



# The Newsletter



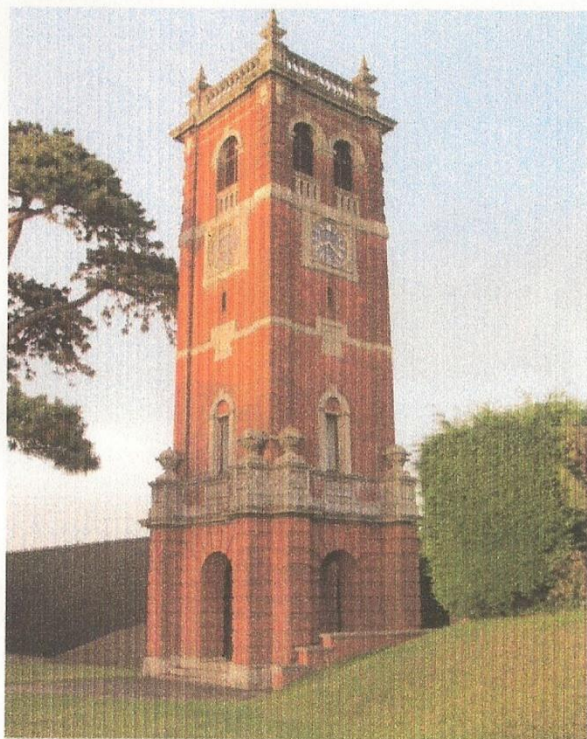
## of the Orwell Astronomical Society (Ipswich)

Registered charity No 271313

[www.oasi.org.uk](http://www.oasi.org.uk)

2010 JANUARY

No 448



THE CLOCK TOWER BY THE  
OBSERVATORY  
AT ORWELL PARK SCHOOL

# Society News (Roy Gooding)

## 1 2010 AGM Meeting Saturday 16<sup>th</sup> January

All members are invited to attend the 2010 AGM. The venue is at the Methodist Church Halls, in Blackhorse Lane. The meeting will start at 20:00.

## 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

Andrew Willshere

## 4 Events for 2010

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

Meeting	Venue	Date
AGM	Methodist Church Halls, in Blackhorse Lane	Saturday 16 <sup>th</sup> January 20:00
Astro Fest	Kensington Conference & Events Centre London	6 <sup>th</sup> & 7 <sup>th</sup> February
Lecture Dr. Alan Chapman	Methodist Church Halls, in Blackhorse Lane	Friday 23 <sup>rd</sup> April 20:00
Summer Barbecue		TBA

## 5 Public Out Reach Observing Events for 2010

A lasting legacy of IYA 2009 are these new public out reach meetings. These are now becoming popular with members as an alternative way to take astronomy to the public.

Meeting	Venue	Date	1 <sup>st</sup> Quarter date
Astronomy in the Park "Star Party" 1 <sup>st</sup> option	Christchurch Park On top of the hill	Saturday 23 <sup>rd</sup> January	23 <sup>rd</sup> January
Astronomy in the Park "Star Party" 1 <sup>st</sup> roll over date	Christchurch Park On top of the hill	Saturday 20 <sup>th</sup> February	22 <sup>h</sup> February
Astronomy in the Park "Star Party" 2 <sup>nd</sup> roll over date	Christchurch Park On top of the hill	Saturday 27 <sup>h</sup> February	22 <sup>h</sup> February
Orwell Country Park "Star Party" Astronomy Evening	Orwell Country Park	Saturday 20 <sup>th</sup> March 19:00	23 <sup>rd</sup> March
Astronomy in the Park "Observing the sun"	Christchurch Park Reg Driver Centre	No date set yet	

### Orwell County Park "Star Party" 23rd March

Set up time	TBA
Event Open	19:00
Event Close	TBA

This will be at the Orwell County Park and is a repeat of the successful meeting we held there last spring. This is being co-ordinated by Paul Whiting.

Moon transits the meridian	15:40
Saturn rises	18:08
Sun sets	18:18
Venus sets	19:47
Mars transits the meridian	20:27

If you are able to help, especially if you can bring along a telescope please contact Paul

## Astronomy in the Park “Star Party” 23rd January

Set up time	18:15
Event Open	19:00
Event Close	21:00

If the 23<sup>rd</sup> is clouded out the event will roll over to the next date. The event will be marshalled by the Park Rangers and will be by invitation only. The Park staff will also be looking after the visitor arrangements. We have mentioned that we could easily accommodate 100 visitors.

Moon rises	10:16
Mars rises	16:52
Jupiter sets	19:08
Sun sets	16:36
1 <sup>st</sup> Quarter	23 <sup>rd</sup>

<b>What entrance should we use</b>	<b>Bolton Lane</b>
<b>Set up time.</b>	<b>The park ranges will be at the entrance</b> <b>If you have a telescope you would like to bring along, please arrive at about 18:15. This will give about 45 minutes to set up.</b>  <b>If you would like to come long and help, please do so. It may useful to have your member ship card to show the Park Rangers. The park gates will be closed at 19:30 and will not be re-opened until the end</b>
<b>Observing Location</b>	<b>On the hill</b>
<b>Car parking arrangements</b>	<b>Members with telescopes will be able to park on the Park Track under the trees at the top of the hill</b> <b>Members who are helpers may be able to use the car park opposite the Reg. Drive Visitors Centre</b>  <b>Please follow the directions of the Park Rangers</b>
<b>Who are the visitors?</b>	<b>The visitors will be predominately from the fiends of Christchurch Park with a few more from the general public to make up numbers.</b>
<b>Start time</b>	<b>19:00</b>
<b>End time</b>	<b>21:00 May be earlier if visitors have all left</b>

### Event Cancellation

I will contact Sam Pollard in the afternoon to determine if the weather is suitable to run the event. If it is cancelled the answer phone in the visitors centre will have a message saying so. (Tel. 252435). Alternatively you can call me (██████). There will also be a notice at the park Bolton Lane entrance.

If you are able to help, please contact Roy Gooding for this event

# Night Sky (January)

All times GMT

## Moon

<b>3<sup>rd</sup> Quarter</b>	<b>New Moon</b>	<b>1<sup>st</sup> Quarter</b>	<b>Full Moon</b>
7 <sup>th</sup>	15 <sup>th</sup>	23 <sup>rd</sup>	30 <sup>th</sup>

Object	Date	Times		Mag.	Notes
		Rise	Set		
Sun	1	08:13	16:03		
	31	07:46	16:50		
Mercury	1	08:30	16:48	0.5	Mercury will be at greatest western elongation on the 27 <sup>th</sup> .
	31	06:36	14:36	-0.1	
Venus	1	08:09	15:46		Venus is too close to the sun this month to be seen
	31	08:08	17:10		
Mars	1	19:01	10:38	-0.8	Mars is at opposition on the 29 <sup>th</sup> . It is well placed to observe all night
	31	16:01	08:26	-1.28	
Jupiter	1	10:25	20:07		Jupiter is low down in the western sky this month
	31	08:39	18:48	-2.1	
Saturn	1	23:34	11:46		Saturn has now moved into Virgo. The rings system is now starting to open again
	31	21:34	09:49	0.8	
Uranus	1	11:03	22:41		Uranus is still visible in the early evening sky this month.
	31	09:14	20:49	5.9	
Neptune	1	10:18	19:58		Neptune is now low down in the western sky.
	31	08:22	18:06	8.0	

## Meteor Showers

Shower	Maximum	Limits	ZHR
Quadrantids	3 <sup>rd</sup> January 18:00	1 <sup>st</sup> to 6 <sup>th</sup> January	100?

Source BAA Handbook

## Small Telescope Observing Nights (STONs) at the observatory

These are held (usually on the first and third monday of the month) on the Belvedere level at the observatory using the society's smaller telescopes. These consist of a 10" Dobsonian reflector a 6" Fullerscope reflector. And a Meade ETX 125EC computer controlled Maksutov-Cassegrain. We also have two pairs of large binoculars.

The idea is that anybody from beginner level upward, can learn to use telescopes, compare and appreciate the strengths of the various types and obtain confidence in finding some of the dimmer night sky objects. This is an ideal point to start before buying your own telescope, as it may change your views as to what you think you want!

People attending will get more out of these evenings if the objects are at least cursorily studied before attending.

Gerry Pilling, Paddy O'Sullivan and Dave Robinson run the evenings and they regard themselves as non-experts, although they have a reasonable amount of experience of using the telescopes. Don't be afraid to come just because you don't know very much. Everybody has to start at sometime and if you know nothing, you can only get better.

Gerry Pilling

FOR SALE – IDEAL FOR BEGINNER

## MEADE TELESCOPE

### 114mm (4.5") Equatorial Reflecting Telescope.

- \* Optical tube assembly with precision ground and polished primary mirror.
- \* Equatorial mount with control knobs on both axes.
- \* All aluminium adjustable field tripod
- \* 5x 24mm viewfinder
- \* WA9mm and MA25mm eyepieces (1.25mm"), 2 x Barlow lens
- \* Recommended for sky viewing - ideal for viewing the planets

Open to offers

Contact Anne and Dennis Kell [REDACTED] or e-mail [REDACTED]

6

## Chairman's Chat

Christmas is but a few weeks away and I have a few words to share with you. Firstly, a very big thankyou to everyone who supported the International Year of Astronomy activities particularly the marathon week during October. Judging , by the feedback I received at the events, they were well received and appreciated by those who attended. Also, a big thankyou to James, Martin and others who helped upgrade the Tomline telescope drive.

I hope to see you at the Christmas meal on 16<sup>th</sup> December and if I am asked to say anything, will definitely keep it short and sweet. Hopefully I will be on my best behaviour!

Looking ahead to next year, I am delighted to welcome back Dr Allan Chapman on St Georges Day for our next Presidential lecture on April 23<sup>rd</sup> 2010. This will take place at the Methodist Church, Black Horse Lane with a provisional start time of 8pm. Please keep the date free if you can. With the International Year of Astronomy fresh in our minds, Dr Allan's talk will feature Thomas Harriot, Galileo and other early telescopic astronomers. For those who haven't heard of Thomas Harriot, he was a relatively unknown English astronomer who beat Galileo by six weeks with the first recorded observations of the Moon using a telescope. Come along to find out more. I know this will be a memorable evening with many unusual and amusing anecdotes! I expect there will be a small charge to cover the costs, and details will appear in the next issues of the journal.

If you have any items you would like to raise, or any comments or suggestions about the running of the Society ahead of the AGM on January 20<sup>th</sup>, please get in touch with me or any other Committee member. The venue is the Methodist Church Hall, Black Horse Lane.

A very happy Christmas and prosperous New Year to you all!

Words by Neil Morley.

# An Evening with Charlie Duke

Paul Whiting

After around 10 years of being a Science & Engineering Ambassador (now called Science, Technology, Engineering and Mathematics – STEM), by way of a thank you, I was invited, along with 200 others, to an evening with the 10<sup>th</sup> man to walk on the Moon – Charles Duke Jr. However, Apollo 16 wasn't the first involvement Charlie had had with the Apollo programme. Neil Armstrong had personally requested that Charlie acts as CapCom (Capsule Communicator – or the guy who talks to the astronauts) for the Apollo 11 mission, as he was impressed with Duke's performance as CapCom for Apollo 10. So it was Charlie's voice we hear talking to Neil Armstrong during that momentous moment in 1969. After Apollo 11 Duke was part of the Apollo 13 backup crew, but he caught measles and, because he may have infected Ken Mattingly, he caused the latter to swap with Jack Swigert. This is well documented in the film Apollo 13. Finally he made it to the Moon on Apollo 16 on April 21<sup>st</sup> 1972. Even then it was touch and go whether they actually landed – it took two extra circuits of the Moon before an engine fault was cleared for them finally to land. Once down they had 72 hours to collect samples and to drive their buggy around their landing site and to explore further afield. Their time was divided in to 3 x 24 hour periods. Nine or ten hours outside, back inside to eat, clean the dust (which got everywhere), prepare their suits for the next day and sleep. Not that they could do much of that!

Apparently the lunar landscape where they landed in the Descartes Uplands (21000 feet higher than Tranquility Base) was various shades of grey with the occasional white or black rock to break the monotony. The terrain was very bumpy – they even had to wear their seat belts on the buggy. On the Moon Charlie kept falling over, usually accidentally, but as it was Olympic year (1972) they wanted to set world (lunar?) records for high jump and long jump. This nearly ended in disaster as Charlie nearly fell on his fragile backpack, but was able to roll over to his side. Houston ordered them to stop not surprisingly.

Charlie recounted the boredom of the journeys there and back. The food was mostly dehydrated but tasted reasonably good – except for the dried banana pudding! Sleeping in weightless conditions took a while to get used to, for example your head doesn't 'nod' in zero gravity and your arms float everywhere. However there is more room in the Command Module to sleep – Young slept up



the tunnel to the Lunar Module, Mattingly slept by the controls and Charlie slept under the seats!

The evening went all too quickly. Charlie spoke well, with obvious passion and above all with an excellent sense of humour. He recounted how there were only 9 of the original moon walkers left, all over 70, but currently all in good health. He said that so many things had changed over 3 generations. His father was born just after the Wright brothers flew, he landed on the Moon and his then 5 year old son thought that everyone's dad went to the Moon – they lived next to or near to most of the other moon walkers !!

Thanks went to Andy Green for organising Charlie's visit, STEMnet for paying and the University of Leicester Physics & Astronomy Department and Leicester Space Centre for hosting the day.

Finally – what does the Moon smell like? Answer – gunpowder !

**Apollo 16 Crew: Mattingly - Young - Duke**



# LUNAR OCCULTATIONS DURING 2010

2010 promises to be a good year for observers of lunar occultations! During the year, there are almost 600 total lunar occultations which are potentially observable from East Anglia, although many involve faint stars, and a grazing occultation is also visible. However, there are no good planetary occultations visible from the region during 2010.

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 suite of computer software to undertake the search. 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 locations 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*, 2<sup>nd</sup> 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 to predicted event times.)

## BRIGHT OCCULTATIONS

There are 14 occultations during the year of stars down to magnitude 5.0 where circumstances of the event are favourable. All of the 14 occultations should be readily visible in binoculars or small telescopes. Table 1 lists the details.

Date	UT	D / R	Lunar Phase	Sun Alt (deg)	Star Alt (deg)	Mag	Star
28 Jan	18:46:39	D	0.97+	-20	36	3.5	delta Gem
	19:48:34	R		-30	45		
31 Jan	04:28:53	D	0.99-	-29	30	3.5	omicron Leo
	05:26:37	R		-20	21		
20 Feb	23:00:41	D	0.38+	-46	15	4.6	epsilon Ari
	23:39:34	R		-48	10		
27 Feb	23:08:22	D	0.99+	-44	46	4.7	29 Leo
27 Mar	01:59:20	D	0.87+	-30	20	3.5	omicron Leo
	02:41:12	R		-26	14		
29 Mar	02:20:02	D	0.98+	-27	21	4.8	87 Leo
28 May	01:29:13	D	1.00-	-14	10	2.9	sigma Sco
18 Oct	23:00:18	D	0.85+	-47	27	5.0	kappa Aqr
20 Oct	02:33:45	D	0.91+	-35	9	4.9	8 Psc
28 Oct	05:13:44	D	0.75-	-14	57	2.9	mu Gem
	06:00:23	R		-7	52		
16 Nov	19:49:37	D	0.78+	-35	42	4.9	19 Psc
21 Nov	04:58:27	D	1.00+	-22	18	4.9	eta Ari
13 Dec	17:06:48	D	0.51+	-12	38	4.9	kappa Psc
	18:16:40	R		-22	39		
21 Dec	17:22:56	D	1.00-	-14	10	2.9	mu Gem
	18:13:36	R		-21	17		

**Table 1. Occultations of stars of magnitude 5.0 or brighter.**

The first two columns of table 1 list 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 ('+' 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).

## 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.

During 2010, there are no repeated occultations of prominent stars.

## 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 more than 10 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 his or her skill and the sky conditions.

The evenings listed in table 2 are all associated with the passage of the Moon through the rich star fields of Taurus, close to the Pleiades.

Date	No. occs.	Date	No. occs.	Date	No. occs.
18 Jan	15	17 Feb	14	19 Feb	19
21 Feb	23	20 Mar	19	22 Mar	13
17 Apr	19				

**Table 2. Evenings with more than 10 occultations.**

## PLANETARY OCCULTATIONS

There are no good planetary occultations visible from East Anglia until 2012.

## GRAZING OCCULTATIONS

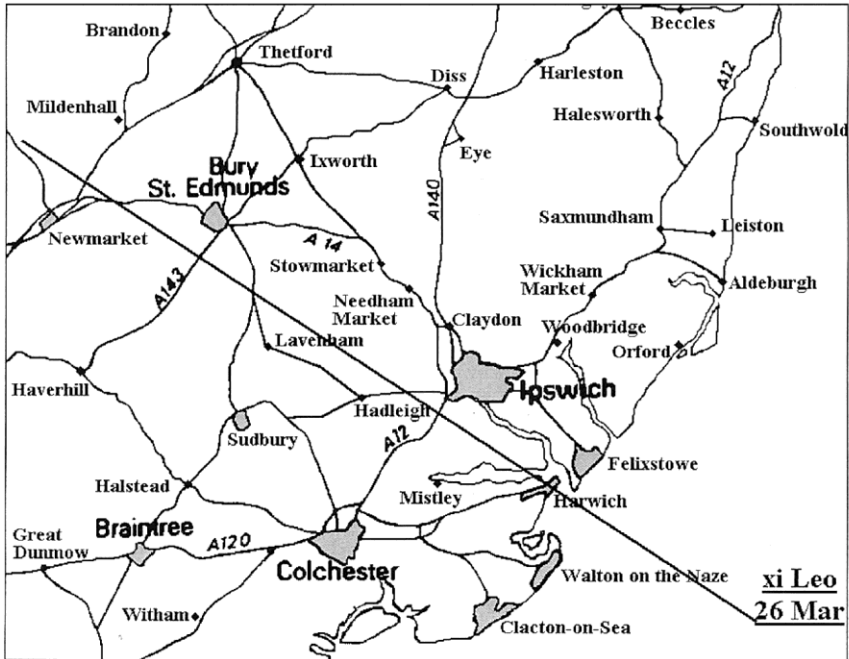
The track of one grazing occultation crosses East Anglia during 2010. Table 3 summarises the circumstances and figure 1 shows the graze track.

Date (2010)	Time (UT)	Lunar Phase	Sun Alt (deg)	Star Alt (deg)	Star Azi (deg)	Limb	Mag	Star
26 Mar	21:12	0.86+	-25	49	180	N	5.0	Xi Leo, 5 Leo

**Table 3. Graze of xi Leonis, 26 March 210.**

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 track passes 7 km S of the centre of Bury St Edmunds, 4 km N of Lavenham, 2 km N of Hadleigh, through the centre of Alton Water and out to sea at Harwich. I will print a detailed map of the graze track nearer the date of the event - please contact me if you are interested in observing it.



**Figure 1. Graze track of xi Leonis, 26 March 2010.**

James Appleton

## OCCULTATIONS DURING JANUARY

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
23 Jan	21:15:06	D	0.54+	-43	40	7.4	AD Ari
24 Jan	20:05:13	D	0.64+	-33	57	7.2	ZC 461
26 Jan	02:24:05	D	0.76+	-47	15	7.2	ZC 649
26 Jan	02:43:51	D	0.77+	-45	12	6.3	62 Tau
27 Jan	03:30:23	D	0.86+	-38	15	5.5	118 Tau
28 Jan	18:46:39	D	0.97+	-20	36	3.5	delta Gem
	19:48:34	R		-30	45		
28 Jan	22:26:57	D	0.97+	-51	59	5.2	63 Gem
31 Jan	04:28:53	D	0.99-	-29	30	3.5	omi Leo
	05:26:37	R		-20	21		

James Appleton

# OASI Committee Contacts & Responsibilities

Neil Morley	Chairman	☎		
Roy Gooding	Secretary	☎		<b>MAIN POINT OF SOCIETY CONTACT</b> Press Publicity with Chairman. Observatory Decoration. Visits by potential new members.
Paul Whiting FRAS	Treasurer	☎		<b>Finance.</b> Supervision of Grant Applications. Visits by outside groups. <b>IYA 2009 Coordinator</b>
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	☎		Librarian & Workshops.
Bill Barton FRAS	Committee	☎		Safety & Security.
John Wainwright	Committee	☎		Forward planning & Strategy Equipment Curator

## DIARY for JANUARY

<b>Monday</b> 4 <sup>th</sup> - 18 <sup>th</sup> From 8pm	<b><u>SMALL TELESCOPES OBSERVING NIGHTS AT THE OBSERVATORY</u></b> Main observational targets: Perseus, Taurus, Mars Objects: Algol, Eta Persei, M34, M76, M1, M45. ☎ Paddy O'Sullivan [REDACTED] ☎ Gerry Pilling [REDACTED]
<b>Wednesdays</b> From 8PM	<b><u>MAIN OBSERVATORY CLUB NIGHTS</u></b> Primary Observational targets: Nebulae and faint objects. ☎ Martin Cook [REDACTED] (mobile) [REDACTED] ☎ Roy Gooding [REDACTED] (mobile) [REDACTED]
<b>Wednesday</b>  <b>At the time of going to print nothing has been arranged for this month.</b>	<b><u>OASI WORKSHOP</u></b>  Nacton village Hall ☎ Mike Whybray [REDACTED]
<b>Thursday</b>  7 <sup>th</sup> 8pm 14 <sup>th</sup> 21 <sup>st</sup> 28 <sup>th</sup>	<b><u>OBSERVATORY VISITS BY LOCAL COMMUNITY GROUP</u></b>  Taster evening AJS & Matchless Owners Club Suffolk Industrial Archaeology Society Kesgrave High School Space Club  ☎ Paul Whiting FRAS [REDACTED]
<b>Saturday 16th</b> <b>January @ 8pm</b>	<b><u>ANNUAL GENERAL MEETING</u></b> <b>Methodist Church Hall</b> <b>Blackhorse Lane Ipswich</b>

### STAR PARTY

Astronomy in the Park (Christchurch Park on top of the hill)

1st Option Saturday 23<sup>rd</sup> January 18.00

More Options next month. Best contact R Gooding

### Society Primary Contacts

Chairman: Neil Morley ☎ [REDACTED]

Secretary: Roy Gooding ☎ [REDACTED] (daytime) [REDACTED] (evenings)

E-Mail queries: [ipswich@ast.cam.ac.uk](mailto: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]