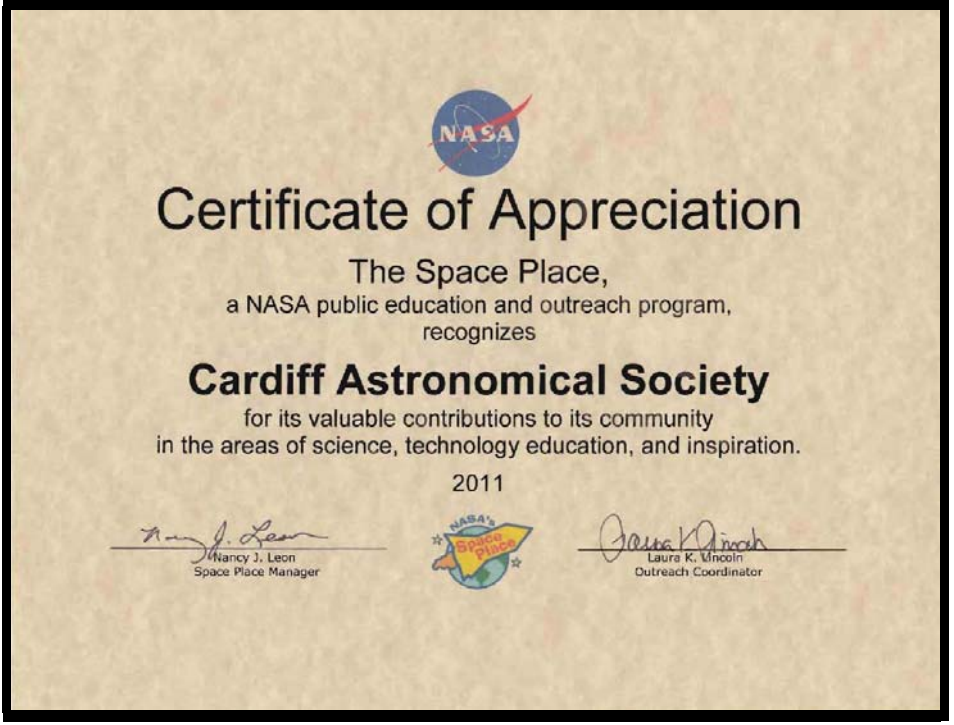
NEWSLETTER

March - May 2012 Issue 158



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Editorial

Ian Davies

You can't have missed the NASA Certificate of Appreciation proudly displayed on the cover of this NewsLetter. All CAS members should be proud of such recognition of our out-reach work in the community. The accompanying citation letter (right) reads:-


JPL

The Space Place Team is pleased to award the Cardiff Astronomical Society the enclosed certificate of appreciation. As an active NASA Space Place Astronomy Club partner, you encourage science and technology education throughout your community. Reaching this audience with the message that science and technology and learning about space are fun is crucial; you and your organization play a vital role in this endeavor. Through your public events, you not only educate, but you also inspire your audiences, both young and old. Through your use of hands-on activities and experiences for children, you play a key part in developing tomorrow's scientists.

Please accept this certificate of appreciation with our gratitude.

Sincerely yours,
Laura K. Lincoln
Outreach Coordinator

So a pat on the back for everyone in the Society, especially those volunteers who help out practically with our programme of out-reach events. If you would like to join our expanding band of helpers, please contact our Public Events Organiser Theresa Cooper.

Wishing you dark skies - Ian.

Publication Dates

The CAS newsletter is published at the first society meeting of September, December, March and June. The deadline for submissions is 4 weeks before the publication date (deadline for Issue 159 is 10th May).

Visit CAS on the web @

Cymdeithas Seryddol Caerdydd
Home Page

http://www.cardiff-astronomical-society.co.uk
General enquiries email info@cardiff-astronomical-society.co.uk
Remember as a CAS member you can use the Members' Area of the web site. You will need you password to access this area. If you don't know your password it is your surname followed by your membership number.

twitter CAS is now on twitter, to follow us, follow **CardiffAS**

StarGazingLive 2012 Roger Butler

Sitting in my air conditioned bubble, surrounded by sand, thousands of miles away from Cardiff, I could only try to imagine what was happening at SGL2011 with CAS at Dyffryn Gardens.

This year, I was back in the UK and was eager to see for myself the amazing phenomenon of 500 plus public pilgrims making their way to the Gardens in the dark and the cold, determined to see for themselves the wondrous sights of the night sky and learn more about astronomy from our members.

Anticipations were high: would the numbers of last year be repeated / would the skies be clear again to allow all to observe with our telescopes / had all the preparations been sufficient to cope with the large number of cars and people ?

Realising that it would be highly likely that clouds would spoil the occasion, as often happens, we had a series of four short talks prepared so that the evening would not be totally frustrating, even if the conditions were bad.

Gradually more and more cars arrived and well before 7pm the Cory Educational Centre was full of people waiting for the action to begin.

A large crowd had also assembled outside, unable to get into the Cory Centre, but hoping they would be able to see something starry through the passing clouds with the aid of the many telescopes and binoculars that had been set up

Zero hour –and at 7.01pm precisely I welcomed the audience and explained what we had in store for them – a programme which was liable to change if the clouds cleared and mass observing could commence.

I gave a short presentation aimed at helping new skywatchers to learn their way around the sky by identifying some of the easy-to-find constellations, particularly, at this time of year, Orion.

Nearly 20 fleeting minutes later, I handed over to Dave Powell, who was going to talk about the practicalities of observing and that

important purchasing decision – binoculars or telescope, but which one ?

Going outside, I was pleased to see that patches of clear sky were now appearing and Orion was to be seen in all his majesty, apart from hiding bashfully behind occasional scurrying blobs of cloud.

Luckily those who could not get into the Cory Centre were finally able to view the stars through the various telescopes; they really were ‘stargazing live’ whilst discussing all manner of astronomical issues with our members that were on hand.

I spoke to many adults who seemed very pleased with the event and several children who had prepared some hard questions for me: in particular, two girls around 9 years old who wanted to ask about how the Moon was formed by one or possibly two large impacts on the young earth by a Mars-sized object at a specific velocity and angle.

Very positive evidence that the SGL television programmes, presented by Professor Brian Cox, had their own impact really which had captured their imaginations, the girls had paid attention and wanted to find out more.

Eventually I managed to get around the whole site, chatting to people in the enormous queue to get in the observatory, which snaked across the car park to the area where all the other scopes were also in action.

Standing around in the dark and the cold were a large number of CAS volunteers who ushered the cars safely into their parking spaces and guided the occupants to where the activities were taking place.

They were very happy and seemed to enjoy playing an important part in our largest outreach event of the year.

Around 8pm, I had reached Ed Cooper who was on patrol by the main gate and it was time for me to head back to at Cory Centre in case I was needed to repeat my earlier presentation.

Returning as quickly as I could, I found that Martin Chick was in the middle of his talk – a Journey from Earth towards Outer Space

– and Marc Delaney was yet to go on with his ‘It came from outer space’ – gripping stuff about alien encounters and probable extinction via impact with a stray asteroid.

Gradually the skies were clearing more and more, so as the music accompanying Marc’s gallery of astro-images reached it’s final cadence, I urged everyone outside to do some live stargazing.

And they did see some sights: Jupiter, Orion, the Andromeda Galaxy, the Orion Nebula and more were clearly on show and the public saw them at first hand through the telescopes, with guidance and commentary by the CAS crew.

Zephyr’s magic had saved the day, or rather night, and there was a tangible quietness as our many observers were enthralled by the ‘ biggest picture’.

In the Cory Centre, the team were already busy clearing up and packing away all our paraphernalia, ready to be dispatched to our waiting vehicles.

Numbers eventually dwindled as the public made their way down the hill to their cars, homeward bound, many expressing a passing thank you for providing them with an evening’s enjoyment.

Getting in the observatory itself was something I had not managed thus far as the queues had laid siege to the occupants.

Looking inside now, I found Ian Davies and Grahame Carter looking pretty exhausted after more than two solid hours of demonstrating the telescope, explaining the features and giving the public a firsthand view of distant objects in the sky.

It was very good to find Grahame as co-pilot at the helm in the observatory once more with his ‘baby’ – he and Ian had been responsible for by far the greater part of the observatory’s construction – and his expression showed that he was elated to be back.

Very understandably, he and few others stayed on late into the night to enjoy the observatory and the sky for themselves.

Eventually all the public had gone and one by one most of the rest of the CAS volunteers drifted away in the dark and made their way

home, happy in the knowledge that SGL2012 had been as successful as SGL2011 and that, seemingly, this event will become a regular fixture on our calendar in future years.

Staging this presentation at Dyffryn Dardens was a complex logistical exercise and required considerable preparation and coordination.

The BBC has provided the opportunity, the stimulus, the focus and the profile for SGL and whetted the appetite of an enormous number of people who might otherwise not have aroused an interest in astronomy or ventured out into the dark to see for themselves what was on show.

As with all these initiatives – 'DarkSkies' is currently another – in the final analysis, it always falls to the local astronomical societies to provide the expertise, the volunteers, the resources and the venues to make StarGazing Live a reality at grass roots level.

Responsibility for coordinating the contribution of CAS lay on the shoulders of Theresa Cooper who, for months had dealt with liaising with many partner groups, recruiting volunteers, defining roles and filling in frustrating forms with a dogged determination – sustained by great patience, innumerable cups of tea and copious amounts of homemade cake.

Gratitude and recognition is also due to every single member of CAS who supported SGL in whatever way and I hope you each feel your contribution was worthwhile.

All roles were vital in achieving the success we had on the night.

Zillions of astronomical treats await those who bother to look skywards on a clear night and it is an essential part of our function as a society to provide that vital experience which can spark a lifelong fascination.

In whatever capacity, we all play a part in sharing this cosmic dimension in our lives.

Now we must prepare for the many other stargazing events on our schedule for this year.

Given the number of new volunteers at SGL, I hope they will wish

to continue to engage with the public at forthcoming dates.

Look up the list of ‘Future CAS Outreach Events’ in the member’s area on the website.

If you can bring along a telescope or pair of binoculars, give a short talk, chat to interested members of the public or just help out with the setting up and packing away, you can let us know by volunteering on the website – you will be most welcome.

Volunteers are vital to outreach which also provides opportunities to socialise and interact more with your fellow members in a way in which our lecture meetings cannot.

Expanding the enjoyment of our astronomy is what the Society, the lectures, outreach and SGL are all about !

Outreach — Roger Butler

As result of 2009 the International Year of Astronomy, Cardiff Astronomical Society has significantly increased the number and diversity of its outreach activities in the south Wales area.

Outreach has always been relevant to the Society as it seeks to ‘stimulate public interest in the science of astronomy’, to quote our constitution.

So it has been firmly established that this is an important function of the Society, now widely recognised and appreciated in the many locations where we present events.

Some of these locations we have visited a number of times and have become regular engagements on the calendar. We have developed an enviable reputation for expertise, relevance, reliability and commitment.

Consequently approaches from new locations and institutions are frequently being received. Demand for our activities is increasing and the number of events has increased, year on year. Fortunately we can count on a small but loyal and dependable support team.

It is very pleasing to see that we are fulfilling our constitutional obligation so well but we can only deliver such a massive programme with the input of time and effort from sufficient volunteers from the membership.

Our outreach events centre around observing – either the night sky or solar viewing by day. As we are all only too aware, astronomical observing in Wales is frequently frustrated by the viewing conditions – cloud, rain and worse. For this eventuality, we always have a Plan B in reserve: a programme of short talks, demonstrations and question and answer sessions.

It is in the area of short talks that we are experiencing a particular crisis. Currently there at most only four members who volunteer to give presentations – and they are not always, all available. We need some new speakers who can give a talk of, at most, 20 minutes, suitable for an audience of beginners or those with little astronomical experience.

You don't have to be an 'expert', and topics can be about anything you are interested in: finding your way round the sky, how telescopes work and how to choose one, your favourite object in the sky, a current phenomenon, how you got started in astronomy. The list is endless…….

A talk is not so much a 'fact learning' exercise as much as an opportunity for your enthusiasm to become infectious. There is plenty of support from your fellow volunteers as we all enjoy encouraging people to take that next step in developing their interest in astronomy.

If you feel you would like to help by offering a talk – or in some other capacity - at one or more of our outreach events you would be making a valuable contribution in securing our programme and fulfilling a demand.

And I am sure you will enjoy it – that's why we do it !

To volunteer, discuss some ideas or for any further help or information, please contact me at Chairman@cardiff-astronomical-society.co.uk, or Dave Powell at Secretary@cardiff-astronomical-society.co.uk

Nipon Scopes & Optics, a Review of Their 20X80 Binoculars. Dave Powell

The first thing I notice even before I remove the packaging, these are so lightweight.

They have BAK 4 Prisms, the eyepieces are large, (23mm diameter) and have fold down rubber eyecups. The eyepieces offer long eye relief. They have fully multi-coated broadband green coatings, and scream QUALITY product.

It was several nights before I could test them and I have to say it was worth the wait.

Wow, are these Binoculars good? They come with a built-in tripod adapter and sliding, lockable stabiliser. I mounted them on my trusty tripod in seconds and was ready to go. They have a nice “chunky” central focus knob, best appreciated on cold nights when wearing gloves and you can adjust the right eyepiece to get sharp focus.

First target was the Moon; the image was bright, crisp, and the detail sharp: an easy start. Jupiter was nearby and I could clearly make out the four Galilean Moons. But binoculars are not really suited for planetary observing but come into their own when looking at deep sky objects. M31 the Galaxy in Andromeda was pleasing on the eye and its shape obvious. The three open clusters in Auriga M36/M37/M38 all showed up well. M42/M43 in Orion was truly superb. I could make out the Trapezium stars, and the three belt stars “just” fit into the field of view, so this means the field of view of the binoculars is 3 degrees. M35 in Gemini was easy to locate, and the different star colours these constellations show really stood out. But the best I saved till last. M41 is an open

cluster in Canis Major. Its not that faint + 5.6 but because it lies about 4 degrees below Sirius never gets that high, and there are lots of other bright objects in the region that catch the eye it never gets the attention I think it deserves. It's such a pretty sight, well worth waiting for. I will be using them to watch several binocular Mira Variables, T Cep, Chi Cyg, U Ori, and R Leo, the colours will stand out well.

Finally I would recommend investing in a "Parallelogram Binocular Mount". It will save a lot of neck ache.

If you are a birdwatcher like me, and you prefer the use of two eyes then they will also come into their own, especially as we know all too well that once seen any bird will immediately fly as far away from you as possible.

The binoculars have a R.R.P. of £80. I think they are more than good value and have no hesitation in recommending them.

Two New Moon for Jupiter Lillian Ortiz

Advances in technology have lead to the discovery of new planets outside of our Solar System, and now even new moons in our own backyard.

Last September, two satellites – the smallest ever discovered – were found orbiting Jupiter.

That brings the number of Jovian moons to a whopping 66. The moons – each about 1 km in size – are very distant from Jupiter. It takes the tiny satellites 580 and 726 days to orbit the gas giant.

The discovery could lead us one step closer to understanding the formation and evolution of our solar system. At least that's the hope of Scott Sheppard, who works at the the Department of Terrestrial Magnetism at the Carnegie Institution of Science in Washington, D.C.

The two tiny, irregular moons are called S/2011 J1 and S/2011 J2. Thankfully, those names aren't expected to stick. Once officially confirmed (Sheppard expects it to happen this year), he will have the opportunity to name each. But, Sheppard can't pick just any moniker. The names, according to the International Astronomical Union, must be related to Jupiter or Zeus, the Roman and Greek mythological figures who served as king of the gods.

Missions to Look out for in 2012

John Richards

2012 promises to be an exciting year in space sciences and rocket launches, and here are some missions to look out for:

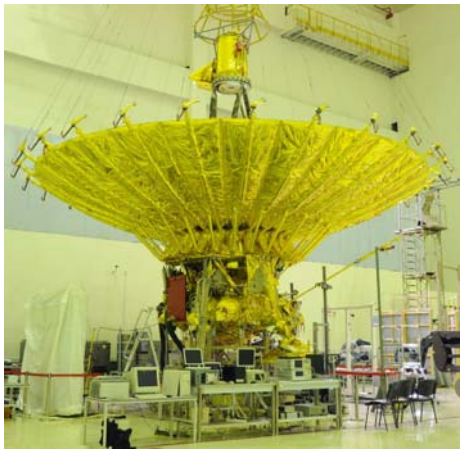
The SpaceX Dragon capsule parachutes to its splashdown in the Pacific.

Dragon

With the retirement of the US shuttle fleet, the Americans urgently need a low earth orbit vehicle. SpaceX are hoping the Dragon capsule fits the bill. SpaceX, a private company formed by PayPal co-founder Elon Musk, has developed the Dragon capsule,capable of carrying 6 tonnes or up to 7 astronauts into Earth orbit. After its successful maiden flight in December 2010, it became the first commercially built and operated spacecraft to ever be successfully recovered from orbit. Scheduled for March 2012, the next flight of the capsule will launch and hopefully 'dock' to the ISS

Russian Hubble

The Spektr-R payload (see right) is a radio telescope launched by the Russians in July 2011. Equipped with a 10 metre radio mirror, scientists have dubbed it the 'Russian Hubble', as the probe is reported to have a resolution over a thousand times greater than NASA's Hubble telescope. It will start providing data towards the middle of 2012, and is designed to operate for more than 5 years.



The Russian Spektr-R radio telescope

GRAIL

NASA's twin probes were successfully inserted into lunar orbit during late 2011/2012 after a more than 3 ½ month journey to the Moon. Their main scientific mission starts in March and involves measuring the internal and external structure of the Moon in the hope of finding the Moon's origin and its peculiar nature.

Artist impression of the twin Grail spacecraft in lunar orbit.

Image of asteroid Vesta captured by the Dawn spacecraft.

DAWN

The NASA asteroid mission DAWN leaves VESTA in July 2012, and starts its journey to the largest asteroid, CERES, where it will arrive in 2015.

VOYAGER

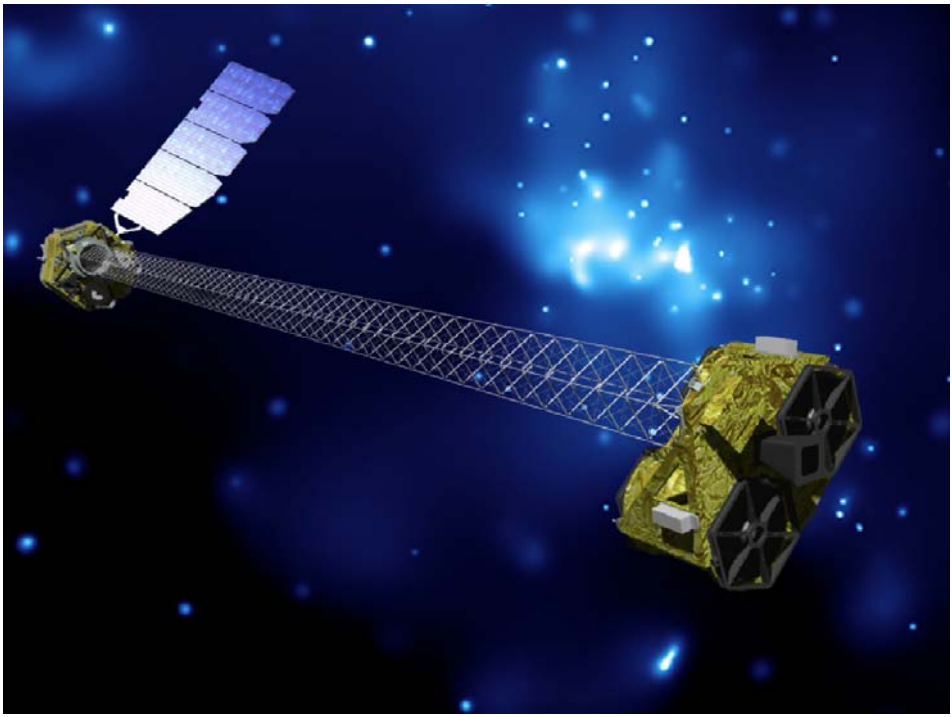
After a mission spanning billions of miles and more than 30 years, it is hoped that one, or perhaps both probes will leave the solar system and enter interstellar space. Voyager 1 is currently 16 hrs 38 mins 04 secs of light-travel time from Earth.

Mars Science Laboratory(MSL)

Launched in November 2011, MSL is scheduled to land on Mars at Gale crater in August 2012. Employing a TRULY revolutionary landing mechanism, this almost 2,000 lb probe, will help determine if life has ever, or currently exists on the Martian surface. Also, not

forgetting of course that the Opportunity rover still operates on the Martian surface, after landing more than 8 years ago.

Even though NASA's manned rocket fleet has been retired, the agency is still active in launching scientific missions. **NUSTAR**, scheduled to launch in March, is a telescope (see below) searching for high energy x-rays and super massive black holes at the centre of galaxies.



IRIS, a probe to study the photosphere and corona of the Sun,is due to be lauched in December 2012.

Other highlights will include the manned mission by the Chinese of Shenzou 9, to orbit with the Tiangong 1 orbital laboratory. This will be the next step in China's attempt to build a permenantly manned space station. Other countries launching missions in 2012 will include ESA, India, Japan and Iran.

For regular updates, of these and other missions launching in 2012, visit: www.stff.co.uk/blogs, or follow me on twitter @ https://twitter.com/#!/johnniemojo

Behind the Scenes

Rosa Adams

As always there has been plenty going on behind the scenes this quarter - starting with a public event at Dyffryn Gardens in December and ending with SGL [Stargazing Live] in January.

The Dyffryn Gardens event was as usual well attended with all places taken. The evening started off cloudy with little hope of any observing but just as we reached the soup stage [always very good soup made by one of the chefs at Dyffryn Gardens] the clouds parted and revealed a starry sky, with the Moon and Jupiter especially well placed.

Our observatory certainly came into its own that night .

The Society trip to Greenwich was sold out and we made London in good time. The weather was good which always helps. I think on future trips similar to this we will look at leaving very much earlier in the mornings to make the most of our day.

The Society's winter meal was well attended at The Aubrey Arms, Bonvilston. The decision to move it from just before to just after Christmas proved to be a popular one so we will repeat that next year. The food was very good and a change from the usual Christmas turkey fare. The Aubrey Arms is undergoing a refit so we will see what it has to offer for the summer.

We ended this quarter in January with Stargazing live at Dyffryn Gardens. An event planned to coincide with the BBC's three night series of Astronomical programmes hosted by Brian Cox. This was our second year putting on this event and the BBC have already asked Theresa Cooper to make plans for SGL 2013.

Again as with the December event the sky started off looking less than promising and ended by giving us some very fine viewing with the observatory seeing long queues at its door and with the free standing scopes doing very brisk business also. Altogether an enjoyable evening

Don’t forget if you are buying anything from Amazon to use the link on our website. There is also a volunteers page on the website where you can see what events we have planned and put your name down if you think you can help out in any way.

You do not have to be an expert, if there is any one out there who feels able to give a talk at events – about 15-20 minutes worth, then do go and have a word with Dave Powell.

We are to do fewer outreach events next year because we have to rely on the few members who are willing to give talks. That said we are committed to this year's events at Brecon and at Cwmcarn Forest Visitor Centre, a new venue for us. I am really looking forward to this event as it is close to Newport and our membership is increasing east of Cardiff. It is also a very lovely site and worth a visit just for the stunning views at the top of the forest drive.

The Observers Club January meeting at the Black Cock pub was well attended. By 10pm we had all deserted the pub for the car park over the road at Castle Heights Golf Club and some clear skies and good viewing. There were some new attendees and it was a pleasure to be able to point out Jupiter, Mars and various constellations. Hoping for equally good skies at next Observers Club.

There has been some good observing weather over the past few weeks, not always on cue for regular observing sessions but our members have not been idle in the meantime. As a result we have for sale, as well as our very popular cards, some A3 size prints of stunning astronomical images, ready to frame and at very reasonable prices.

And finally just a reminder – if anyone has items they are taking care of for the Society while the container is out of action can they let Chris Fluck know what and where if you have not already done so.

Rary and the Flitter Fairy Dave Powell

It’s that time of year again, Christmas. Rary and I can't wait for it all to be over. However when you have grandchildren you have to make an effort, so we purchased a large flat pack dolls' house for my granddaughter and it only took me fours hours to build. I had no help from the cat as he spent his time dribbling the various screws about the room, causing me all sorts of problems. In the end I had to throw a large screwdriver at him to make him stop. Anyway it seems the dolls house was the best thing Santa could have pushed down the chimney, and I have become something of a legend in my own lifetime as far as she is concerned. “Pappy David can make anything”. So on Christmas morning amongst her other toys she had been given a “Flitter Fairy” and it should with the aid of a wand fly around the room, rather like one of those remote control helicopters I am told. Anyway the fairy refused to fly under the guidance of my son, “don’t worry Daddy, Pappy David will fix it”. So Christmas afternoon I am trying hard to get the thing to fly. Rary is busy opening presents under the tree, not that we told him to open anything, its just if he sees something that was not there yesterday he has to investigate. As hard as I try I could not get her to fly, however I did improve her because she started to flap her gossamer wings, just like a real fairy. I gave up after a couple of hours, as Mrs Powell wanted to play a game. It’s the same every year, arm wrestling and she always wins. The next day I had another go, and yes she did fly. (The fairy, not Mrs Powell) The idea is you point her magic wand and use it rather like a music conductor would use his baton, as you twirl it around fairy does loop the loop. As long as you keep pointing the wand at her she will fly round the room. Now at this point I should have put the fairy back in her box, waited for my granddaughter to arrive and taken the plaudits, however this fairy was compulsive and the more she flew the more I wanted to put her through her paces. So engrossed was I that I did not see the cat sitting on the table, round and round she flew until with one mighty cuff of his paw she fell to earth her gossamer wings well and truly ruined. Before I could move Rary jumped off the table picked up “Alexa”(that was

the name on her box honest) threw her up in the air, grabbed her in his mouth and disappeared through the cat flap, tossing her up and over his head as he went down the garden path. I did make an effort to catch him but it was no good.

I explained all this to Mrs Powell who called me and Rary lots of names.

“Oh come on Lynda, it was my fault, don’t blame the cat.“

“Yes I know, but you should have made sure he was locked out, every year he kills something.”

“Please don’t go on about the penguin, it was not a real one I keep telling you.”

“Never mind all that what are we going to tell Ellie?”

We both fell silent thinking of what to say.

The following day in she comes “Pappy David have you got my magic fairy to fly”, she asked.

“Well Ellie I did but Rary got hold……..”

With that I received an elbow in the ribs from Mrs Powell that left me speechless.

“Ellie my darling” she said, “Pappy David got the fairy to fly and she flew to the window looking out on the back garden, she seemed so sad to be indoors when as you know fairies live in the garden, so Pappy David and I set her free. She now lives in the garden, but it's too cold for her, so what we must do is wait until the Spring and perhaps if we sit very quite outside we may just catch a glimpse of her flying on her enchanted gossamer wings. David close your mouth and stop groaning.”

Rary sat on the armchair looking as if butter would not melt in his mouth.

“Pussycat you can help me if you want to come the Spring.”

Rary allows her to tickle behind his ears, looks at me as much to say

“no one will ever find her……”

Up-coming CAS Public Events

Date	Time	Event	Venue
3rd March	7:00pm to 9:00pm	Stargazing from a Dark Site	Brecon Beacons National Park Visitor Centre
23rd June	10:00am to 4:00pm	SAFE solar viewing	Cwmcarn Forest Drive and Visitor Centre
28th July	10:00am to 4:00pm	SAFE solar viewing	Brecon Beacons National Park Visitor Centre

CAS Lectures March to July

Date	Title	Lecturer
1st March	Quasars and Active Galaxies	Dr. Marek Kukula, Royal Greenwich Observatory. London
15th March	A Brief History of the Telescope from the Bronze Age to the Space Age.	Peter Wise, Abergele.
29th March	Time and the Stars.	Bob Mizon, Dorset.
12th April	Annual General Meeting.	Cardiff Astronomical Society
26th April	Binoculars and Telescopes for Observing the Heavens.	Prof. Ian Morison, University of Manchester.
10th May	The Herschel & Planck Missions: the Universe Through the Ages.	Dr. Chris North, Cardiff University.
24th May	Just a Handful of Stars.	Nick Hart, Cardiff Astronomical Society.
7th Jun	Was Einstein 100% right?	Prof. Malcolm MacCallum, Bristol University.
21st Jun	The Griffon Educational Observatory, Andalucia.	Andy Burns, Wilshire.
5th Jul	Three Short Talks.	Members of Cardiff Astronomical Society.

Almanac Compiled by Ian Davies

Sun Rise/Set & Twilight

Date	Astronomical Twilight Begins	Sun Rise	Sun Set	Astronomical Twilight Ends
01st March	05:06	06:57	17:52	19:43
08th March	04:51	06:42	18:04	19:55
15th March	04:34	06:26	18:16	20:08
22nd March	04:16	06:10	18:28	20:22
29th March	03:57	05:54	18:40	20:37
01st April	03:49	05:47	18:45	20:43
08th April	03:29	05:32	18:56	20:59
15th April	03:07	05:16	19:08	21:17
22nd April	02:45	05:02	19:20	21:36
29th April	02:22	04:48	19:31	21:57
01st May	02:15	04:44	19:35	22:04
08th May	01:48	04:31	19:46	22:29
15th May	01:17	04:20	19:57	23:00
22nd May	00:25	04:11	20:07	23:53
29th May	--:--	04:03	20:16	--:--

Meteor Showers

Date	Meteor Shower	RA	DEC	ZHR
12th April	Virginids	14h04m	-9°	5
22nd April	Lyrids	18h08m	+32°	12
28th April	Alpha-Scorpiids	16h32m	+24°	5
5th May	Eta-Aquarids	22h20m	-1°	35
13th May	Alpha-Scorpiids	16h04m	-24°	5

Observers Club Meetings

Date	Day	Time	Venue
30th March	Fri	20:00 - 22:00 BST	Black Cock Inn
27th April	Fri	20:00 - 22:00 BST	Black Cock Inn
25th May	Fri	20:00 - 22:00 BST	Black Cock Inn

Observing Sessions

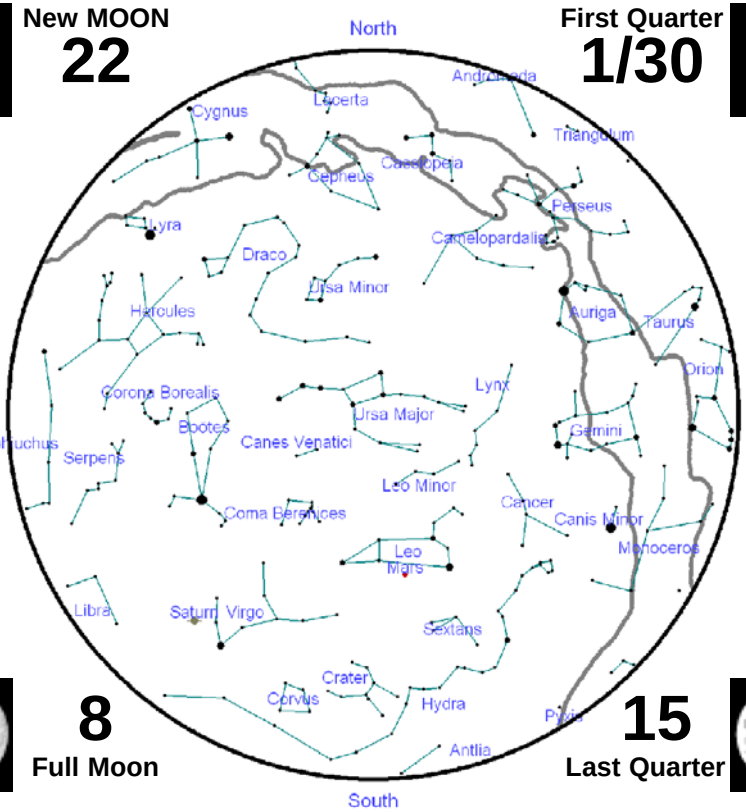
Date	Day	Time	Venue
9th or 10th March	Fri or Sat	20:00 - 24:00 GMT	Dyffryn Gardens
23rd or 24th March	Fri or Sat	20:00 - 24:00 GMT	Castle Heights Golf Course*
13th or 14th April	Fri or Sat	20:30 - 24:00 BST	Dyffryn Gardens
20th or 21st April	Fri or Sat	20:30 - 24:00 BST	Castle Heights Golf Course*
11th or 12th May	Fri or Sat	21:00 - 24:00 BST	Dyffryn Gardens
18th or 19th May	Fri or Sat	21:00 - 24:00 BST	Castle Heights Golf Course*
1st or 2nd June	Fri or Sat	21:30 - 24:00 BST	Dyffryn Gardens
15th or 16th June	Fri or Sat	21:30 - 24:00 BST	Castle Heights Golf Course*

NOTE Where two dates are given we will attempt to hold the session on the first date, weather permitting, otherwise we will try again on the subsequent date. All dates are subject to weather conditions. For confirmation of any session please check on the CAS Web site or the CAS Observing line 07817 723 883 for more information.

* Due to the current situation at Castle Height Golf Club the venue for the observing Sessions at Castle Height Golf Club are provisional and may be changed if circumstances require.

Almanac March

New MOON
22

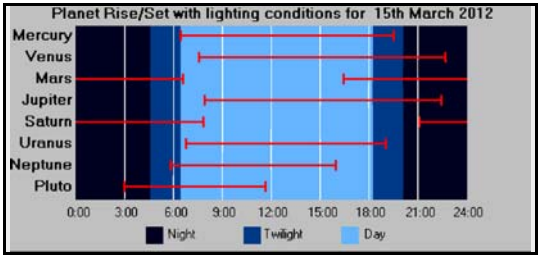


First Quarter
1/30

8
Full Moon

15
Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Pisces	00h17m43s	+05°41'24"	06:24	19:27	+2.3
Venus	Aries	02h28m59s	+16°58'10"	07:33	22:39	-4.3
Mars	Leo	10h49m52s	+11°42'06"	16:23	06:33	-1.1
Jupiter	Aries	02h30m27s	+13°51'14"	07:53	22:22	-2.1
Saturn	Virgo	13h49m27s	-08°21'30"	21:04	07:49	+0.1
Uranus	Pisces	00h15m37s	+00°56'18"	06:46	19:00	+5.9
Neptune	Aquarius	22h21m43s	-10°52'32"	05:52	16:06	+8.0
Pluto (Dwarf)	Sagittarius	18h38m55s	-19°14'26"	02:59	11:39	+15.0



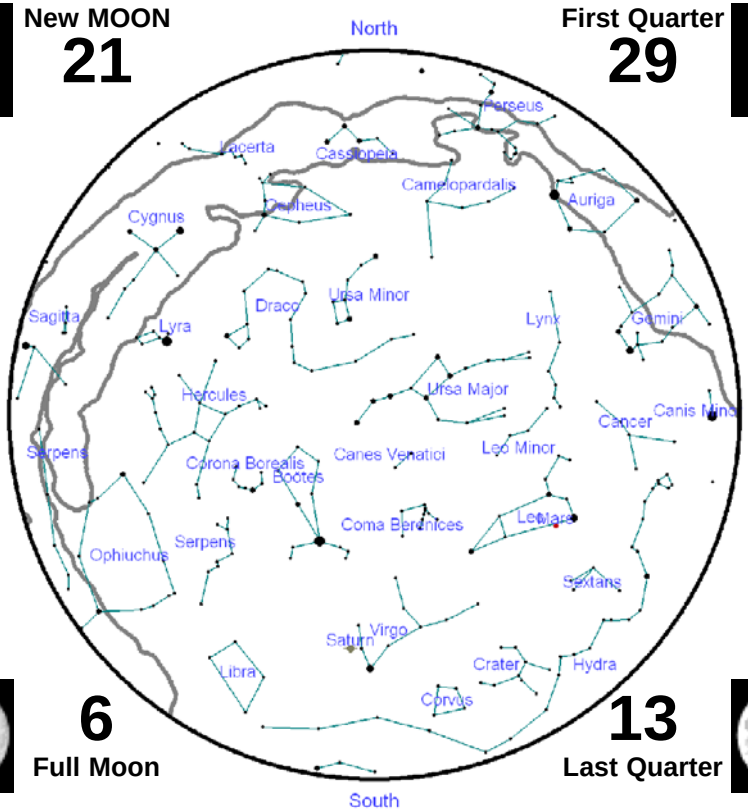
Planet Events

2nd Mercury at Perihelion (0.31 A.U.).
3rd Mars at Opposition.
21st Venus at Perihelion (0.72 A.U.)
21st Mercury at Inferior Conjunction.
24th Uranus at Conjunction.

The data presented here is for the 15th March, positional data is at 00:00 GMT/UT

Almanac April

New MOON
21

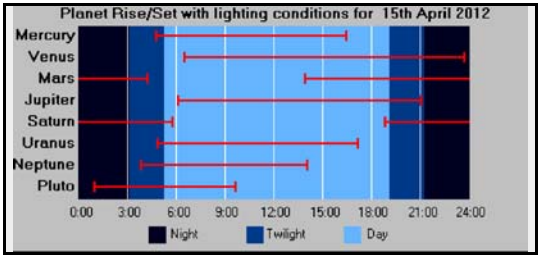


First Quarter
29

6
Full Moon

13
Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Pisces	23h57m04s	-02°26'24"	04:42	16:23	+0.6
Venus	Taurus	04h29m44s	+26°10'47"	06:28	23:41	-4.5
Mars	Leo	10h26m24s	+12°41'01"	13:52	04:13	-0.4
Jupiter	Aries	02h57m02s	+15°57'14"	06:05	20:59	-2.0
Saturn	Virgo	13h41m21s	-07°32'26"	18:50	05:43	+0.0
Uranus	Pisces	00h22m03s	+01°37'58"	04:47	17:08	+5.9
Neptune	Aquarius	22h21m52s	-10°51'44"	03:51	14:05	+8.0
Pluto (Dwarf)	Sagittarius	18h39m39s	-19°13'02"	00:57	09:38	+15.0



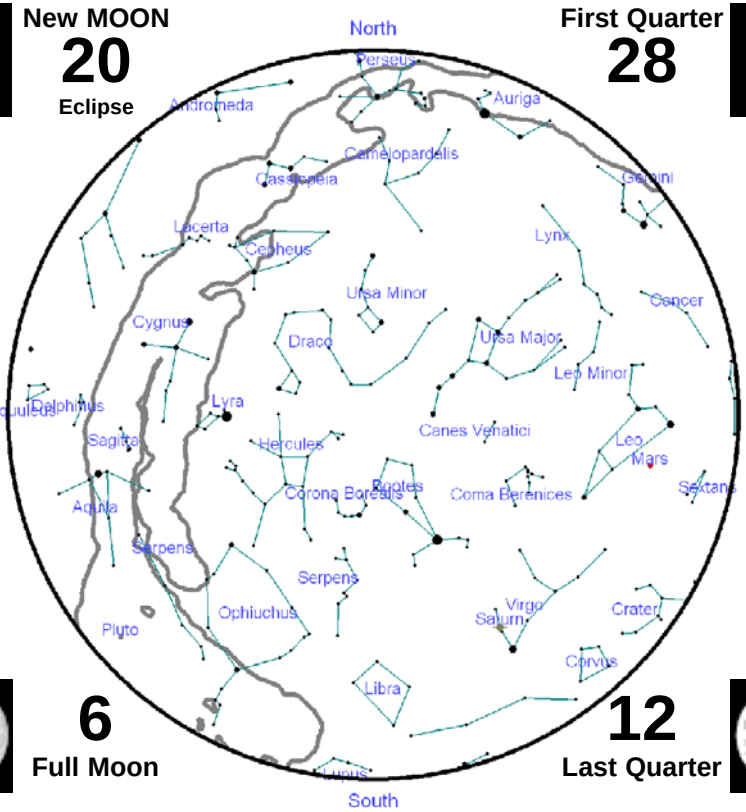
Planet Events

None this month.

The data presented here is for the 15th April, positional data is at 00:00 GMT/UT

Almanac May

New MOON
20
Eclipse

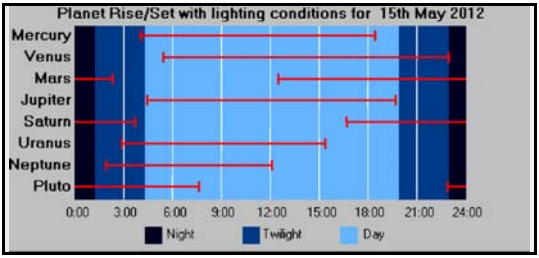


First Quarter
28

6
Full Moon

12
Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Aries	02h34m32s	+13°28'54"	03:59	18:25	-0.9
Venus	Taurus	05h32m29s	+27°22'16"	05:23	22:56	-4.4
Mars	Leo	10h43m49s	+09°46'25"	12:27	02:16	+0.2
Jupiter	Taurus	03h25m23s	+17°52'52"	04:24	19:41	-2.0
Saturn	Virgo	13h33m15s	-06°48'03"	16:40	03:41	+0.1
Uranus	Cetus	00h27m30s	+02°12'43"	02:51	15:19	+5.9
Neptune	Aquarius	22h22m00s	-10°50'57"	01:53	12:07	+8.0
Pluto (Dwarf)	Sagittarius	18h38m26s	-19°14'01"	22:58	07:38	+15.0



Planet Events

13th Jupiter at Conjunction.
27th Mercury at Superior Conjunction.
29th Mercury at Perihelion.

The data presented here is for the 15th May, positional data is at 00:00 GMT/UT

The Drake Equation

The Drake Equation is a famous equation that was thought up by Dr Frank Drake in the 1960s. Dr. Drake wanted a method to estimate the number extraterrestrial civilizations in our Milky Way galaxy. His thoughts on the problem resulted in the equation now named after him.

Dr Frank Drake

The equation its self consists of a number of terms that are multiplied together to get the results. All the user of the equation needs to do is estimate a value for each term, plug them into the equation and hey-presto you have your answer. Simple? Well not quite, because allthough the value of some of the terms in the equation are known quite well, others are almost wild guesses. Because of this you can have hours of fun making those wild guesses and seeing what you come up with.

Now the equation, don't be frightened it's just numbers.

$$N = R^* \times f_p \times n_e \times f_l \times f_i \times f_c \times L$$

So what do all these things mean?

N = Represents the number of extraterrestrial civilizations in our galaxy who we might be able to communicate with, the answer we are looking for.

R* = This is the number of stars created in our galaxy in a year. The current accepted value for R* by NASA and ESA is about 7 per year.

f_p = The fraction of the stars (in R*) that have planets. This figure use to be a guess, but now we have found lot of planet around stars, the current estimate is that at least 40% of stars have planets. So f_p should be at between 0.4 and 1.

n_e = This is the average number of planets that can potentially support life per star that has planets. This value is very much up for grabs, our current methods of finding planets does not work very well with earth like planets. Dr. Drake guessed at a figure of 2.

f_l = The fraction of those planets that actually produce life. This is another hard one to guess but some scientists suggest that the value be more than 0.33 based on how the Earth developed life, that gives us a range of 0.33 to 1.

f_i = The fraction of those planets that produce life where that life becomes intelligent life. This is anyone's guess we know it's happened once on earth so can't be 0 but could be any value all the way up to 1 (all of them).

f_c = The fraction of intelligences that are able and willing to communicate. This could be anything between 0 and 1, so take your best shot at this one.

L = The expected life time of the intelligent, communicating civilisation in years. We know that the human race has been at this stage for less than 100 years, how long do you think civilisations last?

To all Juniors and their Guardians.

At CAS we constantly strive to cater for all our members. We have tried several times in the past to come up with activities, events etc. for our Junior Members. Unfortunately these have met with limited success, as it is difficult to cater for the wide age range that we have amongst our Junior Members.

We therefore thought why not ask our Junior Members what activities, events etc. they would like us to arrange for them. Also when would be the best time (an evening or a Saturday morning etc.) to stage the activity or event.

So over to you Juniors, please send your suggestions to:- Junior.Representative@cardiff-astronomical-society.co.uk