



The Newsletter



of the Orwell Astronomical Society (Ipswich)

Registered charity No 271313

www.oasi.org.uk

2007 January

No 415

This year we celebrate the 40th anniversary of our foundation – but let us not forget that we have to thank these gentlemen for their legacy by founding the Orwell Park Observatory almost a century before we came into existence.



Colonel George Tomline
Patron



John MacVicar Anderson
Architect



Wilfrid Airy
Designing Engineer



John Isaac Plummer FRAS
Col Tomline's paid Observer

Society News (Roy Gooding)

1 2007 AGM Saturday 13th January

The 2007 AGM will be held on Saturday 13th January. The venue is at the Methodist Church Hall, starting at 20:00. All members are invited to attend this meeting. As usual this will be a review of the society activities in 2006, plans for 2007 and the election for the 2007 committee.

2 Events for 2007

This event list will be updated through out the year

Meeting	Venue	Date
Workshop Meeting Second Light of the OASI Millennium Telescope	Nacton Village Hall Various members of the construction team	Wednesday 3 rd January 19:45
2007 AGM	Methodist Church Hall Blackhorse Lane	Saturday 13 th 20:00
Back to Basics Workshop Joint meeting with the BAA	Methodist Church Hall Blackhorse Lane	Saturday 20 th January 10:00 to 17:30
Workshop Meeting The Meade ETX and Other Telescopes Jerry Pilling	Nacton Village Hall	Wednesday 14 th February 19:45
Lecture Meeting Nik Symanek	Methodist Church Hall Blackhorse Lane	Friday 2 nd March 20:00
Workshop Meeting Vacancy – any offers?	Nacton Village Hall	Wednesday 7 th March 19:45
40th Anniversary Open Weekend		Preliminary dates only March 24 th and 25 th
Workshop Meeting RA and Dec Celestial Coordinates Paddy O'Sullivan	Nacton Village Hall	Wednesday 4 th April
BAA Winchester Weekend	Details in BAA Journal	April 7 th to 29 th
Lecture Meeting Dr. Allan Chapman	Methodist Church Hall Blackhorse Lane	Friday 4 th May
Summer Barbecue	To be decided	To be decided
Christmas Meal		Wednesday 12 th

3 Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds, this is the gate behind the Gym. The gate code is [REDACTED]. 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] [REDACTED]. (Roy Gooding) alternatively the Observatory mobile is [REDACTED] during meeting hours.

4 Welcome to New Members

David Canning
Dennis Crowe
Shaun Norton

5 Lecture Meeting Venue

Our town lecture venue is now at the Methodist Church, in Blackhorse Lane. The church has a car park, bigger enough to take about 30 cars, in Black Horse Lane Alternatively there is a Park & Display car park at the top of Black Horse Lane, next too the Town Council Offices. This is about 100 yards form the church.

Black Horse Lane has only one entrance, which is from Elm Street. This is just past the Police Station, if you are arriving from Civic Drive. The church car park is on the right, just past the Black Horse pub.

Meeting starts at 20:00, doors open at 19:30

Approximate Rising and setting Times

Object	Date	Magnitude	Rising	Setting
Sun	1 st		08:13	16:03
	31 st		07:47	16:50
Mercury	1 st	-1.0	08:13	15:34
	31 st	1.0	08:29	18:17
Venus	1 st	-3.8	09:19	17:17
	31 st	-3.8	08:46	18:55
Mars	1 st	1.5	06:42	14:23
	31 st	1.4	06:22	13:59
Jupiter	1 st	-1.8	05:42	13:55
	31 st	-1.9	04:14	12:15
Saturn	1 st	0.3	19:47	10:32
	31 st	0.0	17:37	08:31
Uranus	1 st	5.7	10:52	21:36
	31 st	"	08:56	19:45
Neptune	1 st	7.8	10:04	19:23
	31 st	"	08:09	17:31

Moon

Full Moon	3 rd Quarter	New Moon	1 st Quarter
3 rd	11 th	19 th	25 th

Mercury Mercury is at superior conjunction on the 7th. Towards the end of the month

Mercury will be low down in the South Western sky

Venus Venus in the evening sky after sunset.

Mars Mars is visible in the early morning sky.

Jupiter Jupiter is visible in the early morning sky.

Saturn Saturn will be visible from early evening.

Uranus Uranus in the western sky this month.

Neptune Neptune is also in the western sky this month.

Meteor Showers

Shower	Maximum	Limits	ZHR
Quadrantids	3 rd January	1 st to 6 th January	10

OCCULTATIONS DURING JANUARY

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.

Date	UT	D R	Lunar Phase	Sun Alt (d)	Star Alt (d)	Mag	Star
22 Jan	17:54:11	D	0.16+	-14	24	6.8	ZC 3437
24 Jan	20:42:50	D	0.37+	-39	27	6.7	ZC 166
24 Jan	20:55:00	D	0.37+	-40	25	7.3	Hip 5387
24 Jan	22:18:59	D	0.38+	-51	13	6.5	ZC 173
26 Jan	21:58:54	D	0.60+	-48	40	4.6	Eps Ari
27 Jan	00:20:34	D	0.61+	-57	19	7.3	Hip 14292
27 Jan	17:38:40	D	0.69+	-10	57	6.6	ZC 562
27 Jan	18:12:21	D	0.70+	-15	60	7.4	1804-0163-1
27 Jan	21:55:43	D	0.71+	-48	51	7.5	Hip 18491
28 Jan	20:50:47	D	0.80+	-39	65	7.3	Hip 22903
28 Jan	23:00:00	D	0.81+	-54	52	6.9	ZC 746
29 Jan	01:20:47	D	0.81+	-53	32	6.6	ZC 756
29 Jan	03:21:20	D	0.82+	-39	15	7.0	ZC 773
29 Jan	17:32:39	D	0.87+	-9	43	5.6	ZC 885
29 Jan	22:17:25	D	0.88+	-49	64	6.7	Hip 28416

James Appleton

LUNAR OCCULTATIONS DURING 2007

by James Appleton

This article provides a summary of lunar occultations visible from East Anglia during 2007. There is a comprehensive listing at Orwell Park Observatory, containing full observational details.

2007 is a particularly good year for occultation observers! There are approximately 622 total lunar occultations which are potentially observable from East Anglia during the year, although many involve faint stars. This is considerably more than the corresponding number in recent years, primarily because the Moon occults the rich star cluster the Pleiades four times during the year. Also during the year there are three grazing occultations and three planetary occultations visible from the region.

The remainder of this article summarises the circumstances of the best occultations during the year. It provides details for the location of Orwell Park Observatory; however, differences will in general be negligible for locations throughout East Anglia.

OCCULTATION PREDICTIONS

The Moon occupies a band through the sky lying within $\pm 6.75^\circ$ of the ecliptic. This band therefore defines the area of the sky within which to search for lunar occultations. I use a complex suite of computer software to search for occultations. The software models the motion of the Moon and planets in detail, and by comparing the position of the Moon at each instant with the co-ordinates of planets and stars, it evaluates the precise time at which lunar occultation events occur. Once the time of an event is known, the software runs additional algorithms to calculate other observational details.

The software is based on the algorithm *Occult* in *Astronomy On The Personal Computer*, 2nd edition by O.Montenbruck and T.Pfleger, Springer-Verlag, 1994. I have added numerous enhancements to improve accuracy and to filter out predictions occurring under unfavourable circumstances. The software uses the NASA Jet Propulsion Laboratories' ephemeris DE-405 to provide the position of the Moon and planets and the Hipparcos, Tycho2, PPM and XZ94F star catalogues to provide stellar positions. DE-405 and Hipparcos/Tycho2 represent the latest and most accurate sources of astrometric data currently available. The PPM and XZ94F catalogues provide coverage in areas of the sky that Hipparcos/Tycho2 do not cover in depth. The software uses IOTA's electronic Watts charts to correct predicted timings for the local lunar limb profile. (This typically makes a difference of several seconds.)

BRIGHT OCCULTATIONS

There are 26 occultations during the year of stars down to magnitude 5.0. Table 1 lists the circumstances of these occultations.

The first two columns of table 1 give the date and time (UT) of the occultation. Column three gives the phenomenon: 'D' denotes a disappearance and 'R' a reappearance. The table lists circumstances of D and/or R as dictated by the visibility of each phenomenon (determined by altitude, lunar phase, etc.) Column four details the lunar phase as a fraction of unity ('+' denoting waxing and '-' denoting waning). Columns five and six give the altitude of the Sun and the star, both in degrees. (A negative solar altitude implies that the sun is below the horizon.) Columns seven and eight provide the star's magnitude and identifier (catalogue number and common name, where one exists).

All of the occultations of table 1 should be readily visible in binoculars or small telescopes.

The Moon occults stars in the Pleiades on 23 February, 07 August, 27 October and 21 December. Of these, the first two occasions offer the best observing opportunity, in terms of a slender lunar crescent and a large number of occultation events.

Note that the occultation of 17 Tau (Electra) on 27 October would be visible as a graze from the North Sea a few miles off the coast at Frinton!

OCCULTATION SEASONS

The Moon's orbit is defined by a range of periodicities, both short and long term. The short term periodicities mean that the Moon's path through the sky follows a pattern whereby it almost repeats itself every month. However, the longer term periodicities gradually shift the orbit so that no particular pattern of approximate repetition can last more than a few years. This results in so called "occultation seasons", lasting for some years, during which particular stars are repeatedly occulted, or repeatedly not occulted.

The Moon can occult four first magnitude stars, namely Aldebaran, Spica, Antares and Regulus. During recent years, there have been no occultations of any of these stars. However, a brief occultation season of Regulus begins in 2007, during which the star is occulted twice (30 March and 07 October) – this particular occultation season does not persist beyond 2007.

Date	UT	D R	Lunar Phase	Sun Alt (deg)	Star Alt (deg)	Mag	Star
26 Jan	21:58:54	D	0.60+	-48	40	4.6	48 Ari, epsilon Ari
	23:04:10	R		-54	30		
04 Feb	02:44:37	D	0.97-	-43	45	3.8	47 Leo, rho Leo
	03:56:15	R		-33	38		
20 Feb	19:07:26	D	0.13+	-18	21	4.4	63 Psc, delta Psc
	20:02:46	R		-26	12		
23 Feb	22:55:45	D	0.45+	-45	24	4.3	19 Tau, Taygeta, q Tau
	23:52:23	R		-48	15		
23 Feb	23:13:33	D	0.45+	-46	21	3.9	20 Tau, Maia
24 Feb	00:01:21	R		-48	14		
26 Feb	02:15:09	D	0.68+	-40	15	4.6	136 Tau
	02:33:27	R		-38	12		
30 Mar	03:28:38	D	0.89+	-19	10	1.4	32 Leo, alpha Leo, Regulus
26 Apr	21:47:20	D	0.75+	-19	43	3.8	47 Leo, rho Leo
	22:56:27	R		-23	36		
20 May	21:05:41	D	0.21+	-9	25	3.6	77 Gem, kappa Gem
	21:59:10	R		-14	17		
07 Jun	02:53:26	D	0.65-	-6	19	4.3	33 Aqr, iota Aqr
01 Jul	02:10:04	D	1.00-	-10	7	3.3	40 Sgr, tau Sgr
07 Aug	00:05:22	D	0.37-	-21	14	3.7	17 Tau, Electra
	00:47:14	R		-21	20		
07 Aug	00:22:30	D	0.37-	-21	16	4.3	19 Tau, Taygeta, q Tau
	01:07:32	R		-20	23		
07 Aug	00:27:58	D	0.37-	-21	17	3.9	20 Tau, Maia
	01:22:03	R		-19	25		
09 Aug	01:44:35	D	0.16-	-18	14	4.6	136 Tau
	02:37:57	R		-14	21		
24 Aug	19:38:19	R	0.85+	-6	9	3.3	40 Sgr, tau Sgr
26 Aug	20:47:28	D	0.97+	-16	14	4.8	22 Cap, eta Cap, Chow
28 Aug	21:42:12	D	1.00-	-22	21	3.7	73 Aqr, lambda Aqr
	22:46:37	R		-27	27		
07 Sep	04:01:24	D	0.18-	-12	32	3.6	77 Gem, kappa Gem
07 Oct	05:24:16	D	0.14-	-7	31	1.4	32 Leo, alpha Leo, Regulus
	05:51:39	R		-3	35		
22 Oct	18:40:14	D	0.84+	-18	25	3.7	73 Aqr, lambda Aqr
	19:48:31	R		-28	29		
27 Oct	22:56:13	D	0.95-	-50	51	3.7	17 Tau, Electra
	23:05:28	R		-50	53		
27 Oct	23:05:18	D	0.95-	-50	53	3.9	20 Tau, Maia
28 Oct	00:06:25	R		-51	59		
23 Nov	16:47:08	D	0.99+	-8	17	4.6	48 Ari, epsilon Ari
21 Dec	21:24:06	D	0.93+	-50	62	4.3	19 Tau, Taygeta, q Tau
21 Dec	21:52:12	D	0.93+	-53	62	3.9	20 Tau, Maia
	22:30:13	R		-57	61		

Table 1. Occultations of stars brighter than magnitude 5.0.

An occultation season of the Pleiades began on 04 December 2006, and continues through to mid-2009. During 2007, the Moon occults the Pleiades four times.

NIGHTS WITH MANY OCCULTATION EVENTS

During the year, the Moon traverses some rich star fields. When this happens, a large number of occultations can occur during a single evening. Table 2 lists all evenings throughout the year when the Moon occults 12 or more stars. The precise number of occultations which an observer will record during any of the evenings listed in table 2 will depend in large part on their skill and observing conditions.

Date	No. occs.	Date	No. occs.	Date	No. occs.
23 Jan	16	20 Feb	16	21 Feb	18
23 Feb	35	25 Feb	12	03 Mar	18
22 Mar	21	24 Mar	14	19 Apr	15
20 Apr	16	21 Apr	86 (!!)	22 Apr	13
18 May	12	19 May	32	14 Dec	18

Table 2. Evenings with 12 or more occultations.

Nights with very large numbers of occultations are associated with the Moon's passage through rich star fields as follows: 23 Feb – Pleiades; 21 Apr and 19 May - Milky Way in East Gemini.

PLANETARY OCCULTATIONS

There are two planetary occultations of Saturn and one of Venus during 2007. Table 3 provides the details.

Date	UT	D R	Lunar Phase	Sun Alt (deg)	Planet Alt (deg)	Mag	Planet
02 Mar	02:38:56	D	0.97+	-36	32	0.0	Saturn
	02:58:49	R		-33	29		
22 May	19:10:13	D	0.39+	5	48	0.5	Saturn
	20:18:07	R		-4	40		
18 Jun	14:03:03	D	0.15+	53	54	-4.4	Venus
	15:23:48	R		41	57		

Table 3. Planetary occultations.

The columns of table 3 have the same interpretation as the corresponding columns of table 1, with the obvious difference that the data refers to a planet rather than a star. The first occultation of Saturn occurs at nighttime, while the second begins with the Sun above the horizon and ends with the Sun below the horizon. The occultation of Venus is a daytime event, and is therefore rather challenging.

Members of OASI have reported observations of lunar occultations of Saturn on 02 Mar 1974, 03 Nov 2001 and 16 Apr 2002 and of Venus on 21 May 2004. The observers reported their observations as both challenging and interesting: the planetary occultations during 2007 should be likewise!

Note that the BAA Handbook for 2007 lists, in addition to the above, two lunar occultations of Uranus during 2007, on 18 February and 12 May. However, for the first the planet is at an altitude less than 2°, while the second is in fact a daytime close approach, with the Moon's limb passing within 6% of a lunar radii of the planet with the Sun at an altitude of 19°.

GRAZING OCCULTATIONS

The tracks of three grazing occultations pass through East Anglia during 2007. Table 4 summarises the circumstances approximately at the instant of closest approach of the graze tracks to Orwell Park Observatory.

Date	UT	Lunar Phase	Sun Alt (deg)	Star Alt (deg)	Star Az (deg)	L	Mag	Star
02 Oct	01:44	0.65-	-35	50	110	N	6.3	ZC 797
01 Nov	02:06	0.58-	-42	43	109	S	6.0	9 Cnc
30 Dec	03:17	0.61-	-42	33	149	S	4.3	Ups Leo

Table 4. Grazing occultation.

The first and second columns of table 3 give the date of the graze and the approximate time of closest approach to Orwell Park. Column three gives the lunar phase ('+' for waxing and '-' for waning), while column four gives the altitude of the Sun (below the horizon). Columns five and six give the position of the star. Column seven specifies the lunar limb which grazes the star, while the final two columns detail the star and its visual magnitude.

The graze tracks over East Anglia are as follows:

ZC797, 02 Oct: White Colne, Nayland, Hintlesham, Claydon, Otley Botton, Rendham, Kelsale, Westleton and out to sea at Walberswick.

9 Cnc, 01 Nov: Chevington (SW of Bury St Edmunds), Elmswell, Worlingworth, S of Heveningham, S of Bramfield and out to sea at Walberswick.

Ups Leo, 30 Dec: Chevington (SW of Bury St Edmunds), Lavenham, Layham (S of Hadleigh), Brantham, Great Oakley and out to sea at the Naze.

Figure 1 illustrates the graze tracks over East Anglia.

I will calculate and print more detailed maps if there is interest from members of OASI in mounting graze observing expeditions.

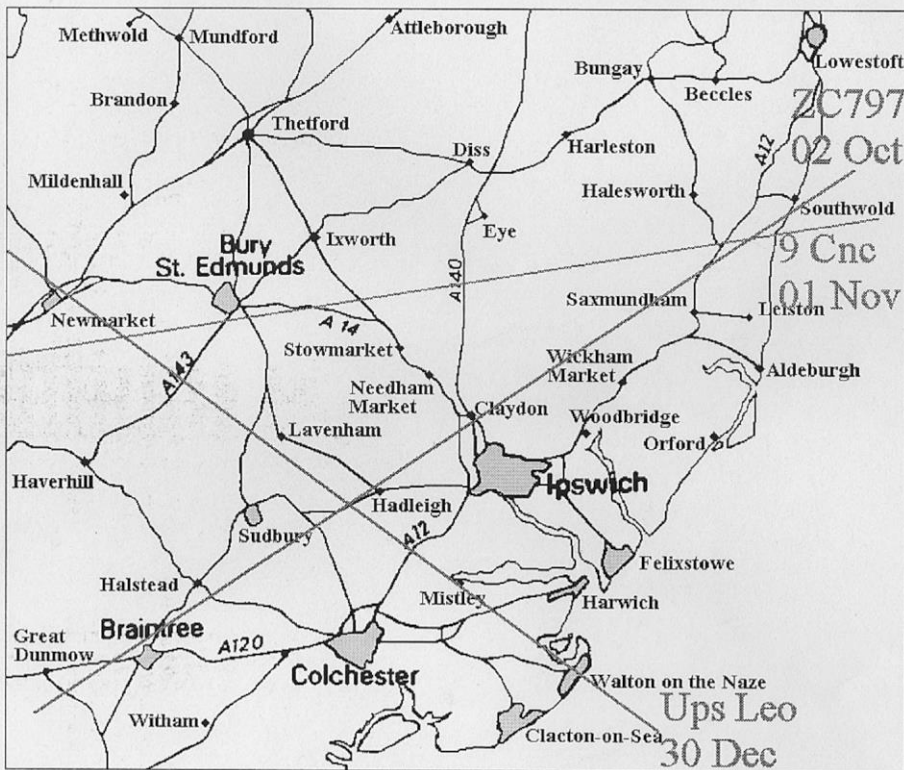


Figure 1. Graze tracks for 2007.

James Appleton

27 Nov 2006

THE OASI AGM

A note from the Chairman

As members will be aware, the 2007 Annual General Meeting will take place on **Saturday 13th January from 8pm** at the Methodist Halls, Blackhorse Lane, Ipswich. A small but greatly appreciated portion of our membership always seems to attend, but it would be nice to see some fresh faces in the audience and, remember, if you have a point to make or something to air – **THIS IS YOUR BEST SHOT!** That despite trying to get the ‘Tomlines’ column going in this newsletter – the next contribution to that column will be the first, but one lives in hope?

Please don’t worry about an overly long and boring speech from the Chair – given that I’ve been unable to make much of a contribution to the society this year past – then for sure I can’t have much to say...

And that brings me neatly to the point... As ever, all Officer and Committee posts are up for election and existing office holders perfectly appreciate that others may wish to have a go at the reigns – albeit all our current incumbents are standing again, sadly, with the exception of our Treasurer who’s dramatically increased domestic responsibilities make it imperative for him to stand down. Well, that’s at least the position for the remainder of the committee as I write this on the last day of November! We are fortunate to have such a dedicated Committee – many of whom have given long and valuable service to OASI, however, **FRESH BLOOD WITH FRESH IDEAS IS MUCH TO BE WELCOMED AND ENCOURAGED.**

The Chair is also a democratically elected post and, although I’m happy to stand again and would be honoured to do so, it will not insult or embarrass or peeve me in any way whatsoever if somebody fitter and undoubtedly more able cares to stick their head above the parapet and stand for the office? The good of the society **MUST** be the overriding consideration.

Here’s to a good turnout and a constructive meeting – and a pint next door if there’s time afterwards...!

Kenneth J. Goward FRAS
Chairman

Telescope for Sale

If you interested Please contact Mrs Tunbridge

From: M TUNBRIDGE [mailto:]

Sent: 26 November 2006 14:17

To: ipswich@ast.cam.ac.uk

Subject: Telescope for Sale

Europa 250mm F4.8 Newtonian

Europa accessory pack

Gem drive system

These items were bought in March 2000, from Orion Optics, unfortunately my husband became ill and did not use the telescope very much at all, he died in February 2003. Of all his interests he loved astronomy the best, having been a navigation officer in the merchant navy in his younger days.

We did visit your observatory at one time.

The time has come to think of selling., I am looking for a fair offer, I have the original invoice, (I realise what he paid, £1,000 including VAT, and the second hand value will be a lot different) there are some eye pieces, I do not know whether they came with the telescope or whether my husband bought them separately. They are in boxes and I could give more details if required. I will have to trust to the buyers honesty, as I do know how much to ask and what these items are worth.

I should be glad of any help in this matter.

Thanking you

M. Tunbridge (Mrs)

More Astronomy Workshops!

A few more workshop details for you. I did have one arranged in March as well but the presenter is now unable to do it this time so if anyone has a burning desire to run a workshop there is a slot free in March! Please contact me if you do.

I write this a couple of days before the quiz night in December but unfortunately the printing deadline for the January newsletter is the same day as the quiz so I am unable to report on how it went and who won.

January's workshop is a hands-on one. Members can get their hands on the 19 inch Dobsonian 'Millennium Telescope' for the first time. It has recently had its bearings tweaked by Martin and I'm told is now moving very smoothly. Let us hope for a clear night so we can observe from the back of the village hall. If not we'll be playing with it inside.

The workshops will run on (usually) the first Wednesday of the month, starting at 7:45pm.

**Venue: NACTON VILLAGE HALL
(next to the small village school).**


3 rd January 07	Second Light of the OASI Millennium Telescope Weather permitting we plan to set up the 19 inch Millennium Telescope outside the back of Nacton Village Hall, for members to see whether size matters! If it's cloudy we'll set up inside the hall and just talk about it.	Neil Morley and the Millennium Telescope Construction Team
14 th February 07 (Note – this is the exception – 2 nd Wednesday not 1 st Wednesday)	Using the ETX and other telescopes This talk will be interactive and will include some advice for absolute beginners for are thinking of buying a telescope - which you will be free to disregard as you see fit!	Gerry Pilling and supporting cast of – well, whoever turns up.
7 th March 07	Vacancy – any offers?	
4 th April 07	Discovering RA and Dec The whys and wherefores of Right Ascension and Declination, which we use to give the position of astronomical objects	Paddy O'Sullivan

Mike Whybray [redacted] (Mobile) [redacted] (Home)

OASI Committee Contacts & Responsibilities

Kenneth J. Goward FRAS	Chairman	☎		Press & Publicity with Secretary.
Roy Gooding	Secretary	☎		MAIN POINT OF SOCIETY CONTACT Press Publicity with 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	☎		Tomline Refractor Tutoring. Social Activities.
Eric Sims	Committee	☎		Newsletter.
Mike Whybray	Committee	☎		Librarian & Workshops.
Paul Whiting FRAS	Committee	☎		Visits by outside groups.
Bill Barton FRAS	Committee	☎		Safety & Security.
Peter Richards	Co-opted	☎		Lecture Meetings. School Lighting liaison. Email Distribution Lists.

Diary for January

<p>SATURDAY 13TH 8pm NB Seconded nominations for Officer or Committee post Elections must be sent to The Secretary, Roy Gooding without delay.</p>	<p>ANNUAL GENERAL MEETING At the Methodist Halls Blackhorse Lane Ipswich ☎ Ken Goward</p>
<p>Saturday 20th 9.30am TO 5pm</p>  <p>An OASI 40th Anniversary Event</p>	<p>BAA & OASI BACK TO BASICS WORKSHOP At the Methodist Halls, Blackhorse Lane, Ipswich Admission to OASI members £2.50 by prior booking form included with the December newsletter ☎ Ken Goward</p>
<p>Monday 15th and 21st From 8pm</p>	<p>SMALL TELESCOPES OBSERVING NIGHTS (STONS) Targets: Taurus and Orion ☎ Paddy O'Sullivan</p>
<p>Wednesday 3rd 7.45pm Nacton Village Hall</p>	<p>ASTRONOMY WORKSHOP 'Second Light of the Millennium Telescope' A chance for members to use the new OASI 19" Dobsonian behind the village Hall – weather permitting – or to examine and talk about it inside if the weather doesn't permit! ☎ Mike Whybray</p>
<p>Wednesday 3rd 10th 17th 24th & 31st from 8pm</p>	<p>OBSERVATORY CLUB NIGHTS ☎ Martin Cook (mobile) ☎ Roy Gooding (mobile)</p>
<p>Thursday 25th 7.45pm</p>	<p>VISIT BY OUTSIDE GROUP 32nd Ipswich Cubs ☎ Paul Whiting FRAS</p>

Society Primary Contacts

Chairman: Kenneth J. Goward FRAS ☎ (daytime & evenings)
 Secretary: Roy Gooding ☎ (daytime) (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

A Happy clear skies New Year to you all!