



OASI News

The newsletter of the Orwell Astronomical Society



Solar Day at Alnesbourne Priory

Photo by Michael Nicholls

Trustees: **Mr Roy Adams** **Mr David Brown** **Mr David Payne**

Honorary President: **Dr Allan Chapman D.Phil MA FRAS**

Compact Solar projection scope

by John Wainwright (photo by Kevin Fulcher)



Solar Day at Bentley



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Society Contact details

Observatory (meeting nights only)
07967 519249

Email queries: info@oasi.org.uk
facebook.com/pages/orwell-astronomical

Twitter: @OASlpswich

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

**Please send material for the OASI
web site and newsletter**

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

news@oasi.org.uk

**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, The code for the gate, is on the back of your membership card. If the Black door entrance at the base of the observatory tower is locked, please phone the observatory mobile, 07967 519249 during meeting hours.

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

Spreadsheets: xls, xlsx, OpenOffice/LibreOffice, Numbers

Images: tiff, png, jpg

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

The Newsletter

We now use an outside printer. The cost of doing so means that only the cover pages can be printed in colour. **The full colour version is now available from the OASI web site.**

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 the original source/author.

You may not reproduce articles for profit or other commercial purpose.

Newsletter archive on DVD

James Appleton

The electronic archive of OASI *Newsletters* is complete from edition 1 (February 1972) to edition 484 (April 2013) inclusive. The archive can now be searched online at www.oasi.org.uk/NL/NL_form.shtml

A DVD containing the archive is in the OASI library for loan to members. Anybody wanting their own copy, please let me know what format you require – DVD or your own memory stick.

Committee 2014

Chairman	David Murton	Chair committee meetings, represent OASI to external bodies
Secretary	Roy Gooding	Respond to enquiries, Press & publicity, Outreach meetings, Open days
Treasurer	Paul Whiting FRAS	Finance, Visits by outside groups, Supervision of applications for grants, Taster evenings, Public appreciation of astronomy.
Committee	James Appleton	Web site
	Bill Barton FRAS	Safety & security
	Martin Cook	Membership, Tomline refractor maintenance
	Tina Hammond	Librarian
	Peter Richards	Lecture meetings, Email distribution lists
	Martin Richmond-Hardy	Newsletter
	John Wainwright	Equipment curator
	Mike Whybray	Workshops
	Mike Norris	Newbourne Observing Group

Society Notices

Committee Meeting Tuesday 21st October

Venue Shepherd and Dog, Nacton Time: 20:00 to 22:00

This meeting is open to any member who wishes to come along

Welcome to New Members

Amanda Saxon

Farewells

It is with great sadness we announce the passing of one of our members, Peter Cates, who used to attend regularly on a Wednesday night with his son Steve Cates.

Peter fought his illness for over two years after being told that he would survive for three months, a true fighter. Members who had met Peter would remember his sense of humour and passion to find out more about the stars and beyond. God Bless.

Contacts

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

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

Society Events Diary

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

Google Calendar

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



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>

Discussion Forum <http://forum.oasi.org.uk/index.php>

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

Diary list

Date and Time	Location	Contact	Event
Weekly, every Wednesday, 20:00	Orwell Park Observatory	Martin Cook, Roy Gooding	General observation (weather permitting) using a variety of telescopes.
Monday 22 September 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Friday - Monday 19-22 September or, if poor skies in Sept: Friday-Monday 24-27 October	Haw Wood Farm Caravan Park, Hinton, Saxmundham IP17 3QT www.hawwoodfarm.co.uk	www.brecklandastro.org.uk/	Breckland Astronomical Society Autumn Star Party
22Sept - 3 Oct Main weekend 26-28 Sept	Kelling Heath	starparty.las-astro.org.uk	Autumn Equinox Sky Camp
Saturday 4 October 19:00 to 2:00	Bentley Playing field	Roy Gooding	Bentley Village Star Party Option 1 (option 2 is 29 Nov)
Tuesday 7 October	Orwell Park Observatory	Paul Whiting, FRAS	Public access event. Observatory tour. Places must be booked. Further info and book a place.
Monday 13 October 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Tuesday 21 October 20:00	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Tuesday 21 October 20:00	Shepherd & Dog	Roy Gooding	Committee Meeting
Friday 24 October, 20:00	Methodist Church Hall, Black Horse Lane, Ipswich	Peter Richards	Lecture Meeting. Prof Ralph Spencer: Black Swans - Black Holes in the Constellation Cygnus.

Date and Time	Location	Contact	Event
Monday 27 October 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
31 Oct - 01 Nov 19:30 - 22:00	Orwell Park Observatory	Roy Gooding	Observatory Open Days See page 9
Saturday 01 November Time TBA	TBA	James Appleton	Field trip to observe grazing lunar occultation of the magnitude 7.1 star Hip 109637 .
Tuesday 4 November	Orwell Park Observatory	Paul Whiting, FRAS	Public access event. Observatory tour. Places must be booked. Further info and book a place.
Monday 10 November 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Tuesday 18 Nov 20:00	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Friday 21 November 2014, 20:00	<u>Methodist Church Hall,</u> Black Horse Lane, Ipswich	Peter Richards	Lecture Meeting. Alan McGuire - Using the Sloan Digital Sky Survey to Study Quasars and the Early Universe.
Monday 24 November 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Saturday 29 November 19:00 to 20:00	Bentley Playing field	Roy Gooding	Bentley Village Star Party Option 2
Tuesday 2 December	Orwell Park Observatory	Paul Whiting, FRAS	Public access event. Observatory tour. Places must be booked. Further info and book a place.
Monday 8 Dec 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Tuesday 16 Dec 20:00	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Wednesday 17 Dec 20:00	Shepherd & Dog, Nacton	Roy Gooding	Christmas meal. <i>Note change of date!</i>
Monday 22 Dec 19:00	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group. Christmas Meeting and Astro Junk -Sale Bring & Buy
Monday 29 Dec Time TBD	TBA	James Appleton	Field trip to observe grazing lunar occultation of the magnitude 6.6 star 88 Psc.
2015			

Date and Time	Location	Contact	Event
Tuesday 20 Jan 2015 20:00	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Wednesday 11 Feb	North Norway	Paul Whiting, FRAS	OASI aurora observing field trip to northern Norway, 11-16 February 2015. Further details on web site and p15
	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Tue 17 March 20:00	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Friday 20 March 09:00	TBA	Roy Gooding	Public access event: Partial Eclipse viewing (maximum eclipse at 9.47 am)
Tue 07 April 2015 20:00	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
May	TBA	Roy Gooding	Solar Observing event

The Christmas Meal

Wednesday 17 December 8pm at the Shepherd & Dog, Nacton

Starter

Prawn cocktail
Pork, chicken liver and real ale pie
Homemade broccoli and Leicestershire
Stilton soup
Breaded Camembert

Mains

The Great British Carvery:

Norfolk Turkey, Saxon Beef,
Shoulder of Lamb and Gammon, with all the trimmings

Pan-fried salmon fillet
Root vegetable, apricot and nut bake

Puddings

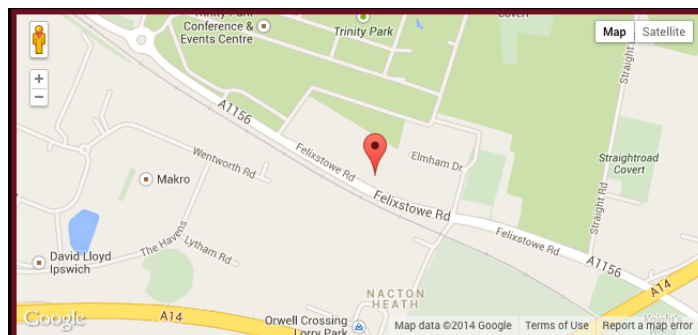
Belgian chocolate and hazelnut choux buns
Traditional Christmas pudding
Apple and almond strudel tart
Baked vanilla cheesecake

Please let [Roy Gooding](#) know if you will be attending and your choice of menu.

Deposit: £5 Full cost £ 16.95

As many members hold a [Diamond Club](#) card, the final cost may be less than £16.95

I will start my usual booking spreadsheet and bring it along on Wednesdays.



www.greatbritishcarvery.co.uk/our-pubs/shepherd-dog

Newbourne Observing Group

michael.norris17@btopenworld.com omahony.mike@gmail.com

We meet at The Newbourne Village Hall, Mill Lane, Newbourne, IP12 4NP

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.

October Meetings on Monday 13th & 27th October from 7pm.

All welcome, with or without telescopes.

David Murton, OASI Chairman

Small Telescope Observing Nights (STONs)

Contact: Gerry Pilling

These will resume in October at Orwell Park Observatory.

Oct 21 2014	Jan 20 2015
Nov 18 2014	Feb 17 2015
Dec 16 2014	March 17 2015 (St Paddy's Day!)
	Apr 7 2015

Outreach Meetings for 2014

Contact: Roy Gooding

Bentley Star Party

The playing field is at the bottom of Case Lane. There is parking in the field. Location to be arranged on the day.

<https://www.google.co.uk/maps/@51.9916497,1.0696197,17z>

Option 1 : Saturday 4th October 19:00 to 21:00. Set-up from 18:00

Option 2 : (if 4 Oct is cloudy) : Saturday 29th November 19:00 to 21:00

The star parties will be open any villagers who wish to come along.

If you have any questions about the above outreach meetings please contact **Roy Gooding**.

Open Weekend 2014

The Observatory Open Weekend this year will be **Friday 31 October and Saturday 1st November**. These two dates coincide with a long week in the school's autumn term. The Pupils will be away from the school.

Doors open for the public at 19:30

Set up time from 18:30

As much help as possible is required to make this another successful fund raising Open Weekend. Help is required in five areas:

Car parking

Reception desk

Telescopes on the balconies

Tomline refractor

Telescopes in the field

If you are only available to help for a short time your presence will still be appreciated.

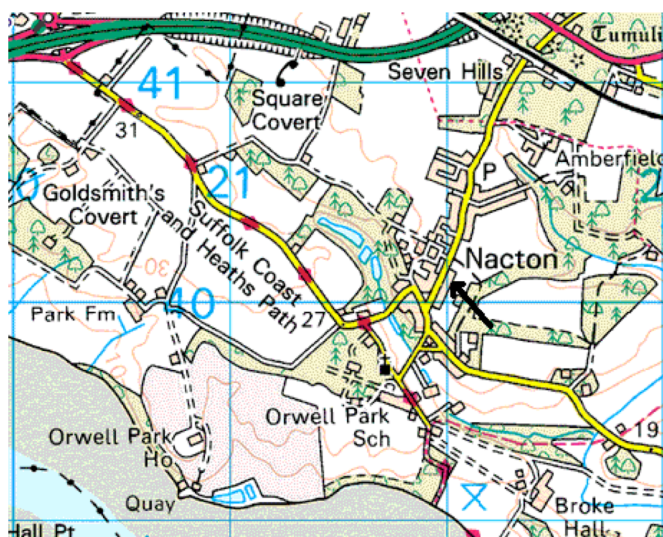
Workshops

Nacton Village Hall IP10 0EU

Contact Mike Whybray

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, interactively 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!

Nacton Village Hall is next to the small village school, just below and left of the N in Nacton on the map. Please park on the same side of the road as the hall, but avoid parking on the white lines which mark clear spaces for various driveways and passing places. The police do occasionally check up on this!



Do you have a subject you could workshop? Give Mike Whybray a call! workshops@oasi.org.uk

22 October

**David Murton: Free software for astronomical use.
What I use and how to use it.**

A brief run-through of the freely available software that I have found and use to assist with my observing and imaging. These include [Astro Planner](#), [Stellarium](#), [Registax](#), [Deep Sky Stacker](#), [PIPP](#), [GIMP](#), [Canon EOS Movie record](#), [PHD](#), [ASCOM/EQMOD](#), etc. Plus various android apps that greatly assist when setting up your scope.

10 December

James Appleton: Rømer Revisited Reprised

The fourth workshop describing OASI's efforts to estimate the speed of light! For over 2 years, members of OASI and others have observed eclipses of the Galilean satellites of Jupiter. James will provide an update on work to follow the approach of [Ole Rømer](#) (1644–1710) to use the observations to estimate the speed of light. A theoretical investigation identifies the factors that limit the accuracy of the method. Finally, Rømer's own observations are re-analysed from a modern perspective. The project was featured as part of [NAW 2014](#).

Lecture Meetings

These take place in The Methodist Halls, Upstairs room, Black Horse Lane, Ipswich

8pm Friday 24th October

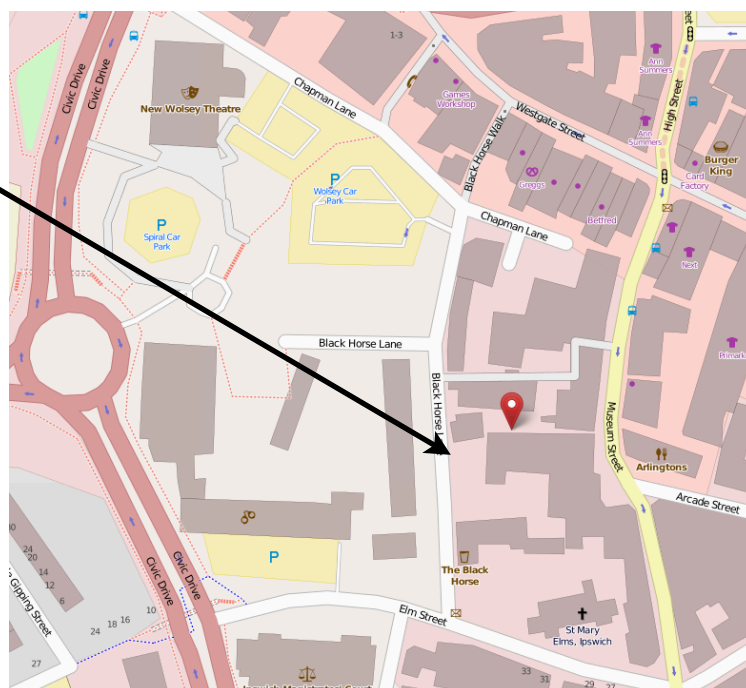
**Professor Ralph Spencer
(University of Manchester)**

**Black Swans - black holes in the
constellation of Cygnus**

8pm Friday 21st November

Alan McGuire

**Using the Sloan Digital Sky
Survey to study Quasars and the
early Universe**



The Night Sky in October

Martin RH & Roy Gooding

Moon

1st Quarter

01 Oct 20:33

Full Moon

08 Oct 11:51

Last Quarter

15 Oct 20:12

New Moon

23 Oct 22:57

Lunar eclipse 11:55

Times are BST (UTC+1) at Orwell Park Observatory.

Sun and planets

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

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:56	18:33		
	31	06:48	16:29		
Mercury	1	09:29	18:44	0.6	Mercury is too close to the sun to see this month.
	31	04:59	16:01	-0.4	
Venus	1	06:20	18:26	-3.8	Venus is still a prominent object low down in the early morning sky.
	31	06:58	16:31	-3.7	
Mars	1	13:12	20:38	0.9	Mars is in Scorpius
	31	11:58	19:06	1.0	
Jupiter	1	02:00	16:57	-1.7	Jupiter is visible in the early morning sky.
	31	23:23	14:09	-1.9	
Saturn	1	10:54	20:02	1.3	Saturn is visible in the western sky for a short time after sunset
	31	08:15	17:11		
Uranus	1	18:42	07:36	5.7	Uranus is in Pisces, and will be visible in the evening sky
	31	15:42	04:32		
Neptune	1	17:37	03:51	7.8	Neptune remains in Aquarius
	31	14:38	00:50	7.9	

Meteor Showers

Source: BAA Handbook 2014 p95-7

Shower	Limits	Maximum	ZHR	Notes
Piscids	Sept - October	Sept 9 Sept 21 Oct 13	10 5 ?	Multiple-radiant ecliptic complex with low rates
Orionids	Oct 16 - 30	Oct 21-24	25	Fast meteors, many with persistent trains. Flat maximum, with several sub-peaks. Very favourable.

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

Martin RH

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

Date	Mag.	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
30 Sep	-1.4	05:08:42	18°	S	05:08:42	18°	S	05:10:09	10°	SSE
08 Oct	-1.6	20:02:57	10°	SSW	20:04:45	21°	S	20:04:45	21°	S
09 Oct	-1.4	19:14:00	10°	S	19:16:09	16°	SE	19:17:20	14°	ESE
09 Oct	-1.0	20:49:03	10°	WSW	20:50:09	19°	SW	20:50:09	19°	SW
10 Oct	-2.7	19:59:30	10°	SW	20:02:35	40°	SSE	20:02:35	40°	SSE
11 Oct	-2.2	19:10:03	10°	SSW	19:12:58	29°	SSE	19:14:53	17°	E
11 Oct	-1.3	20:46:03	10°	WSW	20:47:42	27°	WSW	20:47:42	27°	WSW
12 Oct	-3.3	19:56:17	10°	WSW	19:59:35	64°	SSE	19:59:55	59°	SE
13 Oct	-2.9	19:06:34	10°	SW	19:09:47	49°	SSE	19:12:02	18°	E
13 Oct	-1.4	20:43:01	10°	W	20:44:50	30°	W	20:44:50	30°	W
14 Oct	-3.4	19:53:08	10°	W	19:56:28	82°	S	19:56:53	65°	E
15 Oct	-3.3	19:03:16	10°	WSW	19:06:34	72°	SSE	19:08:53	18°	E
15 Oct	-1.4	20:39:52	10°	W	20:41:41	30°	W	20:41:41	30°	W
16 Oct	-3.4	19:49:55	10°	W	19:53:15	86°	S	19:53:39	67°	ESE
17 Oct	-3.3	18:59:57	10°	W	19:03:16	86°	S	19:05:34	19°	E
17 Oct	-1.3	20:36:35	10°	W	20:38:22	28°	W	20:38:22	28°	W
18 Oct	-3.3	19:46:34	10°	W	19:49:53	73°	SSW	19:50:16	63°	SE
19 Oct	-3.3	18:56:32	10°	W	18:59:51	83°	S	19:02:10	18°	E
19 Oct	-1.1	20:33:12	10°	W	20:34:58	25°	WSW	20:34:58	25°	WSW
20 Oct	-2.8	19:43:05	10°	W	19:46:19	50°	SSW	19:46:52	44°	SSE
21 Oct	-3.0	18:52:58	10°	W	18:56:15	65°	SSW	18:58:47	16°	ESE
21 Oct	-0.8	20:29:54	10°	W	20:31:35	19°	WSW	20:31:35	19°	WSW
22 Oct	-1.8	19:39:34	10°	W	19:42:31	30°	SSW	19:43:33	25°	S
23 Oct	-2.2	18:49:19	10°	W	18:52:28	42°	SSW	18:55:34	10°	SE
24 Oct	-0.7	19:36:14	10°	W	19:38:28	17°	SW	19:40:29	11°	S
25 Oct	-1.2	18:45:40	10°	W	18:48:25	25°	SSW	18:51:10	10°	SSE

Occultations during October

James Appleton

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
04 Oct	23:18:45	D	0.83+	-42	19	7.3	ZC 3163
07 Oct	00:47:31	D	0.97+	-42	29	5.9	14 Psc
28 Oct	17:42:17	D	0.24+	-11	15	7.4	Tyc 6273-0422-1

Partial Solar Eclipse 2015

Bill Barton FRAS

Here are the local circumstances for the partial solar eclipse of March 20, 2015. These days NASA presents this data on a 'Google Map' that you can zoom in on and clip to get the data. Below is for the Waterfront in Ipswich (as mentioned at our last Committee Meeting). The clocks will change on Sunday March 29th next year so the times shown need no adjustment.

Lat.: 52.053° N
 Long.: 1.1608° E Partial Solar Eclipse
 Magnitude: 0.867
 Obscuration: 84.28%

Event	Date	Time (UT)	Alt	Azi
Start of partial eclipse (C1)	2015/03/20	08:26:41.1	21.0°	119.9°
Maximum eclipse	2015/03/20	09:33:03.9	29.0°	135.9°
End of partial eclipse (C4)	2015/03/20	10:43:15.3	35.1°	155.4°

Some Astronomy Guides

The One Minute Astronomer

Astronomy Know How

Stargazers lounge

Society for Popular Astronomy

UK Astronomy Directory

Meteor Watch

S.P.A.M. Meteor Detection Group

Heavens Above (satellites, astronomy & time data)

Your Sky

Metcheck forecast

Weatherweb

Astronomy weather forecast

Lightning

ISS

Paul's Podcast

oneminuteastronomer.com/

www.astronomyknowhow.com

stargazerslounge.com/

www.popastro.com/index.php

www.uk-astronomy.co.uk/directory/

www.meteorwatch.org/

<http://www.merriott-astro.co.uk/About.htm>

heavens-above.com/

www.fourmilab.ch/yoursky/

uk.metcheck.com

www.weatherweb.net

clearoutside.com/forecast/52.06/1.15

www.lightningmaps.org/realtime?lang=en

<http://www.isstracker.com/>

See **Night Sky** section of our website

Beginner's Guides to Astronomy

Martin Richmond-Hardy

Thinking of buying your first telescope? **STOP**. You may need advice or you could waste money. As well as a couple of e-pamphlets available from our website www.oasi.org.uk/Misc/Misc.shtml, there are many sources of information on the Internet (perhaps too many?)

[The One Minute Astronomer](http://oneminuteastronomer.com/astro-course-intro/) has a wealth of easily digestible articles. You can also subscribe to a monthly newsletter. Most of the articles in *One-Minute Astronomer* are written by Brian Ventrudo PhD, a writer, scientist, and amateur astronomer based in Ottawa. For the absolute beginner there's also a free "crash course" to get you into the jargon

<http://oneminuteastronomer.com/astro-course-intro/> This short guide takes you through the basics of what you can see in the sky, how the sky moves from day to day, short tours of the stars and constellations in all four seasons in both the northern and southern hemispheres, and ways to better see the sky with your unaided eye or a simple telescope or pair of binoculars.

[Your Sky](http://yoursky.org/) is an interactive planetarium of the Web. You can produce maps in various forms for any time and date, viewpoint, and observing location. If you enter the orbital elements of an asteroid or comet, *Your Sky* will compute its current position and plot it on the map. Each map is accompanied by an ephemeris for the Sun, Moon, planets, and any tracked asteroid or comet. A control panel permits customisation of which objects are plotted, limiting magnitudes, colour scheme, image size, and other parameters; each control is linked to its description in the help file.

[Astronomy Know How](http://www.astronomyknowhow.com). Ninian Boyle, who is a Fellow of the Royal Astronomical Society and a member of the British Astronomical Association, has put together this site to give you access to top quality information on the subject in an easily digestible form. Here you will find courses and much more to help you to get to grips with certain topics whether it's learning about how the night sky works or, more practically, setting up a particular type of telescope, through to how to image the Sun or taking pictures with a DSLR camera. www.astronomyknowhow.com

You can also sign up to Ninian's very useful and **FREE** email Newsletter sent out to you every month with what to look for in the heavens and tips on how to find things.

Last but not least, our own *Bill Barton FRAS* has offered to run naked-eye observing evenings at Newbourne to help beginners (and some not-so-beginners!) find their way around the night sky.

Jottings from the Committee Minutes

Historical Research into the Chaldean Society

Pete Richards has transcribed the handwritten minutes of the Ipswich Section of the [Chaldaean Society](http://www.chaldaean.org/) and made them available to members of OASI. James Appleton will add to the OASI website. See page 15.

Dennis Jack Fulcher, Founder Member of IDAS

Kevin Fulcher had recently taken his grandfather's observing notebook to the Observatory. His grandfather was Dennis Jack Fulcher, one of the founder members and first honorary secretary of IDAS. The notebook revealed new information about the formation of IDAS, and had stimulated James Appleton to contact BAA section Directors Richard McKim and Michael Foulkes, who had been able to provide more information about DJF from the BAA archives. DJF was an observer of ability. A digital scan of the notebook and information from the BAA has been added to the OASI archives. During correspondence, Richard had informed James that he was writing a piece for the JBAA about R L T Clarkson.

Journal of the BAA

Paul Whiting has purchased the DVD archive of the JBAA for OASI.

For The History of Astronomy in Suffolk.

The following is a transcript I made of some of the correspondence which D J Fulcher had with local astronomers on the subject of the history of astronomy in Suffolk. I also include some birth and death dates of members of the Chaldean Society Ipswich Section which I got by matching address information with registers of Birth and Deaths and 1911 Census records (Census records are made public after 100 years). The main text is a transcript of an account by Alice Grace Cook on her life in astronomy sent to D J Fulcher in response to his request for information. I also include a statement in a letter from Roland L T Clarkeson to D J Fulcher as follows: "The first important astronomical event which I recollect was a lecture by Sir Robert Ball at the Memorial Hall, Beccles, in I think 1905. My own observing career started in January 1906..."

Pete Richards

Miss Alice Grace Cook. Sunlit 56 Fimborough Rd, Stowmarket, November 1951

My grandmother, Mrs Lingwood, possessed a small telescope, which my mother told me she used frequently. It did not come to me, but her one astronomy book is in my possession. It is Mylne's Astronomy, dated 1819. 'An Elementary Treatise on Astronomy.' a book containing a set of four maps of the constellations, which are of interest being one of the earliest sets which do not show the constellation figures.

My interest in astronomy was aroused in the Autumn of 1909, when I attended six Cambridge Extension Lectures in Stowmarket, delivered by the great grandson of Sir William Herschel, Mr J. A. Hardcastle FRAS. The lectures were well attended. At the close of the first lecture Mr Hardcastle made an appeal for students, which resulted in about ten of us coming to him for half an hour before the succeeding lectures and for half an hour the morning after in the house in which he was staying. His method of teaching was to encourage his students to make their own discoveries in the sky. He also advised us what books and star atlases would be required.

When the time came to thank him and say goodbye, I spoke very regretfully, but was cheered by being told that Mr Hardcastle would not lose touch with his keen students. This indeed proved true; we corresponded until his passing, just as he was appointed Director of Armagh Observatory. He lent me a 6in reflector on a garden stand, introduced me to the BAA and I helped him with diagrams for his students and did a long job of desk work for him during his search for clusters and nebulae on the Franklin Adams plates. For a finish to this I plotted all the finds on a star map, showing how they were situated in regard to the Milky Way.

In 1910, Spring, we were searching for Halley's Comet. The first excitement was seeing a comet called Miner's comet, which was first seen in S. Africa. Halley's comet was a thrill, but very disappointing, as when seen its long tail was stretching behind the diffused head. It was thought to brush the earth, for observations in the West were accompanied by glimpses of portions of the tail seen in the East on three mornings (but not by me).

In 1911 I was elected a member of the BAA which meant visits to London to the meetings at Sion College, Blackfriars Bridge, getting to know friends, and borrowing library books, and besides that help from the various Directors of Sections.

Mr Hardcastle advised me to apply for the use of a telescope.

In 1912 I had an Observatory erected for the telescope loaned to me by the Association, and bequeathed to them by Capt W. Noble. The refractor was 4 1/8th in aperture, by A Ross, and clock driven.

I cannot describe the happy times I spent in Summer and Winter alone, except sometimes for my puss, and on some evenings friends came; my visitors' book contains their names. Reports of Observations were sent in to the appropriate Directors of the Sections: mainly sunspots, the Moon, telescopic comets, and Saturn.

When not using the Refractor, I spent time in the open, observing meteors, aurorae and zodiacal light, and the strange light clouds; solar and lunar haloes, and the Gegenschein.

For the meteoric work I was in close touch with Mr Denning FRAS until his passing on June 9th 1931. His great friendship was an encouragement. I also had a greatly valued friend Mrs Piammetta Wilson FRAS.

These two were meteor specialists - Later I was joined on occasions by Mr J P M Prentice FRAS and friends with Mr Ed Collinson and saw something of his earliest attempts at Ast: photography.

At the beginning of the 1914/18 War the Rev Martin Davidson went as Chaplain, and Mrs F. Wilson and I became deputies of the Meteor Section of the BAA in his place as Director.

At her death in July 1920 I was appointed the Meteor Director and held the post from 1920 till 1923, when it was taken over by Mr J.P.M.Prentice, who still carries on extremely ably at the time

of writing this. (Mr Fulcher has the history of Mrs Wilson's astronomical achievements, as she was a Suffolk astronomer.) In 1920 she was awarded the USA E.C.Pickering Fellowship for Women, a yearly grant to women astronomers, when for the first time the award was made to an Englishwoman, but sad for me and her friends and relatives, she did not live to receive it. It was then presented to me for distinction in observing.

I used some of the money to obtain life membership of the BAA to buy books, adjuncts to the telescope, and a Corona typewriter.

On Jan 14th 1916 Mrs Wilson, myself, and three other women were the first women to be elected Fellows of the Royal Astronomical Society.

It was one of the high lights of my observing nights that on June 8th 1918 when I went out to search for slow moving bright meteors, almost at once I spotted a strange star, twinkling violently and changing colours rapidly. This was at 9.30 pm and I was the first astronomer in England to make the earliest observation of Nova Aquilae. Mr Denning viewed the Nova A. at 10pm. In my Klein's Atlas I had written: 'On June 8th 1918 First magnitude = Altair, 18 h 45 m + 1 (Greenwich gave 18 h 44.47 m + 29'24" = Vega, on June 9th as it brightened up.)

In 1920 our home at The Rookery was given up and the refractor sent back to London. Our next home was The Grove, and there I carried on a little observing for meteors, using a 2 in Othway Refractor and without much success, an instrument named a meteroscope designed by the Rev M Davidson FRAS.

In Aug 1921 I became local correspondent of the Chaldean Soc: Our Branch had headquarters at the Ipswich Museum. We held meetings there and at Stowmarket. Father Cortie of Stonyhurst Observatory gave two public lectures in Ipswich. In 1944 the Chaldean Society in London closed down, and our branch had to be given up. Some of these Library books have been presented to the newly formed Ipswich & Dist: Astronomical Society.

(Mr Fulcher has the minute book.)

For several years I contributed articles on astronomy to the E.A. Daily Times newspaper, under the name of Mary Star, and also wrote letters to the EADT, requesting astronomical information, weekly articles for Stowmarket Recorder, with the heading 'On the Watch Tower'.

Until recently I have been a member of the Societe d'Astronomie d'Anvers, receiving their publications.

In June 1950 I became a Founder member of the Ipswich and Dist Astronomical Soc. I am proud of the work being done by its members, and wish the Society many years of success.

Letter from A G Cook to Mr Fulcher dated Aug 5th 1951.

"Mrs Wilson and I were great friends and worked together with Mr Denning in observing meteors."

Astronomy in Suffolk notes by Roland L T Clarkson

"The first important astronomical event which I recollect was a lecture by Sir Robert Ball at the Memorial Hall, Beccles, in I think 1905.

My own observing career started in January 1906..."

... Mrs Fiametta Wilson, who in those days was an active observer of Meteors and lived at Totteridge, and later persuaded me to join the BAA was a daughter of Dr J H Worthington, a well known Lowestoft Doctor who lived on the Marine Parade ..."

Nature Notes by John O'Bosmere, Astronomers of Suffolk, EADT 11 April 1951

Mr D J Fulcher FRAS of 19 Gloucester Road Ipswich has appealed for information.

Letter from Roland L T Clarkson, The Bungalows, The Avenue, Trimley, 4/11/51

"for some years I was a member of this [The Chaldean Society], and I find I still have copies of their quarterly journal, Vol 1 nos 10, 11, 12 (in 1918) ..."

"Two distinguished Suffolk Astronomers were associated with it, Miss Grace Cook and Mrs Fiametta Wilson FRAS. Miss Cook I have met once or twice, Mrs Wilson I knew well and was the daughter of a Lowestoft doctor who was a friend of my father".

1911 Census records & Kellys Directory Suffolk.

Mr D O Wollaston 48 Henly Road

Edward Howard Collinson 15/11/1903 - 9/1990

Alice Grace Cook 1877-27/5/1958

John Phillip Manning Prentice 14/3/1903 to 12/1981

Stephen Abbott Notcutt -20/9/1923

William Rowley Elliston 1/1869-12/2/1954

Chas Henry Lomax MA JP Grove Park Yoxford

Capturing the Analemma

Joe Startin & Alan Smith

Point a camera due south, fix it in position, and take a picture of the Sun at midday every day for a year. Should you expect a vertical line of overlapping Suns, all on the meridian? Actually... no. Sometimes the Sun will be slightly behind where you might expect it to be, and sometimes ahead. The resulting pattern is a slender, slightly-bowed figure-of-eight. This is an instance of an analemma¹.

Astronomers talk of an imaginary 'Mean Sun'. It is always due south at midday, and it exactly marks the duration of a year. With a Mean Sun, sundials would always be perfect timekeepers. But there are systematic differences between the position of the actual Sun and the Mean Sun. They are described by the Equation of Time (EoT), which is most easily thought of as the error shown on a sundial throughout the course of a year².

¹ Formally, an analemma is a representation of the changing angular offset of one celestial body (usually the Sun) from its mean position on the celestial sphere as viewed from another celestial body (usually the Earth).

² More precisely, the EoT is applied at midday UT (Universal Time), and corrected for the longitude of the observer's location.

Two processes contribute to the EoT. The first is the effect of the Earth's orbit, which is elliptical with the Sun at one focus. A suitable reference point occurs in early January, when the Earth is closest to the Sun, at perihelion. The Earth's orbital angular velocity is then at its highest, and in the course of a day it moves further round in its orbit than usual. For any location on the Earth's surface, successive meridian crossings of the Sun require the Earth to rotate on its axis slightly further than average. Sundial time runs slow, and this effect accumulates day by day, slowing sundial time the most by early April. The Earth's orbital angular velocity has then have slowed down sufficiently that successive meridian crossings require the Earth to rotate slightly less than average. The process reverses, and by early July all the accumulated loss in sundial time has been clawed back. The Earth is at its furthest from the Sun (aphelion), and its orbital angular velocity is at its lowest, with sundial time running at its fastest. After aphelion sundial time gains more and more, reaching its maximum advance by early October. The Earth's orbital angular velocity then picks up again, and successive meridian crossings require the Earth to rotate slightly more than average. By the next perihelion the accumulated gain has all been clawed back. All is back square, and the cycle is ready to repeat. This process accounts for a variation of almost ± 8 minutes between sundial time and clock time.

The second process results from the Earth's obliquity, the 23.5° tilt of its axis away from the perpendicular to its orbital plane. This, of course, is the same thing that gives rise to the seasons, and the notions of solstices and equinoxes. The process is not easy to visualise, but one approach is to consider the Sun's motion through the background stars. This can be projected onto the celestial equator (where the motion of a Mean Sun would mark out regular intervals of time). This projected motion is fastest at the solstices, when the Sun moves parallel to the celestial equator. The Sun is slipping behind the stars faster than usual, and its meridian crossings recur at longer intervals than average. The rate of slowing of sundial time must be at its greatest. The projected motion is slowest at the equinoxes, when the Sun's motion slants across the celestial sphere. The Sun is not slipping behind the stars so fast as usual, and its meridian crossings recur at shorter intervals than average. The rate of gain of sundial time will be at its greatest.

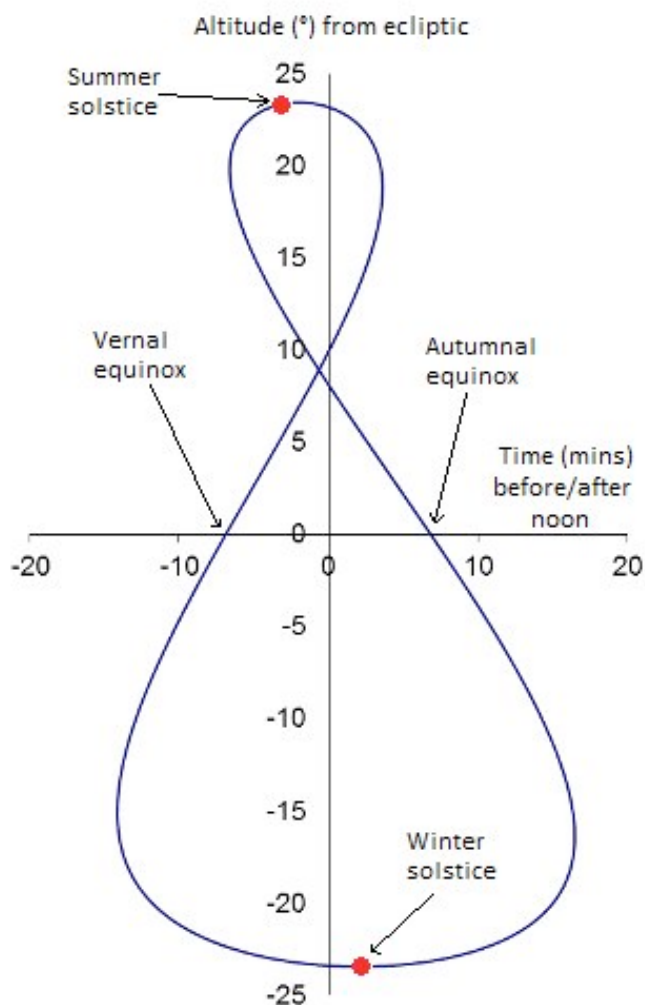
Now consider the passage of time after a winter solstice, when sundial time has maximum rate of slowdown. Sundial time continues to slow down, but at a declining rate. About the middle of February this rate passes through zero, and sundial time starts to gain. The accumulated loss in sundial time peaks at this time. All this loss is recovered by the time of the spring equinox, and at this point the rate of gain has risen to its highest. Sundial time starts to get ahead, but the rate of gain is reducing. The accumulating gain reaches a peak when the rate falls to zero, and then declines. All is square again by the summer solstice, when there is again the maximum rate of slow down. A similar cycle follows in the second half of the year. The process is responsible for a variation of approximately ± 10 minutes between sundial time and clock time.

At any angular position of the Earth in its orbit, measured relative to a suitable reference such as the winter solstice, it is possible to work out what the effect of the tilt is³. This can then be added to the effect of the first process.

When the effects of the two processes are added together, the orbital angle between perihelion and the winter solstice is crucial to the total effect. For the Earth, perihelion actually occurs between 13 and 14 days after the winter solstice, when it is about 13.9 degrees further on in its orbit.

For other takes on how to understand the EoT, see Matthew Robertson's article in the OASI Newsletter (June 2012), or [Wikipedia](http://en.wikipedia.org/wiki/Equation_of_time). and here http://en.wikipedia.org/wiki/Equation_of_time

³ Some features can be predicted. For example, at an equinox it is easy to imagine that sundial days have a similar duration to clock days, even if the tilt is extreme. At a solstice, given a moderate angle of tilt, sundial days and clock days will also be very similar in duration; however, for an extreme angle of tilt, close to 90 degrees, it is clear that a small shift in orbital position in one direction or the other will have a major impact, amounting to the gain or loss of almost a quarter of a day.



The figure shows a representation of the analemma plotting the altitude of the Sun against the EoT. Provided the appropriate sign convention is used, the EoT is equivalent to the divergence of the Sun's azimuth from the meridian.

Because there are not an exact number of days in a year, the times of solstices, equinoxes, perihelion and aphelion will generally be about six hours later in successive years, or about 18 hours earlier if the most recent February had 29 days. A photograph of the analemma beyond the duration of a year will show later exposures of the Sun positioned about a quarter of a day behind their counterpart of 12 months earlier.

The picture shows part of the solar analemma. It was taken by arranging an old web camera to point due south and take a snapshot at 12 o'clock noon civil time (GMT) every day. This is a "work in progress" and shows the path followed by the Sun from 18/2/14 to 11/9/14 (inclusive), as seen from the windowsill of a house just north of Ipswich. (Ipswich is about one degree east, where the Sun is about 4 minutes ahead of Greenwich, but this has been disregarded.) The lens of the camera has been covered by a miscellany of filters and is operated automatically by an old PC. Owing to the lack of dynamic response of the camera, the picture of the Sun has been overlaid on an unfiltered picture of a sample sky taken at the same location. Gaps in the sequence occur when the midday Sun was obscured by cloud!



Your Own Planisphere

This 'instructional' piece has been taken from "[The Chaldaean](#)" Vol. VI. No. 22. Spring 1925 and I make no claim to originating this idea. I have guessed at the identity of the author based on the initials given at the end. Some of the star positions given in the table are no longer accurate due to the ninety years that have elapsed since this piece was first published.

Bill Barton FRAS

The movements of the stars are logically the amateur astronomer's first serious study. As a very little study is required the work is often neglected for the more attractive regions of speculative astronomy. This is a scientific equivalent of building without foundations, and the study required is not difficult and adds greatly to the charm of the night sky. Every amateur should be able to tell without a star map what important star will be seen at its best each night.

- I. Each star follows its leader in a continuous procession across the sky, completing a whole turn in about 24 hours. Each star is fixed among its fellows, else we could have no constellation groups to remember, and the turning is as one entire Celestial Sphere on which the stars seem to be dotted. Thus the time between the rising (or setting, or the highest point) of one star and another is always the same. It only remains to measure all these times from a fixed place in the unending procession, and the whole falls into order. The Vernal Point is where the Sun crosses the Equator to usher in the summer half of the year, and the order of times in which the stars follow this point in reaching the Meridian is their Right Ascension (R. A.)

Example I

If a star is in 10 hours R. A., it will reach the Meridian 10 hours after the Vernal Point, and 4 hours after a star whose own R. A. is 6 hours.

Example II

Aldebaran (R. A. 4 hours) is on the Meridian at 9pm. When will Regulus (R. A. 10 hours) reach the Meridian? Regulus is 10 - 4 hours, or 6 hours behind Aldebaran. Therefore it will be six hours before Regulus reaches the Meridian (3 am). And similarly for any other star.

- II. If the Sun remained always in the same place among the stars, he would turn with them and the daily race would be monotonously alike. Fortunately the Sun falls back 4 minutes of time every day among the stars, so taking 4 minutes longer to get round. This 4 minutes a day is 2 hours in one month, and thus 1 day in each year. Thus the Sun falls back 2 hours of R. A. each month (roughly). He is in 0 hours R. A. on March 22 (which gives us our Vernal Point). We can thus make up a little table of our own.

Sun is in	0 hours R. A. on	March 22
	2 " "	April 22
	4 " "	May 22

and so through the year.

Example III

When will the Sun be in Sagittarius (R. A. 19 hours)? At two hours a month, 19 hours gives 9 1/2 months. Counting from March 22 we come to December 22 in 9 months. Adding a fortnight to make 9 1/2 months, the Sun will be in Sagittarius at the beginning of January.

- III. At mid-day on March 22 the Sun is on the Meridian and is also in 0 hours R. A. At 1 p.m. On March 22 the Sun has passed the Meridian and any star in 1 hour R. A. will be on the Meridian. So for other hours of the day. On April 22, 2 hours R. A. are on the Meridian with the Sun at mid-day. Therefore at 6 p.m., 8 hours R. A. will be on the Meridian. At 9 p.m., 11 hours will be on the Meridian. These examples show what to do to find what stars can be seen on any given date and any given hour.

- (i) Find the R. A. of the Sun. (Two hours for every month past March 22).
- (ii) Add on the number of hours past mid-day. This gives the R. A. on the Meridian.
- (iii) Stars in this R. A. will be on the Meridian. Stars from 1 to 6 hours greater R. A. will be rising towards the Meridian, those of 1 to 6 hours smaller R. A. will be past the Meridian.

Example IV

What stars shall I expect to see on Nov. 1, at midnight?

R. A. Of Sun = 15 hours (nearly), for it is 7 months and 10 days from March 22. Midnight is 12 hours later than mid-day. 12 added to 15 gives 27. As there only 24 hours of R. A. this is equivalent to 3 hours. (This is the only difficulty that can ever arise). R. A. of Algol is just over 3 hours. Thus it is near the Meridian. We have the Pleiades in 3 2/3 hours, Capella and Orion in 5 hours, the Twins in 6 hours, still approaching the Meridian. Andromeda in 1 hour and the Fishes and Pegasus (0 hours and 23 hours) are past the Meridian. This information can be confirmed as soon as a planisphere can be consulted. After a few trials no confirmation will be needed.

List of RAs

Column 2 gives R. A.'s in order from 0 hours to 24 hours. Column 3 gives the constellations of the Zodiac. Column 1 separates out the circumpolar stars. Column 4 gives other important stars N. or S. Of the Zodiacal constellations and some bright stars often asked for. There is no need to include more names, as every amateur learns the minor groups by proximity to a better known one.

The Zodiac given is the actual star-groups, not the artificial 'signs' of the Zodiac.

Circumpolar Stars	R. A. in hrs	Zodiac	Other Important Stars
	0	Pisces (Fishes)	
Cassiopeia	1		
	2	Aries (Ram)	
	3		Perseus (Algol)
	4	Taurus (Bull)	Pleiades 3 2/3
Capella	5		Orion (Rigel)
	6		
	7	Gemini (Twins)	Sirius 6 1/2
	8		Procyon & Castor 7 1/2
	9	Cancer (Crab)	
	10		Regulus
The Pointers	11	Leo (Lion)	
	12		Denebola
The Plough Handle	13	Virgo (Virgin)	Spica 13 1/2
	14		Arctaurus
	15	Libra (Scales)	
	16		Antares
	17	Scorpio (Scorpion)	Hercules
	18		
Vega	19	Sagittarius (Archer)	
	20		Aquila (Altair)
Cygnus	21	Capricornus (He-Goat)	
Cepheus	22		
	23	Aquarius (Water-Bearer)	Pegasus (Square)
	24		

T. L. M.

(Probably Thomas MacDonald, M.A., B.Sc., F.R.A.S., 9 Colebrooke Terrace, Kelvinside, Glasgow)

TLAs (Two/Three Letter Abbreviations)

Martin RH

There's been a bit of correspondence on the Yahoo group recently so I thought it was time, for the benefit of beginners and those of us less well versed in astro-speak, to list a few. If you want more explanation, Google and Wikipedia can be your friend (but not always).

Source: Cambridge Dictionary of Astronomy, by Jacqueline Mitton, Cambridge University Press 2001. (picked up second hand for £9 in a Cambridge bookshop)

AAVSO	American Association of Variable Star Observers	KBO	Kuiper Belt object
ADS	Aitken Double Star Catalogue	LBV	luminous blue variable
AGB	asymptotic giant branch	LHA	local hour angle
AGK	Astronomische Gesellschaft Katalog	LMC	Large Magellanic Clouds
AGN	active galactic nucleus	LST	local sidereal time
AJ	Astronomical Journal	LTP	lunar transient phenomenon
APT	automatic photometric telescope	MACHOs	massive astrophysical compact halo objects
BAA	British Astronomical Association	MCG	Morphological Catalogue of Galaxies
BIS	British Interplanetary Society	NEO	near-Earth object
CCD	charge-coupled device	NGC	New General Catalogue of Nebulae and Star Clusters
CDM	cold dark matter	NLC	noctilucent clouds
CM	central meridian	NPD	north polar distance
Dec	declination	OG	object glass - the lens nearest the viewed object
ELFIR	extremely luminous far-infrared sources	PA	position angle
ET	ephemeris time	pc	parsec
EUV	extreme ultraviolet	PHA	potentially hazardous asteroid
GMT	Greenwich Mean Time	PZT	photographic zenith tube
GMST	Greenwich Mean Solar Time	QSO	quasi-stellar object (quasar)
GRS	Great Red Spot (of Jupiter)	RA	right ascension
GST	Greenwich Sidereal Time	RAS	Royal Astronomical Society
GUT	Grand Unified Theory	RGO	Royal Greenwich Observatory
HA	hour angle	SAR	synthetic aperture radar
HD	Henry Draper Catalogue	SLR	satellite laser ranging
HH object	Herbig Haro object	TAI	International Atomic Time (F)
HR	Hertzsprung-Russell (diagram)	TDB	Barycentric Dynamical Time (F)
HST	Hubble Space Telescope	VLBI	very long baseline interferometry
IAU	International Astronomical Union	WIMP	(electrically neutral) weakly interacting massive particle
IC	Index Catalogue	WLM	Wolf-Lundmark-Melotte galaxy
ICM	intracluster medium	WN	Wolf-Rayet star
IDP	interplanetary dust particle	ZAMS	zero-age main sequence
ISM	interstellar medium	ZHR	zenithal hourly rate
JD	Julian date		

Not having a suitable location for a dome

David Murton

Not having a suitable location to put a permanent dome, I applied some lateral thinking to the problem of providing some weather protection to my telescope and a more pleasant observing environment.

Having a fixed post in the centre of the patio on which the scope is mounted, the possibility of a tent of some sort came to mind but finding a suitable one proved elusive until one day when visiting a local camping store I saw the very thing. Described as an outhouse, it is large enough and high enough to enclose the scope and enable both a table and chair within it for me to use a laptop while being square a small enough to be manageable.

To help keep it all tight and enable it to be rotated in the direction I want to look or moved completely away, I constructed a demountable wooden frame with castors under to which it can be fixed using some small shackles in the corners.



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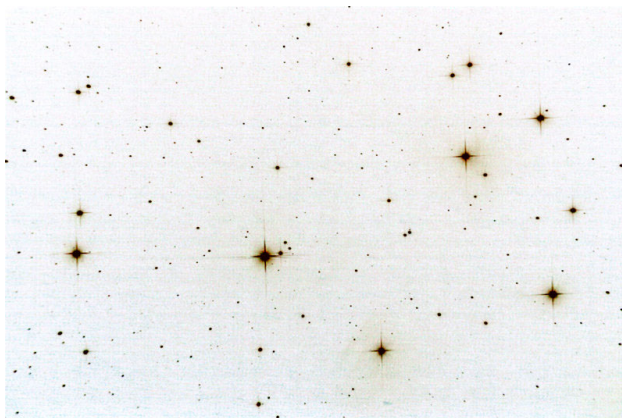
All in all it works perfectly and has the added benefits that it can be removed if I am not intending to be using the scope for a while and also it can be taken with me when I go to star parties. In total it has cost less than £140 and is, I feel, a bargain!

Looking to find something better than the usual bin liner for putting over my 200mm reflector I found that a patio heater cover fits perfectly once it has been reduced in length slightly. Its breathable, completely watertight, robust and most importantly, costs less than £20 online.

David Murton

Chairman Orwell Astronomical Society (Ipswich)

Messier & comet pictures by Kevin Fulcher



7 Sisters (M45) – negative image



M31



Comet Jacques