



CAS Secretary David Powell MBE proudly showing his award outside Buckingham Palace and of course Rary had to get in on the act.

<u>Contents</u>	<u>Page</u>	<u>Contents</u>	<u>Page</u>
Editorial	2	Stolen Astronomical Equipment	17
Volunteers Needed	3 - 4	Up-coming CAS Public Events	18
The Trip To The Big Smoke	4 - 7	CAS Lectures Dec. to March	18
Rary and the Case of the Missing Pisces	8 - 12	Dave's Star Parties	18
Space Flight Round-Up	12 - 15	Almanac	19 - 22
Behind the Scenes	15 - 16	Junior Page	23 - 24

Editor Ian Davies, 52 Heol Nant Castan, Rhiwbina, Cardiff, CF14 6RQ.
Tel. (0129) 2062 0501 email Publications.Officer@cardiff-astronomical-society.co.uk

Junior Editor Kayleigh Churchill, 34A Swansea Road, Merthyr Tydfil, CF48 1HT.
Tel. (01685) 382 866 email Ordinary.Member.2@cardiff-astronomical-society.co.uk

Editorial

This time I'm going to pay tribute to a man who through his leadership and as one of the public faces of NASA's Apollo programme provided the spur that got me interested in Space and Astronomy. I of course, am speaking of Apollo 11 Commander Neil Armstrong, who passed away on 25th August 2012 following complications resulting from cardiovascular procedures. He was 82.



Neil Armstrong was the first man to walk on the moon.

Image Credit: NASA

As a six year old at the time, I still remember vividly being allowed to stay up late to watch the landing of Apollo 11's Lunar Module Eagle that occurred at 21:18 BST on the 20th July 1969 and then being woken up later by my father to watch the first step on the Lunar surface that took place at 03:56 BST on the 21st July 1969. To here Neil utter those immortal words "That's one small step 'a' for man, one giant leap for mankind." It was so exciting that night that I was hooked from that day to this. Thank you Mr Armstrong!

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 162 is 7th February).

Visit CAS on the web @

<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 your password to access this area. If you don't know your password it is your surname followed by your membership number.



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



CAS on facebook at

<http://www.facebook.com/CardiffAS>

Membership Renewal Notice

Please support CAS and rejoin if you have not done so already. Please renew your subscription without delay.

This will be the last newsletter available to those who's membership lapses.

Volunteers Needed

As befits a large society, CAS has very active programme and significant support structure. In the main we do very well – we have committed and enthusiastic volunteers who do their best. But sometimes they are too few in number and what if one of our stalwarts should become indisposed?

So we need to find more volunteers with specific talents and interests to help share the load and keep the society moving.

Roger Butler



In particular:

- We need to create a pool of 6 volunteers who can assist the Director of Observations. We are required to have at least two designated volunteers at every observing session for health and safety reasons. They need to ensure that the event is properly managed with regard to car parking, public safety, equipment protection, etc., according to the Federation of Astronomical Societies' Guidelines. All training and support will be given and only a minimum of any two members of the pool need to attend the session.
- This Newsletter is the result of considerable work by our Publications Officer Ian Davies. He also is responsible for our superb website and electronic communications. We are looking for a member who has the requisite skills to become an assistant to him – helping compile the material for the Newsletter, proof reading, layout, perhaps writing an article. In the event of Ian being indisposed, the volunteer would need to be able to take over the Newsletter.

- Our current outreach programme averages 20 events per year. We would like to do more and we have many requests from around South Wales. However we have a small number of volunteers who help with these activities. Normally our events are based around observing the night sky but, as you all know all too well, we are frequently prevented from doing this by the weather (i.e. clouds). In these circumstances we substitute a programme of short talks to present to the public. Normally there are three talks of around 20 minutes each. The talks are at a basic / beginner level as the public at these events has little or no prior knowledge. So if you feel you would be able to give a short presentation on some topic in astronomy that interests you, you would be most welcome to join us. Every help and support is available in putting together a talk – with or without illustrations, and you don't have to be an expert. It even helps if you are not !

If you feel you are able to volunteer in any of the above roles, please contact me directly and I will give you further information and answer questions.

Remember all our activities are totally dependent on the goodwill and efforts of our volunteers.

Roger Butler, Chairman

chairman@cardiff-astronomical-society.co.uk

The Trip To The Big Smoke

David Powell

The last time I was on a train, smoke came out of the chimney, porters pushed four wheeled trolleys, men punched holes in tickets, and romance was conducted under the railway clock. Fast forward, you have to buy your tickets in advance, you have to insert them into a device to open barriers, an overhead sign tells you which platform your train will be delayed from and when you find your reserved seat someone else is already warming it.

Today's engines don't have romantic names, and they don't have a driver or fireman, but a train manager. In the old days passengers

looked out of windows, today they play on laptops, with earplugs, and mobile phones. This thought came to mind; what happens if the train manager screams "Lookout we are going to crash". Ninety nine percent of the passengers would never hear him.

Swindon does not have an engine shed. Can you believe that? And don't get me started about Old Oak Common. Long ago a small boy would not be able to sleep knowing he was going to visit the sheds at Old Oak Common.

We arrive at Paddington, find the way out and I hold up the queue trying to insert my ticket in the wrong machine. A kind man takes pity on me while my family head off without me. Question: how many taxis can you get at this station? I don't know but its hundreds. Soon we are in one heading for our hotel on Park Avenue Belgravia. The driver was friendly enough, managed not to hit anyone as we travelled at breakneck speed towards our destination.

The hotel was fine but the rooms were very small. Let's just say if you did not know whom you were sharing with beforehand you would after your stay. We worked out a way that with a given signal we could just pass each other as long as we both held our breath at the same time. The air conditioning had a mind of its own and whatever figure you punched in it worked within a figure of at least ten. So you could freeze or you could sweat and that was about it really. Still we are British so we make the best of it.

"Let's go on the London Eye." says Lynda.

"You don't like heights", I say, "and anyway it will be expensive."

So we take a taxi. I wanted to creep out but she insisted we take our sons as well. While she grips my arm like a vice I am asked how many tickets I want and would I like to pay extra for fast track service.

"Four please and yes he will pay extra." says Lynda.

We jump in a pod and my sons ask why I am crying.

"They have made a mistake", I cry, "I must have paid for everyone on the ride, surely not just four people?"

The views are stunning and well worth the effort. Then it was into a tourist shop to buy things for the grandchildren. A fridge magnet costs almost as much as a fridge in Cardiff. It seems to me the centre of London is one giant machine designed to take as much money from us as possible.

My son Kevin had already booked a restaurant for our evening meal. The food was out of this world; the bill nearly pushed me into another world. Again I must have paid for everyone to eat that night. My sons helped me back to the hotel, but sleep was hard to come by, as I kept seeing my credit card get bigger and bigger before my eyes. I tried putting it under my pillow but it just would not fit.

Friday morning I awoke clutching the card and crying softly into my pillow. We negotiated our way around the room dressed in casuals and we went down for breakfast. Question why can't you get a full English in the capital of England? What is a continental breakfast anyway? I thought the U.K. was part of a continent. Still I was silenced into eating my bowl of cornflakes by a look from Lynda. Then it was back to our room to change.

"Have you got a clean, white, crisp hanky?" she whispered She always whispers when we stay in hotels.

So I whispered back "Yes it's in my sock draw at home, why do you want it? Lynda stop crying, you're making your mascara run."

Half an hour later and we emerge as butterflies, hail a taxi and arrive at the Palace. Obviously they had got wind of my arrival because there are hundreds of people outside the railings taking photographs. Then it's in we go. First impressions; they don't go to Carpet Right or SCS for their furniture. Whoever does the decorating has his hands full, the walls are so high and the ceilings, well they must stand on each others shoulders to get anywhere near the top.

All mobiles, cameras, bags are taken away and you climb a long staircase. Half way up someone directs recipients to the right, guests go straight on. I thought hell, I saw a World War Two film once and the same thing happened!!

We are ushered into a long gallery and the walls are full of paintings

by Canaletto, Gainsborough, Van Gogh, Rolf Harris etc. Then a chap dressed in funny clothes tells us how to walk, when to stop, where to look, how to bow, how to address the Queen etc. etc. Then they call your names in batches of fifteen. I was in the last but one group so had lots of time to become nervous. Then my group are called and its only then I lost the use of my legs. You go round in a square and then you see her, all the people sitting down and a band playing some terrible music. Let's just say I did not recognise anything, certainly there was nothing by AC/DC, Meatloaf, or Iron Maiden.

They call your name, you walk forward and stop, turn bow and walk up to her. She asks a few questions, why did you get it, what science, do I think astronomy is more popular than ever, do I belong to a society. Then she offers her hand and you were warned this is a signal to take two steps back, bow and walk away. I managed to get a CAS programme in her hand so expect a new family membership any day now.



Then it's collect your gear and step outside for official photos. One and a half hours later and it's our turn, freezing cold, tired, feet aching, we smile as the photographer barks out orders, tilt your head forward, point your feet, turn to the left and all the while I am thinking, just take the bloody pictures.

Then its back to the hotel, change, lunch in the same restaurant. The boys say that they will pay this bill.

Lynda says "No it's all right your father will."

So my overworked credit card is pushed to the limit.

Time to hail a taxi back to Paddington, find our platform, then seats and wile away the next two and a half hours wondering what it's all about >>>>>

Rary and the Case of the Missing Pisces.

Dave Powell

Yippee, it's Friday, I am on my way home, the Sun is shining, in fact it's hot and the weekend looms large. We have been invited to the neighbour's barbecue, so someone else can burn the supper for a change. I get home, throw my gear into a corner, (funny how a laptop bounces) a quick shower, change, and then the bad news.

"Oh by the way" says the wife.

"The neighbours have asked if you will take a telescope round and show Saturn or something like that." she said sounding very disinterested.

"I hope you said no,"

"Come on, you know full well you enjoy doing it so just get ready and for goodness sake don't take anything large that will take up half the garden, something small will do."

Well this couple are friendly and very nice, but I get tired just watching him. You know the sort, a builder by profession, he just can't stop, even when home. Every room in the house has been altered, he built a conservatory, sheds, aviary, a big fish pond, patio, and his garden comes complete with outdoor lights. Still he does a mean grilled steak, and his choice of beer is pretty sound. We arrive; offer our cheap bottle of wine, the swine takes it, obviously no manners. The telescope is soon set up and I have something to eat and drink. There must be about 30 people and as the evening goes by we are all taken on the grand tour with detailed explanations on foundations, brickwork, rendering, fence poles, pond linings, the list goes on, still I hoped that with the beer flowing and the grill spitting they may forget about Saturn.

Then just when I think I have got away with it, my wife of all people reminds the host and it's not long before much clapping of hands and chair arrangements they are all set to be entertained. I focus scope and Saturn looks quite nice, I give the old chat about how far away it is, how the rings formed, what they can expect to see, all while ignoring the drunken quips:

"Can you see through bedroom windows with that?"

“Does your case come up next week?”

“We thought you had a much bigger one than that.”

You know all the stuff that is never said and you have to pretend, being good neighbours, that’s the first time ever you have heard that one, while at the same time trying your best to control the urge to beat someone over the head with a rather overdone T-bone.

I carry on: “Saturn has many rings and they are not solid, think of the grooves in a gramophone record.” I say.”

Well this brings the house down, and shouts of:

“Now you are showing your age.”

And

“How old did he say he was?”

Or

“I shall ask my great grandparents if they have any gramophone records.”

And

“Lynda we did not realise you must be a child bride.”

“Can we think of a CD perhaps?”

“What? now we have to explain what a CD is.”

“Yes yes, ok, look can you all just line up and one by one have a look through the eyepiece.”

“Is that it? It looks like a blob, can’t see rings.”

But after a little while they settle down and now are quite thrilled to see this planet. Now the mood changes and words like “beautiful”, “charming”, “fascinating”, are repeated over and over again, and when I point out that the little tiny looking star to the left is its Moon, Titan and we have sent space probes to land on it I have them in the palm of my hand. At this precise moment Rary decides I have held centre stage long enough, jumps over the fence straight into the fishpond. Not content with that little show, he shoots straight out again, arcs through the air and proving Newton correct i.e. what goes up must come down, lands perfectly right in the lap of the builder's mother-in-law, or to be correct right into the plate of meat

and salad that was in the lap of a now very wet and frightened elderly lady. We scream, she screams, the daughter goes hysterical while screaming, but by far the loudest scream comes from Rary who vaults back onto the fence, soaking wet, covered in salad cream and disappears without trace into the night. The daughter still screaming shouts for someone to get her mother a large brandy. While I think that's unfair just to offer the bottle to one person, so I start to dismantle the scope as now the kids are using it as a maypole. It's not long before we are home.

Lynda says "That cat is a nuisance, he could have been the death of that old lady, and she's 91 years old."

"Lynda", I sigh, "for someone who bent my ear earlier tonight about how things were during the war, and what she went through, in charge of the barrage balloons for all South Wales, I hardly think clashing with a flying, soggy cat compares."

All in all I thought it was a great evening.

The following morning I go round to thank our hosts. He is in the garden leaning over the pond, feeding the fish.

"How is the mother-in-law?" I ask.

"Ok" he says, "but Geraldine is missing."

My mind races. Geraldine? His kids are called Honey and Apollo (honest), his wife rejoices in the name Sandra, the mother-in-law is still in bed, so who the hell is Geraldine! Turns out it's a fish. More than that out of the fifteen fish in the pond this one is the prize female Koi Carp (apparently their big gold fish).

"That cat." he mutters.

"Now look here." I say, "First of all how can you tell if one fish is missing? They all look the same to me, and refuse to stop swimming round so you can't get a proper count. Secondly, we all saw



what happened with Rary, granted your mother-in-law had the best view, but someone would have noticed a fish that you say weighs several pounds and is about 18" long in the cats mouth. No sorry mate, it must still be there. Perhaps its asleep?" I venture.

He gives me a look. "Dave I assure you Geraldine is not in the pond."

"Ok, I will have a word with Rary's owner when next I see him."

The chance came the following week.

"Blimey, heard about the barbecue, what a carry on, wish I could have been there. It must have been quite a hoot."

"Well they are not best pleased with Rary" I say.

"Oh don't you start about that cat, he cost me a fortune in vets bills this week. Gave me proper fright last Monday morning, when I came downstairs Rary was choking on something and looked in a bad way so I rush him to the vets and after putting him out they manage to relieve him of a bone of some sort, stuck in his throat."

"A fishbone?" I ask, keeping my fingers crossed.

"Yes the vet asked me if he had been fed fish, but I told him he gets fed on whatever tin is cheapest at the supermarket."

Should I tell the builder?

"Keep your nose out." says Lynda, "It's none of your business. Should he get hold of that cat anything could happen. Best you say nothing."

A couple of days later the builder and I pass in the street.

"Good news," he says, "Geraldine is back."

"WHAT! Are you sure?"

"I am."

"But you said you were sure it went missing."

"I did, and she did, but someone must have been playing silly beggars, she is back and I am happy, and take back all I said about the cat."

I went home to tell the wife, but she got in first, "Did I tell you?" she

said “That mad cat Rary may not rule this patch for much longer.”

“What? Why?”

“Well the woman up the top of our street, you know the one who only moved in a month ago and has a little boy.”

“Yes, yes I know, what’s this got to do with Rary?”

“Well she thinks we may have a fox living close by.”

“Why?”

“Well last weekend her sons goldfish died and he was very upset. So they had a little ceremony, put him in a little box and buried him in the garden. Next morning she found him dug up, the box open and the goldfish gone.”

“Lynda, I know you won't believe me but.....”

Space Flight Round-Up

John Richards

SpaceX launch

SpaceX, the company formed by Elon Musk, launched the first operational mission to re-supply the International Space station (ISS) under the CRS (Commercial Resupply Services) contract with NASA. The launch occurred on 8th October at 00:34 GMT from Launch complex 40 at Cape Canaveral. Even though the launch appeared flawless, one of the 9 rocket motors shut down 80 seconds into powered flight. While this caused the failure of secondary payload (a Orbcomm satellite manufactured by Sierra Nevada Corp that burnt up in the upper atmosphere 4 days after launch), the Dragon capsule ‘docked’ to the ISS, on schedule, on day 3 of the mission.

The dragon capsule contained more than around 2,000 kilos of scientific experiments, station and computer hardware and crew supplies. The Dragon capsule returned to Earth, on the 28th October, approximately 280 miles from the coast of California. It returned to Earth with around 1,500 Kilos of cargo, including results from experiments conducted aboard station, and around 250 kilos

of redundant space station hardware, including spacesuit gloves.

The US now has the capability to return cargo to Earth safely. The facility was lost when the shuttle fleet was retired in 2011. The Japanese (HTV), European (ATV) & Russian (Progress) resupply vessels burn up on re-entry, and the Soyuz craft barely has enough room for its 3 occupants.

Shuttle News

Even though its been more than a year since the last flight of the Space Shuttle, they have again been capturing the imagination of the American public.

In mid October, thousands of Los Angeles residents watched Endeavour take 2 days to cover the 12 miles from Los Angeles international airport to its final resting place at the California Science Centre. During its operational missions, stretching back 20 years, Endeavour may have chalked up more than 123 million miles, and travelled at more than 17,000 mph, but this final journey was a much more sedate 2mph. Around 2 weeks later, the space



Shuttle Atlantis was handed over to the visitor centre at the Kennedy Space Center. Flanked by many past and present

astronauts, and engineers who had previously worked on her, it was a bittersweet day, as it marked the true end of the Shuttle program. Atlantis will now become the focus of a \$100 million exhibit, which NASA hopes to open during the summer of 2013. All the shuttles have now been shipped to their ultimate destinations.

In unrelated news, the experimental shuttle, Enterprise, appears to have been damaged during Hurricane Sandy. It's reported that while sitting on the flight deck of USS Intrepid (now a Sea, Air & Space Museum), the shuttle's main protective canopy collapsed causing damage to the structure. In the image below clear damage can be seen to the tail of the shuttle.



ISS

The customary changing of the guard aboard the ISS starts again soon.

On November 18, Expedition 33 crew members, Commander Sunita Williams of NASA, Flight Engineer Aki Hoshide of the Japan

Aerospace Exploration Agency, and Russian Soyuz Commander Yuri Malenchenko will undock their Soyuz TMA-05M from the station, heading for a pre-dawn landing in Kazakhstan, northeast of the remote town of Arkalyk at 2:53 pm GMT (7:53 a.m. Kazakhstan time on Nov. 19). Their return will wrap up 127 days in space since their launch from Kazakhstan on July 15th.

This will then lead to preparations aboard the station for the launch of the Soyuz carrying the Expedition 34 crew which is scheduled to launch from the Baikonur cosmodrome on December 19th. The crew consists of Flight Engineers; Chris Hadfield (Canadian), Tom Marshburn (Canadian) and Roman Romanenko (Russian)

Kepler mission extension

At a news conference on November 14th, NASA announced that after a successful initial 3½ years prime mission, it had agreed to an extended mission that could last as long as an additional 4 ½ years. The prime mission, in which scientists have used to discover more than 2,300 planet candidates will be extended in order to continue the search for worlds like our own in distant solar systems.

Behind the Scenes

David Powell

We have now got permission to have a storage unit at Dyffryn. It has been built to our specification and arrived on site two hours late. However a small but perfectly formed team put everything together in the correct order in three hours. We now have to put up shelves then we can call in all the equipment scattered amongst members.

The guys have also been working to enable the observatory roof to open and close by means of an electric motor, and it's working well.



We have been informed the National Trust will complete its takeover of Dyffryn in January 2013.

In early September we had a visit from members of the Swansea Society to Dyffryn. They are going to order the same observatory as ours and site it on the edge of Fairfield airport.

The society has had a pair of Orion giant 20X80 Binoculars, plus tripod donated by a member who wishes to remain nameless. We will put them to good use. Thank you very much. You know who you are.

Amanda Peters and Marc Delaney have stood down as committee members. During their time working for CAS they left their mark in a very positive way and I would like to thank them both for the hard work put in.

The Brecon event in October went really well. The sky cleared and a sell out crowd had a rare treat, they actually got to see the stars and look through telescopes.

One of our members Robert Lewis has had all his astronomy equipment stolen. Please log on our website, click on "NEWS" for a list of all his stuff.

The Library is in use and open at all our meetings. It is in the side room and can't be seen when you walk into the lecture room.

My first two star parties were complete washouts, but I shall keep trying until the weather gives in.

It is with sadness I record the death at 77 years of age of David Edwards. He was a loyal and long-term supporter of CAS.

We are trying to improve things for our junior members and the first email newsletter has been sent out. It's a work in progress so all you juniors please let Kayleigh Churchill know what you think and ideas for the future. The ball is in your hands!

And finally we welcome back Rosa the true and real compiler of the column. After spending the last six months swanning round Lake Garda she is back and will soon have this column back to normal.

Stolen Astronomical Equipment

CAS Member Robert Lewis, of Tyn-y-Gollen Newport Road, Old St.Mellons, Cardiff. CF3 5UA. has unfortunately recently had a break in at his observatory. The observatory was virtually cleared out during the incident. If you coming across any pieces of the equipment on offer for sale locally, please contact Robert.

Telescopes:-

Revelation 80mm f6.9 semi apo (doublet) colour red. Guide scope 80mm white make unknown ? skywatcher. Small telescope tri-pod for Revelation Scope.

Finder Scopes:-

Bresser white, Meade blue, Red Dot Finder.

Filters:-

Baader Planetarium LRGB Filter Set, IR (infra red blocking filter) Baader, Hydrogen Alpha filter, Oxygen 3 filter, Sulphur 2 filter, Baader Solar Continuum Filter, IR/UV blocking filter – Baader.

Cameras:-

Atik 314L + filter wheel, Meade DSI 2 + cooling fan, Canon 300D digital SLR Body – modified for hydrogen alpha, SPC900NC modified web cam black, DBK21AF04.AS planetary camera blue, DMK21AF04 planetary mono camera blue, JJC TM Series Multi Functional Timer Remote Control for Canon 300D.

Meade electronic focuser hand set – replacement unit.

Scan handset V3 upgradable

Eyepieces:-

Old set of 0.975 inch (diameter) eyepieces. Assorted makes and focal lengths of 1.25 inch (diameter) eyepieces. Meade Illuminated 12mm (focal length) centering eyepiece. Meade 5000 Supper Plossl 5.5mm (focal length) eyepiece, 2inch diameter eyepieces 25mm and 33mm focal length, also 2inch diagonal.

Focal reducer 0.5, 2 star diagonals 1.25inch one of which is a Meade, Flip Mirror accessory, Barlow lens x2, Barlow lens x4

Binoculars:-

Revelation 15x70 in cloth case, Revelation 25x100 with nebular filter in Aluminium Case

Adapters:-

Canon EOS T Ring, Meade Variable Projection Camera Adapter.

Up-coming CAS Public Events

Date	Time	Event	Venue
9 th Jan.	4:00pm to 10:00pm	BBC Stargazing Live	Newport Riverfront Theatre
12 th Jan.	7:00pm to 9:00pm	BBC Stargazing Live	Dyffryn Gardens
16 th Feb.	7:00pm to 9:00pm	Stargazing at St Fagans	St Fagans: National History Museum
2 nd Mar.	7:00pm to 9:00pm	Stargazing from a Dark Site	Cwmcarn Forest Drive and Visitor Centre
6 th Mar.	7:00pm to 9:00pm	Radnor Primary School PTA, Stargazing Evening	Thompson Park, Cardiff.
23 rd Mar.	7:00pm to 9:00pm	Stargazing from a Dark Site	Brecon Beacons National Park Visitor Centre
11 th May	10:00am to 4:30pm	Cardiff Astronomy Festival	National Museum Cardiff

CAS Lectures December to March

Date	Title	Lecturer
13 th Dec	A Starry Night to Remember - Astronomy and the Titanic.	Andy Lound, Birmingham.
10 th Jan	Star Clusters-Jewels of the Night.	Martin Griffiths, Glamorgan University.
24 th Jan	European Space Agency's Space Science Programme - an update.	Prof. Matt Griffin, Cardiff University.
7 th Feb	Let There be Light - Probing the First Galaxies and Their Effect on the Universe.	Dr Luke Davies, Bristol University.
21 st Feb	Astronomy and Music-Twin Spheres.	Roger Butler, Cardiff Astronomical Society.
7 th March	Alien Worlds.	Dr. Marek Kukula, Royal Greenwich Observatory. London
21 st March	The Science of Armageddon - An Update.	Jay Tate, Spaceguard, Knighton, Powys.

Dave's Star Parties

Date	Day	Time	Venue
14th December	Friday	19:30 - 21:30 GMT	Dyffryn Gardens/Observatory
17th January	Thursday	19:30 - 21:30 GMT	Dyffryn Gardens/Observatory
14th February	Thursday	19:30 - 21:30 GMT	Dyffryn Gardens/Observatory
11th March	Monday	19:30 - 21:30 GMT	Dyffryn Gardens/Observatory

Almanac Compiled by Ian Davies

Sun Rise/Set & Twilight

Date	Astronomical Twilight Begins	Sun Rise	Sun Set	Astronomical Twilight Ends
01 st December	05:54	07:55	16:07	18:08
08 th December	06:01	08:04	16:04	18:07
15 th December	06:07	08:11	16:03	18:07
22 nd December	06:12	08:16	16:06	18:10
29 th December	06:14	08:18	16:11	18:14
01 st January	06:14	08:18	16:13	18:17
08 th January	06:14	08:16	16:22	18:24
15 th January	06:11	08:11	16:32	18:32
22 nd January	06:06	08:04	16:43	18:41
29 th January	05:59	07:55	16:55	18:52
01 st February	05:55	07:51	17:01	18:56
08 th February	05:46	07:39	17:13	19:07
15 th February	05:34	07:26	17:26	19:18
22 nd February	05:21	07:12	17:39	19:30

Meteor Showers

Date	Meteor Shower	RA	DEC	ZHR
09 th December	Puppids-Valids	09h00m	-48°	15
14 th December	Geminids	07h28m	+32°	75
23 rd December	Ursids	14h28m	+78°	5
26 th December	Puppids-Velids	09h20m	-65°	15
04 th January	Quadrantids	15h28m	+50°	80

Observers Club Meetings

Date	Day	Time	Venue
25 th January	Fri	20:00 - 22:00 GMT	Black Cock Inn
22 nd February	Fri	20:00 - 22:00 GMT	Black Cock Inn

Observing Sessions

Date	Day	Time	Venue
21 nd or 22 nd December	Fri or Sat	20:00 - 24:00 GMT	Castle Heights Golf Course
4 th or 5 th January	Fri or Sat	20:00 - 24:00 GMT	Dyffryn Gardens
18 th or 19 th January	Fri or Sat	20:00 - 24:00 GMT	Castle Heights Golf Course
1 st or 2 nd February	Fri or Sat	20:00 - 24:00 GMT	Dyffryn Gardens
15 th February	Fri	20:00 - 24:00 GMT	Castle Heights Golf Course
8 th or 9 th March	Fri or Sat	20:00 - 24:00 GMT	Dyffryn Gardens
15 th or 16 th March	Fri or Sat	20:00 - 24:00 GMT	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.

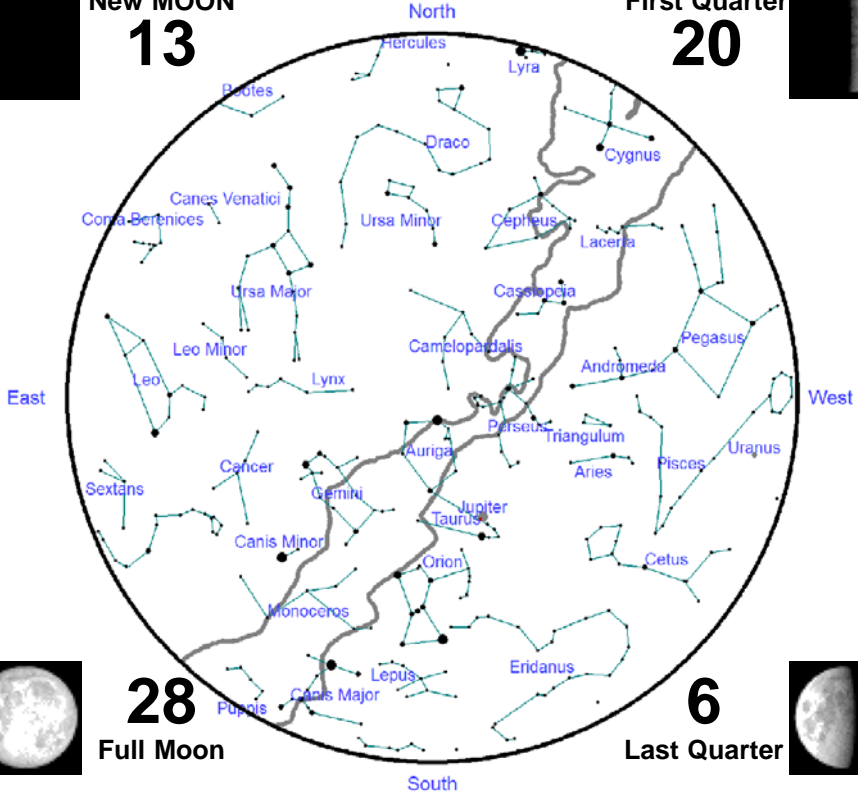
* Due to the current situation at Castle Height Golf Club the venue for the observing Sessions at Castle Height Golf Club are provisional and may be changed if circumstances require.

Almanac December



New MOON
13

First Quarter
20

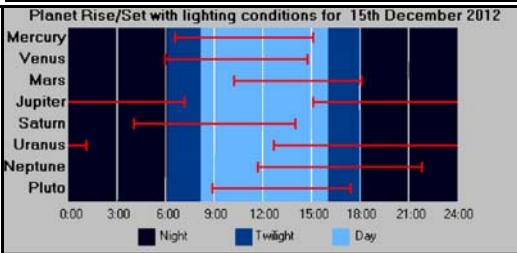


28
Full Moon

6
Last Quarter



	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Scorpius	16h14m38s	-19°58'47"	06:33	15:06	-0.5
Venus	Libra	15h46m19s	-18°31'53"	05:56	14:44	-4.0
Mars	Sagittarius	19h33m16s	-22°53'16"	10:11	18:02	+1.2
Jupiter	Taurus	04h32m41s	+21°09'01"	15:05	07:08	-2.8
Saturn	Libra	14h25m44s	-12°01'06"	03:59	14:00	+0.4
Uranus	Pisces	00h18m05s	+01°10'32"	12:42	01:03	+5.8
Neptune	Aquarius	22h22m59s	-10°45'27"	11:48	22:03	+8.0
Pluto (Dwarf)	Sagittarius	18h36m18s	-19°48'33"	08:56	17:29	+15.1



Planet Events

3rd Jupiter at Opposition.

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

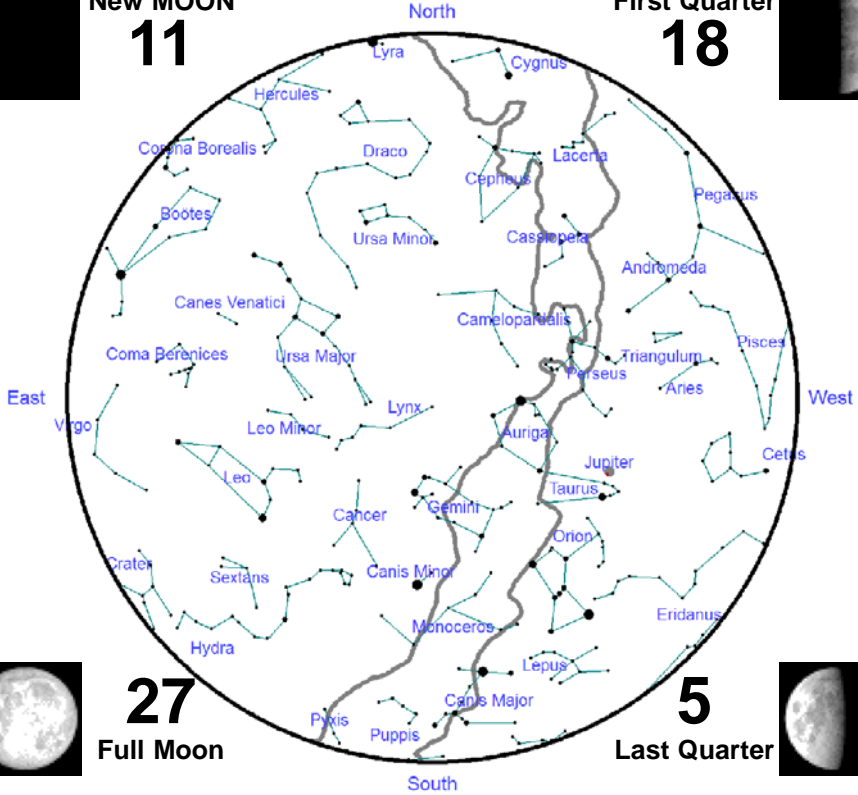
Almanac January

New MOON

11

First Quarter

18



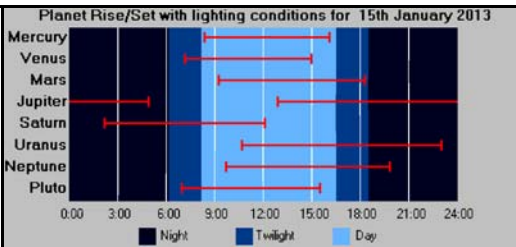
27

Full Moon

5

Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Sagittarius	19h40m05s	-23°22'33"	08:19	16:04	-1.1
Venus	Sagittarius	18h31m46s	-23°07'54"	07:09	14:57	-3.9
Mars	Capricornus	21h14m03s	-17°11'16"	09:13	18:17	+1.2
Jupiter	Taurus	04h20m03s	+20°47'19"	12:53	04:51	-2.6
Saturn	Libra	14h35m19s	-12°41'44"	02:10	12:04	+0.4
Uranus	Pisces	00h19m41s	+01°22'18"	10:40	23:00	+5.9
Neptune	Aquarius	22h29m35s	-10°11'00"	09:50	20:11	+8.0
Pluto (Dwarf)	Sagittarius	18h40m55s	-19°47'10"	06:58	15:31	+15.1



Planet Events

- 3rd Earth at Perihelion (0.98 A.U.).
- 18th Mercury at Superior Conjunction
- 24th Mars at Perihelion (1.3 A.U.)

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

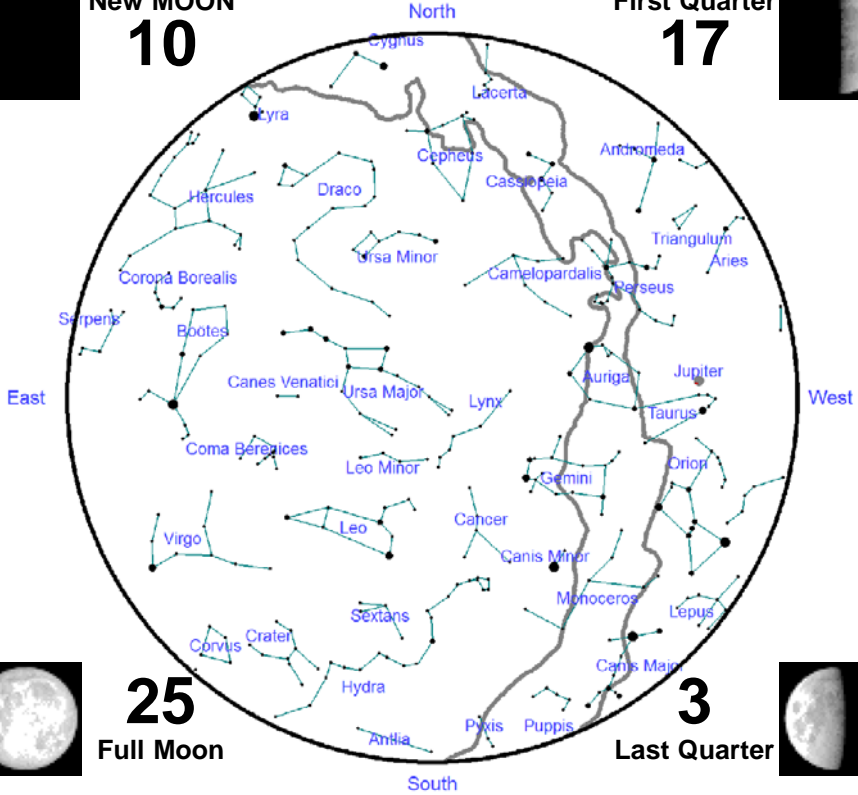
Almanac February

New MOON

10

First Quarter

17



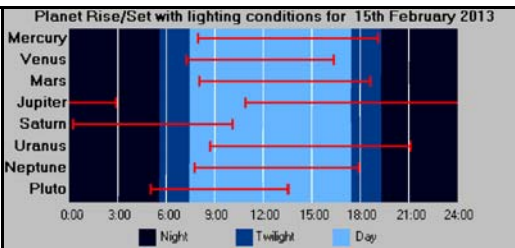
25

Full Moon

3

Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Aquarius	23h01m33s	-05°35'58"	07:56	19:05	-0.7
Venus	Capricornus	21h15m41s	-16°59'49"	07:12	16:18	-3.9
Mars	Aquarius	22h48m20s	-08°37'26"	07:58	18:36	+1.2
Jupiter	Taurus	04h19m58s	+20°54'20"	10:50	02:50	-2.4
Saturn	Libra	14h39m26s	-12°53'34"	00:13	10:06	+0.2
Uranus	Pisces	00h23m58s	+01°50'58"	08:40	21:04	+5.9
Neptune	Aquarius	22h29m44s	-10°10'11"	07:48	18:09	+8.0
Pluto (Dwarf)	Sagittarius	18h45m00s	-19°44'17"	04:59	13:34	+15.1



Planet Events

- 17th Mercury at Perihelion (0.31 A.U.).
- 21st Venus at Aphelion (0.73 A.U.).
- 21st Neptune at Conjunction.

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

The Junior Page

Do you have what it takes to become an astronaut?

The road to becoming an astronaut is very long; it takes many years of hard work and study before you can even begin your training. You will need to be clever enough to attend a university to study engineering, medicine or one of the sciences. Many astronauts also learn to be pilots in their country's air force.

Astronauts come from many different countries in Europe, and may share missions with astronauts from the USA, Russia and Japan. Therefore it is important that you can speak English and Russian. On a spacecraft, astronauts live and work in a very small space so you need to be good at getting on with people. Most importantly you must be healthy (perhaps it's worth paying more attention in gym class), as astronaut training and space flights can be very tiring.



NASA astronaut Bruce McCandless



ESA astronaut Claudie Haigneré

Training will take place in Europe at the European Astronaut Centre (EAC) in Cologne, Germany. This is where astronauts and mission teams on the ground learn about every aspect of the spacecraft and space station operations. The Centre prepares the astronauts for different types of missions, for example they learn how to perform in-orbit activities by rehearsing in a large diving pool that contains spacecraft modules.

Modern computer technology allows astronauts to practise by using a virtual reality system. Wearing a special headset, they can move around or through the space station as if they were really there.

Before they can fly in space, astronauts have to undergo hundreds of hours of training. Newcomers who want to qualify as astronauts have to pass a one-year course of basic training. The candidates learn about space technology and science, basic medical skills, and how the International Space Station (ISS) works. They also become familiar with scuba diving.

After this, they go on to another year of advanced training. They learn in more detail about the various parts of the ISS, the experiments and the transport vehicles, and the involvement of ground control.

They can then be assigned to a mission. Working as much as possible with the other members of the crew, they learn about the special tasks linked with their mission and they become familiar with weightlessness doing parabolic flights.

Over several years, the astronauts get to know each other very well as they visit training centres in the USA, Russia, Japan, Canada and Europe. This may involve learning a foreign language - Russian - (English is already mandatory) as well as getting to know about the scientific experiments and special activities on the mission.

Think you have what it takes? Why not take a look at the NASA website, they have various activities you can try that astronauts have to complete as part of their basic training. <http://www.nasa.gov/audience/foreducators/trainlikean astronaut/home/index.html>

Calling all potential CAS Astronauts!

Sadly, we are not sending our junior members into space, but we will be sending you a junior e-newsletter. To ensure that all junior members receive a copy, we would like to ask if you could complete the form below and return it to Kayleigh Churchill at one of the CAS talks, or if you prefer, you can email Kayleigh the details via Ordinary.Member.2@cardiff-astronomical-society.co.uk

Full Name: _____

E-mail Address: _____

Membership No. _____

Mission completed.