



The Newsletter



of the

Orwell Astronomical Society (Ipswich)

2012
MAY

Registered charity no. 271313

www.oasi.org.uk

No 474



Home made 254mm 1.1 focal length Dobsonian.
Built by John Wainwright.

Society News (Roy Gooding)

1 Committee Meeting Saturday 21st July

Any members who are interested are invited to attend this meeting.
Start time 20:00 Venue: Methodist Church Hall.

The meeting in March was cancelled, as several members were unable to attend.

2 Access into the School Grounds and Observatory Tower

The code for the car park gate, is on the back of your membership card.

Please use the third gate into the school grounds, this is the gate behind the Gym. If the Black door entrance at the base of the observatory tower is locked, you will have to phone someone in the observatory to let you in. My mobile number is [REDACTED] (Roy Gooding) alternatively the Observatory mobile is [REDACTED] during meeting hours.

3 Welcome to New Members

Mr Jeremy Reynolds Mr Michael Yates
Mr Scott Wheatley Mr Adria Cubitt
Mr Michael Meyerstein Mr Kevin Cushion
Mr Swee Ho

4 Events Programme for 2012

This provisional event list will be updated through out the year

Event	Venue	Date
Yoxford Star Party	NEAS are holding a star party in the Yoxford area and have requested a visit to the observatory	Date & details TBC
Summer Barbecue For more information please contact Pete Richards	Newbourne Village Hall	30 th June From 15:00
BAA Summer Garden Meeting	Hurst Community Centre Bexley Kent	7 th July Further details TBA
The Autumn Equinox Sky Camp www.starparty.org.uk/	Kelling Heath Kelling Norfolk	Extended event 10 - 21 September Main Event Weekend 14 - 16 September

Lecture meeting Nick Hewitt "Barnard, Gordon and the Darkness". It's about Dark Nebulae.	Methodist Church Halls, Blackhorse Lane	12 th October
Open Weekend Option 1	Orwell Park Observatory	27 ^h & 28 th October
FAS convention	Cambridge Institute Astronomy?	October TBC
Open Weekend Option 2	Orwell Park Observatory	17 th & 18 th November
Christmas Meal	TBA	5 th or 12 th December?

Other Observational Events 2012

Meeting	Venue	Date
Venus Transit	Orwell Park Observatory	6 th June
Jupiter occultation	North Norfolk coast	15 th July
Perseids provisional meeting	Behind the refreshment hut at "The Dip" Felixstowe	11 th August
Geminids provisional meeting	Behind the refreshment hut at "The Dip" Felixstowe	15 th December

6 Observational Out Reach Meetings 2012

Astronomy in the Park: Spring Event

Meeting	Venue	Date
Astronomy in the Park "Observing the sun" 1 st option	Christchurch Park Reg Driver Centre	Saturday / Sunday 19 ^h / 20 th May From 11:00 no time set to finish
Astronomy in the Park "Observing the sun" 2 nd option if 1 st is cloudy	Christchurch Park Reg Driver Centre	Saturday / Sunday 26 ^h / 27 th May From 11:00 no time set to finish

7 OASI Email Distribution List

The society runs an email distribution list, for various communications between members. If you would like to be included on to this list, please sent an email to Pete Richards

Sent your email address to [REDACTED]

8 Star Party in Chantry Park

At the time of writing, I cancelled the event on the 21st April because of bad weather. Hopefully the 2nd option on the 28th April will be more successful. If the 28th is also cancelled, I will discuss with Richard Sharp to reschedule it for the autumn.

Possibly for Saturday 22nd September.

9 BAA Summer Garden Meeting Saturday 7th July

If sufficient number of members are interested in attending this meeting. An excursion may be arranged.

Night Sky (May)

Moon

Full Moon	3 rd Quarter	New Moon	1 st Quarter
6 th	12 th	20 th	28 th

Object	Date			Mag	Notes
		Rise	Set		
Sun	1	04:25	19:21		
	31	03:42	20:05		
Mercury	1	04:00	16:52		Mercury is too close to the sun to be observed this month.
	31	03:50	20:40		
Venus	1	05:38	23:28	-4.4	Venus is still visible in the evening sky at the start of the month. By the end, it will have moved into the twilight sky
	31	04:04	20:55		
Mars	1	12:44	02:54	0.5	Mars is well observed all night
	31	11:42	01:05		
Jupiter	1	04:53	20:05		Jupiter is too close to the sun to be observed this month.
	31	03:12	18:47		
Saturn	1	17:25	04:21	0.6	Saturn is visible all night.
	31	15:18	02:19		
Uranus	1	03:29	15:55		Uranus is too close to the sun to be observed this month.
	31	01:33	14:04		
Neptune	1	02:32	12:42	7.9	Neptune is visible in the early morning sky
	31	00:34	10:46		

Meteor Showers

Shower	Limits	Maximum	ZHR
η Aquarids	April 24 th to May 20 th	May 6 th	40
α Scorpiids	April 20 th to May 19 th	April 28 th & May 13 th	5
Ophiuchids	May 19 th to July	June 9 th June 20 th	5

Meteor source is the BAA Handbook

OCCULTATIONS DURING MAY

The table lists lunar occultations which occur during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

Date	Time (UT)	D / R	Lunar Phase	Sun Alt (d)	Star Alt (d)	Mag	Star
02 May	23:23:01	D	0.85+	-22	25	7.5	Hip 57232
13 May	02:38:44	D	0.48-	-11	13	5.1	46 Cap
28 May	21:39:48	D	0.50+	-11	23	6.6	ZC 1543
30 May	21:35:43	D	0.72+	-10	25	7.3	ZC 1761

James Appleton

STONs Nights

As British Summer Time (Daylight Saving in Meade speak) starts at the end of March, there will be no formal arranged STONs after March until October 2012.

If anybody has something special they wish to observe, then contact Gerry Pilling, Patrick O'Sullivan or Dave Robinson to discuss and we will see what can be arranged.

Gerry Pilling.

Report of the Workshop at Nacton Village Hall 11th April

John Wainwright

The talk started with an introduction to John Lowry Dobson and the book "The Dobsonian Telescope by David Kriege & Richard Berry which he stars in!!". Then I show illustrations and pictures from the book showing optics, building materials such as wood, aluminium, PTFE plastics, Formica worktops, plywood, etc. next there are scientific diagrams with formulas showing. Then there is a section on special tools needed.

The next part is an introduction to Martin Cooks contribution to the evenings talk on Equatorial Platforms. I now show a slide show with photographs taken during the construction of two telescopes, the first one is a conversion of a "Skywatcher Newtonian 8" optical tube to fit a Dobsonian mount instead of a German Equatorial Mount.



The second half of the slide show is to show the types of materials I used to make a Dobsonian telescope from scratch. It shows the methods of preparing and assembly of all the components needed to make a 'scope with a primary mirror of 10" and a focal length of about 1.1 meters. My 16" Meade Lightbridge stars at the end where I show how I washed the main mirror!. I finished the talk with a demonstration of a simple way of measuring the focal length of a primary mirror. We then opened the floor to any questions, which I tried to answer!!.

I would like to thank all that helped with the lecture and thank you to for all the comments that everyone give to me, this made all the hard work in preparing the talk very gratifying. We then had a break for drinks, biscuits and many questions. The evening finished with Martin Cook's talk about Equatorial platforms. Both talks where warmly received with applause and more questions at the end.

Open field observing at Nacton

Open Field Observing at Nacton sports field went well tonight. Total of 9 people and 5 scopes I think. The sky was miraculously clear of clouds, and no moon. Venus, Mars, Jupiter, Saturn, double star in Leo, and M67 in Cancer were the main objects observed. Some detected a small polar cap on Mars.

The sports field has a good open aspect particularly to the E, S and W. A couple of lights at Home Farm to the south are not much of a problem as we found a position near the pavilion where the worst one was blocked by a farm building and the other is sideways on. A bit of light from a resident to the north was dim enough not to cause much problem either. We put heaters on in the pavilion to warm up in and make tea/coffee, and all had a good evening observing.

Mike Whybray

Photo of those present.



THE GRAZE OF 29 CANCRI, 01 APRIL 2012

A lunar occultation is said to occur when the Moon passes between an observer and a star. Such an event is generally visible over a defined part of the Earth's surface. If an observer is located at the edge of the zone of visibility, he will witness the north or south pole of the Moon skim past the star, the latter appearing to blink on and off as it is alternately revealed and concealed by mountains and valleys on the limb. Such an event is termed a grazing occultation.

A grazing occultation of the star 29 Cancri was predicted for 19:30 UT on the evening of Sunday 01 April 2012. The star was of magnitude 5.9 and the occultation a north limb event, so the astronomical circumstances were not exceptionally good. However, the graze line passed within only 8 km of Orwell Park Observatory and the time of the event was very convenient, so there was considerable enthusiasm among members of OASI to observe the phenomenon.

Alan Smith and I performed our usual double act to identify potential observing sites. I calculated the graze track, producing it as a .kml file to be overlaid directly on Google Earth digital maps. Alan examined the track and identified a shortlist of five potential observing sites, choosing them to be off-road, away from sources of light pollution and with an unobstructed southern aspect. Eventually, a sixth potential site was added to the shortlist. Three of the sites were on the west of the River Deben and three on the east. After some initial consideration, Alan reconnoitred the sites and we eventually selected two near Newbourne: a primary site at Walk Barn, off Newbourne Road and a potential second site off Mill Road. Alan requested permission from the landowner and obtained a key for the Walk Barn site. OASI member Gerry Pilling was fortunate in that the graze track passed only 670 m due south of his home at Martlesham Heath; he decided to observe the event from his back garden

With some days to go to the graze, cloudy weather was forecast. However, as the days counted down to the event, the forecast steadily improved. Sunday 01 April itself dawned bright and sunny, and remained largely cloud-free throughout the day. There was some haze, but not enough to cause any difficulties.

Our standard procedure is to hold a telephone conference on the evening of the event to make the go/no-go decision. At 6.00pm on Sunday we held the conference, and the decision to proceed with observations was easily made!

At the Walk Barn site, Alan arrived at 7.15pm and unlocked the gate. By about 7.30pm, six observers had assembled and were busy setting up their instruments: James Appleton, Martin Cook, Jerry Reynolds, Alan Smith, Joe Startin and Paul Whiting. The site was most satisfactory and no-one expressed any interest in decamping to the alternative site off Mill Road. By about 7.40pm, the observers had largely completed setting up and were following the Moon closing on the star. But where were Neil Morley and Roy Gooding, who were also expected? The question

was answered at about 7.50pm: the observers heard a car approach and moments later witnessed it, with occupants Neil and Roy, shoot along Newbourne Road straight past Walk Barn! A quick call by mobile phone from Martin to Neil eventually guided them to the site and, by 8.00pm, they had arrived, just in time for a very rapid setting up before beginning observation.

Martin, Alan, Paul and Neil used digital voice recorders (DVRs) to record spoken commentaries of their observations together with reference time from Rugby clocks (synchronised to the time service broadcast by the National Physical Laboratory.) Roy used a tape recorder (TR) and the speaking clock. Later analysis of the recordings enabled estimation of occultation event times, summarised below. (Paul's estimates are based on an analysis of Alan's commentary.) The observers noted that there was a discrepancy of a few seconds between some of the Rugby clocks: this was most unexpected, but in the rush to set up equipment and begin observing, further investigation was not possible before the event.

Paul observed with binoculars and, unfortunately, glare from the Moon in the large field of view meant that he eventually lost sight of the star before it was occulted. However, the remaining seven observers at Walk Barn used telescopes (details of the instruments are below) and all were able to track the star as the Moon closed. There was just enough earthshine to make the unlit portion of the Moon visible telescopically and the observers could therefore estimate the apparent distance between the limb and the star. By 8.15pm, the objects were very close and a hush descended over the observers as everyone concentrated at their eyepieces.

Although the observers hoped to observe a grazing occultation, in fact 29 Cancri disappeared and then reappeared just once, both events on the unlit portion of the Moon, with no trace of the multiple events characteristic of a graze. The observers continued observing for approximately five minutes after reappearance, hoping for another disappearance, but in vain.

Meanwhile, at Martlesham Heath, Gerry, using a 200mm Dobsonian, was surprised to find the star invisible with 30x magnification. However, 100x magnification proved adequate. Unfortunately, due to problems with his watch, his estimated timing is a guesstimate. He recorded a qualitatively different observation from that of the Walk Barn observers, witnessing the star disappear behind the dark limb and reappear from behind the sunlit limb, and to display a possible graze effect. An extract from his observing report makes this clear: *Was a full occultation with the dark limb, but possible graze effect as it emerged from the illuminated limb... I thought it possibly reappeared and disappeared maybe once or twice.*

Table 1 summarises the experiences of all the observers (for the timings, D=disappearance and R=reappearance). So, how to explain the observations? The first thing to note is that predicting the graze track of a lunar occultation is not an exact science! Although in calculating the track for 29 Cnc, I used the Hipparcos catalogue and JPL ephemeris DE-405, providing highly accurate positional

information on the location of the Moon and star, there remains a question over the accuracy of the lunar limb data. The available data is based on work by the American astronomer C. B. Watts who, in 1963, published charts showing the profile of the lunar limb at a grid of libration values. Through work at the RGO and the USNO these were subsequently digitised and converted to a computer database format to make them widely available. Unfortunately, the quality of the Watts data is variable and, at the present time, represents the biggest obstacle to accurate occultation predictions.

Figure 1 is the limb chart for the event, showing the profile predicted for an observer at Walk Barn, focussed on the star, as the Moon sweeps past the observing site. Clearly, the valley centred slightly later than 60s after the central event does not exist (or something else is wrong!) as the star did not reappear at this time.

Observer	Telescope	Timings (UT)	Method
James Appleton	250mm f10 Meade SCT, 12mm e/p	-	-
Martin Cook	250mm f5.4 Dobsonian, 18mm e/p	D: 19:29:18 R: 19:31:01	DVR & Rugby clock
Roy Gooding	120mm f5 refractor, 12.5mm e/p	D: 19:29:20 R: 19:31:03	TR & speaking clock
Neil Morley	Celestron C102-HD, 25mm e/p with 2x Barlow	D: 19:29:19 R: 19:31:01	DVR & Rugby clock
Jerry Reynolds	200mm f10 Meade ACF Lightswitch, 26mm e/p	-	-
Alan Smith	250mm f6 Dobsonian, 12mm e/p	D: 19:29:14 R: 19:30:57	DVR & Rugby clock
Joe Startin	125mm f15.2 Meade ETX, 26mm e/p	-	-
Paul Whiting	18 x 50 binoculars	D: 19:29:14 R: 19:30:56	DVR & Rugby clock
Gerry Pilling	200mm f6 Dobsonian, 12.4mm e/p	Star occulted for approx 1minute	Guesstimate

Table 1. Observers and estimated event times.

The spread of disappearance and reappearance timings among the Walk Barn observers is accounted for in part by the different times presented by the Rugby clocks. Eventually, following some research, Neil found an explanation for this. The NPL time service was suspended 26 March – 05 April to enable repairs on the transmitter and, during this period, some of the clocks began to drift.

Gerry's observing site was some 670m due south of the predicted graze track. He saw the star reappear from behind the sunlit limb, indicating considerable compression of the local selenography such that sunlight could penetrate further along the northern limb than would be the case for the geometric cusp. This is not incompatible with the Watts data. It appears also that Gerry may have witnessed a momentary blinking of the star on reappearance associated with the minor limb peak at 110s after the central event.

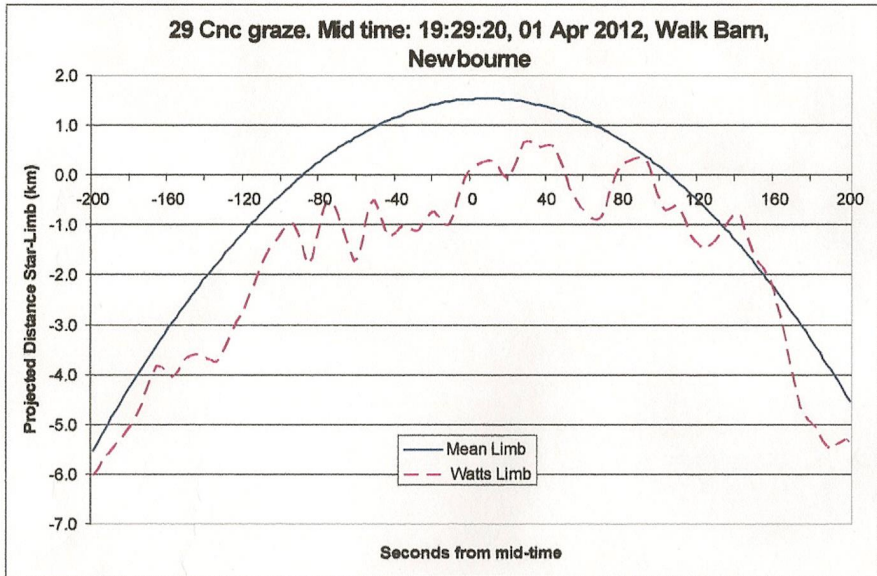


Figure 1. Mean limb and Watts limb.

Although results were negative (evidence for graze somewhat tentative) all other aspects of the observations were most satisfactory. Sky conditions were good, the main site was good, the graze line passed close to Ipswich and the event occurred at a convenient early-evening time. And, best of all, there were nine observers, more than for any OASI grazing occultation observation of the last 25 years!

The next grazing occultation is of Jupiter and the Galilean satellites on 15 July 2012. It is more challenging, being visible at 02:00 UT, with the graze line crossing North Norfolk and Cambridge. Further details will be published in the *Newsletter* later in the year.

Thanks to the observers for assistance in compiling this report.

James Appleton

Modifications to a Skyliner 200P Dobsonian

Mike Norris

Being a newcomer to astronomy I found choosing the 'right' telescope to be a baffling business made more confusing by the range of equipment on offer and the fact that until you have made your purchase and looked through the eyepiece you have little idea what to expect. After much deliberation and not wanting to break the bank since it is always difficult to predict whether your interest will be sustained in a new hobby I decided to opt for the Sky-Watcher 8" Dobsonian and the following are notes of the modifications I have made to it.

The scope is of course pretty rudimentary but then to get an 8" aperture for under £300 this has to be expected. The first thing I did was to fit a side handle to the tube to save gripping the rim of the scope and then replacing the straight through finder-scope with a right-angled finder and then aligning this with my scopes eyepiece which makes the whole process of sighting so much easier since you can do this from one position. (*fig 1*)

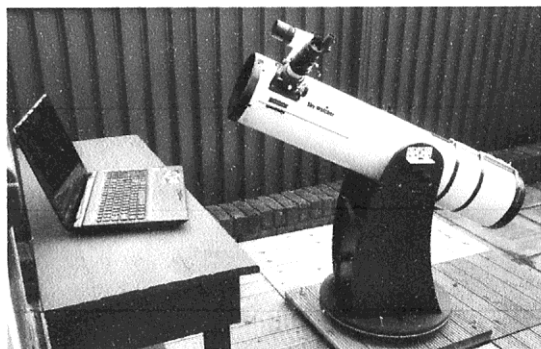


fig 1

My main concern however was the inherent 'stickiness' that the rather mean Teflon pads stapled to the base give you when swinging

the scope in the azimuth plane, particularly when the scope is aimed at a high altitude. After much trawling of the internet for ideas and products I decided to fit a Lazy Susan Bearing and purchased this from Isaac Lord, www.isaaclord.co.uk, which including vat and carriage was still under £10.00. Once fitted the stickiness was replaced by a totally friction free turning action, so free in fact, that the slightest touch, even a puff of wind, sent the scope spinning. So I fitted a couple of pads made from some carpet off-cuts (*fig 2*) shows the Lazy Susan fitted to the base and the carpet pads mounted at just the right height to provide a little friction to dampen the bearing) This gave me a positive turning action, even at high altitudes, without the dreaded stickiness of the Teflon pads.

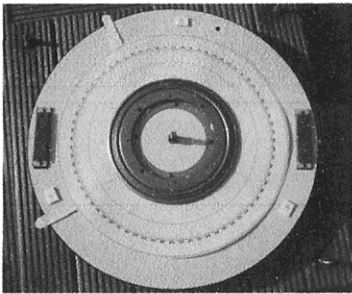


fig 2

To solve the problem of measuring my altitude bearings I purchased a Wixey angle measure www.firstlightoptics.com which magnetically sticks to the scope tube and gives me a direct reading of altitude.

For Azimuth I found an excellent site www.jim-easterbrooke.me.uk which described making a full circle protractor and having downloaded a printed copy of this I took it to Staples who were able to enlarge my A4 image to A3 and then laminate it for me. This was placed on the fixed base around the Lazy Susan Bearing. I then cut out a sighting hole in the upper circular section of the base (*fig 3*) so that the bearings could be read against a marker line made from an old plastic protractor.

To use, I point my scope at a known bright object whose azimuth bearing I can take from Stellarium running on my laptop and then rotate the laminated protractor so that this bearing is showing in my sighting hole and aligned with my marker.

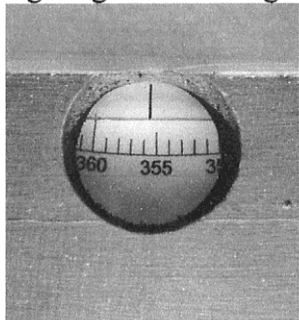


fig 3

So calibrated I can now rotate my scope to any bearing and have a simple set up to locate most objects with enough accuracy for visual contact particularly when I use my 2" wide angle eyepieces. By the way I painted the base of my scope black to help with dark adaption as my scope is mounted close to the white wall of our bungalow and there is so much inter-reflections coming from street lighting etc. For some reason my wife balked at the idea of me painting our bungalow black!

Newsletter Articles

Our Society is always on the lookout for newsletter articles! If you would like to submit an article, please email it in Microsoft word format <e.g.A5 landscape 12 point font> to the editor, Eric Sims at [REDACTED] by the third Wednesday of each month to ensure it appears in the next month's newsletter. If you don't have access to a computer, please phone me at the number published inside the back page of the newsletter.

Eric Sims 14

OASI Committee Contacts & Responsibilities

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

To subscribe to the mailing list



Trustees

Mr Roy Adams
Mr David Brown
Mr David Payne

Honorary President

Dr Allan Chapman D.Phil MA FRAS

DIARY for MAY

STONs	<p>SMALL TELESCOPES OBSERVING NIGHTS AT THE OBSERVATORY As the British Summer Time starts at the end of March, there will be no formal arranged STONs until October 2012. If anybody has something special they wish to observe, then contact Gerry Pilling, Patrick O'Sullivan or Dave Robinson to discuss and see what can be arranged. ☎ Paddy O'Sullivan [REDACTED] ☎ Gerry Pilling [REDACTED]</p>
Wednesdays From 8.00pm	<p>OBSERVATORY CLUB NIGHTS Observing with the Tomline Refractor and other telescopes if skies are clear. ☎ Martin Cook [REDACTED], mobile [REDACTED] ☎ Roy Gooding [REDACTED], mobile [REDACTED]</p>
Wednesday	<p>OASI WORKSHOP At Nacton Village Hall Nothing Booked until later in the year. ☎ Mike Whybray [REDACTED]</p>
Tuesday 1st May Friday 25th May	<p>OBSERVATORY VISITS BY LOCAL COMMUNITY GROUPS Taster evening Private visit ☎ Paul Whiting FRAS [REDACTED]</p>
Saturday 21st July 8.00pm	<p>NEXT COMMITTEE MEETING Venue: The Methodist Church Hall Blackhorse Lane Ipswich</p>

**ASTRONOMY IN THE PARK : SPRING EVENT
CHRISTCHURCH PARK : REG DRIVER CENTRE**

1st Option Saturday & Sunday 19th & 20th May.

If cloudy

2nd Option Saturday & Sunday 26th & 27th May.

Society Contact Details

Observatory tel. no. (meeting nights only): [REDACTED]

Secretary: Roy Gooding [REDACTED] (day) [REDACTED] (evening)

E-mail queries: info@oasi.org.uk

Facebook.com/orwell astronomical

Chairman: Neil Morley [REDACTED]

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