



OASI News

The newsletter of the Orwell Astronomical Society



The Whirlpool spiral galaxy is estimated to be 23 million light years from the Milky Way. New stars can be observed in its spiral arms. *Photo: Mike O'Mahoney*

Taken on 20/1/17 by SCT 235 mm. 25 x30" exposures @ ISO 3200. Unfortunately it is hard to avoid house and street lights which contributed to the noise.

Trustees: Mr Roy Adams Mr David Brown Mr David Payne
Honorary President: Dr Allan Chapman D.Phil MA FRAS

Aurora Borealis in Norway (

by Mike Whybray

Both taken (1st week February 2017) at Grøt fjord about 25 miles drive north-west of Tromsø. 20 seconds exposure at ISO800. Samyang 14mm set at f4. Canon 550D.



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Society Contact details

Observatory (meeting nights only)

07967 519249

Email queries: info@oasi.org.uk

Facebook: <https://www.facebook.com/groups/445056098989371/>

Twitter: @OASlpswich

The OASI Facebook pages are now proving very popular. Several non-members are active contributors.

Please send material for the OASI web site and newsletter e.g. observations, notices of events, general interest articles, to

news@oasi.org.uk

Other contact details will be issued to members on a separate printed list or emailed directly to those who only receive the e-version of the News.

Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds by the gym.

Areas out of Bounds

Access to the Observatory is **only via the black door** at the foot of the Observatory tower, which leads to the staircase and thence to the spiral staircase up to the Observatory. If the black door is locked, please phone the observatory mobile, 07967 519249 during meeting hours.

Please do NOT explore other routes. When in doubt, ask or call the Observatory mobile.

Remember this is a school and straying into the main part of the school where the pupils reside would cause the society big problems and could see us losing the use of the observatory. Any member found to be anywhere other than the approved access route or the observatory area will face serious sanctions up to and including expulsion from OASI.

Please note that access time for all observatory member nights is after 20:15

The key to the toilets in the school gym is located in the seating area in the Belvedere room.

Articles for OASI News

News, pictures and articles for this newsletter are always welcome. Please send them to

news@oasi.org.uk

The CLOSING date is the 15th day of the month

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

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

Spreadsheets: xls, xlsx, OpenOffice/LibreOffice, Numbers

Images: tiff, png, jpg

Please send tables as separate files in one of the above formats.

If you don't feel up to writing a major article, perhaps you might write a short note for OASI News along the lines of *"This month I have mostly been observing/constructing/mending/reading/etc."*?

Articles win points! See page 15.

The full colour version is available from the OASI web site.

[Newsletter archive www.oasi.org.uk/NL/NL_form.shtml](http://www.oasi.org.uk/NL/NL_form.shtml)

Authors, please note that your articles will now be publicly available worldwide!

Reproducing articles from OASI News

If you plan to reproduce an article exactly as per OASI News then please contact the [Editor](#) – otherwise, as a matter of courtesy, please seek permission from and credit the original source/author. You may not reproduce articles for profit or other commercial purpose.

Committee 2017

Chairman	David Murton	Set overall agenda for OASI, Chair committee meetings, Press and publicity, Public appreciation of astronomy, Outreach activities.
Secretary	Roy Gooding	Outreach meetings (jointly with Chairman), observatory decoration.
Treasurer	Paul Whiting FRAS	Finance, Supervision of applications for grants, Visits by outside groups, Observatory tours, Public appreciation of astronomy (jointly with Chairman).
Committee	James Appleton	Committee meeting minutes, Web site
	Martin Cook	Membership, Tomline refractor maintenance & user testing
	Peter Richards	Lecture meetings, Email distribution lists
	Martin Richmond-Hardy	Newsletter
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club.
	Avtar Nagra	Newbourne Observing Group
	Matt Leeks	Safety & security
Co-opted	Andy Wilshire	Librarian

Society Notices

Welcome new members

Graham Brundle John Root

Committee Meeting

The next committee meeting will be Tuesday 7 March at Museum St Methodist church. See map on page 9.

Contacts

A printed list of Committee and other activity contacts is available from the Secretary or the Observatory. Email links are available in the A4 pdf version of this newsletter.

For general enquiries please email info@oasi.org.uk and your enquiry will be forwarded for action.

Signing in and out

Please ensure you sign in and out when visiting the Observatory and/or Newbourne.

This is for fire safety precautions and also provides an historic record.

OASI and BAA Events

For the latest event details, please see www.oasi.org.uk/Events/Events.php

There's a Google Calendar on the OASI web site with the latest dates (and corrections!). If you want to easily add OASI Events to your own computer/phone/tablet calendar application click this button on the website Events page.



Download the OASI 2016 year planner from the web site. An A3 printer is advised.

For other astronomy news and astro pictures try our

Twitter feed <https://twitter.com/OASIpSwich>

Facebook page <https://www.facebook.com/pages/Orwell-Astronomical/158256464287623>

Subscribe to the OASI Yahoo group by emailing oasi-subscribe@yahoogroups.com

Date and Time	Location	Contact	Event
Weekly, every Wednesday, 20:15–22:00	Orwell Park Observatory	Martin Cook, Roy Gooding	General observation (weather permitting) using a variety of telescopes. Entry via the third gate left. NOT the main gate
Saturday 4 March	Newbury	https://britastro.org/	BAA Deep Sky Section Annual Meeting
Tuesday 7 March 20:00	Museum Street Methodist Halls,	Roy Gooding	Committee meeting
Saturday 11 March	Swinton, Mexborough S64 8PZ	https://britastro.org/	BAA Back to Basics Workshop
Monday 13 March From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Tuesday 14 March 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Friday 24 – Sunday 26 March	Haw Wood Farm Caravan Park, Hinton, Saxmundham. IP17 3QT	See page 16	Haw Wood Star Party
Monday 27 March From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Wednesday 29 March 17:30	Burlington House Piccadilly London W1J 0DU	https://britastro.org/	Special General Meeting and Ordinary Meeting
Friday 7 April	Sparsholt College, Winchester	https://britastro.org/	BAA Winchester Weekend
Weekend 8–9 April	Framlingham	David Murton chairman@oasi.org.uk	Solar observing @ Framlingham Festival
Monday 10 April From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Tuesday 11 April 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Saturday 22 April	Cambridge	See page 15	SHA Spring Conference

Date and Time	Location	Contact	Event
Monday 24 April From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Saturday 29 April 10:00	The Birley Centre, 49 Carlisle Rd, Eastbourne BN21 4JR	https:// britastro.org/	One Day Spring Meeting - "Planets in our solar system and beyond"
Sunday 30 April	Stonham Barns		TBA : Solar observing
Monday 15 May From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Monday 29 May From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Wednesday 31 May 17:30	Burlington House Piccadilly London W1J 0DU	https:// britastro.org/	Special General Meeting and Ordinary Meeting
Saturday 3 June 10:00	Cambridge	https:// britastro.org/	Webb Deep-Sky Society Annual Meeting, Cambridge
Monday 12 June From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Saturday 17 June (all day)	Burlington House Piccadilly London W1J 0DU	https:// britastro.org/	Comet Section meeting
Monday 26 June From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Saturday 29 July	UCS, Ipswich	David Murton chairman@oasi.org.uk	Public access event. Major event to mark OASI's 50 th anniversary. Lectures by big-name speakers, exhibitions, trade stands and much more.
21 August	USA	www.greatamerica neclipse.com	Total solar eclipse
20 October 20:00	Museum Street Methodist Halls,	Pete Richards lectures@oasi.org. uk	Lecture tba
17 November 20:00	Museum Street Methodist Halls,	Pete Richards lectures@oasi.org. uk	Steve Hubbard and Malcolm Brown will be "Talk with ET? We think not."

Later 2017 NOG dates, up to the end September, are on the website.

Membership Renewal: (50th Anniversary Year)

You should have received a blue membership renewal form and a questionnaire in January.

If you have still not done so, please complete the forms and return to me at the address shown on the form. Thank you.

Martin Cook, Membership Secretary

Newbourne Observing Group

Avtar Nagra nog@oasi.org.uk

We normally meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays (with a few exceptions, like December and January).

The Newbourne Observing Group (The NOGs) is a good place to start for beginners. If you are thinking of buying a scope or binoculars, come and try before you buy and talk to owners about the strengths and weaknesses of particular models. If you've already splashed the cash, bring your new scope along to use or for advice on setting-up and adjustment. All welcome, with or without telescopes. We would like visitors to join OASI to enjoy the full benefits of membership.

The car park at Newbourne Village Hall has recently been much enlarged. OASI donated £100 towards this much-needed improvement.

Newbourne Observation Group Stargazer's guide

On the first meeting each month Bill Barton will give a short presentation of what can be viewed in the following 4 weeks. For armchair stargazers (on those cloudy nights) there is a small branch of the OASI Library held at Newbourne and a copy of the full catalogue.

NOG Meetings in 2017

16 Jan	30 Jan	13 Feb	27 Feb
13 March	27 March	10 April	24 April
15 May	29 May	12 June	26 June
10 July	24 July	14 Aug	28 Aug
11 Sept	25 Sept		

We open up for all meetings at 7pm. Star Guide (S) and Workshops (W) start at 8pm.

Please check the web site diary for any changes during the year.

Astronomy Workshops

Contact Mike Whybray

Location: Newbourne Village Hall IP12 4NP

Doors open at 7:00pm.

Workshops start at 8:00pm

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!

Given a clear night, we can make use of the field for a workshop or continue afterwards with some observing.

Do you have a subject you could workshop? You could do a short one, or share the effort with a partner. Drop Mike Whybray a line! workshops@oasi.org.uk

Lecture Meetings

Contact: Peter Richards lectures@oasi.org.uk

These take place in [Museum Street Methodist Halls](#), Upstairs room, Black Horse Lane, Ipswich

There is some parking at the venue but if there is no space at the venue you can drive to the end of Black Horse Lane and turn left to find a pay and display car park which charges (at the time of writing) £2 for parking between 6pm and 6am.

NB The spiral car park by the New Wolsey theatre is CLOSED.

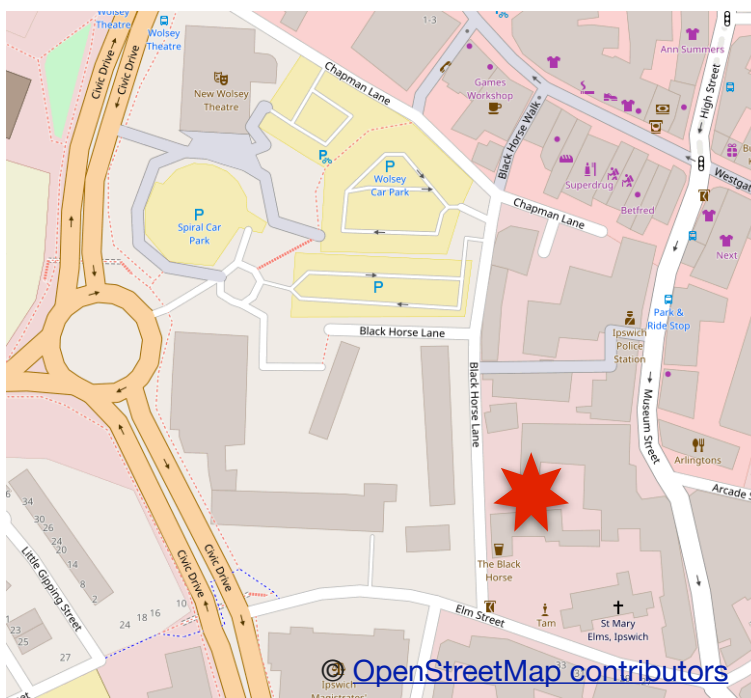
Please note that we have to be out of the building by 10pm

20 October

TBA

17 November

Steve Hubbard and Malcolm Brown
"Talk with ET? We think not."



DASH Astro Events – 2017

See <http://dash.moonfruit.co.uk> for the latest details.

All DASH Astro observing sessions will take place at WESTLETON COMMON. ASOG observing sessions and locations may be arranged at the time of observation.

Unless stated all group meetings will take place at WESTLETON VILLAGE HALL from 7:30 pm



Date	Event
11.03.2017	Meeting - Solar Team – short explanation on solar then a Q&A “Ask the Panel”
25.03.2017	Dash Observing Session - Westleton Common. Sunset 18:15 Moonset 15:02
08.04.2017	Meeting – Dr Dan Self – Where Earth Ends and Space Begins
13.05.2017	Meeting – Dr. Malcolm Brown & Dr Steve Hubbard Talk with ET? I think not!
03.06.2017	Meeting – Dr Paul Whiting – Report on the New Horizon space mission

The Night Sky in March

Martin RH

All event times given are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E

Times are in UTC(GMT).

Moon

Source: <http://heavens-above.com/moon.aspx>

New Moon	1 st Quarter	Full Moon	Last Quarter
26 Feb 14:58	05 March 11:32	12 March 14:54	20 March 15:58
28 March 03:57			

Sun, Moon and planets

Source: <http://heavens-above.com/PlanetSummary.aspx>

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:41	17:35		Spring Equinox Mar 20, 10:28
	31	06:32	19:27		
Moon	1	10:04	23:29		Perigee 03 March 07:34
	31	08:40	23:52		Apogee 18 March 17:26, Perigee 30 Mar 13:33
Mercury	1	06:50	16:55	-1.1	Superior conjunction 07 March
	31	06:54	21:18	-0.1	Perihelion 23 Mar. Max eastern elongation 01Apr
Venus	1	06:57	20:50	-4.4	Inferior conjunction 25 March
	31	05:34	18:47	-4.1	
Mars	1	07:57	21:32	1.3	
	31	07:39	22:40	1.6	
Jupiter	1	21:17	08:05	-2.2	
	31	20:01	07:02	-2.3	
Saturn	1	03:09	10:57	1.3	
	31	02:15	10:04	1.2	
Uranus	1	07:58	21:19	5.9	
	31	07:03	20:30	5.9	
Neptune	1	06:53	17:27	8.0	Superior conjunction 02 Mar
	31	05:57	16:36	8.0	

Asteroids

Vesta, magnitude 6.6 is currently visible in Gemini.

See <http://heavens-above.com/MinorPlanet.aspx?desig=4&>

Ceres, magnitude 8.9 is in Pisces.

See <http://heavens-above.com/MinorPlanet.aspx?desig=1&>

Occultations during March 2017

James Appleton

The table lists occultations during the month under favourable circumstances. The events should be readily visible in small telescopes or binoculars. The first two columns 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 disappearances and reappearances as dictated by the visibility of each phenomenon (determined by altitude, lunar phase, etc). Column four details the lunar phase ('+' for waxing and '-' for waning). Columns five and six give the altitude of the Sun and the star, both in degrees. (A negative solar altitude means that the Sun is below the horizon.) Columns seven and eight provide the star's magnitude and catalogue number.

The data relates to Orwell Park Observatory, but will be similar at nearby locations.

Please note that **times are shown in UTC**.

Date	Time (UT)	D/ R	Lunar Phase	Sun Alt(°)	Star Alt(°)	Mag	Star
03 Mar	20:05:03	D	0.31+	-23	32	7.3	Hip 15565
03 Mar	21:45:23	D	0.32+	-36	17	6.0	ZC 491
03 Mar	22:21:55	D	0.32+	-40	12	7.4	Hip 15928
04 Mar	18:38:47	D	0.42+	-10	50	6.3	48 Tau
04 Mar	20:48:47	D	0.42+	-29	36	3.7	54 Tau, Γ Tau, Hyadum I
	21:48:19	R		-36	27		
04 Mar	23:39:12	D	0.44+	-44	11	7.5	Tyc 1265-0224-1
04 Mar	23:41:40	D	0.44+	-44	11	4.5	71 Tau, V777 Tau
04 Mar	23:46:57	D	0.44+	-44	10	6.4	70 Tau
05 Mar	23:27:49	D	0.55+	-43	22	5.0	111 Tau, V1119 Tau
	00:18:13	R		-44	15		
06 Mar	19:13:27	D	0.65+	-15	56	6.6	ZC 951
07 Mar	01:08:46	D	0.67+	-41	17	7.5	Hip 30749
08 Mar	19:06:13	D	0.84+	-13	48	6.0	ZC 1238
08 Mar	22:45:06	D	0.85+	-40	49	7.0	ZC 1247
09 Mar	00:26:32	D	0.86+	-42	37	6.7	ZC 1258

Comets due in 2017

Bill Barton

Here are the comets listed in the BAA Handbook with single figure peak magnitudes:-

- 45P/Honda-Mrkos-Pajdusakova, peak magnitude 6 in January and **visible from the UK from January to May**
- 41P/Tuttle-Giacobini-Kresak, peak magnitude 3 in April and **visible from the UK from January to July.**
- Johnson (2015V2), peak magnitude 7 in June and **visible from the UK from January to July.**
- 96P/Machholtz will peak at magnitude 2 in October, but will not be visible from the UK.

Meteor Showers

Source: BAA Handbook 2016 p97-99

None during March.

Visible ISS passes $\geq 15^\circ$ max altitude

Martin RH

Source: <http://heavens-above.com/PassSummary.aspx?satid=25544>

Lots of passes this month but mostly for the early birds. Evening passes are at the end of the month (28th – 31st).

Times are UTC. Predictions are approximate (data taken on 16 Feb) due to craft adjustments. Check the day before.

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
04 Mar	-0.8	05:29:31	10°	SSW	05:31:55	19°	SE	05:34:20	10°	E
06 Mar	-1.8	05:19:54	10°	SW	05:22:52	31°	SSE	05:25:50	10°	E
07 Mar	-1.3	04:29:25	19°	S	04:30:23	21°	SE	04:32:59	10°	E
08 Mar	-2.7	05:11:33	17°	SW	05:13:51	49°	SSE	05:17:03	10°	E
09 Mar	-2.3	04:20:58	34°	SSE	04:21:16	35°	SSE	04:24:19	10°	E
10 Mar	-0.7	03:30:20	17°	ESE	03:30:20	17°	ESE	03:31:28	10°	E
10 Mar	-3.2	05:02:57	23°	WSW	05:04:51	69°	SSE	05:08:09	10°	E
11 Mar	-2.9	04:12:16	54°	SSE	04:12:16	54°	SSE	04:15:26	10°	E
12 Mar	-0.7	03:21:32	19°	E	03:21:32	19°	E	03:22:40	10°	E
12 Mar	-3.4	04:54:09	26°	W	04:55:51	84°	S	04:59:09	10°	E
13 Mar	-3.2	04:03:24	68°	SE	04:03:24	68°	SE	04:06:25	10°	E
13 Mar	-3.3	05:36:16	10°	W	05:39:34	79°	S	05:42:52	10°	ESE
14 Mar	-0.6	03:12:38	19°	E	03:12:38	19°	E	03:13:40	10°	E
14 Mar	-3.4	04:45:15	28°	W	04:46:49	86°	S	04:50:08	10°	E
15 Mar	-3	03:54:28	66°	E	03:54:28	66°	E	03:57:22	10°	E
15 Mar	-3.1	05:27:12	10°	W	05:30:28	61°	SSW	05:33:43	10°	ESE
16 Mar	-0.5	03:03:42	17°	E	03:03:42	17°	E	03:04:36	10°	E
16 Mar	-3.4	04:36:19	31°	W	04:37:44	75°	S	04:41:01	10°	ESE
17 Mar	-2.8	03:45:35	56°	ESE	03:45:35	56°	ESE	03:48:16	10°	E
17 Mar	-2.7	05:18:12	10°	W	05:21:16	41°	SSW	05:24:22	10°	SE
18 Mar	-3.2	04:27:30	36°	WSW	04:28:33	56°	SSW	04:31:47	10°	ESE
19 Mar	-2.2	03:36:51	38°	ESE	03:36:51	38°	ESE	03:39:03	10°	ESE
19 Mar	-2	05:09:29	12°	W	05:11:55	25°	SSW	05:14:41	10°	SSE
20 Mar	-2.7	04:18:56	36°	SW	04:19:15	37°	SSW	04:22:19	10°	SE
21 Mar	-1.2	03:28:30	20°	SE	03:28:30	20°	SE	03:29:43	10°	ESE
21 Mar	-1.4	05:01:08	13°	WSW	05:02:25	15°	SW	05:04:24	10°	S
22 Mar	-1.5	04:10:52	19°	S	04:10:52	19°	S	04:12:27	10°	SSE

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
28 Mar	-1.5	21:20:45	10°	SW	21:22:11	21°	SSW	21:22:11	21°	SSW
29 Mar	-1.9	20:28:23	10°	SSW	20:30:56	22°	SE	20:32:06	18°	ESE
29 Mar	-1	22:03:45	10°	WSW	22:04:45	18°	WSW	22:04:45	18°	WSW
30 Mar	-3.1	21:10:56	10°	SW	21:14:06	49°	SSE	21:14:25	47°	SE
31 Mar	-2.6	20:18:13	10°	SW	20:21:14	35°	SSE	20:23:55	12°	E
31 Mar	-2.4	21:54:12	10°	W	21:56:33	44°	WSW	21:56:33	44°	WSW

Iridium flares

Too many to list but see <http://heavens-above.com/IridiumFlares.aspx>

Paul's Astronomy Podcast for March

Paul Whiting FRAS Podcast, March 2017 www.oasi.org.uk/2017_03_pod.mp3

David's Radio Broadcast

On the 1st Tuesday of the month, 1.40pm on the Lesley Dolphin show on BBC Radio Suffolk – now digital (channel 10c) and FM 103.9 (Ipswich), 104.6 (west Suffolk), 95.5 (Lowestoft), 95.9 (Aldeburgh).

Bill's Radio Broadcast

ICRFM (Ipswich Community Radio) 105.7 MHz at about 08:25 in the morning of the first Wednesday of each month. I aim to cover what there is to see in the sky and then a little bit on something topical.

ICRFM is also available to listen to over the Internet and there is a listen again option on their website. <http://www.icrfm.com>

BAA News

Deep Sky Section annual meeting

The Deep Sky Section annual meeting details are now finalised, and the meeting will take place on March 4th 2017 at St. Cassians Centre, Kintbury, near Newbury.

Full details are available on the BAA website at <http://britastro.org/dss2017>

Speakers are:

Guy Hurst - Novae/Supernovae Patrolling

Jonathan Blake - Astrophotography - data capture and data processing

Mark Radice - Have telescope will travel

Steve Tonkin - Binocular Deep Sky Observing

Greg Parker - Mini-WASP

Dr Philipp Podsiadlowski. Oxford University - "From Supernova to Gamma-Ray Burst: Understanding the Diversity of Cosmic Explosions".

For members of the BAA and affiliated societies it will be £20 and for non-members £25. This includes all refreshments through the day and a cooked buffet lunch.

Driving directions are available on the website above, but there is also a train station at Kintbury, and we can arrange pickups from there to take you to the venue. Please let me know.

Advance booking is recommended to ensure a place. You can book online, or download the booking form from the website and send payment to the BAA Office who are coordinating bookings.

If you have any questions please either get in touch with the Office, or me.

Callum Potter

Director, Deep Sky Section

British Astronomical Association

deepsky@britastro.org

Back to Basics Workshop

We still have some places available at the next Back to Basics Workshop on Saturday March 11th 2017 in SWINTON MASONIC HALL, 63 STATION STREET, SWINTON, MEXBOROUGH S64 8PZ

If you are new to observational astronomy, or coming back into this and want an refresher. Or if you know someone (not a BAA member) who is interested then this workshop will be ideal. The programme of talks and practical sessions are aimed to help you learn basic techniques and develop your interest to its full potential. Experienced people will be on hand to answer your questions throughout the day.

The cost for the meeting is £8.00 BAA Members & children under 16. £10.00 for non-members. Price includes refreshments and a buffet lunch.

We are pleased to advise the following retailers will also be coming, BAA

Sales, W&W Astro and The Far-Sighted Binocular Company,

If you would like to attend please contact the BAA office (Telephone: 0207734 4145) by 1st March or you can book on line via our website

www.britastro.org/swintonb2b

Programme of the day

10:00 - Registration – Tea/coffee

10:30 - Official Welcome – BAA President – Dr Jeremy Shears

10:35 - So What Astronomy Can I Do? – Hazel Collett

10:45 - What Equipment and Books Do I Need? – Dr Jeremy Shears

11:30 - Lunar Observing and Workshop – Prof Bill Leatherbarrow

12:15 - Lunch

13:15 - Mexborough and Swinton Astronomical Society - Paul D'Silva

13:30 - Planet Observing and Workshop – Mr Mike Foulkes

14:15 - Radio Astronomy - Paul Hyde

15:30 - Afternoon Tea

16:00 - Imaging for beginners – Tony Morris

16:45 - Feedback, Q&A session & Raffle

17:00 - Close.

2017 SPA Convention

Saturday 1 April 2017, 10 am - 5.30 pm

Institute of Astronomy, Cambridge

www.popastro.com/meetings/convention/index.php

The SPA Convention is held every two years and is a great opportunity for members and indeed anyone interested in astronomy to get together, hear some great lectures from world-class astronomers and meet many of our section directors.

Everyone is welcome, whether or not they are an SPA member. There is no admission fee, but you will need to apply for a ticket.

The theme of this year's Convention is *What We Have Learnt From....* We have a superb line-up of speakers for you, covering a range of topics at the cutting edge of astronomy (see the programme below). And as usual there will be tours of the IoA telescopes, trade stands and exhibits from the SPA's observing sections, with the chance to meet many of the section directors and other SPA people.

SHA Spring Conference

Saturday 22 April

Institute of Astronomy, Cambridge

<https://societyforthehistoryofastronomy.com>

Speakers include:

- James Hannam (Medieval Visions of the Heavens)
- Stewart Moore (Charles Messier)
- Simon Mitton (The History of Planetary Science)
- Howard Carlton (John Pringle Nichol)
- Mark Robinson (George With)

OASI Member of the Year Competition

- Open to any non committee member (at time points earned)
- Runs from 1st September to 31st August each year
- It is the members responsibility to check that they have been credited the points for a particular event

Activity	Points	Activity	Points
Helping at an OASI outreach event	10	Writing a newsletter article (per page)	3
Giving a workshop/monthly sky notes	20/10	Introducing a new member	5
Astro photo published	2		

Top 4 Members' points to date

Bill Barton	71
Andy Gibbs	58
Rob Herring	46
Mike O'Mahoney	38

Come and help at one of our outreach events and earn 10 points. You don't need to be an expert!

Write a short article for the magazine, e.g.

Bought some new astronomy kit? Tell us about it – successes and pitfalls.

New: You now get 2 points for an astrophoto.

We are all learners.

PS Still trying to identify "Steve" who attended an event at Capel St Mary. Are you Cates, Steele or Shapland? Please let me know!

Martin RH

2017 Star Parties at Haw Wood



Haw Wood is a Milky Way class Dark Sky Discovery Site.

Naked eye visibility 5.73, averted 5.99 best SQM reading 21.75



SPRING

Wednesday 22nd to Thursday 30th March

AUTUMN

Friday 13th Friday 20th October

Pitches £12 per night including hook up



Haw Wood Farm

Book with Daniel or Georgina.

01986 784 248 Mobile 07 990 594 294

Haw Wood Farm Caravan Park, Hinton, Saxmundham. IP17 3QT

daniel@hawwoodfarm.co.uk

Looking Back into OASI Past – Observatory Repair and Restoration 1980 to 1990 – Part 1

Roy Gooding

This report is based one I put together, from various sources, for a meeting with the School's Headmaster and Governors in the early 2000's. I have included both the source material and the written reports.

2017 is the 50th year of the Orwell Astronomical Society. This year, will be celebrated by many events through out the year. This is a good time to evaluate what the society has achieve during this time. No present day member was around at the beginning in 1967, but there are a few members who joined only 4 or 5 years later. Back in the early days the observatory and the school building below it, were effectively derelict. The internal fabric of the school had not received any attention for many decades and the observatory had not had any significant attention since it had been built some 100 years before.

In the late 1960s the then Headmaster Mr Bell, hosted an Anglia Television film crew from the TV "Bygones" programme, around the observatory. This film is the only record of the observatory we have before our restoration started. The society was given the film, but after about 40 years it was in a very poor state of preservation. The surviving parts of the film were copied to DVD in 2007. Several members may still have a copy. If any member would like to see this film please contact the committee. I did have a copy but I am not sure where it presently is.

In the early 1970's our then Chairman, Roy Cheeseman instigated an observatory restoration programme. This programme carried on for the next 30 years or so. New members may be surprised to learn that during this period we were more a preservation society than an astronomical one. During the summer months, the observatory would be closed down for maintenance. It often looked and felt more like a building site than an active observatory.

Everything had to be man-handled up the stairs:

- | | |
|---------------------|----------------|
| • Tower scaffolding | • Wood |
| • Bricks | • Paint |
| • Cement | • Plaster |
| • Sand | • Floor sander |
| • Water | • Misc, tools |

The information that follows gives and indication on what work was done. It has been gleaned from the observatory log, committee minutes and Newsletter reports for the 1980's.

Summary of Work Carried Out in Refurbishing Orwell Park Observatory

When the society gained access to Orwell Park Observatory in 1967 the observatory was derelict. Some of these jobs took months to complete, while other larger jobs took many years to complete.

Transit Chamber

- Designed and rebuilt shutter opening mechanism
- Relaid new floor
- Restoration of Transit telescope
- Repaired transit mount
- Rebuilt Transit room stairs

Tomline Telescope

- 10" telescope lens re-figured. (The original errors in the lens's manufacture in 1872 have now been removed)
- Restoration of the original clockwork telescope drive mechanism. (Now only used for demonstration purposes)
- Clockwork drive replaced with a modern electronic drive.
- Restoration of the Right Ascension setting circle
- Restoration of the telescope's two periscopes

Observatory

- Varnished inside of dome
- Replaced dome shutter wheels.
- Fabricated new brackets for supporting the shutter wheel guide track.
- Repairing the Observatory dome wheel boxes
- Repaired and reinforced dome floor
- Restoration of the two observatory observing chairs
- Rebuilding collapsed observatory wall
- New door frame was fabricated for the lift shaft door.
- Reinforcement steel band bolted to inside of dome rim

Lift Shaft

- New floors at 4 levels installed
- Conservatory level: Map and computer room
- Mezzanine level: Equipment store
- Belvedere level: Society library
- Stairwell basement: Heavy equipment store
- The lift shaft at the Belvedere level was redesigned and the floor lowered, for the new library. This was opened by Peter Hindley on 15th May 2004

General Decorating

- Painting and remedial repairs are always an ongoing job
- Lubrication of the telescope, dome shutter and the dome support wheel boxes

The Present Day

Updating the Tomline telescope is always ongoing. In 2009 Martin Cook and James Appleton installed a new electronic RA drive. Presently the feasibility of fitting encoders to the RA axis is being investigated.

Newsletter Maintenance Reports

Every year we re-decorate the Observatory during the summer months. This year we are closing the Observatory during June and July so that a determined effort can be made by as many members as possible rather than the odd few who up till now have spent nearly all their spare time on this, job. If you would like to help please come up on one of the nights to help.

Observatory Repairs August 1981

Observatory repairs have been going quite well during the last, couple of months but again nearly all the work has been done by the same people. More help is desperately needed and work will be going on at the Observatory on the advertised club nights until it gets dark. The Observatory mahogany observatory is being sanded down and we hope will be re-varnished the first re-varnish in maybe a hundred years. Meanwhile, outside the observatory tower,

suspended on a mountaineer's climbing harness. Colin Button is paying Spider Man while members feed him with cement so that; he can re-point the observatory tower. All this work is not only being done for the Open Day but, is necessary, every year to keep the observatory, tower and telescope in good condition. So if you can spare a couple of hours please come up and help.

Re-Decorating the Observatory September 1981

We still have a tremendous amount of work to be done at the observatory and members are urged to help as much as they can. Work parties at the observatory generally work until it gets dark and then some observations are carried out through the telescope. At the moment the observatory has been sanded down and re-varnished, and it is a sight to be seen! Colin Button is still pointing the outside walls of the tower, - did you see his photograph in the Evening Star. So if you can spare an hour or so please come up the observatory to lend a hand. It was nice to see that one of our new members, Dr. Beale has been coming to the observatory to help.

Maintenance of the Observatory December 1981

Report by David Payne

Since early June of this year there has been almost continuous activity at the Observatory. Not the expected activity of a bunch of astronomers but more that of a demolition team. Chief demolition expert has been Martin Cook who only has to threaten a door with the dreaded crow-bar as it would almost leap from the wall. This fact happened to the 'Lift shaft door in the Observatory. After careful and delicate inspection of the door and frame by David Barnard, Roy Gooding and Martin Cook (crow-bar in hand of course), the frame was found to be suffering from severe bout of wet rot. The only course of action was door and frame removal. I leave you to guess who and with what this was achieved. With Roy Gooding's assistance and use of the School's woodwork room, a new door frame was constructed and duly installed. The door was re-shaped and re-hung and now actually opens and closes! There is only one key to this door and it is to be kept locked at all times on account of the 50 - 60 feet drop on the other side of it!

The lift shaft door was only the beginning of the renovation work. Removal of the door frame coincided with the removal of large areas of the cement and plaster around it. Also at this time David Barnard was going around the walls of the Observatory looking for loose paint and plaster and, I must add, had some considerable success in finding it.' The work was now becoming a major reconstruction job. Bags of sand, cement and plaster were hauled laboriously up the 111 steps to the observatory room. As you can imagine. The Observatory was looking like a construction site and it was while it was in this state that the decision to rub down the mahogany interior of the observatory was taken. We think that this was the first time since 1972 that the observatory woodwork had been cleaned so thoroughly. Sanding the observatory proved a very arduous task but this is where the stamina of Peter Parish came to our rescue. Where most of us could only stand half-an-hour or so of continuous sanding Peter would spend hours on the scaffolding apparently tireless. While all this activity inside the observatory was going on, our Colin (Spider-man) Button was inspecting the outside of the Observatory walls. Suspended over 60 feet from the ground by harness and ropes he found considerable frost and weather damage to the brickwork. (Colin's day job was working on the National Grid pylons, the large ones). As nobody else was brave enough to use his rig, Colin was given the task of re-pointing the worst areas of the exterior observatory walls. His exploits made the front page in the local papers. Not to be outdone in this high altitude maintenance, David Barnard took to stretching down from transit room roof in order to re-point some of the brickwork on the outside walls of the transit room. He also carried out repairs to the roof of the transit room and hopefully it is now waterproof.

The major engineering job of the re-construction work involved the observatory shutter. It had been found that some of the bolts holding the bottom shutter track to the support brackets had been scraping the lead from the roofing when the observatory was rotated. This was one of the

causes of damp in the Observatory. It was necessary to raise the support brackets of the shutter track before the lead could be repaired and it was while attempting this task that disaster struck. The story is quite complicated but the main gist is as follows:- The shutter track is (or was) supported by three cast iron brackets. One of these had been removed for repositioning the track. The extra load on the remaining brackets proved too much for one of them and after 110 years of faithful service, gave up and broke. The remaining bracket suddenly required to support the load of the shutter alone. also decided to give up and we were left with two useless track support brackets. However do not despair. with the help of Martin Cook and Anglia Grain Installation Ltd. of Wick ham Market, a pair of new brackets were fabricated. These we managed to fit into new positions where they would not damage the roof and being fabricated out of steels should be. Much stronger than the original iron ones, Slowly the reconstruction work was completed and decoration began. Gallons of polyurethane was applied to the observatory woodwork and paint to the observatory and transit room walls. The observatory floor was sanded and varnished, this wasn't just to make it look pretty (although it does now look fine) but in the hope that it might reduce the perpetual dust problems. New rubber tired wheels have now been fitted to the observing chair allowing much easier movement and also protection. to the floor surface.

We now had a shiny observatory the only eyesore was the telescope. As we thought that the telescope might come in useful sometime (between decorating sessions and if the skies cleared) we decided we ought to keep it. Martin Cook. David Barnard and others set to it with tins of battle ship grey paint and gave it the once over, just in time for the Open Day.

Finally having done all of this work this year, is there anything left to do Unfortunately the answer is yes. The guttering set into the wall below the observatory has corroded to non existence and leaks like a sieve. This means that we will still suffer from wet walls this winter and this must be repaired next year. Also one of the shutter support wheels needs replacing, further pointing of the external walls will be required and stair roof, lift shaft and transit room all require further attention.

Finally I would like to mention a few additional names of members who gave their valuable time in helping in this program of work. Names which spring to mind are: Alan Smith, Wayne Button, and Robert Adams of Felixstowe

I would also like to thank on behalf of the society Mr. Derrick Cook and Anglia Grain Installation Ltd for the use of their facilities when fabricating the new brackets. Anyone I have not mentioned please forgive me, your efforts were very much appreciated

Maintenance of the Observatory April 1982

With the lighter evenings now with us, this should enable us to concentrate on some repairs to the Observatory. There were several jobs that were not done during last year's session, e.g. replacement of the windows frames on the stairs and in the Belvedere room. Help will be needed soon and the work schedule will soon be pinned up in the Belvedere room.

As much help from members as possible is required so that we can get the observatory and Belvedere room as we would like it to be.

Search for the Beehive February 1984

Report by Alan Smith

On the Wednesday after Christmas, with clear skies and after showing a group of visitors around the observatory, the remaining members of the society decided that a search for the 'beehive' was long overdue.

So, on the following Monday morning at 10:00 hrs., armed with the necessary equipment (30 ft ladder, circular saw, hammer etc.) five members plus one guest assembled in the observatory. After hauling the ladder the 60 ft up the side of the observatory (the spiral stairs were not designed to admit such a long object) our resident Spider Man, Colin Button, was persuaded that he should ascend the ladder to start the search. You see, it was not the well known

Messier object we were after, but the nest of honey bees that took up residence in the observatory

Shutter a couple of years ago. At the last estimate in the summer of '83, about 60,000 bees were living in the observatory and they could increase by 30,000 per year. Anyone who worked in the observatory last summer will know of the problems of coexistence with 60,000 bees, any further increase in their numbers was intolerable. However we did not want to destroy the bees, unless absolutely necessary, so removing the nest intact was going to be attempted.

Someone mentioned that bees were not active below 64 degrees Fahrenheit and that it would be quite safe to attempt the job (that was only the first big mistake). Armed with the circular saw, Colin ascended the ladder and very carefully cut the first of the mahogany planks lining the observatory shutter. After removal, we found that we had scored a bulls eye in the 20ft by 6ft shutter. Just behind the plank could be seen the edge of the honeycomb. Further planks were removed and core of the honeycomb came into view. By this time some of the more inquisitive members of the nest had begun to fly around to find out what was disturbing their peace. So much for 64 degrees Fahrenheit! At this point it was decided that a more stable platform was required, and a scaffold tower was borrowed from the School. The bees were now becoming rather active and our guest, Mr Drew, a bee keeper, decided that he should take over the work from the rather apprehensive Colin.

Further planks were removed and the whole honeycomb plus a football sized huddle of 25,000 – 40,000 bees became visible.

The bee keeper said that it would be better if the bees could be allowed to settle down for a while as by this time several squadrons of them were zooming around the observatory. Time for lunch!

Returning a couple of hours later we found that the bees had indeed quietened down. The bee keeper arrived with a large box equipped with special frames on which to tie the honeycomb. I should explain at this point, that the nest was shaped rather like the 'Rising Sun' flag of Japan, with a central core and several rays or tongues of honeycomb radiating from the centre.

Surplus honeycomb from the edge of the nest was dropped into the box to provide food for the bees over the winter (and astronomers apparently judging by the number of fingers that were dipped into the very tasty honey). Working with care and obvious enthusiasm, Mr Drew cut each of the 20-24 inch long tongues of the honeycomb away from the copper clad outer skin of the observatory and tied them onto the specially constructed frames that would be the new home for the bees over the winter.

When all the honeycomb had been removed there were still several thousand bees clustered inside the shutter and they had to be brushed off and dropped into the box. This completed, the lid was positioned and the box lowered the fifteen feet to the floor of the observatory. The planks were replaced in the shutter, and the original bee's entrance covered by a copper plate.

Mr Drew explained that as long as the queen bee was undamaged the colony stood a good chance of survival until spring, when it would be re-housed in a normal hive.

There can be very few astronomers who can photograph the 'Beehive' using nothing more sophisticated than a flash gun, and despite the hard work involved, over a long day, the five members present had a very rewarding and interesting time. Finally a word must be said about the skill of the bees, the honeycomb is constructed of a wax formed into thousands of perfect hexagons.

Our thanks to Mr Drew, without whose skill the day would probably have had a very different outcome. The members who were present were: Martin Cook, Colin Button, David Barnard, Eric Sims and myself Alan Smith.

Next month : Part 2 – Maintenance Notes and Log Books

OASI 1967 – 2017

50th Anniversary Convention, 29 July 2017

On Saturday 29 July 2017, we will celebrate the 50th anniversary of OASI with an astronomy convention. The venue is the Waterfront Building, University of Suffolk. There will be lectures by prominent astronomers, displays by astronomy societies and trade stands.

Venue

The Waterfront Building is an ideal venue in a central location on the popular waterfront area of Ipswich. It boasts large lecture theatres together with abundant exhibition space on two levels. There is a café on site and a plentiful selection of eateries and bars nearby. Green marker.

Car Parking

Car parking is available at £4.50 for the day at postcode IP3 0AQ, less than five minutes walk from the venue. Map on web site. Many other car parks are available in town: see Parkopedia.

Accommodation

Many hotel chains are nearby, with a range of prices to suit all pockets.

Tickets

Entrance to the convention (displays and trade stands) will be free. Tickets for the lectures will be on sale in advance and at the door. Further details will be advised on our website once finalised.

Speakers

Speakers confirmed to date include the following:

Dr Allan Chapman, FRAS, of Wadham College, Oxford, is an accomplished speaker, TV presenter and author. He is a founding member and president of the Society for the History of Astronomy and Honorary President of OASI.

Nick James has been a member of the BAA from the age of 12. He was papers secretary for many years and is currently Director of the Comet Section.

Nik Szymanek has been the premier UK astro-imager for over two decades. He often collaborates with professional astronomers and his work frequently appears in the pages of astronomy magazines.

Programme

09:00 – 18:00	Displays area (foyer)
09:30 – 10:45	speaker 1
11:00 – 12:30	Nik Szymanek
13:00 – 14:15	Nick James
14:30 – 15:45	speaker 4
16:00 – 17:30	Allan Chapman

Trade Stands

Trade stands confirmed include:

The Widescreen Centre
Sneezums, Bury St Edmunds
Space Rocks UK

<https://www.widescreen-centre.co.uk>

<http://www.sneezums.co.uk>

<http://www.spacerocksuk.com>

Display Stands

Societies attending with display stands include:

[Athenaeum Astronomy Society](#)

[Breckland Astronomical Society](#)

[DASH Astro](#)

LYRA [Lowestoft and Yarmouth Regional Astronomers](#)

[British Astronomical Association](#)

[Commission for Dark Skies](#)

[Kesgrave High School Space Club](#)

[Geo Suffolk](#)

www.markproctor.talktalk.net/aaa/

www.brecklandastro.org.uk/

dash.moonfruit.co.uk/

www.lyra-astro.co.uk/

<https://britastro.org/>

www.britastro.org/dark-skies/

khsspaceclub.yolasite.com/

<http://www.geosuffolk.co.uk/>

For the latest information, please see our website oasi.org.uk

Vesta

Andy Gibbs

I managed to find Vesta amongst the stars of Gemini on Saturday evening, with a bit of help from my Telescope's GOTO!

As there was intermittent cloud cover, I decided it wasn't worth setting up a camera, so I resorted to the old fashioned method of a pencil and paper to sketch the view.

I have attached a sketch, (apologies for my artwork). This pretty much matched up with the view in Stellarium.

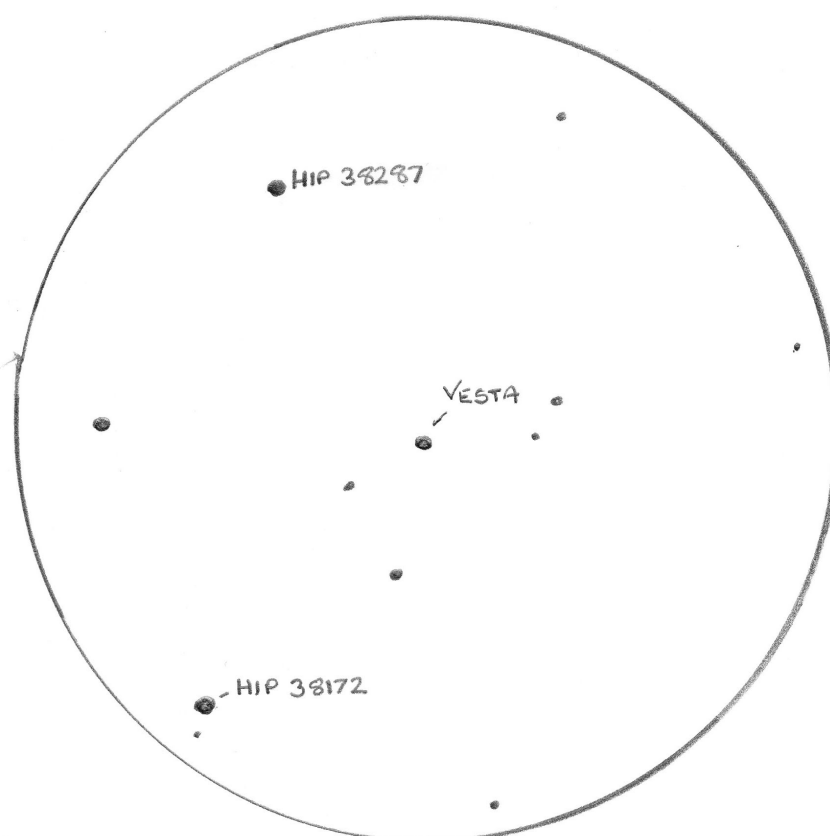
28-1-17 at 20:45

Magnitude 6.4

Meade LX200 ACF 200mm

Eyepiece 26mm 60° FOV

77x magnification



European Astrofest 2017

Kensington Town Hall and Conference Centre, 10th and 11th February 2017.

By Andy Gibbs

It was time to head off to London to attend Astrofest. This is the 25th year of the event and my 7th visit.

I decided to attend the afternoon session on the Friday and both morning and afternoon sessions on the Saturday.

Highlights included OASI Honorary President, Dr Allan Chapman with his talk on Charles Messier. Allan has been the only speaker to give a talk at all of the 25 Astrofests. A magnificent achievement!

There was a fascinating talk by Garry Hunt on the Voyager Legacy. With impressionist and keen amateur astronomer Jon Culshaw, finishing Saturday with a hilarious, multi-voiced, description of Exoplanets. Among the impressions were Carl Sagan, Patrick Moore and Donald Trump!

The exhibition area was, as ever, busy. There were several interesting new products for sale, but my credit card stayed in my pocket this time!

I have noticed a rise in prices on Astronomy gear, due to the weak pound and Brexit. Although most traders were still offering special Astrofest deals.

The lectures I attended were:

- *Space Rocks on Ice*: Katherine Joy, University of Manchester.
- *Listening to Einstein's Universe*: Martin Hendry, University of Glasgow.
- *Pluto and the Kuiper Belt Objects beyond Neptune*: Scott Sheppard, Carnegie Institution for Science.
- *Of Comets, Ferrets and Nebulae. Charles Messier, his discoveries and his world*: Allan Chapman, Oxford University.
- *The Dynamic Cosmos*: Will Gater, author and astrophotographer.
- *Proxima b: The World Next Door*: Guillem Anglada-Escude, Queen Mary University of London.
- *Alien Hunters*: Louisa Preston, Birkbeck University of London.
- *The Voyager Legacy*: Garry Hunt, Voyager Imaging team (1972-90).
- *ExoMars and the Search for Life*: Peter Grindod, Birkbeck University of London.
- *Beyond Pluto, the hunt for a massive Planet X*: Scott Shephard, Carnegie Institution for Science.
- *Landing on Comet 67P*: Andrea Accomazzo, European Space Agency.
- *The Exoplanet Super League*: John Culshaw, Impressionist and Exoplanet aficionado.

The heliocentric model of Copernicus

A continuation of the Life and Times of Nicolaus Copernicus. Part I can be found in January's edition of OASI news.

Andy Willshire

Copernicus developed his mathematical representation of heliocentrism and published his findings in 1543. His model suggested that the sun was stationary and the Earth and other planets revolved around in a circular fashion, and at uniform speeds. This idea was first broached around the third century BC by Aristarchus of Samos, an astronomer and mathematician. This however received little attention apart from some criticism by Archimedes. This was a break away from the Ptolemaic, or Geocentric model that had the Earth at the centre of the Universe, with the sun, moon, planets and stars rotating around it. Claudius Ptolemy resided in Rome about the 100A.D. period, and produced a model that he said would accurately demonstrate the motions of all structures visible in the night sky. This became the prime model for the structure of the solar system, until the work of Copernicus, who having considered the philosophical significance of Ptolemy's work, continued with what he believed were mathematical and astronomical proofs. These culminated in a set of astronomical tables which allowed past and future star and planet positions to be calculated. The results of this in truth however were little better than those using the Ptolemaic system.

The major features of this theory were:

All motions in the heavens were uniform, and either cyclic or epicycles, with the sun at or near the centre of the universe. The model continued with the known planets starting with Mercury and ending with Saturn and the fixed stars moving around the sun. He considered that the Earth's motion explained retrograde movement and that the Earth had a daily rotation, yearly revolution and axial tilting. These ideas were written in his 'Commentariolus' and handed out to his friends around the year 1510.

His major work '*De revolutionibus orbium coelestium*', was published in the year of his death (1543), even though he had produced the work several decades before. In the introduction he dedicated his book to Pope Paul III, suggesting that the Church could amend the Julian Calendar with more accuracy and provide the reform to it that they required. This work was then subdivided into six smaller books.

Few astronomers were satisfied by the Copernican treatise from its publication to the 1700s, even though it had a good circulation. The stumbling point broached by Copernicus's contemporaries was that they were not ready to acknowledge that the earth actually moved. It was to be a further generation before another group of astronomers accepted heliocentric cosmology. Both Galileo (1564-1642) and Johannes Kepler (1571-1630) took on board Copernicus's hypothesis and tried to improve it.

Today, the Copernican ideas have several advantages:

- (i) It accurately predicts the relative distances of the planets from the sun.
- (ii) The Earth's axis is not perpendicular to the plane of its orbit, which allows for the seasons.
- (iii) It gave a good explanation for the apparent retrograde action of the planets. This was termed parallaxial displacements, which is defined as an obvious change in a star's position, the origin of which is the movement of Earth in its orbit. Then, over the course of a year a star follows a small path in the sky called a parallaxial ellipse.

References:

<https://en.wikipedia.org/wiki/Heliocentrism>

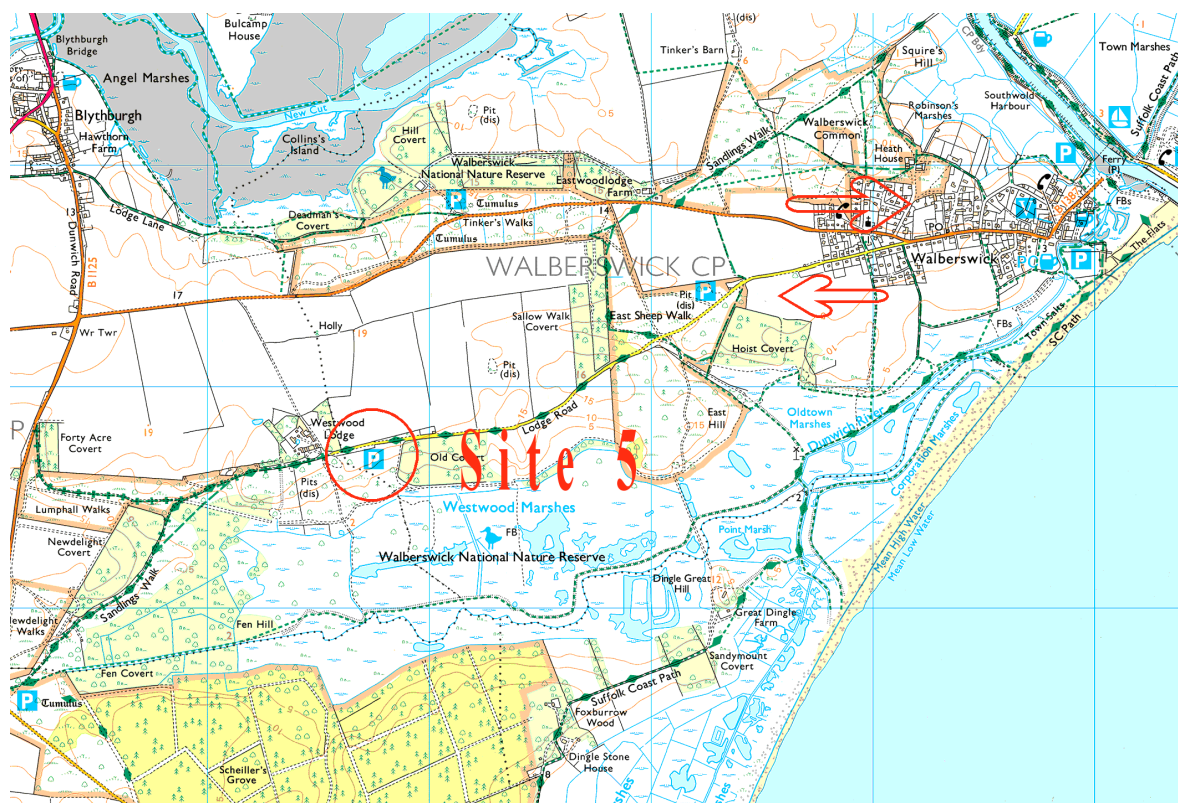
http://www.daviddarling.info/encyclopedia/P/parallaxial_displacement.html

The Graze of 81 (tau)

Alan Smith

A grazing lunar occultation of the star 81 Taurus was predicted for 19:23 UT on the evening of Sunday 05 February 2017. The star is of magnitude 5.5 and the occultation a south limb event, so the astronomical circumstances were good. Although the graze track was a little north of Ipswich, a number of OASI members and a couple from DASH/LYRA decided to attempt to observe the phenomenon.

I performed my usual virtual act to identify a potential observing site from the prediction given by 'Occult 4.0' (a freely available occultation prediction program). Using Google Earth and OS maps I examined the track and identified a shortlist of half a dozen potential observing sites, choosing them to be off-road, away from sources of light pollution and with an unobstructed southern aspect. The eventual site chosen was suggested by Dave Murton and was located on a roadside public car park close to Walberswick on the Suffolk coast. Given that the site had been used by other members of the society on a previous occasion, I decided that a physical site survey was not required on this occasion.



With days to go to the graze, the usual cloudy weather was forecast for the early evening, but with clear skies approaching from the west.

Our standard practice for occultation observations is to hold a telephone conference on the evening of the event to make a go/no-go decision. At 16.00pm on Sunday we held the conference, and the decision to cancel the observation was an easy one, as there was only an outside chance that a clear weather window would arrive in time.

No surprise, at the appropriate time: complete cloud cover ! And, unusually, complete cloud cover was also present during the 'graze window' and for the rest of the night. Still, there are two more grazes within reach later this year.

A Beginner's Review of a Budget Binocular Setup for Astronomy

by Rob Herring.

Following on from my review of my Celestron 5 SE telescope, I'd become a little frustrated at the amount of cloud that we've been having of late. Whilst the 5 SE is a convenient and versatile 'scope, it's not really suitable for that quick half hour of clear skies during cloudy weather, for carrying in the car on the off-chance, or just as an excuse for avoiding "Corrie" on TV when Mum visits! Binoculars would be ideal for those "grab and go" situations. I already own a decent quality pair of 8x42 binoculars, but thought their aperture a trifle limited for astronomical work, although they're a superb general purpose size. Many people recommend 10x50's for beginning astronomy, but that's only one step above what I already have, so I decided to try a basic pair of 15x70 observation binoculars.

Opticron Oregon 15x70 Observation Binoculars.

These are very much at the budget end of the spectrum, and I found mine for £79 from Cley Spy in North Norfolk. They are made in China, I believe by United Optics, and the same basic model is offered by various companies (Celestron, Revelation, etc) with various levels of finish and quality of lens coatings. A little internet research indicated that the Opticron's appeared to be the best of this cheapie bunch, and they come with a 5 year guarantee. The binoculars are of a traditional porro-prism design with a central focusing wheel. They're approx 276mm long by 213mm wide by 84mm high (with the one piece eyepiece cap snugly in place). The eyepieces have fold down rubber cups for those who wear glasses. Considering their large size they are lightweight, at an advertised 1393g, and they come in a soft nylon case with carrying strap, a 25mm wide nylon neck strap, lens caps, a basic instruction manual and a lens cloth. The body of the binoculars are covered with a matte black rubberised material, giving a tidy if not glamorous finish. The binoculars indicate they have a 4.4 degree field of view and that they are fully multi-coated. My research indicates that the optical coating extends only to the glass/air surfaces and does not include the internal prisms. Research also indicates that the binoculars are internally stopped down, reducing the effective aperture to around 63mm. This is a cheap and easy way to mask optical deficiencies at the expense of absolute performance, so how do these binoculars actually perform?



Opticron Oregon 15x70 and Viking 8x42 binoculars

Terrestrial Testing in Daylight.

I thought I'd start by using the binoculars on a variety of terrestrial objects that I thought might reveal any shortcomings, although in a rather subjective and non-scientific way. I used my Viking 8x42 binoculars as a benchmark. These Viking binoculars cost me around 75% more than the Opticrons - but that price was nearly 30 years ago! The Viking's are not a high end optic, but I think they are solidly in the middle ground as far as quality goes. Like many decent optics in the 1980's, they were made in Japan.

Chromatic Aberration (Colour Fringing):-

I used a TV aerial, about 40m distant, that was silhouetted against a bright, but grey, sky.

Viking 8x42:- The colour fringes were most obvious on the aerial's vertical support pole, blue to the right, yellow to the left. Unobtrusive in terms of viewing the object in question.

Opticron 15x70:- Again the fringes were most obvious on the vertical pole, but red/yellow to the right and blue/green to the left. These two-colour fringes lead me to believe that the aberration is less well controlled in the Opticron's than the Viking's, but they are not any more extensive or obtrusive.

Distortion of Horizontals/Verticals:-

I swept the binoculars from side to side and up and down while focussed on brick walls and the edges of buildings, 20-40 metres distant, to see if straight lines appeared to be bowed at any point.

Viking 8x42:- These showed a moderate degree of pincushion distortion. I don't think that the amount seen would be acceptable in, say, a quality 35mm photographic lens, but it's certainly good enough for visual work.

Opticron 15x70:- These showed a more pronounced degree of pincushion distortion than the Viking's, which is commensurate with their budget nature. I've not yet discovered any straight edges in space, so doubt this will affect their use in astronomy.

Sharpness Across Field of View:-

I focussed on a brick wall, keeping the binoculars as steady as possible, to see if the regular pattern looked softer towards the edge of the field of view.

Viking 8x42:- The sharpness only softened at the very edge of the field of view, maybe 2-3mm from the perspective of the viewer. This softer area, being at the very edge, definitely had a ring quality about it. Not anything that would be obtrusive in general viewing though.

Opticron 15x70:- There is a gradual drop off in sharpness as you move out from roughly the central half of the field of view towards the edge of the field of view. This is where the budget nature of these binoculars really shows, and I would say it would limit their use for terrestrial work. For astronomical use, however, having the central 2.5-ish degrees sharp, in a 4.4 degree field of view, is probably enough. The Pleiades will fit into this sharp area quite easily, for example. On the brighter galaxies and nebulae, I don't think I would be able to tell a sharp version of a faint fuzziness from a slightly defocussed one. One naturally centres the object in the field of view, so I think the Opticron's may get away with this.

I found, during these simple tests that I can use the Opticron's quite happily, without undue fatigue, for half an hour or so. I'm around 6'1" and 14 stone, so am of above average size, but I also suffer with ME/CFS which probably acts to counter any strength advantage that that may give me. Serious observing will no doubt require some sort of support for the binoculars.

Astronomical use of the Opticrons

M31, the Andromeda Galaxy, is an easy and rewarding binocular object that showed nicely in the Opticron's. I didn't perceive any real difference between the 8x42's and the 15x70's here.

Looking at a waxing gibbous moon showed unobtrusive colour fringes at the edges of the lunar image in both pairs of binoculars, but there was no overall colour cast seen in either pair. The Opticron's did, to my eyes, make the moon appear to be more three dimensional than the Viking's did, with more detail seen around the southern craters in particular.

Albireo, a beautiful double star with yellow and blue components, has quite a wide separation, 35", between the two stars. I've never really heard of splitting double stars with binoculars before, but thought I'd give it a try. Both pairs of binoculars did show that the star as being extended somewhat, but in both cases the amount of shake I had prevented me from identifying a positive split. I was looking pretty well straight up at the time, so was literally bending over backwards to see these stars through the binoculars, so wasn't in the most stable of positions.

The Pleiades is normally another rewarding binocular object, but through the Opticron's the level of magnification combined with my wobbles meant that the stars showed as trailing arcs and circles, akin to seeing children draw shapes in the air with their sparklers on bonfire night, so some sort of support was definitely called for.

A Budget Binocular Support for Astronomy.

I could've just grabbed a broomstick to rest the weight of the binoculars on, but that's not the most elegant or portable solution. A name-brand photographic monopod on it's own would cost over half as much as the binoculars, which doesn't fit in with the budget philosophy of this idea. Fortunately Amazon have the AmazonBasics 67" monopod on their website, which extends from 54 to 170 cm in height, can support up to 3kg, and for £11.99 even comes in it's own nylon case. It has a rubber foot that you can screw upwards to reveal a short spike for using in soft ground.

Opticron make their own "L" bracket, model 31005, suitable for binoculars with objective lenses over 50mm, which Amazon supplied for £10. It is made of a lightweight alloy, 76g on my digital kitchen scales.

I also found the "Neewer 360 degree rotation pistol grip head", so that I could easily adjust the viewing angle, on the Amazon website for £29.99. Unlike many "pistol grip" heads the grip is integral to, rather than protruding from, the central column so it won't interfere with using the binoculars by poking you in the face. It can support up to 4kg and certainly appears to be sturdily built (825g on my kitchen scales). I've seen an identical looking item under the name of "Konig" so I suspect that, like the binoculars, there's one factory putting out the same basic product under a variety of names.

Everything fitted together perfectly except that the monopod attachment screw is 1/4", and the head requires a 3/8" fitting, so a £1.99 threaded adaptor was acquired off of ebay. So for £54 I think I've got myself a compact and portable method of steadily supporting my binoculars. But does it really work?



Neewer head and Opticron "L" bracket put together. The head has a ball and socket joint at the base, which is normally locked, but becomes free to move when the trigger lever is pulled.

Astronomical use of the Opticrons with the Monopod.

(First Light, November 28th @ NOG).

Like any new piece of kit, one has to learn how to get the best from it. Curiously I found that extending the eyecups to their normal position, and placing my glasses against them, gave me the best view. The focus was kept just right like this, and I probably saw more because what I was doing was completely repeatable by using this method, especially when I was in a rather contorted position by trying to look up at the zenith. (I'm astigmatic and also have varifocal lenses in my glasses, which certainly doesn't help). Somebody younger, shorter, or just with better eyes than me, may not have this problem.

This was a fantastically clear night, with the Milky Way clearly visible, and the Andromeda Galaxy was as fine a sight as I've seen in a small optic. The Double Cluster in Perseus, the Pleiades and Hyades in Taurus, and the Orion Nebula(e) were seen clearly, and with very little shake, enabling me to concentrate fully on the object. The Opticrons revealed a small amount of coma distortion, with stars at the edge of the field of view apparently extending slightly, (not just defocussing) but this didn't detract any from my viewing pleasure. Grasping the monopod firmly and pushing down on it slightly, and whilst holding my breath, I managed to split Albireo. I do believe I managed to glimpse the M33 galaxy in Triangulum too. I was probably seeing the effect of the difference in threshold between direct and averted vision here, in that as soon as I consciously looked for M33, it "disappeared" on me. I'll have to confirm my sighting on another night to be sure, but there are no other binocular-friendly "faint fuzzies" in that immediate vicinity - at least not on my star chart!



The binoculars will sit on the head & bracket quite comfortably. 30 cm ruler shown for scale.

Conclusions

The Opticrons are definitely better for astronomical work than the 8x42s, the higher magnification making the Double Cluster appear far more obvious and detailed, for example. A 33% narrower field of view means they are harder to point accurately, by which I mean that getting on target first time is more difficult - especially near the zenith. This effect may be exacerbated by a "tunnel vision" effect of the differential focus seen across the field of view of the Opticrons. It could simply be a case of just getting used to new kit though! By the end of the evening I was using the simple technique of doing a little area sweep, to confirm I was on target, with each star hop and this worked quite well for me. Distinctly coloured stars are definitely useful here. Another technique would be to look through the left eyepiece with the right eye and comparing magnified vs non-magnified views to help me get in the area of interest quickly.

Viewing objects at lower altitudes, with my body in a more natural pose, was found to be considerably easier. I'll have to try using a block to rest the monopod upon, for a bit of extra height, when viewing at the zenith next time.



The 6'1" author with the monopod set to its maximum height.

The Opticron Oregon 15x70 binoculars are definitely built down to a price, rather than up to a standard. Their optical deficiencies, however, are such that they did not impinge on my enjoyment of astronomical observation. Dedicated birdwatchers, for example, might not be as forgiving of these flaws. That being said, for an £80 street price, they offer fantastic value. As a second pair of binoculars, specifically for astronomical use and kept by the back door for those opportune moments, they are just about ideal and I'm pleased that I bought them. They also augment my GOTO 'scope nicely, as I'll be learning the sky by finding objects the old fashioned way as well, and they do offer sufficiently rewarding views when I get there. Also, if I was travelling to distant lands, they could fit into hand luggage, and if the worst happened I wouldn't be too badly out of pocket. According to my research, stepping up in quality for 15x70 binoculars would appear to at least triple the price and nearly double the weight, at which point a small refracting telescope may prove more attractive. If I were looking for a first pair of binoculars, intended for a combination of both astronomy and general purpose use, then the typical recommendation of a decent pair of 10x50's would definitely still hold true for me.

I found the monopod setup to be a complete revelation, allowing me to enjoy steady enough views to concentrate upon the object being observed, and without tiring. It even helped a little when using the 8x42's, which are also threaded to accept an "L" bracket. On the following evening I used the monopod with the

8x42's to, if not actually split, then certainly turn Albireo into the appearance of a figure 8. Popping the Opticrons back on I wasn't able to see a definite split there either. My eyesight wasn't fully dark adapted on this occasion, however, as I'd simply gone out into the back garden from a well lit kitchen whilst my dinner was cooking. I would suggest that the Viking's were doing with quality what the Opticrons did with the "muscle" of magnification in this instance. I'd definitely recommend giving the monopod idea a try, even if you have smaller binoculars such as 10x50's.



The author still found things a bit of an awkward squeeze when looking up to the zenith.



Things are comfortable when looking at more moderate angles though.



Resting the monopod on a piece of scrap 4"x4" fencepost will help taller people that use this setup at or near the zenith.