oasi.org.uk

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OASI News

The newsletter of Orwell Astronomical Society (Ipswich)

Andy Gibbs - Saturn imaged on 27-09-24.
Equipment used: Meade LX200 ACF telescope, ZWO ASI 178MC camera,

2.5X Barlow lens.Software used: Sharpcap 4, Autostakkert! 3, Registax 6 and Affinity Photo

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Society Notices

Open Weekend- Friday and Saturday 25th/26th October

Dear Members,

This year has flown by and I can't believe that we are now taking bookings for our Christmas meal!

This takes place at the Newbourne Fox on Thursday 5th December at 8:00pm. If you would like to book your place, please see Roy Gooding at one of our meetings at Newbourne or Orwell Park, or contact him via email r.gooding908@btinternet.com

On the 25th and 26th October, we are aiming to be open to the public between, 19:00 and 22:00, so if you are able to help out, we would need volunteers at the Observatory from 18:00 to 23:00, to assist with setting-up and clearing away.

The roles required are:

- Tomline Refractor operating.
- Telescopes on the sports field. (You can bring your own or use one of the Societies instruments).
- Meeting and Greeting.
- Car Parking.

The Open Weekend is OASI's most important outreach event of the year, as public engagement of the Observatory and astronomy is one of the key objectives listed in the constitution of our Society.

If you are able to help out in any way on either or both days, please let myself or any other Committee know. You do not need to be an expert on the Observatory or astronomy and training can be provided, if necessary.

Thank you,

Andy Gibbs,

Chairman.

Committee 2024

Chairman	Andy Gibbs	Set overall agenda for OASI, Chair committee meetings, Press and publicity
Secretary	Roy Gooding	Outreach meetings (jointly with Chairman), observatory decoration
Treasurer	Paul Whiting	Finance, Supervision of applications for grants. Visits by outside groups, Observatory tours, public appreciation of astronomy, Outreach activities
Committee	James Appleton	Committee meeting minutes, Web site
	Martin Cook	Membership, Tomline refractor maintenance & user testing
	Matt Leeks	Safety & security
	Peter Richards	Lecture meetings
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club
	Andy Willshere	Librarian
	Adam Honeybell	Newsletter
	Paul Whiting	OASI @ Newbourne

Committee Meeting

The next Committee Meeting will be on Friday 20th September at 8:00pm via Zoom. All members welcome.

New members

No new members this month

Society Contact details

Website:	https://www.oasi.org.uk
Events:	https://www.oasi.org.uk/Events/Events.php
Email queries:	info@oasi.org.uk
Submissions for Newsletter:	news@oasi.org.uk
Members-only message board:	https://groups.io/g/OASI
Observatory (meeting nights only):	☎ 07960 083714

Social Media

For other astronomy news and astro pictures try our socials:

Facebook:	https://www.facebook.com/groups/445056098989371
YouTube:	https://www.youtube.com/@orwellastronomical425

Articles for OASI News

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

Please send tables as separate files in one of these formats (Excel, .csv, OpenOffice)

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."

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

The CLOSING date is the **15th** day of the month (i.e. 15th October).

The Newsletter archive is at www.oasi.org.uk/NL/NL_form.shtml

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

Reproducing articles from OASI News

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Meetings and events

We have regular meetings on the 2nd and 4th Monday of the month (usually) at **Newbourne Village Hall**, and every Wednesday at **Orwell Park**. Night sky observing will usually take place when the skies are clear.

Date, Time & Location	Contact	Event
Weekly, every Wednesday, from 20:00 Orwell Park Observatory, Nacton	Martin Cook Roy Gooding	Observatory open
Monday 7th October 20:00	Paul Whiting	Taster evening . Places must be booked in advance by email: tour@oasi.org.uk .
Monday 14th October 19:30 Newbourne Village Hall	Paul Whiting,	Newbourne meeting - beginners and new members welcome!
Thursday 17th October 20:00 Zoom	Paul Whiting,	Monthly Zoom meeting.
Friday 25th October 19:00	Andy Gibbs	Public access event. Observatory 2024 open evening, night 1 .
Saturday 26th October 19:00	Andy Gibbs	Public access event. Observatory 2024 open evening, night 2 .
Monday 28th October 19:30 Newbourne Village Hall	Paul Whiting,	Newbourne meeting - beginners and new members welcome! Sky Notes by Bill Barton, FRAS. Astro News by Paul Whiting, FRAS.

OASI @ Orwell Park

There are regular meetings every Wednesday evening from 8pm. Access is controlled by a gate and a fob. The entrance is gate 2 is on Church Road, What3Words is **tour.fuse.banks**

Access into the School Grounds and Observatory Tower

The route is as follows:

• Enter through gate 2 (gate 1 being the main gate) and park inside as per the attached map.

• Enter the school through the double black doors as indicated on the map. A key fob will be required to open the door.

• Continue straight through the next two sets of double doors.

• Turn left at the end of the short corridor then immediately right.

• Pass through the single door and on your left you will find the staircase leading to the observatory.

• On no account must you deviate from this route.

When leaving the observatory use the same route but in reverse. Please keep noise to a minimum as there are staff quarters nearby.

OASI @ Newbourne

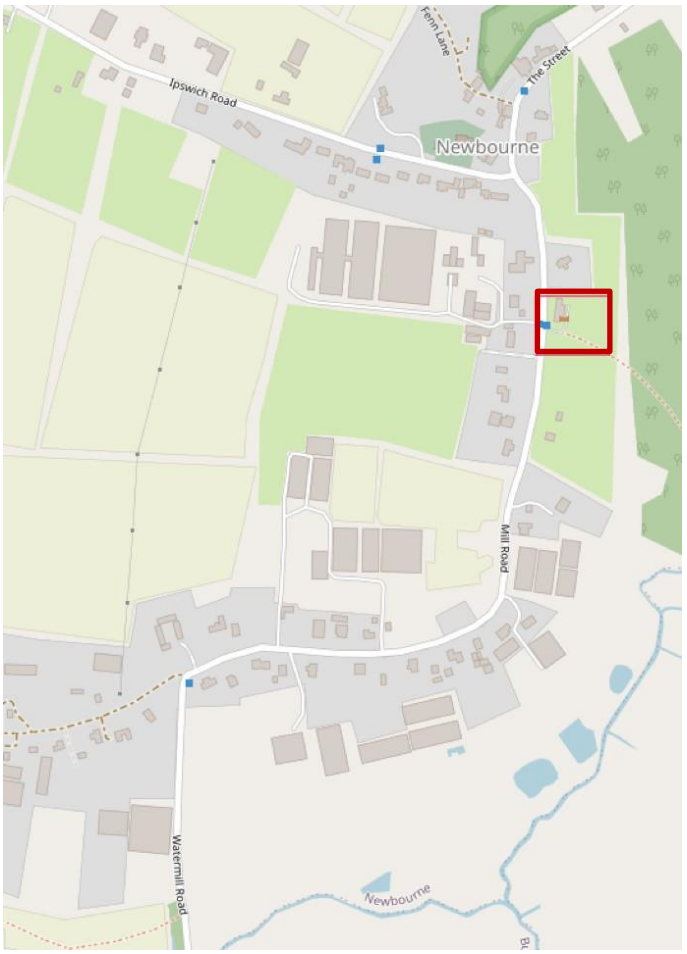
newbourne@oasi.org.uk

We meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays from 19:30.

What3Words **scars.atlas.printing**

Visitors are welcome but we do ask you to join the Society after two visits.

http://www.oasi.org.uk/OASI/Membership.php



Newbourne dates for 2024		
October	14	28 (S)
November	11	25 (A/S)
December	09 (Q)	

We open up for all meetings at 7:30pm.

Astro News (A) / Star Guide (S) at 7:45pm followed by any Talks (T), Workshops (W) and occasional Quiz (Q).

# indicates a change to the normal monthly pattern.

Forthcoming Outreach Programmes 2024

All members are welcome to come along and help out at these events – you don't need to be an expert in the subject. Just respond to the email call for help prior to the event.

Please note that not all events are open to the public.

Fri 25th & Sat 26th October	*Observatory Open Evenings*

OASI and BAA Events

For the latest event details, please check our website and social media.

BAA news & webinars

For full details of all meetings or cancellations, please go to https://britastro.org/events/future-events

Thursday 17th October 2024 Deep Sky Section Webinar
An online Zoom webinar is being held by the Deep Sky Section

Wednesday 30th October 2024 17:30-20:00 BAA Meeting & AGM
Venue: INSTITUTE OF PHYSICS, 37 Caledonian Road, London, N1 9BU

The BAA Radio Astronomy Section

The BAA Radio Astronomy Section have been enjoying talks, seminars and tutorials via Zoom and these are available on the BAA YouTube channel https://www.youtube.com/user/britishastronomical/playlists.

Artemis III

A short insight into a crewed mission to Mars and back.

OASI Library.

Andy Willshere.

Artemis III is the third of the Artemis missions and follows the two test operations. It will be the first American team to execute a moon surface landing of the Artemis programme and the second to contain a human crew. This will be the first American moon landing since Apollo 17 when Gene Cernan and Harrison Schmitt walked on the surface having arrived via a lunar lander. They hiked out for periods from December 11 to December 14, 1972. The command module pilot was Ronald Evans. This was the eleventh and final mission of NASA's Apollo schedule. NASA has stated that the launch of Artemis III will be no earlier than September 2026. This will take place from Launch Pad 39B at Kennedy Space Centre, Florida using the Space Launch System, which is the only rocket capable to send Orion, crew, supplies and all necessary add-ons to the moon, at one go.

Prior to the Artemis launch, Space X will thrust a Starship, which is a two stage super heavy lift vehicle to act as a storage depository into Earth orbit. This will be filled with propellant for the HLS (Human Landing System) using reusable space tankers. Starship HLS is a crewed lunar lander adaptation of the Starship vehicle, modified for landing and take off. It is able to land up to 100t onto the Moon with each flight. When the HLS has acquired sufficient propellant, it will execute a translunar injection engine burn so that it may travel to and enter a NRHO (Near Rectilinear Halo Orbit). The rational for this orbit was that communications with Earth would be almost continuous and site selection on the Moon was variable. It also allows for maximum fuel efficiency as gravity is balanced between Earth and Moon. Once both Orion and the HLS are in lunar orbit they will dock with each other. NASA have stated that on future missions a Gateway Hub will be built, similar in design to the ISS, to facilitate Orion and HLS.

The members of the crew selected to land on the surface of the moon, will transported from Orion via the Starship HLS (Human landing System). This is a designed and built Space-X vehicle, whose task is to transfer the astronauts from lunar orbit to the moon's surface and back. Its designation is to function on and around the moon. As it will never be used to re-enter an atmosphere it has no heat shields, thus decreasing its mass and by definition requiring less fuel. It is powered by six Raptor engines fitted at the tail for most of the landings and ascents. The landing will occur at the lunar South Pole. This area was chosen because of the prevalence of water ice found in the permanently shadowed areas located here. These areas are cold enough to trap volatiles that may have been around since the early Solar System formation and will provide scientific data.

Two astronauts will land on the surface and spend approximately one week in this area, during which time they will attempt up to four spacewalks, perform scientific studies, including geologic surveys and collect some samples of the water ice. NASA has decided on three instruments that can be stationed by the astronauts on the surface of the Moon during this period.

The first is the Lunar Environment Monitoring Station (LEMS). This equipment will register ground movement mainly from moonquakes in the south polar area. Technically this is a seismometer, which will also identify specific types of rock strata and mantle.

The second is the Lunar Effects on Agricultural Flora (LEAF) instrument. This will research how crops respond to effects of space. Observations will be carried out on plant photosynthesis, development and stress.

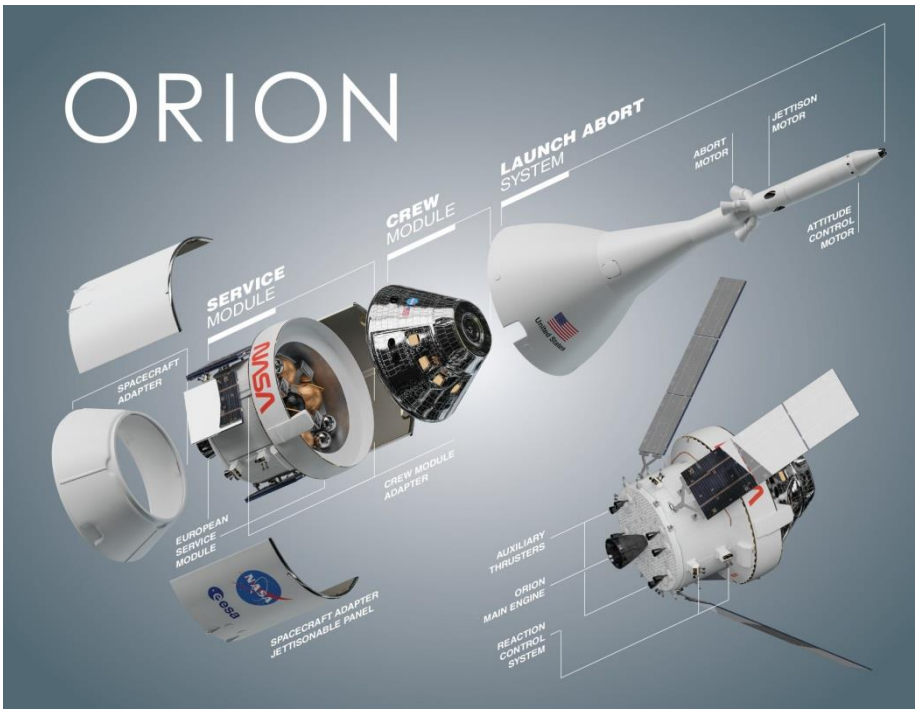
The third instrument is the (LDA), the lunar Dielectric Analyser. Regolith will be subjected to tests to see if it is able to

generate an electric field. This will assist in the search for lunar volatiles.

This will be the first time since Apollo for hands on scientific exploration. For the spacewalks, new advanced spacesuits will be used.

The other two astronauts will remain on the crew transport vehicle, Orion, which will be utilized for all Artemis enterprises. At present, this is the only spacecraft efficient enough to return crews to Earth at re-entry speeds. Both crews will be in contact with mission control ground teams with necessary data being delivered both ways using high quality images/video and sound. At the end of the surface mission, the two astronauts will be transported back to Orion. After the two spacecraft have docked, a further five days will be given to transfer all samples and for preparation back to Earth. During re-entry, they will reach speeds of about 40,000 km's per hour, and will splash down in the Pacific Ocean assisted by 11 parachutes.

This expedition into deep space will be one of the most difficult ventures of engineering and human enterprise to be attempted. Large quantities of data will be gathered from which a huge amount of information will be collected.



Picture Credits: Orion Spacecraft - NASA

Expedition log.

a. Launched by SLS system from NASA's Kennedy Space Centre, pad 29.
b. Crew launch into Earth orbit.
c. Checks on systems are implemented.
d. Interim cryogenic propulsion stage of the SLS assists in placing Orion in the correct position to set a course for the Moon. Translunar injection.
e. Crew continues to check equipment for next few days and perform engine burns to eventually put Orion in a lunar Near-Rectilinear Halo Orbit.
f. Dock with the Starship.
g. Equipment and the two astronauts are relocated on HLS.

h. Space X HLS will transport two astronauts from Orion to the surface of the Moon and back.
i. While this occurs, Orion performs a six day total orbit of the Moon.
j. At this point, the Starship lifts off from the Moon and docks with Orion.
k. Supplies and astronauts relocated on Orion.
l. Undock from Starship and head for home.
m. HLS Starship will remain in space.

References:

Artemis III: NASA's First Human Mission to the Lunar South Pole - NASA

Artemis III - NASA

Artemis 3 - Wikipedia

ESA - Artemis III

Answer to July maths question.

X = 13821

Q = 4903

N = 2731

F = ?

The Caesar value of each letter is cubed, then the reverse alphanumerical value of that letter is subtracted.

Example X = 24^3 = 13824. Reverse X =3. 13824-3 = 13821.

Therefore F = 6^3 = 216. Reverse F =21.

F= 216-21 = 195.

Meade Plössl Eyepiece Surgery

Neil Morley

The Meade Series 4000 (S4K) Plössls are well established and feature four lens elements arranged in two symmetrical groups. Having looked through several examples, I've concluded the eye lens of the 26mm in the series far too deeply recessed into the barrel. This makes it impossible to see the full field of view when wearing glasses. The reduction in usable field of view is significant at around 40%. Some benefits of this configuration include:

- An easier eye placement especially for novices as there is broadly only one position that can be used (ideally without glasses!)
- No blackouts occur because it is impossible to position the eye too closely to the eye lens
- The recess over the eye lens acts as a shade reducing stray light ingress
- The eyepiece is less susceptible to fogging in cold damp conditions

At Orwell Park Observatory we have a 26mm S4K stamped “Japan” on the barrel. In the used market,Japanese-manufactured Meade eyepieces are more desirable and fetch significantly higher prices when compared to later Chinese-manufactured equivalents. Chinese-manufactured Meade S4K eyepieces have no barrel stamp. At Newbourne we have three such 26mm examples, one in good condition and two in a poorer condition. I decided to apply some surgery to the poorer examples to make them usable with glasses.

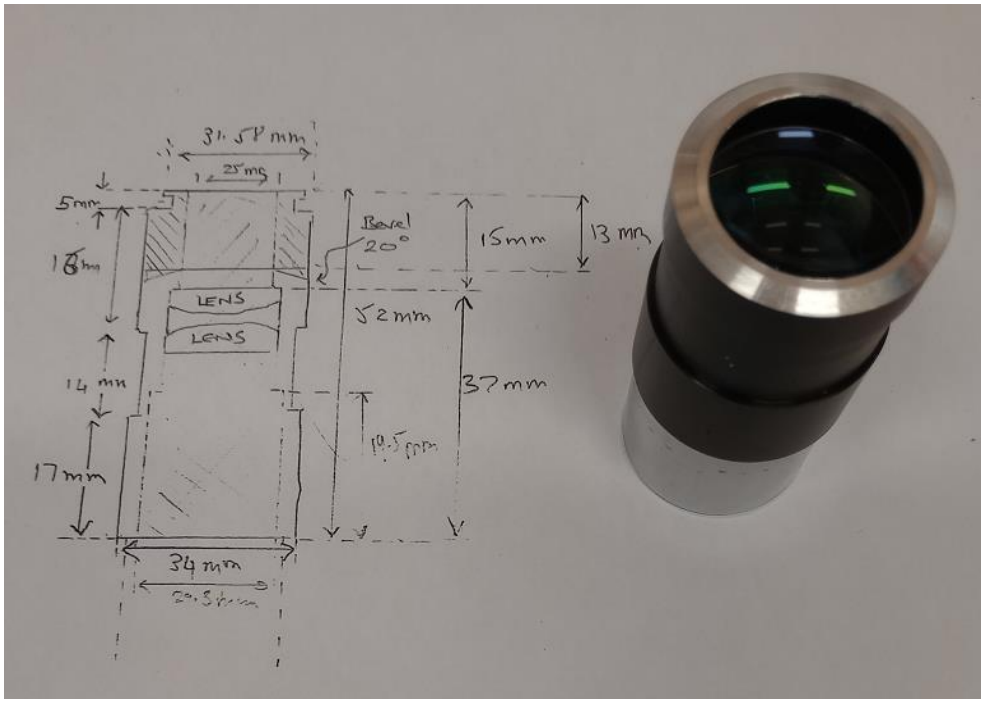
The inspiration came from the 25mm in my Star Plössl eyepiece set. This is known in the trade as a “volcano top” design due to the bevelled edges at the top. The eye lens is recessed near the top at a depth of 2mm making it easy to view the full field comfortably with glasses. In a symmetrical Plössl configuration, this is feasible at focal lengths of 25mm and above. At focal lengths below 20mm, it becomes increasingly difficult due to the optical design. If you wear glasses and are in the market for Plössls, look out for less recessed designs and don't go much below 20mm!

The first step involved disassembling and cleaning/storing the optics allowing the eyepiece barrels to be measured. A sketch was generated. Removal of the top 13mm of an original anodised aluminium barrel should result in the eye lens being recessed 2mm below the metalwork. This would leave an exposed silver ring. The ring would be bevelled downwards at an angle of 20 degrees from the inner edges then finished.

Martin Cook kindly agreed to perform the required eyepiece surgery on his lathe at home and I arranged a visit. The outcome was successful and the eye lenses were recessed by 3mm, slightly more than expected. I should have measured the barrel another time! Eye relief with and without glasses was comfortable when viewing the Sun through Martin's Lunt LS60 Hydrogen-Alpha Telescope. The field stop was visible in the daytime when wearing glasses. Both of us concluded no further changes were needed. Later that day I tested both eyepieces at home using a Tasco 60mm refractor. The Moon gave a sharp image and views in the modded Meade compared very well with the Star Plössl with a slightly wider field of view. The exposed aluminium ring did not cause any unwanted reflections and helped with eye positioning.

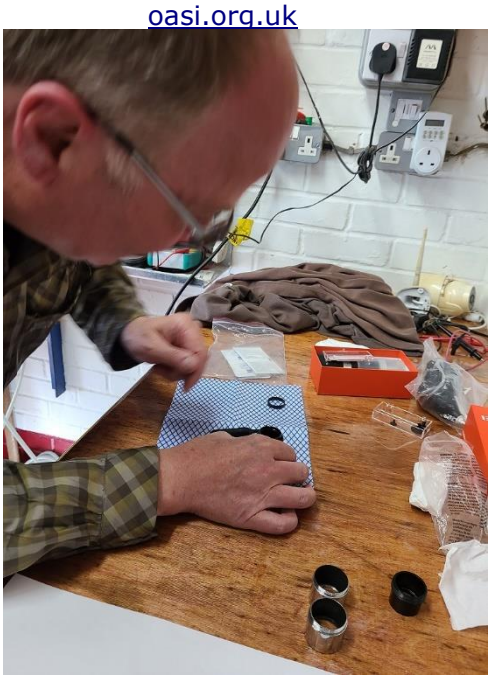
If the lack of an eyeguard is of concern, a useful tip from “Starman1” a CloudyNights forum member is cut up a bicycle inner tube and attach the removed section to the eyepiece top. He suggests doubling it over from the top to form a usable eyeguard.

Here are several pictures showing various stages.



Sketch with modified Meade Plössl eyepiece

Lathe treatment removing 13mm from the top of the barrel



Reinstalling optics after lathe treatment

Full Plössl Line-up L-R: original Meade 26mm, Star 25mm, modified Meade 26mm (x2)

A Push-To System For The Tomline Refractor

James Appleton

A push-to system for the Tomline Refractor was commissioned in early 2022, making it very much easier to locate faint objects. This article outlines the development of the system.

Introduction

The setting circles on the Tomline Refractor are original to the instrument, dating from 1874. Over the intervening decades, the ravages of time and corrosion have rendered them somewhat difficult to read, and many observers have struggled to use them to align the instrument to locate faint objects. This has encouraged instead the use of "star hopping", to first set the instrument on a bright, easily located object close to the desired coordinates, and then, by relating the stars visible in the eyepiece to detailed star maps, to "hop" successively from star to star until it is possible to "zero in" on the desired location. However, star hopping is itself a skill not easily mastered.

In the 2010s, the impressive capabilities of relatively low-cost electronics and control systems encouraged interest in the potential to equip the instrument with digital setting circles which could be easily read and used to align the telescope to a desired location without the observer requiring particular training or experience.

AWR Technology

The 2015 International Astronomy Fair was held at Stoneleigh Park, near Coventry, on the weekend of 02-03 October. OASI members John Wainwright, Mike O'Mahony and then-Chairman David Murton attended, and were much impressed with the equipment on display. While there, David spoke with representatives of AWR Technology, who told him about push-to systems that the firm had fitted to various historic telescopes, including at Greenwich and Herstmonceux. Some weeks later, at an OASI committee meeting on 17 November 2015, David asked Martin Cook to investigate the possibility of engaging AWR Technology to fit a push-to system to the Tomline Refractor.

Martin contacted AWR Technology and, after several conversations, was offered a system consisting of encoders fitted to the RA and dec axes of the Tomline Refractor, a sidereal clock which had to be permanently powered on and a controller with a display showing the RA and dec to which the telescope was pointing. To find an object, the observer would first have to look up the coordinates, then move the telescope, while watching the display until it matched the desired position. This would not be easy when the observer was on the other side of the dome from the display! The price quoted was £2500 plus the cost of site visits plus the cost of manufacturing brackets for encoders plus the cost of fitting the brackets and encoders to the telescope. It proved hard to pin down how the project was going to proceed and, at a committee meeting on 31 May 2016, the idea was dropped.

Self-Build

Early in 2017, OASI member Adam Honeybell, a software engineer, approached Martin with a proposal to construct a push-to system, at very modest cost. In common with the approach of AWR Technologies, the system would utilise

shaft encoders on the RA and dec axes of the Tomline Refractor. However, instead of displaying RA and dec on a display in the dome, it would use an Arduino Uno (microcontroller) to convert the output of the shaft encoders to a form which an astronomy sky-mapping app could use to display graphically the direction in which the telescope was pointing. There are ever-increasing numbers of such apps; they are relatively cheap (some are free) and run on phones and tablets, so the observer could hold in his/her hand a device indicating graphically where the telescope was pointing.

Martin, with access to engineering equipment, set about designing and manufacturing brackets to fix RA and dec shaft encoders to the telescope. The bracket for the RA encoder was relatively easy to manufacture and positioned the encoder to run on the inside of the RA wheel, out of harm's way. Alas, the dec encoder was a different story! The only location where it could be fitted out of harm's way was on a large gear wheel where the telescope tube meets the dec shaft. Working out the details of a suitable bracket required standing precariously on a ladder while trying to envision the interaction of fixed and moving components in 3D. Martin eventually hit on a solution to plan the engineering in detail by taking photos of the area with a ruler in the frame, then printing the photos full size to provide a large, scale view of the relevant components. The photos could be examined to provide a view of the associated metalwork from all angles; using this approach, a mount was devised for the dec encoder. By early March 2017, both encoders were fitted.

In the meantime, Adam was working on the software and associated hardware of the project. He aimed for both software and hardware to be compatible with modern, commercially available telescopes as well as the Tomline Refractor. The software would need to keep track of the pulses from the encoders, work out the RA and dec to which the telescope was pointing and pass this to the sky-mapping app. The hardware consisted of a plastic box housing an Arduino Uno with a Bluetooth shield attached. Connections between components were made using individual wires; unfortunately, there were many wires, because of which the hardware bore a passing resemblance to spaghetti!

With all necessary parts fabricated and assembled, testing could begin. To calibrate the hardware and software, it was necessary to establish how many pulses the encoders produced per rotation of each axis. This required turning the telescope through 360° in RA and in dec several times then working out the average figure, a feat not easy to accomplish with a 3-metre-long Victorian instrument. As the months of testing, redevelopment and retesting continued, it became evident that the Bluetooth connection was not stable, and it was replaced with a wi-fi connection. Later, Adam tracked down an intermittent problem to an extension cable used with one of the encoders. When this was rectified, he nevertheless remained unhappy with the accuracy of the system and a slow drift of the RA coordinate.

Work on the project slowed considerably when the company which employed Adam closed, and he subsequently took up employment as a contractor in Sheffield. Then, in March 2020, the Covid-19 lockdown made access to Orwell Park Observatory impossible, and the project stalled.

Speo

Over the next year, Martin followed posts on the Cloudy Nights astronomy forum by Speo (forum username). He had developed a system like Adam's and was hoping for commercial sales. In January 2021, in a change of heart, Speo posted full details of the project on Cloudy Nights, free for use by self-builders. (Web link below.)

Speo's system was based on the Espressif ESP32 microcontroller rather than the Arduino; this has the major advantage of an integrated wi-fi capability, enabling a much simpler design and eliminating much of the potential for loose connections which had proved so troublesome. The ESP32 tracks the number of pulses registered by the shaft encoders. The system connects to SkySafari, an app running on a tablet/phone. SkySafari repeatedly polls the ESP32 for an update on the pulse count received from the encoders since the last poll. SkySafari performs the complex calculations to convert the pulse counts into celestial coordinates and plots the position pointed to by the telescope (RA/dec) as crosshairs superimposed on a map of the sky.

Martin ordered the necessary parts to build a prototype on a piece of PCB stripboard and tested it with a couple of encoders. All worked well so he then ordered five custom-made PCBs from China (Speo had produced a set of drawings to facilitate PCB manufacture), with express delivery, for less than £20!

Prior to testing, it was necessary to set in SkySafari the number of pulses per revolution of the telescope around each axis. This arrangement is acceptable when the app is used with only one telescope but, if used with two or more different instruments, the observer would need to re-enter the values when connecting to each telescope. Martin contacted Speo via Cloudy Nights suggesting an update to the software to store the pulse counts in the system and upload them to SkySafari on start-up. The very next day, Speo replied advising that he had updated the code as requested. An outstanding level of support!

Martin assembled the components on one of the PCBs, mounted the PCB in a plastic box, loaded the latest software and installed the system on the Tomline Refractor. Testing proceeded smoothly. Total costs were less than £100.

OASI now has at its disposal a very rare instrument, a Victorian push-to telescope linked to a modern astronomy app, enabling celestial objects to be found quickly and easily.

The Night Sky in October

All event times are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E. Times are **GMT** unless otherwise stated.

Sun, Moon and planets

Sources: http://heavens-above.com/PlanetSummary.aspx http://heavens-above.com/moon.aspx

October 2024

Object	Date	Rise	Set	Mag.	Notes
Sun ☉	1	03:40	20:18		
	31	04:16	19:46		
Moon ☽	1	00:08	15:52		Monthly phases New moon 02 October 2024 18:49 First quarter 10 October 2024 18:55 Full moon 17 October 2024 11:26 Apogee 29 October 2024 22:51 Last quarter 24 October 2024 08:03
	31	-	17:45		
Mercury ☿	1	05:58	17:34	-1.5	
	31	08:47	16:49	-0.2	
Venus ♀	1	09:02	18:21	-3.8	
	31	10:35	17:51	-3.9	
Mars ♂	1	22:03	14:29	0.5	
	31	21:13	13:20	0.1	
Jupiter ♃	1	20:24	12:40	-2.3	
	31	18:23	10:39	-2.5	
Saturn ♄	1	16:59	03:35	0.7	
	31	14:58	01:29	0.8	
Uranus ♅	1	19:03	10:35	5.7	
	31	17:02	08:32	5.6	
Neptune ♆	1	17:16	04:57	7.8	
	31	15:17	02:55	7.8	

Occultations during October 2024

https://iota-es.de/moon/grazing_descrx101.html and
http://www.lunar-occultations.com/iota/bstar/bstar.htm

Observers are encouraged to download and install the Occult software program [Windows only] to generate predictions for their own particular site coordinates.

Meteor showers during October 2024

Shower	Normal limits	Maximum	ZHR at Max	Notes
Draconids	6-10 October	8-9 Oct	10	Associated with Comet 21/P Giacobini-Zimmer
Orionids	2nd October to 7th November	21-22 October	25	Fast with fine trains. Associated with Comet Halley

See also https://www.rmg.co.uk/stories/topics/meteor-shower-guide

For radio observation, use reflections from Graves Radar on 143.049MHz or the Brams transmitter in Belgium on 49.97MHz and UK GB3MBA on 50.408MHz https://www.ukmeteorbeacon.org/Home

See also https://www.popastro.com/main_spa1/meteor/radio-meteor-observing-2020/.

Comets

Source : https://heavens-above.com/Comets.aspx on 02/10/24.

Comet "Tsuchinshan-ATLAS" is looking promising and rises around 6am at time of writing. Do try and get a photo and send them in!

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Constellation
C/2023 A3 Tsuchinshan-ATLAS	1.2	2024-Oct-02	19°	Leo
13P Olbers	9.4	2024-Sep-30	33°	Virgo
12P Pons-Brooks	11.3	2024-Sep-23	46°	Centaurus
C/2023 C2 ATLAS	13.2	2024-Sep-25	74°	Scorpius
C/2022 E2 ATLAS	13.2	2024-Oct-01	84°	Lynx
C/2024 S1 ATLAS	13.4	2024-Oct-02	47°	Hydra
37P Forbes	14.1	2024-Sep-24	58°	Scorpius
C/2020 V2 ZTF	14.1	2024-Sep-26	100°	Pavo
C/2022 N2 PANSTARRS	14.8	2024-Sep-30	149°	Aquarius
C/2021 S3 PANSTARRS	14.8	2024-Sep-30	103°	Cygnus
C/2024 B1 Lemmon	14.9	2024-Sep-30	54°	Ursa Major
C/2017 K2 PANSTARRS	15.1	2024-Sep-29	94°	Gemini
146P Shoemaker-LINEAR	15.3	2024-Sep-14	99°	Gemini
C/2019 U5 PANSTARRS	15.3	2024-Sep-04	73°	Puppis
C/2024 G3 ATLAS	15.3	2024-Sep-09	48°	Centaurus
130P McNaught-Hughes	15.5	2024-Sep-30	150°	Cetus
C/2023 V4 Camarasa-Duszanowicz	15.8	2024-Sep-23	36°	Boötes

Visible ISS passes >30º max altitude for October 2024

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

Times are **GMT**.
Predictions are approximate (02/10/24) due to craft adjustments. Check the day before.

Date	Brightness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az
17-Oct	-0.8	05:27:55	10°	S	05:29:43	14°	SE	05:31:30	10°	ESE
21-Oct	-3.1	05:39:53	10°	WSW	05:43:12	53°	SSE	05:46:29	10°	E
22-Oct	-2.8	04:56:58	21°	SW	04:58:48	42°	SSE	05:02:01	10°	E
23-Oct	-2.4	04:14:43	33°	SSE	04:14:43	33°	SSE	04:17:44	10°	E
23-Oct	-3.7	05:48:03	10°	WSW	05:51:28	80°	S	05:54:50	10°	E
24-Oct	-3.6	05:05:48	28°	WSW	05:07:27	71°	SSE	05:10:48	10°	E
25-Oct	-3.4	04:23:50	59°	SE	04:23:50	59°	SE	04:26:59	10°	E
25-Oct	-3.7	05:57:15	10°	W	06:00:39	85°	S	06:04:01	10°	E
26-Oct	-3.8	05:15:15	26°	W	05:17:02	86°	S	05:20:25	10°	E
27-Oct	-3.8	04:33:38	84°	S	04:33:38	84°	S	04:37:01	10°	E
28-Oct	-3.7	05:25:27	22°	W	05:27:31	75°	S	05:30:52	10°	ESE
29-Oct	-3.9	04:44:14	72°	WSW	04:44:32	82°	S	04:47:54	10°	E
30-Oct	-1.9	04:03:14	31°	E	04:03:14	31°	E	04:05:08	10°	E
30-Oct	-3.2	05:36:31	18°	W	05:38:45	45°	SSW	05:41:59	10°	SE
31-Oct	-3.5	04:55:45	50°	SW	04:56:14	56°	SSW	04:59:32	10°	ESE

Bill Barton'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