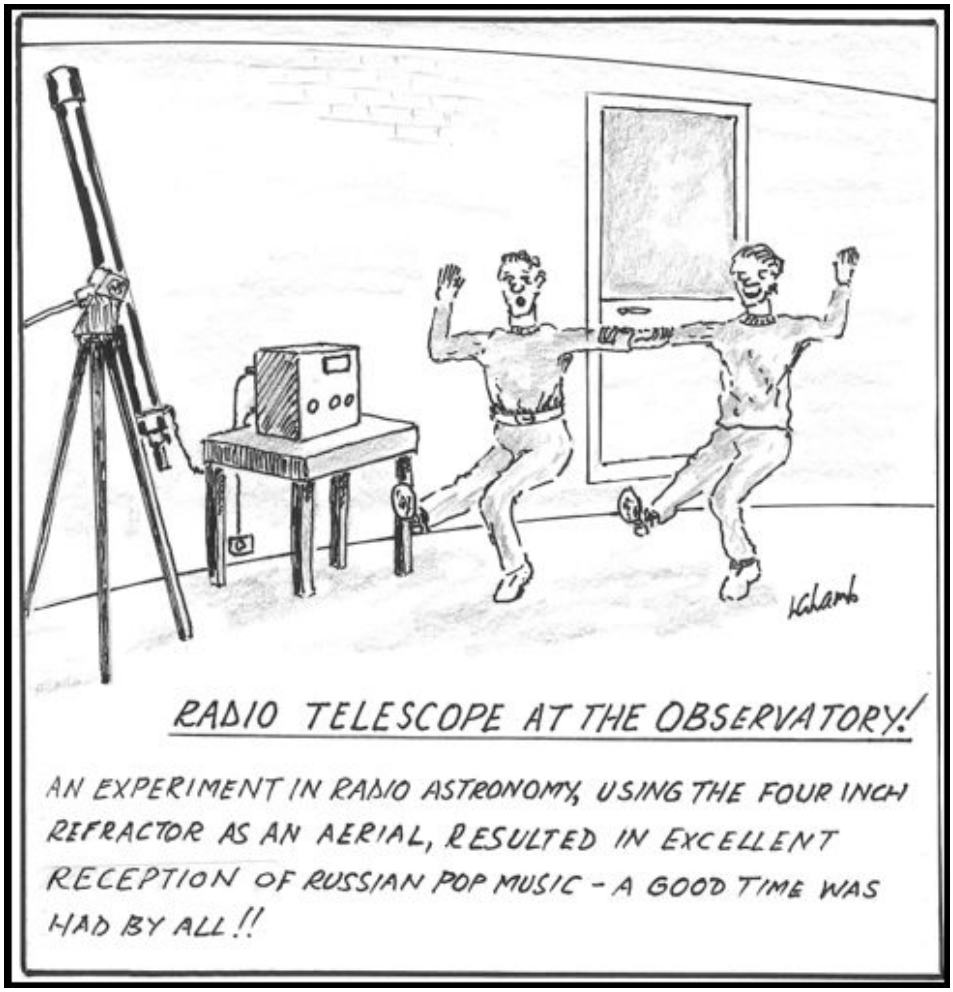
The Newsletter



OASI Committee Contacts and Responsibilities

Neil Morley	Chairman		Chair committee meetings. Represent OASI to external bodies.
Roy Gooding	Secretary		Respond to enquiries. Press & publicity Outreach meetings Open days
Paul Whiting FRAS	Treasurer		Finance Visits from outside groups
James Appleton	Committee		Minutes of committee meetings. Web site.
Bill Barton FRAS	Committee		Safety & security
Martin Cook	Committee		Membership Tomline refractor maintenance
Tina Hammond	Committee		Librarian
Peter Richards	Committee		Lecture meetings Email distribution lists
Eric Sims	Committee		Newsletter
John Wainwright	Committee		Equipment curator
Mike Whybray	Committee		Workshops
Mike Norris	Committee		Newbourne Observing Group

Trustees

Mr Roy Adams

Mr David Brown

Mr David Payne

Honorary President

Dr Allan Chapman D.Phil MA FRAS

The OASI mailing list

OASI has an email distribution list which all which all OASI members can join to keep in touch. If you want to join the list please send an email to

The email needs to Include your name (as you gave It on your membership application). Including your name is essential so we can confirm you are an OASI member (particularly If you have a cryptic email username:-).

Please note that the "oasi-subscribe" address above is not the actual email list.

Society Notices

by Roy Gooding

Annual General Meeting – Saturday 18th January 2014

All members are invited to attend the AGM. Start time 20:00 Venue: Museum St Methodist Church Hall, Ipswich.

Nominations for officers and committee to Roy Gooding before the meeting, please.

Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds. The code for the gate is on the back of your membership card. If the black door entrance at the base of the observatory tower is locked, please phone the observatory mobile [redacted] during meeting hours.

The Newsletter

To receive the electronic version of the newsletter (which you can also print in A4 or A5 booklet format) you will have to be a member of the oasi yahoo group.

To subscribe to this group please email [redacted]

Please note that Eric is retiring as Newsletter Editor-in-Chief as of this issue.

See Page 9.

Welcome to New Members

Anna Bagert Lois Bulow-Osborne

New Discussion Forum

Thanks to Dave Merton and James Appleton, we now have a new web-based forum for general discussions and some initial specialist areas.

- OASI General
- Events
- Newbourne Observing Group
- Telescopes & Binoculars
- Imaging
- Night Sky
- For Sale / Wanted

OASI members can join this forum at http://forum.oasi.org.uk/index.php

The advantages of the new forum are:-

- It will be visible to everyone. You only have to be a member to post things, therefore good for PR. Hopefully outsiders will be able to see that we are an active club.
- You don't have to log in to view.
- Emails are not sent out to everyone every time someone posts something therefore less "junk mail" to those not interested.
- Topic history can be easily followed
- Previous posts can be easily seen.
- Discussions are filed under clear headings.
- You can filter things to put all current topics or new posts on one page.
- Forums are a lot more user friendly than user groups.

Society Events

Date and Time	Location	Contact	Event
Every Wednesday, 20:00	Orwell Park Observatory	Martin Cook, Roy Gooding	General observation (weather permitting) using a variety of telescopes.
Tuesday 03 December, 20:00	Orwell Park Observatory	Paul Whiting	Taster evening for people considering joining OASI.
Wednesday 4 Dec 20:00	White Horse, Church Rd, Felixstowe	Roy Gooding	Christmas meal 2013
Monday 09 December, 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	OASI Newbourne Observing Group. Bring your telescope to our dark-sky site. (Talks on astronomy if cloudy.)
Tuesday 10 December, 20:00	Orwell Park Observatory	Gerry Pilling, Paddy O'Sullivan	Small telescopes observing evening. Observing targets: Pegasus, Triangulum.
Wednesday 11 December, 19:30 for 19:45 start	Nacton Village Hall	David Murton and Mike O'Mahony	Astronomy Workshop Astrophotography with a Digital Camera
Saturday 14 December, time TBC	"The Dip", Felixstowe	Roy Gooding	Geminids Meteor Watch
Thursday 19 December, 19:00-late	Newbourne Village Hall	Mike Norris Mike O'Mahony	OASI Newbourne Observing Group. Bring your telescope to our dark-sky site. (Talks on astronomy if cloudy.)

2014

Tuesday 07 & Thursday 09 January	Christchurch Park See Page 5	Roy Gooding	**Public access events to mark BBC Stargazing Live 2014**
Saturday 18 Jan 8pm	Methodist Church Hall, Museum St Ipswich		**OASI Annual General Meeting**
Saturday 01 & Saturday 08 March	Christchurch Park See Page 5	Roy Gooding	**Public access events to mark** National Astronomy Week 2014
Friday 09 May, 20:00	Museum St Methodist Church hall	Pete Richards	**Lecture Meeting**. Prof Ralph Spencer: Black Swans - Black Holes in the Constellation Cygnus

For the latest event details, please see www.oasi.org.uk/Events/Events.shtml
For other astronomy news and astropictures try our
Twitter feed https://twitter.com/OASIpswich
Facebook page: http://www.facebook.com/Orwell-Astronomical/
and Discussion Forum at http://forum.oasi.org.uk/index.php

Outreach Meetings for 2014 in Christchurch Park

EVENT 1 : BBC Stargazing Evenings

I have received the confirmation from Alan Gilbert for this event

Option 1

Tuesday 7th January from 20:00 to 22:00

Two events planned. A lecture in the Reg Drive visitor centre and telescopes on the hill. If you would like to bring a telescope please arrive at about 19:30 to set up before the visitors arrive at 20:00. The Bolton Lane gate will be used for this event.

Option 2

Thursday 9th January from 20:00 to 22:00

Same arrangements as before with the exception that the lecture will be held irrespective of the weather.

EVENT 2 National Astronomy Week.

Option 1

Saturday 1st March

Times: 20:00 to 22:00

Venue: Top of the park hill

Members will arrive about 30 minutes earlier to set up equipment.

Entrance: Westerfield gate

Option 2

Saturday 8th March if the 1st option is cloudy

Times: 20:00 to 22:00

Venue: Top of the park hill

Members will arrive about 30 minutes earlier to set up equipment.

Entrance: Westerfield gate

EVENT 3 Astronomy in the Park

Our yearly event that gives the public a chance to observer the Sun safely

Option 1

Saturday 17th and Sunday 18th May

Time: 11:00 to 16:00

Set up time from 10:30

Venue: On the hill above the Reg Drive centre

Option 2

Saturday 24th and Sunday 25th May if the 1st option is cloudy.

Time: 11:00 to 16:00

Set up time from 10:30

Venue: On the hill above the Reg Driver centre

Christmas Meal Wednesday 4th December

The White Horse, Church Road Felixstowe 20:00

Directions to the White Horse Pub

Start from the roundabout at the Orwell Hotel (the one near the station)

Take High Road East

Turn left at Church Road (about ¾ mile)

The pub is about 300 yards on yards on your left.

If you miss Church Street take the next left, St George's Road.

Go to the end of the road, then turn left at the T junction into Church Road. The pub is about 100 yards on your right

OASI Corporate Clothing

There has been a recent interest in ordering a new batch of clothing with the OASI logo.

The supplier's website is www.suffolkinsignia.co.uk/

Please select what you want and let Roy Gooding know the details (type, size, colour and item number). He will then get a quote for the items embossed with the OASI logo

A few useful web links

General

The UK Astronomy Directory	www.uk-astronomy.co.uk/
List of astronomy links	www.uk-astronomy.co.uk/directory/

Astro data sources

Heavens Above	heavens-above.com/
Comet ISON	www.cometison2013.co.uk/
Rise/Set/Transit Times for Major Solar System Bodies and Bright Stars	aa.usno.navy.mil/data/docs/mrst.php

No doubt you have your own favourites – so please send them to

news@oasi.org.uk

Night Sky in December

Roy Gooding

Moon

New Moon	1st Quarter	Full Moon	3rd Quarter
3rd	9th	17th	25th

Sun and planets

Object	Date	Rise	Set	Mag.	Notes
Sun	1	07:42	15:47		
	31	08:04	15:53		
Mercury	1	06:15	15:11		Mercury will too close to the sun this month to observe
	31	08:25	15:45		
Venus	1	11:08	18:31	-4.6	Venus will be best observed at the beginning of the month. It will be moving into twilight sky at the end of the month
	31	08:47	17:32		
Mars	1	00:45	13:23	1.0	Mars is presently on Virgo It is best seen after midnight
	31	00:10	11:51		
Jupiter	1	18:27	10:48	-2.5	Jupiter is well placed to observe all night. It is presently on Gemini
	31	08:40	08:40		
Saturn	1	05:32	14:58	0.8	Saturn is best seen in the morning sky, before sun rise this month
	31	03:51	13:08		
Uranus	1	13:28	02:06	5.8	Uranus remains in Pisces
	31	11:30	00:08		
Neptune	1	12:28	22:36	7.9	Neptune remains in Aquarius
	31	10:31	20:42		

Meteor Shower

Source: BAA Handbook p98

Shower	Limits	Maximum	ZHR
Geminids	December 8th to 17th	December 14th 01hr	100
Ursids	December 17th to 25th	December 22nd / 23rd	10

2013 Comets ISON

This may be very bright but this may be over optimistic. Will be visible before and after Christmas. See www.cometison2013.co.uk/

Comet Lovejoy is visible in the evening sky moving across Corona Borealis Dec. 4-11 and then into Hercules, passing a few degrees south of the quadrilateral of stars popularly known as the "Keystone" on Dec. 17. As it moves away from the Earth, it will be fading — probably between 5 and 6 magnitude, just barely visible to the eye on dark, clear nights.

Occultations during December

James Appleton

The table lists lunar occultations which occur during the month under favourable circumstances. The data relate 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
08 Dec	17:22:48	D	0.40+	-14	32	7.5	ZC 3281
09 Dec	18:40:23	D	0.51+	-26	36	6.9	ZC 3420
11 Dec	00:12:58	D	0.64+	-61	9	7.1	ZC 30
11 Dec	22:17:04	D	0.73+	-56	35	4.3	71 Psc
12 Dec	00:28:36	D	0.74+	-60	17	6.9	ZC 162

Possible OASI Escorted Trip to see the Northern Lights

I have been asked to think about organising a trip to try to see the northern lights accompanied by our local expert – or failing that, me.

I was thinking along the lines of a cruise on the Hurtigruten from Tromso, North Norway to Kirknes and back. This is where I have had most success, for a relatively easy journey.

The journey involves a flight from Heathrow to Oslo, an overnight at Oslo and a flight to Tromso to meet the ship. The return involves an overnight at Tromso (the ship docks at 23:45 !) and a flight again via Oslo.

If interested please fill out the expression of interest form below and return to me or email me the details. Given an idea of numbers I can work out an itinerary and rough price.

Paul Whiting

Felixstowe

Expression of Interest in OASI Aurora Trip

Name: _____ Preference:- Oct/Nov 2014

Email: _____ Feb/Mar 2015

Phone: _____

Number people: _____

Number double cabins: _____ inside / outside

Number single cabins: _____ inside / outside

The OASI Gold Standard

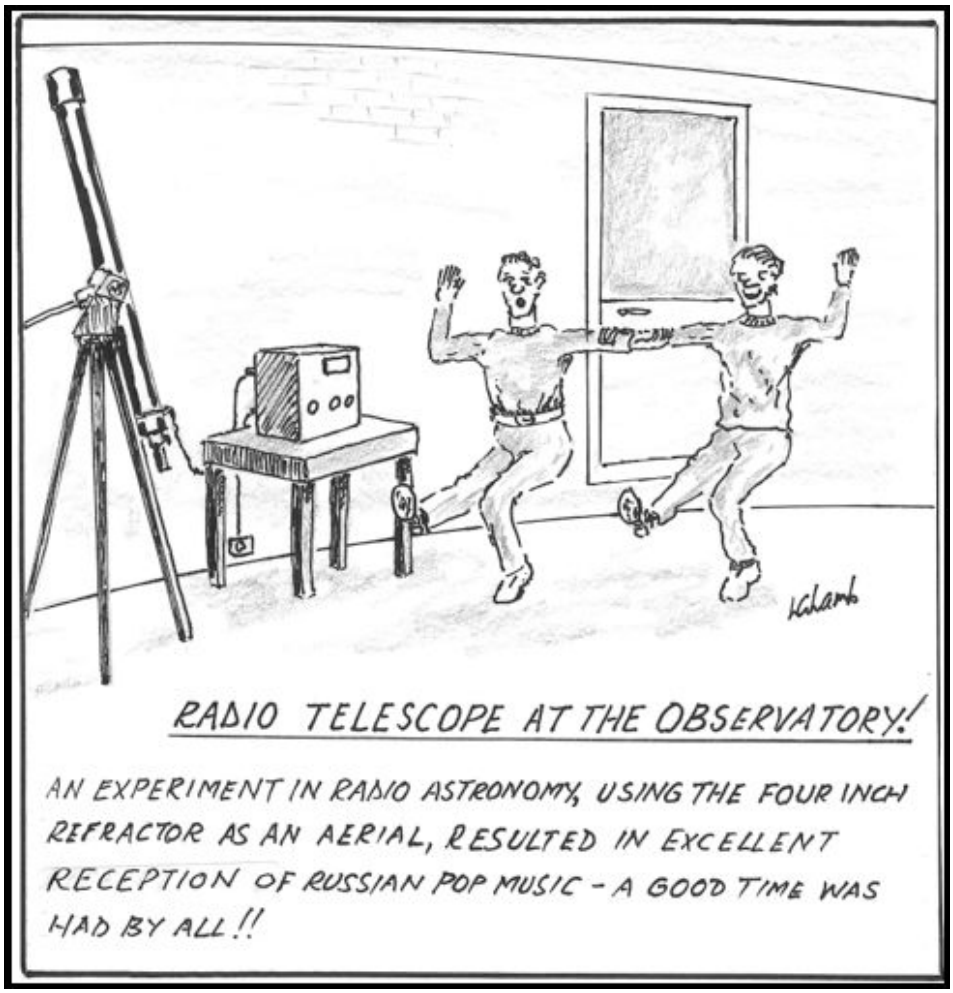
By Neil Morley

If anyone deserves the OASI Gold Standard for dedication to the cause, we should have no hesitation in awarding it to Eric Sims. Since 1982, Eric has been continually involved in the production of the monthly OASI newsletter. That's a total of 31 years, and over that period, not one missed copy!

The newsletter is in itself is an OASI institution. For as long as I can remember, it has remained a focal point of our Society's activities, and something we should all be proud of. Eric should be thanked for his incredible dedication over a period spanning more than three decades. He truly sets the OASI gold standard.

Sadly, after this issue, Eric will be stepping down completely from newsletter production.

Here are some memories of Eric's tenure at the helm of the newsletter. The 1990s and 2000s will be termed the *Ericarian Epoch* in the Society history. This period was mostly before the school security system, when the school allowed us access to their staff room to use the photocopier. If any school staff members are reading this, OASI always supplied the paper! At these times, the majority of articles were cut and pasted into position, and the photocopied result became the “look and feel” of the OASI newsletter. It was very distinctive complete with a cartoon of the month produced by Les Lamb on the front page (see below), varying font sizes, bloopers, April fool's jokes, the odd spelling mistake and even special editions!



The newsletter was usually produced on a Wednesday evening and more often than not, Eric and Roy would press-gang several members into helping. The old saying goes “many hands make light work”. The school staff room became a veritable production line of industrial proportions with the noise and slightly alcoholic smell of the photocopier, accompanied by regular thumping sounds from a team of people around a large table assembling, folding, and stapling the newsletter together! Sometimes other sounds of frustration (some unrepeatable) were heard when it had become apparent some editions had pages upside down or in the wrong order, but particularly so whenever the old photocopier jammed “It's out of control – I can't stop it!!” All of the doors were opened to try to remove an offending sheet of paper only to have it jam again and again! Over the years Eric must have, unbeknown to the school, have many times saved them the of expense of not having to call out a photocopy service engineer. Eric would often give the photocopy a quick strip down and impromptu service!

As to the special newsletter editions two are of note which were issued to James Appleton, OASI Webmaster. One one occasion the story goes James had complained about the poor state of the newsletter, and subsequently received a special edition with staples at 90 degrees to the correct orientation, pages upside down and out of order and a “distinctive” crumpled effect! Apparently he didn't complain afterwards. On a second occasion, a limited edition newsletter was issued to James with the front page clearly advertising the Ipswich Beer Festival. On the previous Wednesday he'd very clearly stated his opinion that OASI was an astronomy not a drinking club although maybe I've reversed that trend slightly with the Wednesday Astropub format!

On behalf of everyone in our Society, I would like to thank Eric for more than three decades of continuous service producing the newsletter. It's been an incredible feat of dedication!

Neil Morley

From the Sub-Editor

I'd like to add my grateful thanks to Eric for all the hard work he has put in over the years and hope he now finds more spare time for astronomy!

I've been preparing the copy since May and Eric has been carrying on the production and mailing work. An alternative printer/collater has been found but at increased cost. This has some implications for the size and format of the newsletter. **Please see the notice on page 22.**

Eric will continue to perform the enveloping and mailing job.

Martin Richmond-Hardy

PS Pondering the Chairman's reference to the amber nectar, I came across this printing and beer link www.3dprinterworld.com/article/making-beer-with-3d-printing. If only!

A very merry Christmas to all our readers

Newbourne Observing Group

We meet at The Newbourne Village Hall, Mill Lane, Newbourne, IPl2 4NP Start 7:00pm

omahony.mike@gmail.com

We meet even when it's cloudy!

Mike O'Mahoney gives a talk at the Open Evening

Open Evening Saturday 9th November

The raison d'être for a 'Newbourne Open Evening' was firstly to introduce the group to the locality, we put up posters and leafleted the neighbourhood, and secondly to engage, particularly with younger stargazers, and to this end we contacted various schools and scouting groups.

One of the halls was set up with our display boards and tables and thanks to the support of Pat, Lyn, Mandy & Ann we were able to provide a supply of hot drinks, hot dogs and cakes. The other hall was set up lecture style with the projector plus two telescopes so that they could be demonstrated in the hall. Outside we had an eclectic range of telescopes on display and again our thanks to all those members who came and supported the event.

The seeing and weather was hit and miss but we nevertheless had over fifty visitors including a troop of cubs from Ipswich and a small delegation from the Newbourne Hall Committee. I suspect they wanted to know what we get up to! Mike O'Mahony gave a succession of introductory astronomy lectures while Dave Murton kept tabs on the outside activities.

Visitors we spoke to seemed to have enjoyed the evening and our hospitality and on balance we all agreed the evening had been a success.

Next meetings:

Thursday 28th November, Monday 9th December and a special Christmas Evening on Thursday 19th December

We hope to see you there or during our programme in 2014.

Mike Norris

Starfest III, 2 November 2013

Martin Richmond-Hardy

Several OASI members (Mike Whybray, Mike Norris, Steve Shapland, Bill Barton, Roy Gooding and myself) attended this excellent one-day meeting at the Colchester Institute, organised by North Essex Astro Soc. northessexastro.wordpress.com/ See also www.neas.me.uk/starfest/

As well as a collection of commercial stands, there were a number of interesting lectures.

Carolin Crawford on The science & beauty of Nebulae

Caroline is the outreach officer at the Institute of Astronomy in the University of Cambridge

www-xray.ast.cam.ac.uk/~csc/

She spoke about who matter between stars form future stars which aids understanding of planet formation and us.

Different telescopes for different purposes: Hot gas – X-ray telescope. Cold gas - radio telescopes. Blue stars excite the gas atoms in the cold clouds so becomes visible

Rosette nebula with star cluster at centre 4.5 M years old. It is H_2 which gives the pinky-red colour and solar winds form the bubble in the centre

Dust is of size order 0.1 micron and areas shielded by dust at temperature of 10–100K are where carbon-based molecules form. Dust clouds filter out (scatter) blue light so obscured stars look red. In contrast, a reflection nebula is scattered blue light from a star behind a dust cloud

Infra red telescope (James Webb telescope) shows warmer dust and hidden stars for which all visible light is scattered. Columnar structures point towards the star cluster which is causing the erosion with its solar wind. The leftover bits form solar systems

Caroline Smith, curator of meteorites, Natural History Museum

www.nhm.ac.uk/nature-online/space/meteorites-dust/

Baringer crater 1200m across formed by 20m meteor equivalent to an 11MT bomb.

There are at least 6 stellar sources for our solar system

Rather than destructive examination, they use CT scanning to examine meteorites

Pete Lawrence @averted_vision : Observing and imaging the Moon

www.digitalsky.org.uk/

Introduction to photographing the Moon. Due to Libration we can observe- up to 59% of the Moon's surface.

Alan Bond of Reaction Engines

www.reactionengines.co.uk/

gave a talk on his company's novel rocket motor, a model of which was on display.

Andy Green

had a Stardome Planetarium www.stardomeplanetarium.co.uk/ in the car park

Stuart Clark

www.stuartclark.com/ talked about his books.

All in all, a grand day out.

The organisers' stand – and Roy Gooding looking for a bargain.

Mike Norris and Bill Barton spot something interesting in the trade hall

A Telescope is not just for Christmas

Martin Richmond-Hardy

You may have been to one of OASI's Star Parties or attended a school event and were impressed by the array of telescopes. What should you buy? Should it be a telescope?

The Instrument

Avoid department/toy store/catalogue telescopes! They often have poor optics, wobbly mounts and ridiculous claims for magnification.

Before you splash the cash, there are three ways of observing the sky at night.

1. Your eyes

They are a truly wonderful device, but you can learn to get the best out of them. The eye's iris controls the amount of light entering them. As it gets darker, the iris opens up to let in more light, but it takes perhaps 15 minutes for it to fully open when one goes out into a dark night – so give yourself time! Bright lights can quickly cause them to close again so avoid passing cars and if you use a torch (as you will need to) cover the lens with red paper or plastic to give a very low light level.

Get used to looking at the stars and try to pick out the constellations (groups of stars). Use a Planisphere (cost £6-£10) or printed star chart (these can be downloaded from the Internet). Tablets and smart phones have some excellent astronomy apps.

WARNING: NEVER EVER look at the Sun through a telescope or binoculars. The invisible infra red rays (which are only blocked by special filters) will permanently damage your eyes and may blind you. A magnifying glass can set fire to paper - a telescope or binocular lens is no different!

2. Binoculars

You may already own a pair. These can be mounted on a camera tripod using a simple bracket (cost about £11) which will keep them steady and your arms won't get tired. You will see more stars than with just your eyes. Observing objects high in the sky is difficult with a tripod and you will need to resort to lying in a deckchair.

Binoculars are described as, e.g. 8x30, 10x50, 15x70

The first figure is the magnification. The second figure is the diameter of the objective lens. But remember: more magnification = more wobble! So 10x50 is a good starter size. Cost about £40 for a Porro prism design (preferable to roof prism models for astronomy). A 15x70 pair will cost about £60.

3. Telescope

Astronomical telescopes often come into the category of *try a few times and then never touch again* – usually because they are too big, too heavy, or too complicated to set up.

They come in three types:

Reflector (Newtonian) – Primary mirror and secondary mirror which reflects the light into the eyepiece.

Refractor – long bodied telescope with a lens at each end. – good for observing planets.

Compound or catadioptric– short bodied telescope. Referred to as Maksutov or Schmidt-Cassegrain.

The telescope mount

A decent scope on a wobbly mount is a waste of money. Expect to pay as much or more for the mount as for the telescope.

There are three types of mount:-

1. Ball and socket

AVOID! These are difficult to adjust and would only support a small telescope or camera.

2. Alt-Az

Alt = Altitude (or Elevation degrees above the horizon)

Az = Azimuth (North/South/East/West pointing)

The equivalents on a photographic tripod are Pan (Az) and Tilt (Alt).

Some telescopes can be bought with a Dobsonian mount (often referred to as a "Dob"). The original design was by John Dobson who founded the San Francisco Sidewalk Astronomers.

You can also buy motorized, computer-controlled Alt-Az mounts. NB if you are thinking about astrophotography, Alt-Az mounts will rotate the image over long exposure times.

3. Equatorial

You may have noticed that the stars appear to move across the sky during the night. This is because the Earth rotates once every 24 hours. If you were to take a long exposure photo of the sky it might look something like this. Polaris (the North star) would be at the centre since it is almost directly above the North Pole.

The Equatorial mount solves the problem of tracking the apparent movement of the stars by having its pan & tilt axis adjusted so that you only need to adjust one control in order to follow an object. The setting up takes longer as you have to point the mount to the Pole star.

You can buy manually controlled Equatorial mounts or fully motorized and computer-controlled versions.

Other stuff – terms you will meet, things you'll need

Magnification

The maximum magnification you can usefully achieve with a telescope is calculated from

aperture (mm) x 2 or **aperture (inches) x 50**.

E.g. A 150mm (6 inch) reflector has a maximum usable magnification of 300.

$$\textbf{Magnification} = \frac{\textbf{focal length of the telescope}}{\textbf{focal length of the eyepiece}}$$

Thus a telescope with a focal length of 1200mm and a 40mm eyepiece will have a magnification of 30, which is Ideal for looking at the Pleiades! An 8mm eyepiece with the same telescope will give a magnification of 150 for a good view of Jupiter and its moons. BUT more magnification requires a more solid (and more expensive) mount.

Eyepieces

Your telescope is only as good as its eyepieces. Telescopes often come with a couple of eyepieces (e.g. 25mm and 10mm) and possibly a Barlow (a lens which doubles the focal length– and hence the magnification – of your telescope). You can do better. Plossl eyepieces cost £30-40 and are a good start at improving on the included eyepieces.

If you go for a long-bodied reflector (e.g. a 200mm Dob with 1200mm focal length) then a 40mm eyepiece (£40) will give wider views than the often-supplied 25mm eyepiece.

Eye relief

If you wear spectacles then eye relief is important for you. The eye relief of an optical instrument (such as a telescope, a microscope, or binoculars) is the distance from the last surface of an eyepiece at which the user's eye can obtain the full viewing angle. Outside this distance, you will have a reduced field of view.

Exit pupil

The exit pupil width of an instrument is the width of the cone of light that is available to the viewer at the exact eye relief distance. An exit pupil larger than the observer's pupil wastes some light, but allows for some fumbling in side-to-side movement without vignetting or clipping. Conversely, an exit pupil smaller than the eye's pupil will have all of its available light used, but since it cannot tolerate much side-to-side error in eye alignment, will often result in a vignetted or clipped image.

Red light torch

Red light is much less likely to affect your night vision. You can buy red light head torches or hand-held torches from astronomy and other retailers. Or just fit a red balloon or red sweet wrapping over the lens of your own torch.

Turn down the brightness on your mobile phone. Put red film over any computer screen.

The bottom line

Approximate guide prices for Dob, manual, motorised and computer-controlled (GoTo) mounts:-

	90mm	120/130mm	150mm	200mm
Reflector	X	Dobsonian £135	Dobsonian £210	Dobsonian £290
		motor EQ £165	motor EQ £300-600	comp. EQ £800-£1100
Refractor	man. Alt_Az/EQ £140	motor EQ £370	motor EQ £235-£600	X
	motor EQ £240	comp. EQ £770	comp EQ £1300	X
Compound	man. EQ £150	man EQ £400	comp £600-1000	comp. £1500

There are lots of other guides to buying your first telescope on the Internet but chatting with an astronomer and using their telescopes can help you through the decision maze - they have been there too! See our OASI web site for forthcoming Star Parties and Open Days.

Useful links

This article is available from the OASI web site as a downloadable pdf with embedded web links.

Some reputable makes

Celestron, Meade, Orion Optics, Skywatcher, Vixen

What to look at

The Night Sky this month
www.jb.man.ac.uk/astronomy/nightsky/

Printable sky charts skymaps.com/

Children's University of Manchester

Learnastronomyhq.com

Magazines

Astronomy Now

Sky at Night

Local Astronomy Societies

OASI Orwell Astronomical Society (Ipswich)

Breckland Astro

North Essex Astronomical Society

Norwich Astronomical Society

Dealers

www.altairastro.com Aylsham, Norwich, NR11 6ER

www.astronomica.co.uk/

www.astronomia.co.uk/

www.firstlightoptics.com/

www.green-witch.com

www.harrisontelescopes.co.uk/

www.opticalvision.co.uk/

www.orionoptics.co.uk/VX/vxrange.html

www.scopesnskies.com/

www.sherwoods-photo.com/astronomical_telescopes.htm

www.telescopehouse.com

www.vikingopticalcentres.co.uk/astro

www.wexphotographic.com/

... And an App is not just for night time!

Martin Richmond-Hardy

A number of visitors to our open evening at the Observatory were intrigued by the astronomy apps available for the iPad and iPhone. Some of these, or similar, are also available for Android tablets and there are some versions for Windows, Mac and Linux computers.

SkySafari by Southern Stars

http://www.southernstars.com/products/skysafari/

This comes in three price ($≈£) versions for i-devices:

SkySafari 3 - $2.99, 48 MB. 120K stars, no telescope control, view from Earth.

The basic version of SkySafari 3 shows you 46,000 stars, plus 220 of the best-known star clusters, nebulae, and galaxies. It displays the Solar System's major planets and moons using NASA spacecraft imagery, and includes the best-known 150 (or so) asteroids, comets, and satellites. It accurately shows you the sky from anywhere on Earth, at any time up to 100 years in the past or future, and lets you identify stars, planets, and constellations with your iDevice's GPS, compass and/or gyroscope.

SkySafari 3 Plus - $14.99, 181 MB, 2.5M stars, telescope control, view from Solar System.

SkySafari 3 Plus adds a hugely expanded database, wired or wireless telescope control [1] - and the ability to leave Earth and fly into orbit around any Solar System object or nearby star. It shows you 2.5 million stars, and 31,000 deep sky objects, including the entire NGC/IC catalog. It includes over 4,000 asteroids, comets, and satellites with updateable orbits.

SkySafari 3 Pro - $39.99, 418 MB, 15M stars, telescope control, view from Solar System.

SkySafari 3 Pro has the largest database of any astronomy app. It contains everything in SkySafari 3 Plus - but also includes over 15.3 million stars from the Hubble Guide Star catalog, plus 740,000 galaxies down to 18th magnitude, and over 580,000 solar system objects - including every comet and asteroid ever discovered - and a Moon map based on NASA's latest LRO data with 8x the resolution of any other SkySafari version. It shows you the sky with sub-arcsecond precision from anywhere on Earth, at any time up to one million years in the past or future.

Note 1: SkySafari 3 Plus and 3 Pro can point your GoTo or "Push-To" telescope anywhere in the sky, using your iPhone/iPad/iPod's built-in WiFi, but requires SkyFi or SkyWire serial accessories.

SkySafari Plus is also available for the Mac and Android

Stellarium

http://www.stellarium.org/

Free on Mac, PC and Linux computers. £10 on i-devices.

Stellarium is a free open source planetarium for your computer. It shows a realistic sky in 3D, just like what you see with the naked eye, binoculars or a telescope.

- default catalogue of over 600,000 stars
- extra catalogues with more than 210 million stars
- asterisms and illustrations of the constellations
- images of nebulae (full Messier catalogue)
- realistic Milky Way
- the planets and their satellites
- control your telescope via a serial connection to you Mac/PC (usb-serial interface probably required these days). Not with i-device.

Messier Marathon

If Messier objects are your thing, then this app will list those visible at your location, show you where to find them and give you information about them. You can set up your own Moore Marathon!

3D Sun

This app for iPhone, iPad and Android, courtesy of NASA's Heliophysics Division, gives the current conditions of the Sun, sun news (flares and eruptions), sunspot numbers, solar wind speed, X-ray solar flares, Kp index, views from the Solar Dynamics Observatory.

Other utilities

Scope Help

This handy app has 5 screens

Screen 1 gives device time, gps time stamp, calculated UTC time, latitude, longitude, height, Julian day, Julian date, Greenwich mean sidereal time, local mean sidereal time. Also has the current Moon phase and a little map of your location.

Screen 2 is a compass and level for setting up your scope. NB needs calibrating!

Screen 3 is a simple red light screen.

Screen 4 is a Calculator: enter the specs of your telescope(s) and eyepieces and it will show you the optical parameters of the combination, such as magnification, limit stellar magnitude, light gathering power (maximum practical magnification), angular field of view, Dawes limit, Rayleigh limit and the practical limit.

Screen 5 is a polar alignment tool.

SkyTime

Very simple utility to tell you your Lat & Longitude, Date & UTC, your Local Sidereal Time, Julian Date and Modified Julian date. If you don't know what some of these are, you probably don't need the app. Handy for setting up your go-to scope.

MTA Weather

Gives the 48 hour forecast in 3-hour steps for the current location in terms of cloud, dew risk, seeing, transparency, planetary and deep sky viewing, in a simple red / amber / green scale.

Scope Nights

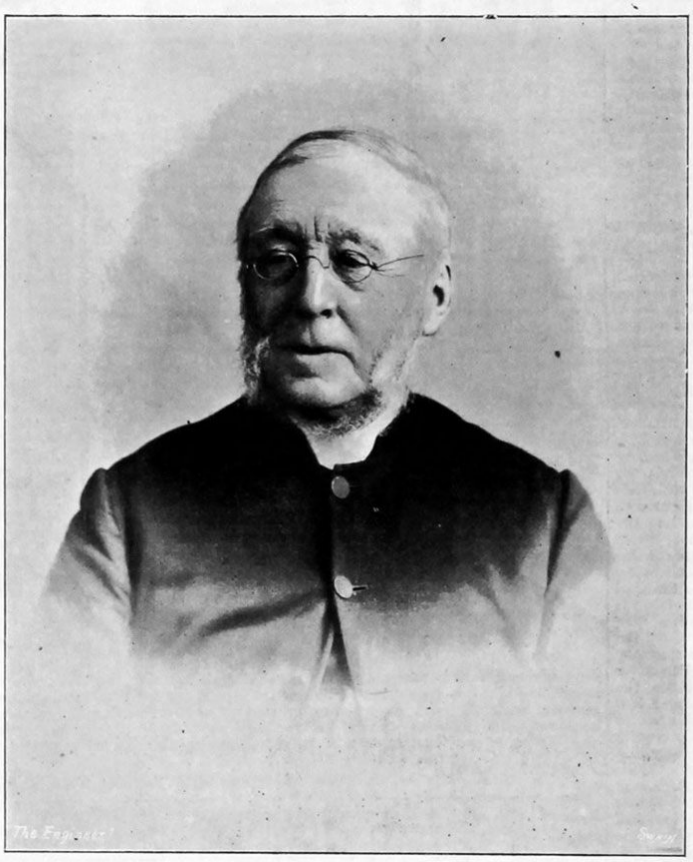
For a second opinion on the weather, this app presents the information in a fancier format, with probably different answers (just like the BBC local and national forecasts)

GoSatWatch and Satellite Safari

If you want to spot satellites just after dusk or before dawn, try these.

The Reverend Edward Lyon Berthon M.A., F.R.A.S.

By "A Fellow of the Royal Astronomical Society".



REV. EDWARD LYON BERTHON, M.A.

Berthon was born in Finsbury Square, London on February 20, 1813, the tenth child of Peter Berthon, who ran a business supplying the Army with provisions. The end of the Napoleonic Wars in 1815 reduced the family income and at the age of five years Edward was adopted by his grandmother. She sent him to private schools in east London up to the age of fourteen years. After that Berthon was sent to Liverpool to study surgery so he could take on his maternal grandfather, Henry Park's practice after retirement. Edward was fascinated by mechanical engineering and attended the Rainhill Trials to see George Stephenson's Rocket. To give an idea of his inventiveness he eventually held 25 separate patents.

Marriage to Margaret Preston, of Toxteth on the 4 June 1834 put an end to his medical career and they embarked on a tour of France, Switzerland and Italy that was to last six years. All told they had two sons and five daughters.

While in Geneva on the 28 June 1834 he devised a screw propeller for marine propulsion, but was so discouraged by those around him he abandoned it. A mere twenty years later, at the time of the Crimean War, the majority of ships in the British Navy were using screw propulsion in place of paddle wheels, much to his chagrin. He was given to flashes of inspiration and on one occasion started to hurriedly chalk a design for a 'sea anchor' on the back of a church vestry door, much to the amazement of the choir.

Back in the UK in 1841 he entered Magdalene College, Cambridge to study for the Clergy. Graduating as B.A. in 1845 and M.A. in 1849 he moved to Hampshire where he was first given the curacy at Lymington and then the living of Fareham (1847-57). Being on the coast he was able to indulge his passion for nautical invention with further work on the screw propeller, a navigation log, and in 1849, the 'Berthon Folding Boat'. He exhibited the latter two at the Great Exhibition in London in 1851. The log was rejected by the Navy on the grounds 'it was too delicate for service use', although one was fitted to the new royal yacht "Victoria and Albert". The folding boat was also rejected.In order to get away from maritime matters in 1860 he moved to Romsey, where he remained until his retirement in 1891. Berthon's engineering talents were put to good use in devising machinery used to restore the fabric of Romsey Abbey Church. In 1873 Samuel Plimsoll encouraged Berthon to look again the idea of a 'Collapsible Boat', this time the idea was taken up by governments at home and abroad and orders to the value of £15 000 were placed. A boat yard was acquired and at its height over one hundred workmen were employed. It is still in business today. During 1881-2 Berthon travelled to Cape Town to give a thorough test to some of his nautical inventions. This was followed in 1885 by a trip to New York to promote the sale of his boats, but he found that the American import duty made the scheme uneconomic.

In his free time he constructed equatorial reflecting telescopes, that is everything except the mirrors. At the Paris Exhibition in 1878 he received a silver medal for one of 12 ½ inch aperture. A year before his death he completed a 16 ½ inch, ten feet focal length telescope complete with observatory. This was constructed at his boat yard for export to South Africa. Sir Howard Grubb supplied the optics. Many of his telescopes went to other priests, such as the Reverend Thomas William Webb.

He was elected into the fellowship of the Royal Astronomical Society on January 8 1865. He read only one paper to the society, on the 11 December 1874, 'On the Equestrian Equatorial'. He also demonstrated a model of it at the meeting. Presumably this style of telescope mount derived its name from the double counter weights that look like a riders legs on either side of a horse.

Berthon wrote his autobiography 'A Retrospect of Eight Decades', shortly before he died at Romsey, Hampshire on October 28, 1899.

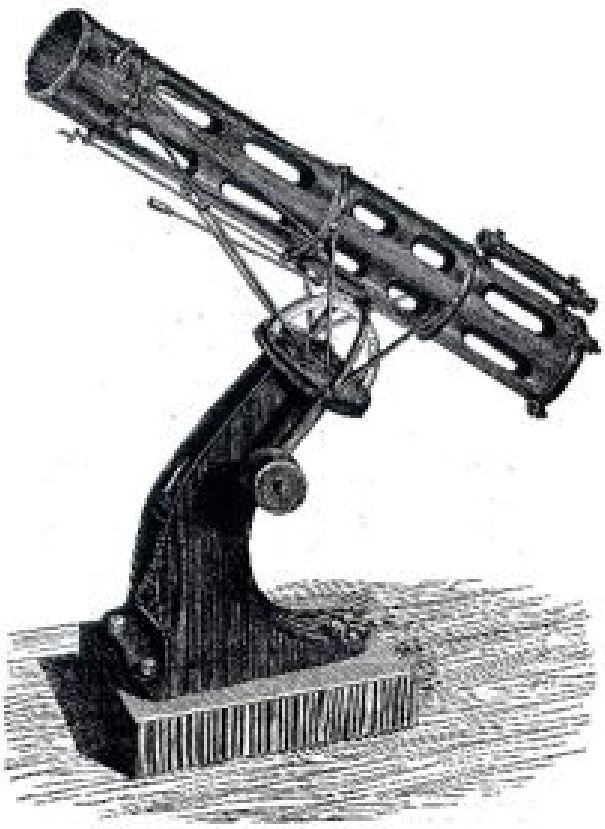
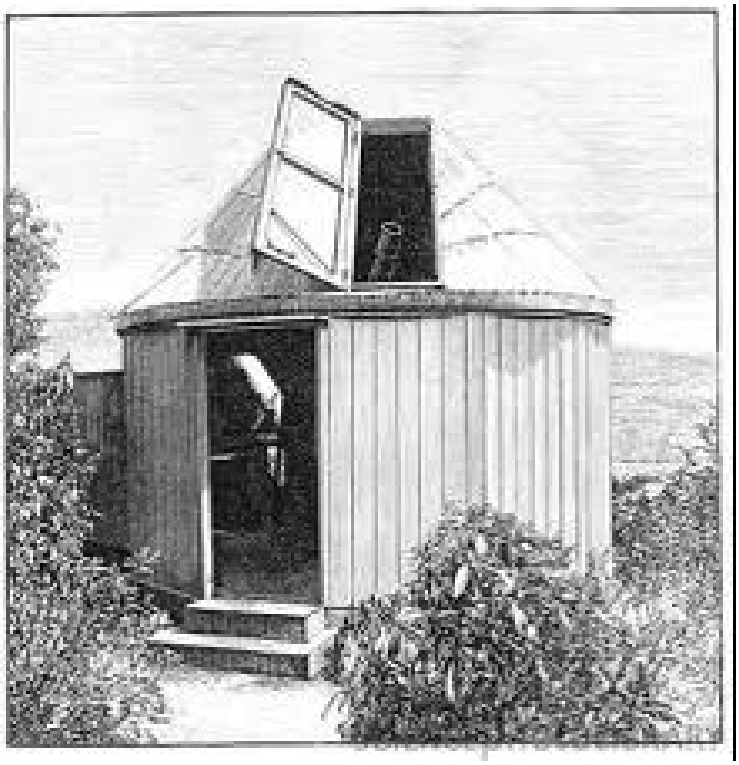


Fig. 23.
Berthon's Patent Equatorial Stand.

The Romsey Observatory

This was the name given to the 'standard' small amateur astronomical observatory of the late nineteenth century. The original of these was built by the Rev Berthon while at Romsey, in 1863. It consisted of a small circular equatorial room with conical roof and adjoining rectangular transit room. The exact dimensions of the observatory were dictated by the size of the telescopes and the site available. Berthon was able to use his boat yard facilities to manufacture these observatories.



A 'Romsey' Type Observatory

Berthon's Dynamometer

Berthon is perhaps best remembered these days in the amateur astronomical community for his 'dynamometer'. This device is used to measure the diameter of the pencil of light rays emerging from the eyepiece of a telescope. In Berthon's day this bright circle was known as the 'Ramsden Disc', the modern term is 'Exit Pupil'.

The magnifying power of the telescope/eyepiece combination is simply the diameter of the objective divided by the diameter of the Exit Pupil. Berthon published details of his dynamometer in 'The Engineer' on September 15 1871.Being somewhat outside his usual product range of telescope mounts and boats the Rev Berthon procured the services of a local watchmaker, a Mr. Tuck, make the dynamometers for him and sell them for five shillings each.

The Berthon Dynamometer in Use

A dynamometer will need to measure the diameter of the 'Ramsden Disc' to accuracy better than 0.1mm, so clearly an ordinary ruler won't be good enough. Berthon's solution was to use a form of 'diagonal scale'; he constructed a narrow isosceles triangular opening in brass sheeting of around 1 ½ inches (40mm) long by ¼ inch (6mm) across the base. A scale is graduated along one of the longer sides from zero to ¼ inch. It is simply held against the eyepiece and slid back and forth until the edges of the opening just impinge on the edges of the 'Ramsden Disc'. This operation should be carried out looking into the telescope with the head held around a foot away from the eyepiece. A magnifying glass can be used to assist if required. Varying the level of light falling on the scale from over your shoulder can also be found to be helpful.

Dynamometers don't actually measure the diameter, but a chord close to it; this is because the jaws of the device aren't parallel.

Coeli enarrant gloriam dei (the heavens declare the glory of God).

Open Evenings at the Observatory 22/23 November

I would like to thank everybody who turned out in the cold and the wet to help out on the open weekend. Friday gave mainly clear skies for the telescopes on the field and Belvedere but Saturday was initially cloud so the field was not used. Gaps gradually appeared to reveal fine views of the Pleiades, Hyades, Orion Nebula, Jupiter and much more.

Over the two evenings there were 118 visitors, comprising 84 adults and 34 concessions. Lots of positive feedback from people as they were leaving.

Thanks

Martin Cook

Rømer Workshop

Coffee break during the workshop on Rømer's method of estimating the speed of light, 9 November 2013. (Scale model of Jupiter and Io visible in the foreground.)

One member seems to be obscured -- we hope it's not for legal reasons!

Articles for the OASI Newsletter

News, pictures and articles for this newsletter are always welcome.

Please send them to

news@oasi.org.uk

The CLOSING date is the 20th day of the month

if you want your material to be published in the next issue.

Please submit your articles in any of the following formats:-

Text: txt, rtf, rtfd, doc, docx, odt, Pages

Spreadsheets: Excel, OpenOffice/LibreOffice, Numbers

Images: tiff, png, jpg

Schematics: sch (Eagle preferred)

I can extract text and pictures from pdf files but tables can be a bit of a problem so please send these as separate files in one of the above formats.

Thank you for you co-operation.

Paper vs pdf

For the past 31 years Eric Sims has valiantly printed the Newsletter 11 times a year - currently about 170 copies. It is a mammoth effort for which we are very grateful and, to reduce the load on any future printer/mailer, I would encourage readers to take the e-version (you can always print it yourself if you have an aversion to tablets and screens). We appreciate that some members are only able to accept the paper version so there are no plans to stop.

> From January 2014 the maximum size of a printed newsletter will be 20 pages and only the cover and centre pages will be in colour. This is due to the cost of printing.

The e-version (pdf file) can be read by any type of computer (Windows, Mac, Linux, iMac, Kindle, Android, etc.) and may contain lengthier articles, colour pictures throughout and comprise any number of pages.

Martin RH

Newsletter archive on DVD

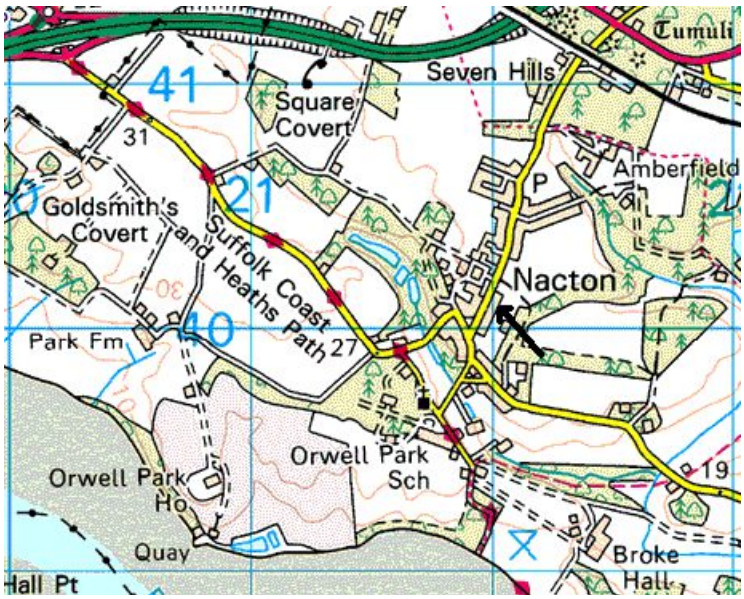
The electronic archive of OASI *Newsletters is* now complete from edition 1 (February 1972) to edition 484 (April 2013) inclusive. (From May 2013 onwards, *Newsletter* production was undertaken electronically and editions are available for download from the OASI Yahoo filestore.) The archive contains a scan of every non-blank page of the *Newsletter* and an index in the form of an Excel spreadsheet. The spreadsheet facilitates locating articles by keyword searches using the Excel *Find* function.

A DVD containing the archive has been deposited in the OASI library for loan to members. Anybody wanting their own copy, please let me know and I can either provide an additional DVD or load the archive onto a memory stick.

James Appleton

Astronomy Workshops

Doors open at 7:30pm.
Workshops START at 7:45pm
Venue: NACTON VILLAGE HALL IP10 0EU (next to the small village school, just below and left of the N in Nacton on the map).



If you are a new OASI member, or haven't been to one of these informal workshops before, they are a mixture of events of different characters including beginners talks, interactive workshops, films, etc., suitable for all. They are also a chance to chat with other members over a cup of tea and a biscuit, in a venue rather warmer than the observatory dome on a winter's night!

Please park on the same side of the road as the hall, but avoid parking on the white lines which mark clear spaces for various driveways and passing places. The police do occasionally check up on this!

Date	Workshop	Run by…
11 Dec	**Astrophotography with a Digital Camera** Aims to show what can be achieved and how to achieve it, using both DSLR's and more basic digital cameras (not webcams or CCD cameras though). Includes demonstrations with the actual equipment.	David Murton and Mike O'Mahony
29 Jan 2014	**The Equation of Time** Sundials are not very practical. Even when they work, they must be corrected using the 'Equation of Time'. Anyone with a decent watch, and sufficient persistence, can measure the corrections required over the course of a year. But what is behind the 'Equation of Time'? How can you work out what you would expect it to be? Or what can it tell you about the Earth's orbit round the Sun? And how can you work out what it would be on other planets?"	Joe Startin and Matthew Robertson

Mike Whybray **Workshops organiser** [redacted] **(Mobile)** [redacted] **(Home)**

Diary for December

Small Telescopes Observing Nights at the observatory Paddy O'Sullivan Gerry Pilling Dave Robinson	**STONs** From 8:00pm 10th Dec: Pegasus, Triangulum
Observatory Club Nights Observing with the Tomline refractor and other telescopes if skies are clear Martin Cook Roy Gooding	**Wednesdays** From 8:00pm Except 4 December (Christmas meal)
OASI Newbourne Observing Group (NOG) Newbourne Village Hall, Mill Road, Newbourne. Winter programme – see OASI web site for details	**Monday 9th and Thurs 28th Dec** from 7pm
OASI Workshop Nacton Village Hall Mike Whybray	**Wednesday 11th Dec** Astrophotography with a Digital Camera David Murton and Mike O'Mahony
Observatory visits by local community groups Paul Whiting FRAS	5 Dec 7pm 1st Capel Cubs
Geminids Meteor Watch The Dip, Old Felixstowe	Saturday 14 December 8pm
AGM Methodist Church Hall, Blackhorse Lane, Ipswich	Saturday 18th January 2014

Society Contact details

See page 2 for Committee contact details.

Observatory (meeting nights only)

Email queries: info@oasi.org.uk

Facebook.com/orwell astronomical

Twitter: @OASIpswich

Forum: forum.oasi.org.uk/index.php

Please send material for the OASI web site and newsletter

e.g. observations, notices of events, general interest articles, to

news@oasi.org.uk