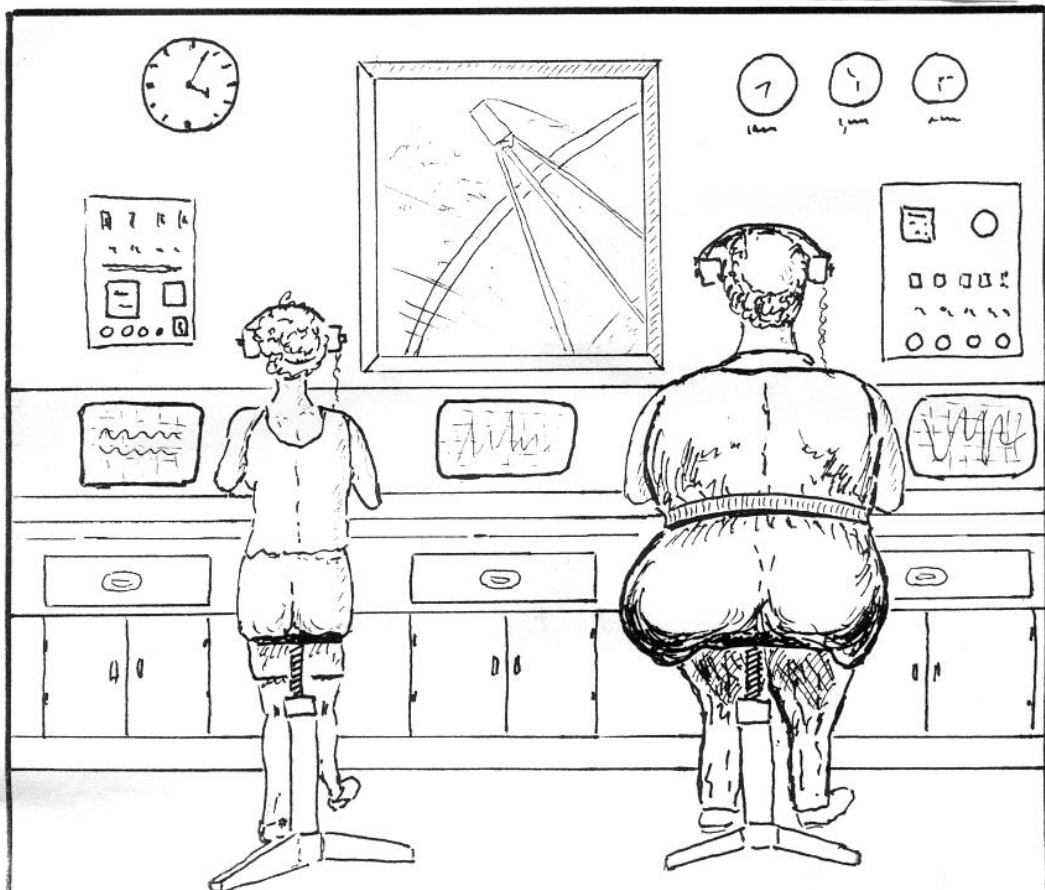


ORWELL ASTRONOMICAL

SOCIETY IPSWICH

Charity No 271313

OCTOBER 1998



RADIO ASTRONOMY EXPANDS IT'S BASE

(Astronomy Now April 1997- Page 7)

L.Lomb

Society News

1 Next Committee Meeting

The next committee meeting will be held on Saturday 21st November from 19:30 in the club room. As usual this is an open meeting and any one who is interested is invited to attend.

2 Events for 1998

Lecture meeting: Nial Tanvir Intergalactic Stars	2 nd October Friends Meeting House 20:00 start
FAS Cambridge Convention	3 rd October
Open Weekend	16 th , 17 th 18 th October
Lecture Meeting: Martin Mobberley	3 rd December (Thursday) Friends Meeting House 20:00 start
Christmas Meal	9 th December. The venue for this years meal will be at the Newbourn Fox

FAS Cambridge Convention 3rd October

The lecture programme is:

Nial Tanvir: The Cosmological Distance Scale and the Age of the Universe
Steve Bell: UK Eclipse August 1999
Duncan Copp: The Work of Vulcan in the Solar System
Neil Bone: The Leonids
Paul Murdin: The Cosmic History of Water

The location is at the usual place, in the Pippard Lecture Theater at the Cavendish Laboratories, Madingley Road. The doors open at 9.00am.

Entrance on the door is £5.00

Christmas Meal

If you wish to attend our annual Christmas meal, could you please let me know (Roy Gooding)

The cost per person is £14.95

3 Committee Meeting Summary

The last committee meeting was held on Saturday 12th September. Items discussed included.

- 1 The first Beginners meeting held on the 9th September was very successful. The class room used was full, with 22 members attending.
- 2 Membership is now at 68 with 3 honorary members.
- 3 The society Licence to use the observatory has now been signed off. It is valid for the 5 year period 1997 to 2002.
- 4 Eclipse viewing glasses for next years Eclipse will be ordered.
- 5 A number of new books for the library have been purchased. These were aimed to be complimentary to the Beginners

4 OPEN WEEKEND

Our annual fund raising event will be held between 16th, 17th and 18th October.

A poster is included with this newsletter. Please find a good home for it. (A poster was not included in last months newsletter, as the Open Weekend confirmation with the school and poster printing missed the newsletter publishing date)

As ever this public event requires as many members as possible to operate the observatory, and to look after our visitors. If you are able to help please either contact any committee member or just show up on any of the evenings. A duty rota will be compiled and be displayed on the notice board.

Night Sky

All times GMT

Sun

The sun will be rising approximately between 06:00 to 07:00
 The sun will be setting approximately between 17:50 to 16:40

Moon

Full Moon	3 rd Quarter	New Moon	1 st Quarter
5 th	12 th	20 th	28 th

Mercury

Mercury will be in the evening sky this month. Unfortunately it will be too near the sun to be observed.

Venus

Venus remains in the morning sky this month. It is at superior conjunction on the 30th.

Mars

Mars will be rising about 02:00 in mid month. Magnitude 1.7

- Jupiter** Jupiter will be visible in the evening sky. By mid month it will be setting by 03.00. Magnitude -2.8
- Saturn** Saturn will be at opposition on the 23rd. Magnitude 0.0
- Uranus** Uranus will be visible in the early evening sky, setting at about 23:00 in mid month. Magnitude 5.7
- Neptune** Neptune will be setting at about 40 minutes after Uranus in mid month. Magnitude 7.8

Meteor Showers

Name	Limits	Max	ZHR
Piscids	September to October	October 13 th	?
Giacobinids	October 7 - 10 ?	October 8 ^d 21 ^h	?
Orionids	October 16 - 27	October 21 st	25

Meteor source is the BAA Handbook

Roy Gooding

OCCULTATIONS DURING OCTOBER 1998

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

D or R	Date & Time (UT)	Lunar Phase	Sun Alt (d)	Star Alt (d)	Min Dist (r)	Star	Mag
D	04 Oct 00:03	.95+	-42	26	.85N	83 Aqr, h Aqr	5.6
D	04 Oct 21:31	.99+	-35	31	.32N	27 Psc	5.1
D	04 Oct 23:41	.99+	-43	34	.83N	29 Psc	5.2
D R	13 Oct 03:41 04:54	.42-	-24 -13	42 51	.22N	3 Cnc	5.8
D	29 Oct 21:08	.64+	-41	19	.01S	42 Cap	5.3
D	30 Oct 18:09	.74+	-16	24	.86N	sigma Aqr	4.9

James Appleton

Notes from Indonesia: Part 1

The Annular Solar Eclipse of 22nd August 1998

by Mike Harlow

Recently two of us went to Indonesia with a small group of geologists and astronomers to observe an annular solar eclipse. During our time there we were also lucky enough to visit Bosscha observatory near Bandung in West Java. This month I will report on the eclipse and next month, in part 2, I will describe the observatory.

The eclipse itself started just before sunrise at about 6.10 am. This meant we had to make a very early start from our hotel at Prapat on the north eastern shore of Lake Toba. We left at 2.30 am for the 3 hour drive to the observing site. It was cloudy when we left and it soon started to drizzle. In fact for 2½ of the 3 hours the sky was completely overcast. Fortunately stars began to appear as we approached our eclipse site and when we arrived it was almost completely clear. The site had been chosen in advance by our local guide who obviously hadn't experienced eclipse chasers before; the site was simply too small with a poor view of the sky. As a result we continued along the road searching for a suitable site.



The observing site outside Tarutung

By chance we came to a narrow, winding road, which lead up to a microwave transmitter. Ideal we thought, it must be at the top of a hill with excellent views! As we ascended the sky began to brighten as dawn approached but after a hair-raising drive we found that the easterly view blocked by trees surrounding the transmitter station. After a brief discussion we decided to head back down as rapidly as possible and continue searching. By now the sun had risen, and the partial eclipse started, although we couldn't see it behind the tree lined hills. However, now we could see the surrounding countryside and we soon came across an excellent site where the sun was just about to come up over a distant ridge. We hurriedly set up our equipment at the side of the road and started observing as the sun appeared.

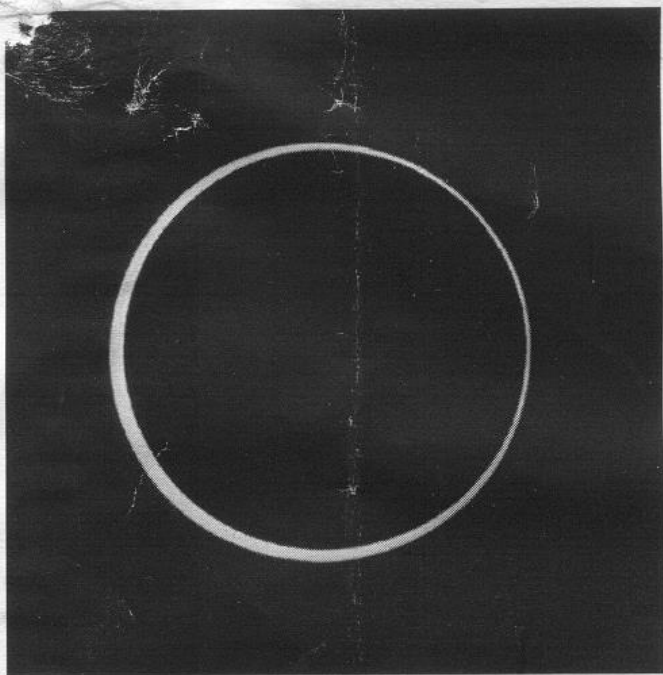
The partially eclipsed sun rose behind the distant trees but most of the eclipse was still to come. As we were only 2 degrees north of the equator the sun rose almost vertically so it soon cleared the ridge and the moon moved straight down across the solar disc. It soon became clear that the Moon was smaller than the Sun and half way through the partial phase the crescent Sun started to extend more than half way round the Moon. This was quite different from the total eclipse we saw in February where the crescent began to shrink as totality approached.

For several minutes before second contact Bailey's beads were seen at the cusps of the crescent sun. Unlike a total eclipse however they not dazzling points of light seen against the corona but were just detached parts of the photosphere as seen through the dense filters we were using. Second contact arrived and the Moon became completely enveloped by the Sun at around 7.15am. Although this eclipse covered just over 97% of the Sun the sky and landscape were still brightly lit by the remaining 3%, again strikingly different from a total eclipse.

I don't think any of us timed the annular phase but it was predicted to be just over two minutes. In common with a total eclipse however this time rushed past as the Moon slid across the Sun's disc. By this time the Sun was over 15 degrees high in a clear patch of sky. The hilltop where we would have been at the microwave station was completely covered in cloud at the time so it was lucky we didn't stop there!

There were only ten people in our group but there was a broad range of eclipse experience. Mike and Wendy Maunder were probably the most experienced eclipse observers. Mike observed and imaged the eclipse with a specially made long focus refractor on a driven equatorial mount.

Mid eclipse. 1000mm lens with Mylar and orange filters, 1/1000s



Mike also used a wide field camera to take a sequence of shots of the partial and annular phases on a single frame. Several of us used telephotos lenses between 400 and 1000mm focal length, binoculars for visual observing and eclipse glasses made from Mylar or fully darkened black and white negative film. Of course all the cameras and binoculars had either Mylar or metal on glass high-density filters for safe viewing *throughout the eclipse*.

The eclipse was a great success being visible in a clear sky with only slight interference from some high cloud. We were also quite close to the centre line so that the Sun at mid-eclipse was an almost perfect ring of light.

Our eclipse observing site was about 5 kilometres south west of Tarutung, Sumatra, on the road to Sibolga, at approximately 2.0°N, 98.5°E.

Future Annular Eclipses

Whilst annular eclipses are not as spectacular as full total eclipses they are interesting to observe especially if they are close to 100% coverage where Bailey's beads phenomena will become more pronounced. Future annular eclipses are listed below the one closest to home in the next few years being that on 31st May 2003.

Future Annular Eclipses to 2006

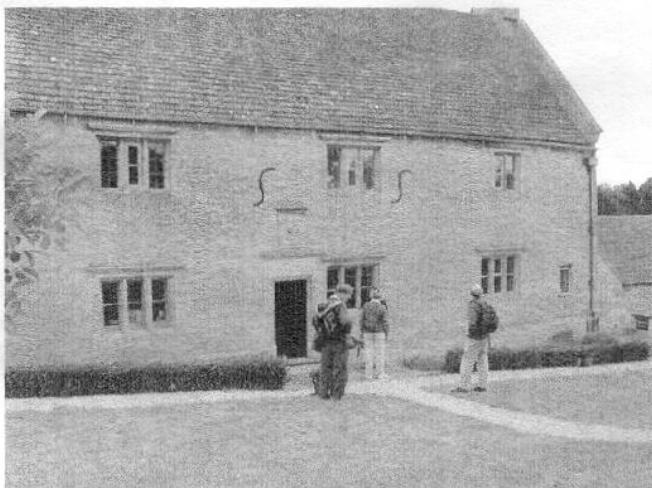
Date	%	Location	Comments
16/02/99	99.3	Indian Ocean, Australia	Maximum duration 39 seconds
14/12/01	96.8	Pacific, Costa Rica	Almost 4 minutes
10/06/02	99.6	Pacific Ocean	Track doesn't cross land
31/05/03	93.8	Greenland, Iceland, Faeroes, Orkney, Shetland, North Scotland	Very low after sunrise in Scotland. Over 3 minutes
8/04/05	100	Pacific, Panama, Columbia, Venezuela	Annular/total. Varies along track.
3/10/05	95.8	Spain, Africa, Indian Ocean	Over 4 minutes
22/9/06	93.5	Atlantic, South America	Very long, over 7 minutes

Data is taken from "Fifty-Year Canon of Solar Eclipses: 1985-2035" by Fred Espenak, NASA Reference Publication No. 1178 Revised.

OASI Summer Excursion to Woolsthorpe Manor

On Saturday 18th July members of the OASI took part in the Society's summer excursion, this year to the birth place and childhood home of one of Britain's (and probably the World's) greatest scientists - Sir Isaac Newton.

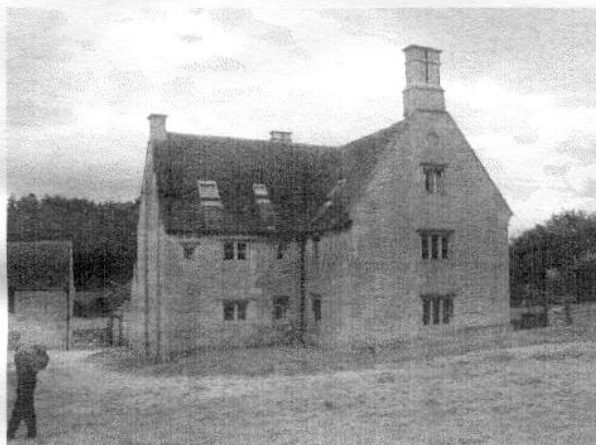
Woolsthorpe Manor in Lincolnshire, a small 17th century manor house, now owned by the National Trust, was the birth place of Sir Isaac Newton. He was born there Christmas day, 1642, apparently a very sickly baby that was not expected to live. His father had died several months before he was born and three years later his mother remarried



*Members outside the entrance
to Woolsthorpe Manor*

and moved to a nearby village, leaving Isaac to be looked after by his maternal grandmother.

Upon the death of his stepfather in 1656, Newton's mother removed him from the grammar school in Grantham to train him to help manage her now enlarged estate. However even at this early age Newton's interests ran more toward books, mathematics and the workings of machines and objects around him. Drawings on the walls of



The rear of the manor house



The Barn now used by visiting groups for refreshments will become a science and exhibition centre in the next year or two

and performed many of his famous experiments including splitting white light into its spectral colours.

the house can still be seen showing geometrical shapes and patterns or buildings and animals. His family finally decided that he should go to university, and he entered Trinity College, Cambridge, in June 1661. For two years after Newton graduated (1665-1666) Cambridge was closed due to the plague and Newton returned to Woolsthorpe. It was during these two years that Newton made his greatest strides in science and mathematics



The OASI party under the famous apple tree



*Lunch in side the Barn
Tea and biscuits were provided later*

It was also at Woolsthorpe during this period that Newton formulated his laws of gravitation and went on to use it to describe planetary motion. The formulation of the idea that gravity is a Universal law does indeed appear to have been triggered by the falling of an apple from one of the apple trees in the orchard next to the

house. This was the orchard where Newton would sit and work on warm summer days and there is a very old apple tree, still growing and bearing fruit, in the orchard that is reputedly a re-growth of a tree living in Newton's time.

Apparently the original tree blew down and the existing tree grew from its remains. Although it is not at all certain that this was the famous tree it has certainly been adopted as "the" tree by the visiting public and who knows?



As a visiting group the National trust laid on tea and biscuits in the barn which was also contemporary with

It was a very pleasant afternoon and a stroll along some of the shore of Rutland Water was just the thing to work up an appetite for our early evening meal

the time Newton was there. The current custodian has some quite ambitious plans to put in place a "hands on" science centre with lecture and video theatre in the barn. Part of this exhibition will include a telescope, probably a ten inch Meade, for use by visiting groups and evening lectures. This will be supported by a video projector for showing objects captured by the telescope, such as the moon and planets, live to the audience.

Moving on from Woolsthorpe Manor we went over to nearby Rutland Water and spent a pleasant hour or so strolling round the shore before setting off to find a suitable hostelry for a meal and drink prior to our journey home. After an abortive attempt to get into a pub local to Rutland Water, our coach driver suggested that Stilton, of cheese fame, could be a suitable place for a meal on our way home. Bowing to his superior knowledge we duly set off and found a pub/country club the didn't mind serving, without any prior arrangement, a coach load of astronomers.



The meal was a fitting end to a very pleasant day out which was thoroughly enjoyed by all who came along.

David Payne

ECLIPSE ACCOMMODATION

If you are interested in going to Cornwall to see next years total solar eclipse and are looking at a caravan or camp site you might like to try the following people recommended by an OASI member:

Mr & Mrs T Tolputt



Redruth
Cornwall
TR16 6SP

Phone:

FAX:

They have 2 fields available.

SHOOTING STARS SPECTACULAR?

The Draconid meteor shower usually produces very few meteors, but can occasionally produce a spectacular storm. This happened in 1933 and 1946 and could happen this October. We see the regular meteor showers when the Earth passes through the trail of dust and debris left behind by a Comet. In the case of the Draconids, the comet is Giacobini-Zinner.

The meteor shower can be spectacular when it coincides with Giacobini-Zinner making its closest approach to the Sun (perihelion) which happens every 6.6 years. This is because there is significantly more material in the part of the orbital path nearest the comet itself. The comet is at perihelion this November, so this year's shower could be a good one.

The meteors are also referred to as the Giacobinids after the parent comet. The meteors from the shower can be seen between 6th and 10th October and it is believed that the peak will occur on the evening of the 8th October. The peak may occur as early as 17:00 UT (6pm BST), so it will be worth looking out any time after it gets dark on that evening. The peak is expected at 10pm (21:00 UT). It may be a damp squib, or it may be a fantastic celestial fireworks display.

LOOK OUT FOR THE LEONIDS

You must look out for the Leonid meteor shower in 1998 and 1999. The Leonid Meteor shower has produced some of the most spectacular meteor storms ever observed. The shower occurs each year between the 14th and the 19th November when the Earth passes through the trail of dust left by Comet Temple-Tuttle. The Comet has an orbital period of 33 years and the spectacular storms are seen when the comet makes its closest approach to the Sun as recently happened. The predicted peak in 1998 is on November 17th at 10pm.

The shower is known as the Leonids because if you trace back the track of the meteors they appear to be coming from a point (known as the 'radiant') which is in the constellation of Leo. During the peak the radiant is just below the horizon as seen from the UK which means missing many of the meteors. If the peak is later it will be better for UK based observers because Leo and the radiant will be rising. In any event it is definitely worth looking out for the Leonids this year and next.

INFORMAL INTERACTIVE WORKSHOPS

The first of the astronomy workshops at Orwell Park proved very popular with 22 people attending. Perhaps appropriately for a 'workshop', the chosen subject was 'tools of the trade', considering maps, books, magazines, etc. Long standing members shared their knowledge and everyone had the opportunity for 'hands on' practice with planispheres and star maps. Thanks are extended to everyone who helped (by contributing to the session, arranging refreshments, ensuring access to the room or providing equipment). The next session will address binoculars and telescopes with James Appleton being the experienced member sharing his knowledge and Ted Sampson co-ordinating the event. Ted is keen to hear any comments people may have and suggestions for improvements are particularly encouraged.

PROGRAMME FOR OCTOBER

Mondays from 7.30pm Mr N Gage [REDACTED]	GENERAL OBSERVATION SECTION
Tuesdays from 7.30pm Mr P Richards [REDACTED]	OBSERVATORY VISITS FROM OUTSIDE GROUPS
Wednesdays from 8.00pm Mr M Cook [REDACTED]	NEBULA & FAINT OBJECTS SECTION Mr D Payne [REDACTED]
Thursdays from 7.30pm Mr P Richards [REDACTED]	OBSERVATORY VISITS FROM OUTSIDE GROUPS
Fridays from 7.30pm 9th - 23rd Mr J Hood [REDACTED]	DOUBLE STARS

All members are welcome on any night, but on nights other than Wednesday please check with the director of the night that the observatory will be open.

Lectures and other events:

Committee Meeting

The next committee meeting is to be held on Saturday November 21st in the club room at the observatory at 7.30pm. All members are welcome to attend.

e-mail enquires to oasieng@btbcs.bt.co.uk
 WWW url <http://www.ast.cam.ac.uk:80/~ipswich/>

1998 COMMITTEE		Home Phone	Work Phone
CHAIRMAN	D Payne		
SECRETARY	R Gooding		
TREASURER	M Harlow		
MAINTENANCE CO-ORD	M Cook		
JOURNAL CO-ORDINATOR	E Sims		
SOCIETY ACTIVITIES	P Richards		
& DARK SKIES	J Walsh		
EQUIPMENT CURATOR	J Appleton		
LIBRARIAN & COMP SOFTWARE	E Sims	Ipswich Suffolk IP1 4HA	
JOURNAL ARTICLES TO	R Gooding	OASI Secretary	
CORRESPONDENCE ADDRESS	[REDACTED]	Ipswich Suffolk IP1 6AE	
MEMBERSHIP	M. Cook	Ipswich IP4 5PZ	
REP FOR BEGINNERS FOCUS GROUP	T Sampson	[REDACTED]	

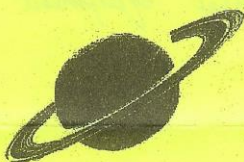
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

ORWELL PARK OBSERVATORY
NACTON NR IPSWICH

PUBLIC OPEN WEEKEND

THE ORWELL PARK OBSERVATORY WILL
OPEN TO THE PUBLIC

FRIDAY	16 th	OCTOBER	From	8:00	to	10:00 pm
SATURDAY	17 th	OCTOBER	From	8:00	to	10:00 pm
SUNDAY	18 th	OCTOBER	From	8:00	to	10:00 pm



FOR THE OBSERVATION OF JUPITER, SATURN and the NIGHT SKY

If Weather Conditions Permit

If you have any binoculars we recommend that you bring them with you

An alternative programme of talks and slide shows will be arranged if weather conditions are not suitable for observation

Entrance by Donation

Child & Senior Citizen 50p
Adult £1

Honorary Secretary
Roy Gooding
16 8 Ashcroft Road
Ipswich
IP1 6AE