 23:00 by the end of the month. Magnitude 7.8

Meteor Showers

Shower	Maximum	Limits	ZHR
Piscids	October 13th	September to October	?
Orionids	October 20th	October 16th - 27th	25

Meteor source is the BAA Handbook

First Star Party at Ashcroft Observatory

Roy Gooding

My observatory has been completed for over a year now, but society members have yet to spend an evening here. As an experiment I sent out an invitation to some of the long-standing members and present committee members.

The day chosen was Saturday 18th September. The day started out cloudy, with sunny intervals at lunchtime and early afternoon. By 18:00 the weather had turned very unsettled with continuous rain showers. After checking the BBC web weather site, the 15:00 satellite photograph showed that this wet cloud front would be clearing sometime in the early evening. The clouds started breaking up at 20:00. Ah! a planed astronomy event when the weather was on our side, at last, even if it was a bit late in coming. At this point I started to set up my portable telescopes in the garden. I had no idea how many members would be arriving. The first arrival was Mike Nichols, followed about 15 minutes later by James Appleton.

I proceed to open up my observatory and we started looking at Messier objects and double stars.

I plan to organise more Star Parties in the coming months and will either invite people on a personal basis or give out a general invitation to the society. As there is only room for 3 people in the dome at a time, my portable telescopes will be available for people to use during the wait.

OASI OBSERVATIONS OF THE TRANSIT OF VENUS, 08 JUNE 2004 PART I

Compiled by James Appleton

This is part I of a four-part article summarising observations of the recent transit of Venus. Parts II – IV will appear in the November 2004, December 2004 and January 2005 Newsletters.

1 INTRODUCTION

On 08 June 2004, a transit of Venus (TOV) occurred. This was the first TOV for 122 years, and it therefore occasioned considerable interest from astronomers worldwide. Members of OASI observed the TOV from their homes, from Orwell Park Observatory and from other observing locations in the UK and abroad. This article summarises the experiences of the OASI observers.

I should like to say a huge thank you to those members of OASI who forwarded reports, images, audiotapes, emails, etc describing their observations of the TOV. I have compiled highlights from the contributions which I believe will be of general interest, covering both the scientific and human aspects of observing the TOV.

Eric Sims (OASI Newsletter Co-ordinator) has arranged to print this article in four parts in the Newsletter, October 2004 – January 2005. A considerably extended version of the article, providing a much more complete record of OASI observations of the TOV, is available on the OASI website at the following url:

http://ast.cam.ac.uk/~ipswich,

then click on *Observations*,

then click on *Transit of Venus, 08 June 2004*.

2 OCCURRENCE OF TRANSITS OF VENUS

The orbital periods of the Earth and Venus around the Sun are respectively 365.3 days and 224.7 days. Venus, travelling on the inner orbit, laps the Earth every 583.9 days. The orbit of Venus is inclined to the plane of the ecliptic (the plane of the Earth's orbit) at 3.4°. The points of intersection of the orbital planes are termed the nodes: the ascending node is when Venus crosses from south to north of the ecliptic, and the descending node is when the planet crosses from north to south.

In most cases when Venus passes between the Earth and the Sun, the inclination of its orbit means that it passes above or below the solar disk. However, if Venus passes through inferior conjunction sufficiently close to a node, a transit will occur. This condition is met in a period of a few days in early June (descending node) and in another period of a few days in early December (ascending node). The details of the orbital relationships mean that TOVs occur in pairs separated by eight years, where each pair is separated from the next by alternating periods of 105.5 and 121.5 years: a pair of June (descending node) transits is followed by a pair of December (ascending node) transits after an interval of 105.5 years and then by another pair of June transits after a further 121.5 years, and so on. Note that this arrangement will not last indefinitely: secular variations in the orbits of Venus and the Earth will eventually alter the orbital relationships and change the above patterns of recurrence.

3 HISTORICAL PERSPECTIVE

Pierre Gassendi was the first astronomer to observe the transit of a planet when he observed the transit of Mercury on 07 November 1631 (OS§), having been alerted to the event by a prediction by Kepler published in 1629. In the same publication, Kepler predicted a TOV in December 1631, and stated that the next TOV would occur in 1791. Unfortunately, the December 1631 TOV took place after the Sun had set as seen from Europe, and was not observed.

In October 1639, a young English astronomical genius, Jeremiah Horrocks, after studying the position of Venus in the sky and comparing it with the available predictions by Kepler and others, came to discover a mistake in Kepler's calculations and concluded that there was likely to be a TOV on 24 November 1639 (OS), i.e. eight years after the 1631 event. Horrocks and a friend, William Crabtree, observed the TOV, becoming the first to do so. For further details of Horrocks' life and his observation of the TOV, see the article by Ken Goward in the May 2004 OASI Newsletter.

In 1676, Edmund Halley journeyed to the tiny island of St Helena, in the South Atlantic, to observe the southern constellations. On 07 November 1677 (OS), while in St Helena, Halley observed a transit of Mercury. Although his observation was dogged by clouds, he did manage to observe the ingress and egress of the planet, and concluded that he was able to time accurately the moments of 2nd and 3rd contact (i.e. the first and last instants when the whole body of the planet is contained within the solar disk). He immediately realised that this provided a

§ OS refers to Old Style, i.e. Julian Calendar, used in England prior to 14 September 1752.

means to estimate the length of the Astronomical Unit (AU), the distance from the Earth to the Sun. Knowledge of the AU would provide the scale of the entire Solar System and enable astronomers to calculate the radii of all planetary orbits through application of Kepler's third law ($P^2 \sim a^3$). At the time, an improved knowledge of the scale of the Solar System was of huge practical interest as a means to develop improved techniques for celestial navigation.

Halley's approach relied on the well known parallax effect, whereby observers at different locations on the Earth see bodies in the Solar System at slightly different apparent locations and therefore witness the same event occur at slightly different apparent times. By applying geometrical techniques equivalent to the triangulation employed by terrestrial cartographers, it is possible to combine observations from different locations on the Earth to estimate the distance of celestial objects. Halley proposed to combine results from observers spread widely over the globe and to utilise the planet Venus rather than the planet Mercury as the transitting body, and thereby obtain an accurate estimate of the AU. However, Halley was 21 years old in 1677 and the next TOV was not until 1761, so he would not live to see it. He continued to work on determining the size of the Solar System (amongst other things!) and in 1716, at the age of almost 60, he presented a proposal, known as an *Admonition*, to the Royal Society for observing the next TOV. His proposal included predictions of the circumstances of the event and recommended observing locations worldwide.

So it was that for the 1761 and 1769 TOVs, observatories dispatched astronomers to distant parts of the globe in the hope of obtaining observations from baselines as extended as possible (to maximise the parallax effect).

For the TOV on 06 June 1761, the most famous astronomers were dispatched as follows:

- Neville Maskelyne (later fifth Astronomer Royal) and Robert Wadington to St Helena;
- Charles Mason and Jeremiah Dixon (later famous for the *Mason-Dixon Line*) to the Cape of Good Hope;
- Guillaume-Joseph-Hyacinthe-Jean-Baptiste Le Gentil to Pondichery in India;
- Alexandre-Gui Pingré to the Isle of Rodrigué in the Indian Ocean;
- Maximillian Hell to Vardø in Norway;
- Jean-Baptiste d'Auteroche to Tobolsk in Siberia.

Many of the above endured epic personal adventures in their travels and managed to undertake observations despite unexpected obstacles and unfortunate circumstances. In total, more than 120 astronomers from eight nations made observations from about 60 stations of the 1761 TOV. However, many of the

observations were spoilt by an unexpected phenomenon – the *black drop* or *teardrop* effect. This happened as follows. On the ingress stage of the transit, as Venus approached 2nd contact (fully internal to the solar disk), rather than the silhouette of the planet separating cleanly from the solar limb, it appeared to stick to the limb and become stretched into a teardrop shape joined to the solar limb. This made it difficult to estimate the precise moment of internal contact. The same problem appeared at egress of the planet from the solar disk. The effect was unexpected, particularly in view of Halley's comments about the accuracy which he was able to achieve in timing the transit of Mercury. This was put down in part to Venus possessing an atmosphere, which Mercury did not.

Many of the observers of the 1761 TOV also observed the 1769 event. They were joined by Lieutenant James Cook, sailing for Tahiti, where he observed the TOV from an observatory built for the occasion at *Point Venus*. (On Cook's return voyage after the TOV, he discovered New Zealand and charted part of the Australian coast.)

Despite the problems of the teardrop effect, when the French astronomer Joseph de Lalande analysed results from the 1761 and 1769 events in 1771, he obtained a value for the AU of 153,000,000 km, within 2.5% of its currently accepted value.

Governments dispatched numerous observing expeditions for the next pair of TOVs on 09 December 1874 and 06 December 1882. J I Plummer, Colonel Tomline's astronomer at Orwell Park, was among the astronomers dispatched to observe the 06 December 1882 TOV; he joined an expedition to the West Indies lasting some four months.

By the late nineteenth century, equipment had improved considerably since the previous pair of TOVs, and in particular photography was available. However, photography turned out to be disappointing: the photographic plates provided a poorly defined solar limb and when astronomers placed the plates under a microscope, both the solar limb and the limb of Venus became indistinct and could not be used to provide a good quality estimate of contact times. In addition, the teardrop effect still limited accuracy. However, using data from the 1761, 1769, 1874 and 1882 TOVs, Simon Newcomb, a brilliant astronomer at the US Navy Observatory, calculated a value for the AU of 149,590,000 km, only 0.005% different from the value accepted today.

The experience of the 1874 and 1882 TOVs convinced astronomers that the practical difficulties of estimating timings from a TOV meant that the method was not suitable to provide an estimate of the AU of ultimate accuracy. Astronomers therefore turned to other methods of estimating the scale of the Solar System, including the use of direct distance measurement by radar. The modern accepted value of the AU, based on the IAU 1976 system of constants adjusted for the best estimate in fitting planetary ephemerides is 149,597,870.66 km.

4 OBSERVATIONS WITH THE TOMLINE REFRACTOR AT ORWELL PARK OBSERVATORY

The majority of members of OASI who observed the 2004 TOV did so using the Tomline Refractor at Orwell Park Observatory. This section describes observations with the Tomline Refractor; section 5 details observations with other telescopes at Orwell Park.

4.1 Preparation

Just over one year previously, on 07 May 2003, seventeen members of OASI observed the transit of Mercury from Orwell Park Observatory. They used the Tomline Refractor to project an image of the Sun onto a projection screen which was perched on the observing steps. Although the observations were successful and enjoyable (see the article by James Appleton in the July 2003 OASI Newsletter¶), the observers noted some areas for potential significant improvement:

- Contrast of the projected image was poor, due largely to sunlight flooding into the dome through the open aperture.
- Perching the projection screen on the observing steps was most unsatisfactory: it was difficult to align the screen accurately perpendicular to the focal axis of the telescope, and the approach was generally very inconvenient.
- The observers had been unable to identify in advance the point of 1st contact of Mercury on the projected image of the solar limb. This could have meant a delay in identifying 1st contact. In practice 1st contact was obscured by clouds so this problem did not arise!

The committee of OASI gave its encouragement to measures to try and improve the deficiencies listed above in time for the TOV.

In order to improve the contrast of the image, on 02 June 2004, James Appleton and Martin Cook rigged a cloth sunshade to screen the aperture of the dome. The shade had a circular hole through which the object glass of the Tomline Refractor protruded. Martin and James attached the sunshade to the inside of the dome, so that it rotated with the dome, and fitted a system of control cords to enable the shade to be raised and lowered to accommodate changes in the altitude angle of the telescope as it tracked the Sun during the TOV (altitude 13° at 1st contact and 60° at 4th contact).

¶ The article also provides details of other observations of the transit of Mercury by members of OASI, at Orwell Park Observatory and elsewhere.

Figure 1 shows Martin erecting scaffolding inside the dome to provide safe access to the top of the shutter, figure 2 shows Martin and James atop the scaffolding fitting the sunshade, and figure 3 shows a rather startled James looking out of the dome from behind the sunshade.

Figure 1

Figure 2

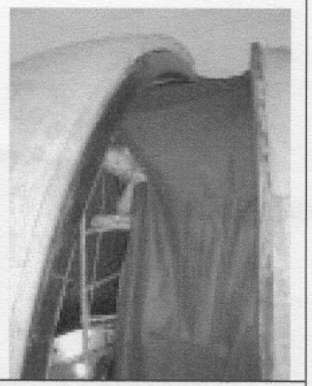


Figure 3

Garry Coleman tackled the lack of a proper projection screen by designing, building and fitting an adjustable projection screen. Garry attached the projection screen to the Tomline Refractor via specially constructed clamps which coupled rigidly to the ironwork supporting the telescope itself. (The clamps had mating faces constructed from soft wood, to avoid causing any damage to the telescope ironwork.) By construction, the projection screen was aligned perpendicular to the focal axis of the telescope. The projection screen enabled projection of an image of the solar disk up to 550mm in diameter. Figures 4 and 5 show Garry finalising alignment of the projection screen on 02 June 2004, prior to fitting white card for the projection itself.

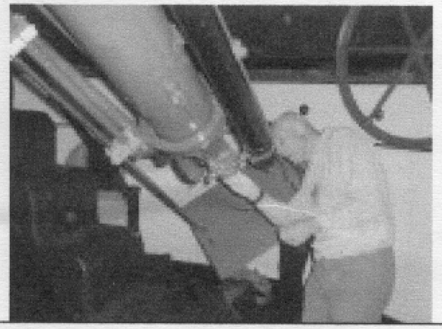


Figure 4

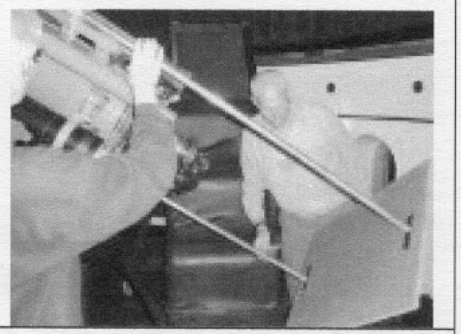


Figure 5

Garry, Martin and James left the sunshade and projection screen fitted and ready for use when they left the observatory on 02 June. This saved early-morning preparation time on 08 June!

Finally, prospective observers at Orwell Park solved the problem of advance identification of the point of ingress of Venus on the solar disk by researching the available predictions and accounting for the effect of projecting the disk via a refracting telescope. This turned out to be very valuable preparation, as other members of OASI (and the BBC) who did not undertake such rigorous preparation, found to their cost – see below!

4.2 Arrival At Orwell Park Observatory

The fact that TOVs are so rare, and that the previous TOV was that of 06 December 1882, some 122 years previously, heightened the sense of anticipation leading towards 08 June 2004. This compounded the usual trepidation concerning the weather in the UK, but fortunately 08 June dawned a gloriously sunny day, with blue sky and only a little thin cloud, and these conditions endured for the remainder of the day. For once, OASI observers enjoyed near perfect weather conditions!

On the morning of the TOV, James Appleton and Monica Lustig, who were observing directors for the occasion, arrived at Orwell Park Observatory at 05:40 am (04:40 UT), by which time several members of OASI were already waiting to gain access. The party ascended the stairs to the observatory dome and began readying equipment for the TOV. Quickly, the observers selected a suitable eyepiece for the Tomline Refractor and obtained a well-focussed projection of the Sun on the projection screen.

At this stage, it was immediately apparent that the preparation of the previous week had been well worthwhile: the image of the Sun on the projection screen was bright, large (over half a metre in diameter), stable, displayed excellent contrast and could be easily photographed. The solar disk showed two small sunspots close to its centre.

The observers then set up video and stills cameras to photograph the projected image. (All the cameras were used to record the projected image: there was no use of other photographic techniques, such as prime focus or afocal coupling.) In all, there were three video cameras (operated by Garry Coleman, Roy Gooding and Dave Payne) to capture events around the ingress and egress stages of the TOV. Many members brought stills cameras (there was a noticeable preponderance of digital cameras over traditional SLRs!)

4.3 Note On Timings

The observers in the dome positioned a radio controlled clock, synchronised to the Rugby time signal and accurate to one second, for easy visibility. This served as the source of reference timing for all the observations in the dome. Observers making visual observations of the projection in the main referenced their timings directly to the Rugby clock. The observers making video recordings of the projection recorded a few seconds of the clock on their video tapes to act as a subsequent reference for frame-by-frame analysis. At the time of writing, Garry Coleman's video recording is the only one that has been subject to frame-by-frame analysis to estimate the times of 1st, 2nd, 3rd and 4th contact. Garry Coleman and Marin Cook performed independent analyses of the tape.

Roy Gooding positioned an audio cassette recorder in the dome to provide another means of estimating contact times. This captured specific comments on observations and general, ongoing discussions in the dome throughout the ingress and egress phases of the TOV. The observers synchronised the audio tape to the Rugby clock by recording a timing reference on the first few seconds of the tape. The observers indicated verbally when they detected 1st contact (the proverbial cry of *There it is!*) Subsequent analysis of the audio tape provided one of the estimates of 1st contact listed below. The tape also provided a valuable supplement to the written notes of the observers and a check on the validity of some other estimated timings.

In the remainder of section 4, contact times estimated by the observers in the dome are compared with predicted contact times. The latter are obtained, specific for the location of Orwell Park Observatory, from the US Naval Observatory (USNO) via its web site:

http://aa.usno.navy.mil/data/docs/Transit.html

4.4 Ingress

Shortly before 1st contact there were 13 people in the dome of Orwell Park Observatory waiting for the first view of Venus taking a "bite" out of the solar disk. Two members who arrived at the dome only seconds before the predicted time of 1st contact had to wait outside the dome until after 1st contact so as not to disturb the observers inside the dome who were intently studying the solar disk. As the predicted time of 1st contact approached, a hush of expectation descended in the dome as everyone present peered intently at the projected image, hoping to be the first to spot the silhouette of Venus against the solar disk.

Estimates of 1st contact were as follows (times UT):

- Martin Cook & James Appleton: 05:20:15, visual estimate referenced to timing reference on audio tape.

- Garry Coleman: 05:20:12, estimated subsequently by analysis of video.
- Martin Cook: 05:20:14, estimated subsequently by analysis of video.
- USNO prediction: 05:19:57.

Shortly after 1st contact, the general impression in the dome was that Venus presented a comparatively large disc, much larger than Mercury did in 2003. The precise values of the apparent diameters were as follows: Mercury 12.0 arcsec, Venus 57.7 arcsec, almost five times larger. Also at this time, Dave Payne noticed that there was a coloured rim around the part of the circumference of Venus showing against the background of the solar disk, and this resulted in speculation as to whether or not this was a diffraction effect associated with the atmosphere of Venus. The observers did not arrive at a definitive conclusion on this point, and their view of the atmosphere of Venus during the egress phase was rather different, and much more positive (see below).

At 05:26:20 UT, Venus appeared to be roughly half-way between 1st and 2nd contact, judged by eye. By 05:34 UT, it was possible to observe the TOV by naked eye using mylar glasses (the *eclipse glasses* familiar to many as essential equipment for the UK solar eclipse in 1999). At 05:38:00 UT the teardrop effect became visible, although there was some suggestion that it had started earlier. By 05:38:40 UT, Martin Cook detected sunlight showing all around the disk of Venus, indicating that 2nd contact had occurred. Initially this was rather indistinct, but by 05:39:00 UT other observers in the dome could also discern sunlight completely surrounding the silhouette of Venus. By 05:39:50 UT, the last evidence of the teardrop effect disappeared, and the planet was clearly fully inside the solar disk.

Estimates of 2nd contact were as follows (times UT):

- Visual observers in the dome generally estimated 2nd contact in the range 05:38:40 – 05:39:00.
- Garry Coleman: 05:38:11, estimated subsequently by analysis of video.
- Martin Cook: 05:38:53, estimated subsequently by analysis of video.
- USNO prediction: 05:39:40.

It is interesting that visual observers and subsequent analysis of the video produced estimates of 2nd contact that are many tens of seconds earlier than the USNO prediction. The two estimates obtained from analysis of the video differ by 42 seconds, and while the later video estimate is broadly similar to the estimates of the visual observers, the earlier video estimate is not.

The spread of estimates of the time of 2nd contact is much greater than that of 1st contact. The large spread of estimates of the time of 2nd contact highlights the problems in determining precisely when the silhouette of Venus just touches the

solar limb. This was a difficulty that many of the early expeditions to observe TOVs also experienced, and can be ascribed largely to the teardrop effect.

Figures 6, 7 and 8 are digital video stills by Garry Coleman taken during the ingress of Venus:

- Figure 6, taken at 05:23:16 UT, i.e. approximately three minutes after the estimated time of 1st contact. By this time, the ingress of the planet is unmistakeable.
- Figure 7, taken at 05:29:37 UT, i.e. some nine and one quarter minutes after the estimated time of 1st contact.
- Figure 8, taken at 05:38:26 UT, around the time of 2nd contact. There is little evidence of the teardrop effect, although it was quite apparent to the visual observers at this time.

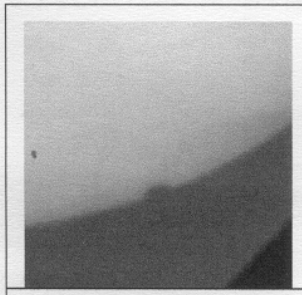


Figure 6

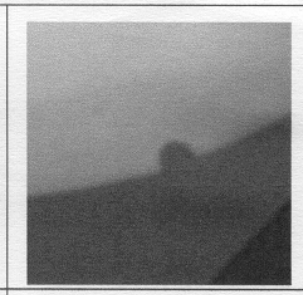


Figure 7

Figure 8

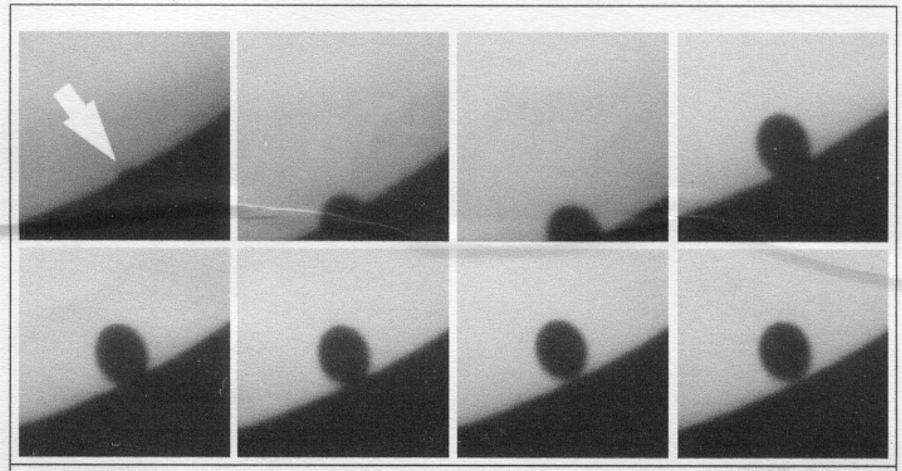


Figure 9

Figure 9 shows digitised photographs obtained by Martin Cook around the ingress of Venus. The images are in chronological order and show Venus shortly after 1st contact through to Venus at 2nd contact. They clearly show the development of the teardrop effect.

Next Month

Next month, part II of this article will cover observations with the Tomline Refractor of the mid and egress phases of the TOV and observations on the balconies of Orwell Park Observatory of the entire TOV.

Books and Optics for Sale

Academic and amateur astronomy books, mirror blanks, optics and instruments for sale. Log on to the following web-site for full details:

http://www.ousaps.com/MJH/sales.htm"www.ousaps.com/MJH/sales.htm

Mike Harlow

OCCULTATIONS DURING OCTOBER

The table lists stellar occultations which occur during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

D/R	Date & Time (UT)	Lunar Phase	Sun Alt (°)	Star Alt (°)	Star	Mag
D	05 Oct 03:21	0.62-	-25	60	136 Tau	4.6
R	04:12		-18	64		
D	08 Oct 02:21	0.34-	-34	28	30 Cnc	5.7
R	03:01		-29	34		
D	20 Oct 19:06	0.48+	-22	9	59 Sgr,b Sgr	4.5
R	19:54		-29	7		
D	24 Oct 00:00	0.81+	-50	13	75 Aqr	6.9
D	24 Oct 18:24	0.88+	-16	20	Hip 116388	7.4
D	24 Oct 18:38	0.88+	-19	22	ZC 3478	6.4

James Appleton

Astronomy Workshops – new series.

The first in the new series of our popular astronomy workshops takes place on Wednesday October 6th. The topic is 'Double Stars', and the presenter Peter Richards. The start time 7.45 in the usual place of the school science classroom, and we aim to formally finish by 9.00. Although we have a specific topic and a presenter, there is a deliberate informality about the workshops, in that we invite questions, comments, and even contradictions from the 'floor' almost at any time. Sometimes a discussion breaks out, and the session is more of a forum than a straight talk.

There are eight sessions planned for 2004/04, and I list below the dates, topics and presenters: although we will always publish these monthly in the newsletter.

Oct 6th 'Double stars'. Peter Richards.
Nov 3rd 'Light'. Paddy O'Sullivan.
Dec 1st 'The past explains the present' Ken Goward.
Jan 5th. 'Making friends with the ETX 125' Gerry Pilling.
Feb 2nd. 'Constellation close-up: Auriga'. James Appleton.
March 2nd. 'Positioning ourselves – a look at trig, and spherical triangles' Bill Barton.
April 6th 'Planetary atmospheres' Dave Mc Cracken.
May 4th 'Debris of the solar system' Paul Whiting.

Hope to see you at all/some of the above workshops. Ted Sampson.

Monday Night Small Telescope Observing Evenings- 2004 / 5

Monday evening Small Telescope Observing Nights (STON) will recommence on 4 Oct. They are held on the first and third Mondays of every month, starting at around 8 pm and will run until the end of April 2005.

Generally, the topic will be one of the constellations prominent in the southern sky, although if a workshop generates an alternative subject that will be substituted. Observations will include double stars and deep sky objects. These evenings are intended for members wishing to acquire/improve their observing skills. Attendees are encouraged to do a bit of preparation before the session- but this is entirely optional.

The telescopes in use will be the Meade ETX125 and the 10" Dobsonian, supplemented as needed by the 4" and 6" Newtonian reflectors. If necessary the Tomlinson will be bought into service.

The provisional programme for the forthcoming season is:

4 Oct	Pegasus
18 Oct	Andromeda
1 Nov	Cassiopeia
15 Nov	Cetus (Mira) / Pisces (M74)
6 Dec	Perseus
20 Dec	Pleiades / Triangulum
3 Jan	Taurus (M1)
17 Jan	Auriga
7 Feb	Orion
21 Feb	Gemeni Canis major/minor
7 Mar	Cancer (M44)
21 Mar	Hydra
4 Apl	Leo
18 Apl	Coma Berenices deep sky objects

Any variations on this formula will be broadcast on the STON e-mail newsring.

Paddy O'Sullivan & Gerry Pilling

OASI COMMITTEE RESPONSIBILITIES

Kenneth J Goward	Chairman	Press Publicity with the Secretary. Open Weekend.
Roy Gooding	Secretary	Main point of Society Contact. Press Publicity with the Chairman. Observatory Decoration. Visits by potential new members.
Garry Coleman	Treasurer	Finance. Supervision of Grant Applications.
James Appleton	Committee	Committee Meeting Minutes. Web site.
Martin Cook	Committee	Membership. Tomline Refractor Maintenance.
Neil Morley	Committee	Equipment Curator.
Ted Sampson	Committee	Workshops. Tomline Refractor tutoring.
Eric Sims	Committee	Newsletter
Mike Whybray	Committee	Librarian.
Paul Whiting	Committee	Visits by outside groups.
Monica Lustig	Committee	Safety & Security
Peter Richards	Working under Committee direction but not Co-opted	Lecture Meetings.

DIARY FOR 2004 OCTOBER

MONDAY	**SMALL TELESCOPES OBSERVING NIGHTS** **4th 8pm** – Pegasus **18th 8pm** - Andromeda ☎ Paddy O'Sullivan
WEDNESDAY	**OBSERVATORY CLUB NIGHTS** **From 8pm** **6th, 13th, 20th, 27th** ☎ Martin Cook
WEDNESDAY Science Classroom	**ASTRONOMY WORKSHOP** **6th From 7.45pm** ***'DOUBLE STARS'* – By Peter Richards** ☎ Ted Sampson
THURSDAY	**OBSERVATORY VISITS BY OUTSIDE GROUPS** **14th 8pm** - Stour Valley Probus **21st 8pm** - Landseer Road Methodists **28th 7pm** - 11th Ipswich Cubs (1) ☎ Paul Whiting FRAS
FRIDAY 22nd 8PM, Fonnereau Road, Ipswich	**LECTURE MEETING** **At the Friends Meeting House** ***'ASTRONOMICAL IMAGING FROM MAUNA KEA, HAWAII'*** **Presented by Nik Szymanek** of the Havering Astronomical Society ☎ Peter Richards

SOCIETY PRIMARY CONTACTS

CHAIRMAN Kenneth J Goward FRAS ☎ (daytime & evenings)
SECRETARY Roy Gooding ☎ (daytime) (evenings)
E-MAIL QUERIES ipswich@ast.cam.ac.uk
WEB SITE www.oasi.org.uk
Contact details for the full Committee may be found on the inside back page

NB The Federation of Astronomical Societies Annual Meeting takes place at the Institute of Astronomy, Cambridge on **Saturday 2nd October**. See inside for details of speaker programme – the event will be supported by displays and trade stands.