



The Newsletter

of the
Orwell Astronomical Society (Ipswich)

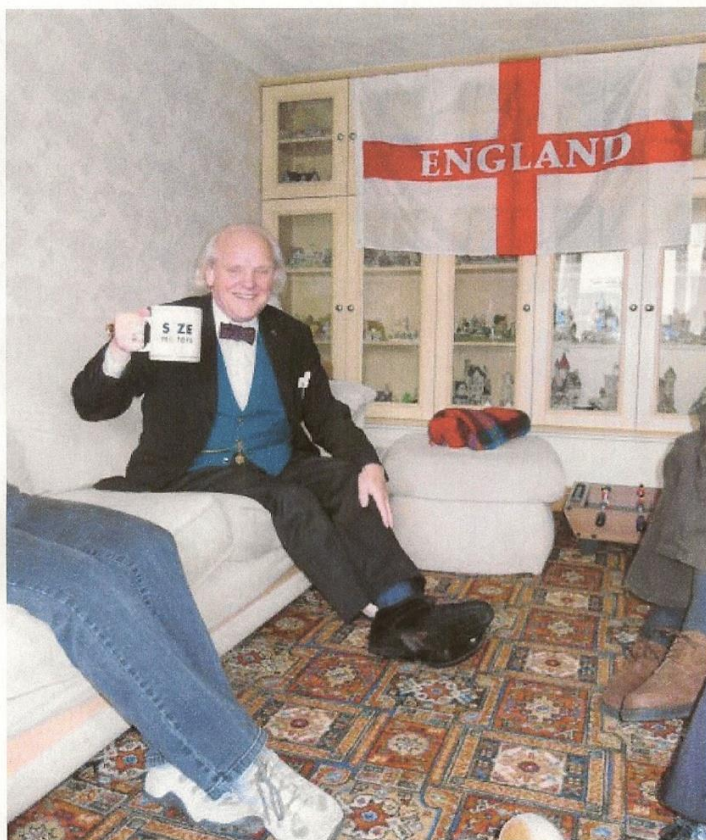


Registered charity No 271313

www.oasi.org.uk

2010 JUNE

No 453



OASI President ,Alan Chapman, enjoying his second pint of the day at Lorraine Goward's home during his recent visit. Full details to appear in the next edition of the newsletter.

Photo by Tina Hammond.

Society News (Roy Gooding)

1 Committee Meeting Saturday 3rd July

All members are invited to attend the next Committee meeting, on Saturday 3rd July. Start time 20:00. Venue Methodist Church Hall

2 Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds, this is the gate behind the Gym. If the Black door entrance at the base of the observatory tower is locked, you will have to phone someone in the observatory to let you in. My mobile number is [REDACTED] (Roy Gooding) alternatively the Observatory mobile is [REDACTED] during meeting hours. The gate code is on the back of your membership card

3 Welcome to New Members

Ben Powis Paul Kendall John Abbess Hubert Miciula
Colin Chapman Mike Haynes

4 Events Programme for 2010

This is a provisional event list, which will be updated through out the year

Meeting	Venue	Date
Summer Barbecue		TBA
FAS Convention	Institute of Astronomy, Cambridge	Saturday 9 th October
Perseid Meteor watch	The "Dip" Felixstowe	Saturday 14 th August
Autumn Equinox Sky Camp 2010 Organised by Loughton Astronomical Society with the support of the SPA	Kelling Heath, Norfolk	Monday 6 September until Friday 17 September
Lecture by Tom Boles: Discovering Supernovae - Motivation & Rewards	Methodist Church Halls, in Blackhorse Lane	Friday 22 October 20:00
Open Weekend		16 th / 17 th October 19:30 to 22:00
Geminid Meteor watch	The "Dip" Felixstowe	Saturday 11 th December
Christmas Meal	Arlingtons Museum street	Wednesday 15 th December 20:00

5 Open Weekend

This event has now been confirmed with the School and will be held on Saturday 16th and Sunday 17th October
Doors open for the public at 19:30

As usual as much help as possible is required to make this a successful Open Weekend.

If you are only available to help for a short time your presence will still be appreciated.

Christmas Meal!

Wednesday 15th December 20:00

Starters:

Chestnut, parsnip & apple soup
Chicken, ham terrine
Prawn Cocktail
Beetroot, walnut salad with goats cheese toast
Smoked salmon, new potatoes with dill creme fraiche
Roquefort & red onion with hazelnut dressing

Main course:

Turkey with all the trimmings
Cod, with pea puree, smoked bacon & shallot sauce
Beef with Madeira fondant potatoes and mixed vegetables
Vegetable stew with fresh mango & coconut relish
Honey-roast pork, with mustard potatoes, apple compote & mixed vegetables
Roast lamb, onion mash, & mixed vegetables

Dessert:

Christmas pudding with brandy sauce
Ice coffee & honeycomb parfait
French Christmas roll
Chocolate Marquise pot
Winter Berries Pavlova & Toffee sauce
Cheeses & biscuits

Tea or Coffee with minced pie

Cost: £25 per head

Deposit: non returnable £10 by September

I have instigated the usual booking method: Roy Gooding

Night Sky (June)

All times GMT

Moon

3rd Quarter	New Moon	1st Quarter	Full Moon
4 th	12 th	19 th	26 th

Object	Date	Times		Mag	Notes
		Rise	Set		
Sun	1	03:41	20:06		
	30	03:39	20:19		
Mercury	1	03:00	17:37		Mercury is too close o the sun this month to observe
	30	03:41	20:39		
Venus	1	05:53	22:49	-3.9	Venus remains a prominent object in the evening sky
	30	07:12	22:24		
Mars	1	09:57	00:34	1.2	Mars continues to fade in brightness this month. It has now moved into Leo
	30	09:36	23:01		
Jupiter	1	01:20	13:12	-2.4	Jupiter is well placed after midnight to observe.
	30	23:28	11:36		
Saturn	1	12:52	01:33	1.1	Saturn remains visible in the late evening and early morning sky
	30	11:03	23:36		
Uranus	1	01:19	13:18	5.9	Uranus is in Pisces and will be well placed to observe in the early morning sky
	30	23:22	11:26		
Neptune	1	00:23	10:19	7.8	Neptune is in Capricornus, and is also observable in the early morning sky
	30	22:25	08:24		

Meteor Showers

Shower	Limits	Maximum	ZHR
Ophiuchids	May 19th to July	June 10 th June 20 th	5

Meteor source is the BAA Handbook

Orwell Country Park “Star Party” Roy Gooding

The Orwell Country Park “Star Party” held on Saturday 24th April, was part of our ongoing public out reach program. This event was originally scheduled for Saturday 20th March, but had to be canceled due to inclement weather. The Ipswich Park Ranger service were the events organisers, and we the events hosts. 45 visitors attended the Star Party. They had put this event on their programme under the name of “Shooting Stars”. In all my correspondence, I had referred to the meeting as a Star Party, as this is the more conventional astronomical name for such a meeting. Will have to see if this catches on for the event next year, if we are asked again.

Our first event held at the park was, in March, last year. For this event all our equipment was transported the $\frac{1}{3}$ mile to the foreshore. This proved to be a dark site, but members had misgivings about having their expensive equipment moved in the back of a pick up truck down a rough track. A pick up truck, that was more accustomed to carting rubble and land clearance waste, This year we set up our equipment in the car park. From a light pollution perspective, it was not ideal, but it did suffice.

I arrived at the car park with John Wainwright at about 20:15. We were not the first to arrive, Paul Whiting, Joe Walsh and Stuart Dedman were waiting for us. After a short discussion as to where, we should set up our telescopes, every one chose their pitch and proceeded to assemble their equipment.

A short time later Richard Sharp arrive with a colleague. Richard was the Park Ranger who organised the event. He proceeded to set up a reception point for the visitors. By 21:00 a good crowd of visitors had arrived, numbering some 45 people. Paul began the event by giving a brief introduction, before they came over to the telescopes.

We had assembled a good selection of optical equipment for the visitors. Two reflectors, two refractors and a pair of 10 x 50 binoculars

- James Appleton: 10 x 50 binoculars
- John Wainwright: 16” donsonian
- Joe Walsh: 8” reflector
- Pete Richards: 80mm refractor
- Roy Gooding: 120mm refractor

A few of the visitors also brought along binoculars.

The weather during the day was both continuous cloud and sun shine. There was a very thick layer of haze present all day. The sky conditions had not improve by

the evening, the limiting magnitude was only about 3. However the brighter stars, planets and moon were observable. The first object observed was Venus, still low down in the west, hovering just above the tree line. Other objects viewed during the evening were the Moon, Saturn, Mars and M44.

For the majority of the meeting, we were serenaded by a nearby Nightingale in Bridge Wood

Members who were in attendance:

- James Appleton
- Paul Whiting
- Stuart Dedman
- Tina Hammond
- Pete Richards
- Nicky Richards
- John Wainwright
- Joe Walsh

Joe, who is presently a lapsed member, volunteered to bring along his reflector.

It was past 22:30 before the last visitor left, with every one in agreement that the evening had been a success, having achieved everything we had planned to do. The next outreach meeting is the Astronomy in the Park event on the 22nd and 23rd May, As usual I would like to thank all members both past and present who were able to attend.

OCCULTATIONS DURING JUNE


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


Date	Time (UT)	D R	Lunar Phase	Sun Alt (d)	Star Alt (d)	Mag	Star
19 Jun	21:54:10	D	0.58+	-10	14	6.8	14 Vir
23 Jun	22:43:24	D	0.93+	-13	12	5.4	V913 Sco

James Appleton

OBSERVATIONS OF MERCURY AND VENUS, APRIL 2010

On 02 April 2010, the BAA Publicity Officer, John Mason, issued an electronic circular giving notice of the apparent close proximity, during early April, of Mercury and Venus in the western sky shortly after sunset. I forwarded the circular to members of the OASI email distribution group asking observers to send their observing reports to me. In total, five members of OASI reported making observations: here is a summary of their reports and images.

Sat 03 Apr Paul Whiting	
Thu 08 Apr Gerry Pilling	<i>Saw Venus with naked eye, but missed Mercury possibly in the cloud. Will try again tomorrow with binoculars.</i>
Thu 08 Apr Paul Whiting	<i>We enjoyed a good observing session while hosting a visit to Orwell Park Observatory. Observed Mars, Venus and Saturn through the Tomline Refractor. Did not see Mercury though.</i>
Fri 09 Apr Roy Lobett	<i>Several days ago I saw Venus rather high above a lamp post, then as it got darker saw Mercury just as Venus was going behind the lamp post. I can usually see them on a clear evening despite the glow of the dock lights from my position.</i>
Mon 12 Apr Gerry Pilling	<i>The Small Telescopes Observing Night (STON) successfully observed Venus and Mercury both with naked eye and with the Tomline Refractor! Quite a few people turned up and saw the planets. Venus presented the usual very bright, whitish cloudy, quite large disk. Through the telescope, the disk appeared unspectacular. Mercury was much smaller, very much dimmer (my guess was,</i>

	<i>say, 5 magnitudes dimmer). It was however exhibiting a phase of approximately 50%.</i>
Tue 13 Apr James Appleton	<i>I walked five minutes from my home to Rushmere Heath at 19:30 UT to gain a relatively unobstructed western horizon. At first, although Venus was very prominent, the sky was too bright to find Mercury. After about 10 minutes the sky had darkened sufficiently to find Mercury, very much fainter than Venus, at approximately 5° lower altitude. During the next 20 minutes I observed the two planets become ever more prominent as the sky darkened. I attempted to take some photographs with a tripod-mounted digital camera, but unfortunately none of them came out well.</i>
Fri 16 Apr Gerry Pilling	<i>The planets were nice tonight with a small sliver of Moon "hovering" over Venus. Over the last week, Mercury has been heading rapidly back towards the Sun.</i>
Sun 18 Apr Paul Whiting	<i>Last night was a wonderful sight here in Dubai¹ - the Burj Khalifa (the tallest building in the world at present) on the skyline with thin crescent moon on its back with Venus glowing beneath it. The cocktails slipped down nicely....</i>
Some days before 26 Apr. John Wainwright	

James Appleton
21 April 2010

¹ Paul easily wins the prize for most exotic observing location!

SUMMARY OF COMMITTEE MEETING 10 APRIL 2010

1. Neil Morley was working hard to address the problem of the deteriorating fabric of the Observatory. He had put Orwell Park School in contact with experts within the astronomical community able to advise on how best to effect repairs and how to fund the work. He had arranged and attended six meetings so far with various interested parties. He had arranged a further meeting on 23 April, between the School, Allan Chapman and other interested parties, to address the exceptional nature of the Observatory and its historical significance. (The meeting will be held in the afternoon prior to Allan Chapman's Presidential Lecture in the evening.)
2. CRB checks will be progressed with the seven nominated members of OASI to be granted 24*7 emergency access to the Observatory. The School will enable 24*7 access once the CRB checks are complete.
3. The Committee unanimously agreed the co-option of Tina Hammond, and welcomed her as member responsible for the OASI Library.
4. The *Astronomy in the Park* event at Christchurch Park on 20 February had been very successful. The following events are in preparation: *Shooting Stars* at Orwell Country Park 24 April 2010, an *Astronomy in the Park* solar observing session (22-23 or 29-30 May 2010), the Autumn Open Weekend (16-17 October 2010). See events listing for details.
5. Total membership of OASI stands at 98.
6. The 2009-2010 workshop season had finished. The last workshop, led by Mike Whybray on cosmology, had been very successful. Mike requested volunteers for the next workshop season. Workshops pencilled in to date were: *An introduction to using the Tomline Refractor* (Martin Cook), *Grazing lunar occultations* (James Appleton), *Measuring the speed of light by Rømer's method* (presenter TBA), *Millennium telescope observing session* (Mike Whybray).
7. James Appleton had restructured the OASI Web site. Please send James any material to be hosted on the Web site.

8. John Wainwright is updating the OASI Equipment Inventory.
9. The following maintenance activities will be undertaken over the summer: clean out the drain hole in the gutter around the Dome, repair the leak in the roof of the transit room, grease the shutter of the Dome.
10. The next lecture is *Discovering Supernovae – Motivation & Rewards* by Tom Boles on 22 October 2010.
11. Potential observing projects: (1) attempt in May to confirm the magnitude 14.6 QSO PCG1718+481 in Hercules as the most distant object visible in the Tomline Refractor (distance 2.5Gpc); (2) Perseids meteor watch 14 August; (3) Geminids meteor watch 11 December. Check with any member of the Committee for the status of these projects.
12. The Committee discussed various potential projects around the transit telescope, all of which had become moribund due to difficulties with the webcam. Martin Cook is thought to be investigating a very sensitive camera which may make one or other of the projects viable.
13. Date of next Committee meeting: 8.00 pm on Saturday 03 July 2010 in the Methodist Church Hall.

Please ask any member of the Committee if you would like more information about the Committee Meeting (list of Committee members on inside back page of Newsletter).

James Appleton
24 April 2010

Julian Days (part 1 of 2)

Astronomers are often interested in events many years apart. Working out the intervals between them becomes tedious when the dates are given in the usual way of day/month/year. It is useful to have a simple running count of days, starting from an instant a very long way back in the past. The 'Julian Day' serves this purpose, and the instant (the 'epoch') is set at 1200 Universal Time (formerly GMT), on 1st January 4712 BC.

The earth's orbit around the sun is an obvious basis for a calendar. The time to return to the same point in the cycle of the seasons is called a tropical year. It is also natural to count the number of times the sun rises (or sets), and call these days. If you use the sun's highest point in the sky as a marker, the length of the day is fairly even. But years and days do not bear a simple relation to each other.

Julius Caesar and the 'Julian year'

The time between a solstice and its next occurrence is about 365 and a quarter average-length days. If you pretend that a year is 365 days, the seasons will advance quite rapidly through the calendar. The Romans were well aware of this, and had a complicated way of dealing with it. Julius Caesar introduced a reform in 45 BC. He set the lengths of the 'Julian months' exactly as they are now, and introduced the 'Julian year'. This has 365 days, except for a leap day at the end of February every 4 years. The first of these leap years was 45 BC, but they did not stabilise until AD 4, 48 years later (bear in mind that 1 BC was followed by AD 1.) For years AD, we have the familiar rule that it is a (Julian) leap year if you can divide it exactly by 4.

Joseph Justus Scaliger, the 'Julian Period', and the epoch

Joseph Justus Scaliger (1540-1609), a French religious leader and a chronologist of ancient history, is responsible for the choice of the epoch. It arose from his proposal of a 'Julian Period'. This considered three particular cycles, and their relation to a proleptic Julian calendar, i.e. a Julian calendar extended backwards in time. The cycles were:

- a) The 'Metonic' cycle of 19 tropical years, introduced into the prevailing calendar by Meton of Athens in 432 BC. This period equates closely to 235 'synodic' months, the familiar lunar cycle where the moon goes once around the earth, relative to the sun. The discrepancy is about 2 hours, and the cycle loses a day every 219 years. Many ancient calendars were based on lunar months, and touched on this cycle in some way or other.
- b) The 'solar' cycle of 28 years, based on the way the Julian calendar cycles through the days of the week. Within this cycle, the 29th of February will occur once on each day of the week.

- c) The 'indiction' cycle of 15 years, used by mediaeval scribes in both Western and Eastern Europe for dating documents. The indiction value, from 1 to 15, was often treated as a good enough way of identifying the year.

19, 28 and 15 have no common factors. When all three cycles are combined, they only repeat every $19 \times 28 \times 15 = 7980$ years. This is Scaliger's 'Julian period'.

He numbered the subsidiary cycles in such a way that cycle 1 for all of them began on 1st January 4713 BC, at noon, Alexandrian time. (In the days of water clocks, it was difficult to define midnight. This tradition of beginning the astronomical day at noon persisted until 1925). Scaliger specified Alexandria in deference to Ptolemy, the most celebrated astronomer up to that time.

Many used to believe that Scaliger had named his Julian Period not after Julius Caesar, but his eminent father, the Italian scholar Julius Caesar Scaliger. In his book, however, Joseph does explicitly tie his naming to the 'Julian year'.

From Scaliger's point of view, 4713 BC was convenient because it was well before anything Europeans then knew of in recorded ancient history. (This can be shown in another context. James Ussher, the Anglican Archbishop of Armagh, published in 1658 the time he had calculated to be the start of the creation. It was the nightfall before 23 October 4004 BC, a day which counts back to a Sunday. After six days work, this allowed God to rest on the Sabbath.)

Pope Gregory XIII and the Gregorian calendar

The Julian calendar began to run out steam. 365-and-a-quarter days is too approximate for the average length of the year. It is a bit less than this, and by 1582 the solstices had advanced 10 days through the calendar. This motivated a reform by Pope Gregory XIII. The aim was to keep the time of the spring equinox close to its conventional date of 21st March, as used in the computation of the date for Easter ever since the First Council of Nicaea in AD 325. The Gregorian calendar reform absorbed these 10 days, and decreed that century years which were not exactly divisible by 400 (e.g. 1700, 1800, 1900, but not 2000) would not be leap years. This leads to 97 leap days every 400 years, and an average length of year of $365 + (97/400) = 365.2425$ days. The mean tropical year is currently 365.2422 days, so this will be good enough long into the future.

The Gregorian calendar was introduced into different countries at different times. Where the Catholic Church held sway, the change was made the day after Thursday 4th October 1582, which was decreed to be Friday 15th October 1582. In practice many places did not reform until 1583. Elsewhere, Denmark (with Norway) changed in 1700, Sweden changed gradually over the period 1700 to 1740, Britain and its colonies changed in 1752, Russia in 1917, Greece in 1923, and so on.

'Sir John Herschel and the 'Julian Day'

In 1849 Sir John Herschel recommended counting by Julian Days. The 'Julian Day Number' is an integer, with 1st January 4713 BC as zero. A 'Julian Day' uses days and fractions of days to measure duration from the epoch. However, Herschel switched the meridian from Alexandria to Greenwich, so a Julian Day of 0.0 indicated 12:00 GMT (now called UT) on 1st January 4713 BC. The Julian Day is sometimes called the Julian Date, but this is controversial.

Smithsonian Astrophysical Observatory and the Modified Julian Day

For recent times, the Julian Day is quite a large number, and its first two digits change slowly. In 1957, when tracking Sputnik, the Smithsonian Astrophysical Observatory introduced the Modified Julian Day (MJD), defined as (Julian Day – 2400000.5). It shifts the epoch to 0000 UT on 17th November 1858. This knocks '24' off the front of the number, and aligns the days to the civil day. The advantage will last until JD 2500000.4999..., which is just before the end of 31st August 2132.

In Part 2 – how to calculate the Julian Day Number for any date after the epoch.

Visit to the Royal Astronomical Society Library Saturday 2 October 2010

OASI has been invited by Peter Hingley, Chief Librarian at the RAS, for an informal visit to their library in Burlington House, Piccadilly, London on Saturday 2 October 2010.

The tour will commence at 10.00 and - depending upon interest - last about 2 ½ hours. The maximum number of persons is 20: should there be more than that, it may be possible to organise a later tour the same day. Other family members are welcome, as long as they are relatively house-trained.....

An interest in books is an added advantage!

At present I am trying to gauge interest, and will advise more precise details nearer the date.

If there is a huge amount of interest, it may be possible to arrange two separate parties - one in the morning and one in the afternoon - as the fewer people are in each group, the closer they will be able to get to these wonderful evocative artefacts by the great names of astronomy, from Ptolemy, Galileo and Copernicus to Bode, Flamsteed and Halley. Both books and manuscripts will be available to view.


Because of the cost of hiring a coach, and the prohibitive parking charges in central London, transport will be on a DIY basis. The trains to Liverpool Street are regular and frequent, and Piccadilly Circus or Green Park tube stations are no more than half an hour from there.

For sat nav users who do wish to drive, the post code is W1J 0BQ

Please let Tina Hammond know if you are interested in attending ASAP on [REDACTED] or by email [REDACTED]



OASI Committee Contacts & Responsibilities

Neil Morley	Chairman	☎		
Roy Gooding	Secretary	☎		MAIN POINT OF SOCIETY CONTACT Press Publicity with Chairman. Observatory Decoration. Visits by potential new members.
Paul Whiting FRAS	Treasurer	☎		Finance. Supervision of Grant Applications. Visits by outside groups.
James Appleton	Committee	☎		Committee Meeting Minutes. Web Site.
Martin Cook	Committee	☎		Membership. Tomline Refractor Maintenance.
Peter Richards	Committee	☎		Lecture Meetings. Email Distribution Lists.
Eric Sims	Committee	☎		Newsletter.
Mike Whybray	Committee	☎		Workshops.
Bill Barton FRAS	Committee	☎		Safety & Security.
John Wainwright	Committee	☎		Forward planning & Strategy Equipment Curator
Tina Hammond	Committee	☎		Librarian

DIARY for JUNE

<p>Monday S.T.O.N. Nights will resume in October. Unless by special request.</p>	<p><u>SMALL TELESCOPES OBSERVING NIGHTS AT THE OBSERVATORY</u> Main observing targets: ☎ Paddy O'Sullivan [redacted] ☎ Gerry Pilling [redacted]</p>
<p>Wednesdays From 8PM</p>	<p><u>MAIN OBSERVATORY CLUB NIGHTS</u> Primary Observational targets: Nebulae and faint objects. ☎ Martin Cook [redacted] (mobile) [redacted] ☎ Roy Gooding [redacted] (mobile) [redacted]</p>
<p>Wednesday Doors open 7.30pm Start 7.45pm</p>	<p><u>OASI WORKSHOP</u> If you are interested in presenting a Workshop contact Mike Whybray Nacton village Hall ☎ Mike Whybray [redacted]</p>
<p>Thursday</p>	<p><u>OBSERVATORY VISITS BY LOCAL COMMUNITY GROUP</u> Nothing planned until September ☎ Paul Whiting FRAS [redacted]</p>
<p>Saturday 3rd July @ 8pm</p>	<p>COMMITTEE MEETING Methodist Church Hall Blackhorse Lane Ipswich</p>

Society Primary Contacts

Chairman: Neil Morley ☎ [redacted]
Secretary: Roy Gooding ☎ [redacted] (daytime) [redacted] (evenings)
E-mail queries: ipswich@ast.cam.ac.uk

Society Trustees

Mr Roy Adams Mr David Brown Mr David Payne

Society Honorary President

Professor Allan Chapman D.Phil MA FRAS

Observatory Telephone Number

Meeting nights only [redacted]