



CAS members with the public Safe Solar Observing at the Brecon Beacons Visitor Centre 30<sup>th</sup> July 2011  
Photo: Roger Butler

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As we close the 2010/11 season and open the new 2011/12 season, there are already very nearly 400 of us as CAS members. It's also time for those of you who have not renewed your membership yet to do so: still only £15 for the whole year for an individual membership. And to make the renewal process easier, now you can make your payment on line from the web-site via PayPal. To renew, simply click on the "JoinUs" button on the top right corner of the web-site.

Also new on the web-site, you will find an Amazon button at the bottom of the buttons bar on the left of the site. A click on this button will take you to Amazon's web-site where you can browse and make purchases as you normally would. The difference is that approximately 5% of the price you pay for the goods will now come to CAS as a referral fee. You pay no more for your purchase than you would have normally. So I urge all of you who purchase from Amazon to reach Amazon's web-site via the CAS web-site. And your friends and family who are not members of CAS can also benefit our funds by making their Amazon purchases by visiting the CAS web-site first.

As you can see from the articles and listing of future Public Events we have significantly increased our outreach activities. These are very worthwhile and part of our aims and objectives. There is much more potential for expanding these events and we would like to increase our activities even further but in order to do so we urgently need more volunteers from the membership to help out. We won't ask necessarily ask you to volunteer for the full event if you don't want to - perhaps you could help out for a morning or afternoon for example. Please contact our Public Events Organiser, Theresa Cooper, if you can volunteer your services and would like to find out more. They are listed on page 18 or for the latest up to date list visit the Members' Area of the web-site: the events are listed under option 14. "Future CAS Outreach Events". Remember volunteering is fun and a marvellous opportunity to meet other members and share our enthusiasm for astronomy with the public.

Wishing you dark skies - Ian.

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## 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 157 is 10<sup>th</sup> November).

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## Visit CAS on the web @

<http://www.cardiff-astronomical-society.co.uk>

General enquiries email [info@cardiff-astronomical-society.co.uk](mailto: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**

In summer 2009 we went camping and that was how I found the night sky. Following all the advice I found online and in magazines I invested in a plansphere and a pair of binoculars and started to look up at every opportunity. I was interested in what I could see but the problem was I didn't really understand what I was looking at. Back to the internet I went and I soon found out that the examining body Edexcel offer astronomy as a GCSE course. Although that sounded like a great starting point for my new hobby I was 26 years old and the last time I had sat a GCSE exam was 10 years earlier. Happily, further investigation led to the discovery that I wouldn't have to dig out the blazer and tie as there were a number of sites offering the course through distance learning. After some consideration I felt that the online textbook offered by Star Learner and endorsed by Edexcel was the course for me. My supportive fiancé kindly paid the course fee for me as my birthday present. The site is run by David Martin who provided not only access to his excellent online resources but also a timetable tailored to my choice of a one year course (there is an option to learn over two years) and a progress log. The learning is broken down into modules of logically and clearly organized topics and the site is intuitive and easy to use. It wasn't all plain sailing and I had problems with some of the calculations involved but David was always on hand and always replied promptly and patiently to my emails. Occasionally I felt that I would have liked to have had other learners to talk to. But if you're reading this then you're probably a member of Cardiff Astronomical Society and I found the society a great help in providing me with somewhere I could talk and learn about astronomy in tandem with my study. I also found great support at some of the online astronomy forums including the one on the Sky at Night website where the online community were very willing to answer my many questions. The course was assessed on two pieces of coursework and an exam. There is a broad choice of coursework to choose from and I went for one project to build a horizontal sundial and another observing the phases of the Moon. Both projects were fun to complete and

really helped me to get my head around some basic astronomical concepts. The exam took place the day after my 27th birthday and although it was nerve wracking returning to the exam room I got my results back in September and was over the Moon to have achieved an A grade. The GCSE was a great experience and I would recommend it to anyone who might be interested in gaining a qualification from their hobby or looking for an introduction to astronomical theory. And if anyone else does give it a try, I hope you enjoy it and good luck!

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## Bletchley Park 2011

Ian Davies

It's the 4<sup>th</sup> June 2011 and an intrepid group of CAS' finest CAstronauts head out once again to Bletchley Park, the war time British code breaking centre. We had been to Bletchley Park just two years before in 2009, where we found the number of things to see and visit was just too much to be accomplished in a single day. For some it was their first visit but for many of us it was the second time around.



*A wartime Enigma Machine*

Bletchley Park was of course where, during the Second World War, the British broke the German Enigma cipher that the famous Enigma machines employed to encrypt secret messages sent by the Axis powers. At Bletchley Park the likes of Dillie Knox, Alan Turing and Mavis Lever designed, built and operated early calculating and computing machines, Machines such as the Turing Bombe and Colossus. Professor Disney wrote

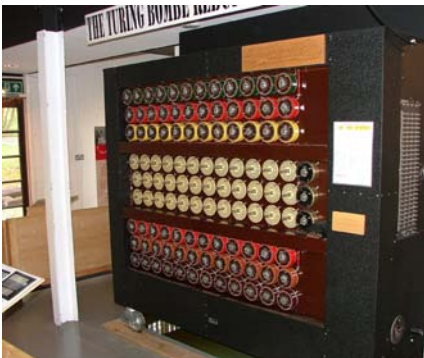
about this aspect of Bletchley Park's work in his article about our first visit in 2009, I won't repeat it here. If you want to read Professors Disney's article, it was published in Issue 148 of the Newsletter and also appears in the Trips section of the CAS website.

As well as the code breaking aspects of Bletchley Park there are a number of war time memorabilia exhibits, some of these include a working 1940 post office, a news reel picture house and a very interesting exhibition of war time toys, games and house hold items. There were several exclamations along the lines of “I used to have one of those” or “My Mum/Dad/Gran/Gramps told me he/she loved to play with one like that”. There were some very clever toys made typically by service personnel out of tins,



*The Alan Turing Statue*

these were toys like horses, model people, aeroplanes and furniture etc. It was all laid out like a typical village shop of the period, you know just like “Open all hours”. Even though I was not born until the early sixties a lot of these items populated my early childhood and I spent over an hour there reminiscing.



*Reconstruction of a Turing Bombe*

Moving on I visited “Block B” where there is a wonderful statue of Alan Turing made from slate. On the day of our visit the staff at Block B were running demonstrations on a replica Turing Bombe, what a racket it made, to think that lots of these machines were running most of every day during the war.

Lastly I visited the National Museum of Computing; this was especially interesting to me as I'm a software engineer by profession. Having lived through most of the history of computers, I found that I had actually used a fair number of the computers on



show when they were new out of the box. This again taking me back to earlier days. The National Museum of Computing also



house a working replica of Colossus. Colossus is the size of a room, it uses valves, as there were no transistors, let alone silicon chips, when it was built. I don't think I would want the electricity bill to run it.

Unlike our previous visit, the sun shone on us so there was a chance for a

walk around the grounds and the lake. So once again a very pleasant visit filled with interest.

On our return journey we once again stopped at Sally Pussys Inn for an evening meal, which was up to it's usual excellent standard. Here we had the chance to chat to others on the trip to compare notes. After our meal and before boarding the coach home I managed to get everyone together for a group photograph, where I did my customary running back and forth between the camera and the line-up.



# **When Events at Brecon Beckon, Reckon on Fickle Weather**

**Roger Butler**

I am sure you will recall Hamlet's famous words on solar viewing:

"To see, or not to see: that is the question:

Weather !: 'tis a gamble in the end to offer

The sightings amid shadows of outrageous forecasts....."

Well all the forecasts for our solar event at Brecon Beacons Visitors' Centre were unanimous: cloudy – with around 87% cover. But the decision 'to boldly go, or not to boldly go' lay with the Society Coordinator of Outreach Public Events (SCOPE), Theresa Cooper, Princess of Penmark. And, like the man from DelMonte, she said "Yes".

So shortly before 10am, three carloads of volunteers and essential equipment trundled into the car park at the centre: Hugh, Dave and Bob Biss, Ian, Theresa and me, and Bob Sutton. In a trice we had the displays and six telescopes set up on the balcony, overlooking the valley and Pen Y Fan.

"Complete waste of time. We'll see nothing today," complained one of our number, who is renowned for his optimism. That would be a real shame if we did see nothing since we were all ready for some action; but by now the cloud cover was almost 100%.

Brecon is the furthest outpost of our empire and logistically the most difficult to arrange. The weather there is fickle and has frequently been very unkind to us over the years. We are quite used to resorting to Plan B – illustrated public talks and demonstrations indoors when no observing is possible outside. But whatever the weather, the show must go on – with or without the 'star'.

A steady trickle of visitors to the centre increased throughout the morning until, by lunchtime, there was quite a crowd. The café did

a brisk trade and the outside tables were soon full of diners enjoying their fare and the view. I was quite surprised just how many people used the centre: all shapes and sizes and ages, and many togged up for some very serious hiking in the hills.

The balcony too was soon bustling with people peering through telescopes, discussing the various types on show and learning more about the absentee sun from information on our display boards. Given the opportunity, many members of the general public show a dormant interest in astronomy and a fascination with seeing for themselves with our technology. Many had come to the centre that day expressly for the advertised solar viewing: one couple from as far as Llanelli and another from Cardiff Bay (coals to Brecon ?). Shame then that our primary aim of showing them the sun in all its glory was not feasible.

In the few periods when the number of visitors subsided, Bob Sutton and Dave amused themselves with their own Plan B – birdwatching. And they were duly rewarded by a red kite wheeling high overhead and a raven cruising stealthily down the valley on a bombing run.



It was then that the miracle happened ! The clouds suddenly parted and the sun beamed down majestically. A scramble to the telescopes – solar scopes and others already prepared with their special solar filters – and there was a real vision to behold. Two

very prominent and detailed sunspots at '3 o'clock', lots of flares around the circumference and other fine features on the surface. A real treat for those who happened to be on the balcony for those few minutes.





*SOHO SDO/HMI image of The Sun on the 30<sup>th</sup> July 2011, showing the Sunspots seen by those lucky few.* Image: SOHO

“There you are, you see: I said the sun would come out and we would get splendid viewing,” chirped our resident optimist. Did he really think we had forgotten his previous remark? Was he using reverse psychology in an attempt to control the elements? Whatever the magic, its power was short-lived and the clouds soon rolled together to shroud the sun completely. Apart from a couple of briefer

gaps in the cloud later on, that was it. The cloud cover was absolute and we would not be seeing the sun again that day.

And so we packed up, bade our farewells and trundled back to base along the A470. We were very content that it had been a worthwhile venture after all. The public response was very appreciative and we had enjoyed and shared a spectacular visual feast with quite a few who would never otherwise have seen Old King Sol at first hand in detailed splendour, churning out the energy essential for all our lives here on earth.

And as we headed south, nearing Merthyr Tydfil, the sun managed to throw off the clouds yet again, reminding us one final time never to



give up on an ideal. So what else did we volunteers learn that day?

- don't be dissuaded from your purpose by the moaning minnies!
- savour that unexpected moment whenever it happens
- there is always something of interest to see if only you can seek it out
- getting together with other CAS members on outreach events is a great way to spend a day, chatting about things astronomical and having fun doing what we really enjoy
- by and large, the public have lost direct contact the skies but are genetically disposed to acknowledge its influence given the opportunity
- At both ParkLife the week before and the Brecon Beacons Visitors' Centre, we were surprised by how many had simply not heard of Cardiff Astronomical Society. We may think that because we have been around for 36 years, are possibly the largest such society in the UK, regularly appear in the media and present publicized events around the area, that everyone must have heard of us. Well, in an age where everyone is bombarded with information, we need to shout even louder ! Which means.....
- we need to do many more outreach events.

As ever thanks to all who helped on the day. It would be wonderful if we could have some more volunteers for these ventures. We could possibly do more events. They really are effective and we have a great time getting out and about, meeting the public and sharing our passion for the sky. Just ask any committee member how you could join in the fun.

Finally. I am left contemplating the following lines, which seem to sum up the day:

“ And while our sorrow may be profound, the clouds will clear, and the sun will shine on us again. And in that warm, bright light we will find ourselves facing a glorious future.”

## ParkLife

ParkLife was brilliant! This is the annual jamboree staged by Newport Council, showcasing local groups, in a huge field in the grounds of Tregedar House.



Rumour had it that it was attended by over 4000 people last year with poor weather.

Well this year there was very good weather and that drew the crowds in many thousands (total attendance 10,029 to be precise).

Rosa, Ian and I arrived at 9.30am and set about putting together our display. Immediately a van drew up and the driver offered us a huge collapsible gazebo with side panels. So there was no need to hammer our own now rather tired gazebos together. We had a prime spot opposite the entrance.

It was a proper old-fashioned family day out with plenty to see and do. There was considerable attention in our stand from the public



all day long. Many said they were interested because they had seen Brian Cox's recent TV programmes. Several parents were dragged in our direction by their children. There were at least 8 or 9 who were seriously interested in joining CAS. They had

generally already bought a telescope which they never quite worked out - usual story. All took fliers with them.

Rosa quickly organized a quiz for the younger children and a 50p raffle. We were all kept busy throughout the day and it was great that we had support from other members - Nick Hart, Bob Biss, Bob Sutton and Russell Pontin.

Nick, Rosa and myself each had long conversations with the Lord Mayor and Lady Mayoress of Newport. They were quite knowledgeable and asked a good many questions. They left with some of our literature so that the Mayor could write about us in his next monthly bulletin.



2pm and the cavalry arrived. Well it was actually Vannita and Berryn, armed with scones, jam, cream and flasks of hot coffee - just the job!

So all-in-all, it was a very busy and successful event for us. Rosa in particular was rushed off her feet right until 4pm when the event finished.

Once again, we had gone prepared for solar viewing, with Coronados and scopes with appropriate filters at the ready so the only downside was that the sun failed to burn its way through the total cloud cover. Despite it being 'sun'day and the weather forecasters all promising blue skies and bright sunshine, the sun could only manage to make a brief appearance right at the end of the afternoon. Even so there was still a thin film of cloud - so no detail of the solar surface.

Tredegar House is due to be taken by the National Trust over early in 2012 - just like Dyffryn. Makes me wonder if T.H. might

be a good location for our activities east of Cardiff, now we have lost Wetlands. Very close to M4 but shielded from worst of light pollution.

So an enjoyable day and thanks to everyone who came along and helped out.



I reckon ParkLife should definitely go into our schedule every year.

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## Behind the Scenes

**Rosa Adams**

Its now 36 years since CAS' inception and the society has gone from strength to strength, not only in terms of membership but also in the number of events which we host..

Membership now close to 400 has increased steadily year on year , all the more surprising as many societies are reporting falling numbers in "difficult financial times". So why are we staying ahead of the game? Firstly CAS membership is marvellous value for money, secondly I am sure, because of the hard work put in by everybody who helps out at these events, everything from manning telescopes, talking to the public and organising the events in the first place .These events keep us in the public eye, attracting new members and thus enables us to attract first class speakers

You do not have to be a committee member to lend a hand at events so if you want to become involved just let us know.

This year's summer meal took place at the Black Cock inn, the food was very good and worth a return visit. The landlord there has agreed to site our storage container in his car park. Hopefully we will move it from its present home at Castle Heights in the next couple of weeks. With the future of Castle Heights golf club being



uncertain we have also moved end of month Observers Club to the Black Cock also.

Observers Club proved popular from the outset, and after a couple of years is still very well attended .and for many new members it is their introduction to CAS.

Our current chairman Roger Butler has returned from Dubai permanently so we look forward to another year of witty repartee and of course exhortations to buy a fleece. Welcome back Roger.

We manned a stand in St David's Hall during the show Un-caged Monkeys, featuring Prof. Brian Cox. Theresa's pleas for him to visit our stand for even a few minutes fell on deaf ears, so a thumbs down there. On a brighter note, the place was packed and very many of the audience stopped by to talk to us, so a thumbs up there.

Graham Hall arranged an evening at The Mariners pub in Barry for the lunar eclipse, but unfortunately the moon did not attend and hid behind thick cloud for the whole evening. Bad luck Graham next time perhaps.

We are to have a Facebook page which Mark Major is currently putting together, more information when it is ready to meet its public.

The trip to Bletchley Park was as good the second time round. A date for the diary; I am in the process of putting together a trip to Greenwich observatory most likely date 12th November , details soon.

We are putting together a calendar for 2012 featuring our own Nick Hart's stunning picture, don't buy a calendar until you have seen this!!

We manned a stand at new venue in July at Tredegar House Newport as part of an annual fun day/festival called Parklife – more on that from Roger on page 12.

July and CAS were at the Brecon mountain centre for solar observing The sun shone, at least for part of the day and as usual attracted a good number of people.

Dave Powell said this was the best solar display he had witnessed in a long time, with plenty of flares, sunspots and granulation

After much deliberation it has been decided that we are to have charitable status. We are in need of new equipment and this will enable us to attract funding for it.

We have been awarded a sizeable sum under the Kickstart programme, something Roger and Ian have been working on for some time. More about Kickstart in the next issue.

Finally something from the suggestion box. It is not always possible to hear the questions put to a speaker at the end of a lecture, this has to do with all sorts of technical things, with microphones and people moving around etc. In future the chairman will repeat the question to the speaker and hopefully he being nearer to the desktop microphone we will all hear what is actually being asked.

N.B. you can now choose to renew your membership online from our website and while you are there have a look around, for news on observing, programme and lots more.

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## **Rary and The Missing Clark's Pie.**

**David Powell**

Summer is here, the Sun shines for a few hours and that can only mean one thing. Some muffin will have a barbecue just as I set up my telescope. Word indeed spreads round the street a lady called Valerie is celebrating. She has gone and got herself a friend. Apparently she read in the local paper the RSPCA was looking for a good home for a small Terrier type dog. We have been through this before, first she had a parrot, (it made her ill), then a tank full of tropical fish (she used to talk to them) and they all died. So several days later the lady now has a new companion, Elmo. And boy has this dog landed on his feet this time. The story is the previous owner could not look after him any more, hence his new one. Well as soon as I set eyes on him I could tell, Elmo was a smart cookie and would run rings round anyone not on their guard.

It's Friday and I am informed this lady has invited us tomorrow

evening for a bite to eat when we are expected to welcome Elmo into our little community. The invitation arrived via her next-door neighbour Ken. It's difficult to speak with anyone standing on your doorstep holding a tray of Clark's pies. Are those for me I ask, no they are for tomorrow night Ken, how many people has she invited I ask?, no idea. Look I hope you will come and bring Rary with you. Run that past me again Ken, she wants me to bring Rary for a party to welcome a dog. Anyway what am I supposed to do? Carry him on my shoulder. Just tell her we will be there, not sure about the cat.

Later that evening I set up my scope to time a lunar occultation. The star in question was 6<sup>th</sup> magnitude; the problem was the occultation would take place on the bright lunar limb. I decided to use a moderate magnification plus a Barlow lens to darken the field of view. Rary was sitting on my eyepiece box. Now look mate, tomorrow night, we are going to the party, don't disgrace yourself, and do try and be nice to Elmo, I know he is a dog, but I am sure if you make an effort the two of you can share the same space. Can I have my eyepieces now please Rary? Look if I give you a cat treat, can I have my eyepieces back please? Right have the bag, get off my eyepiece box. The sounds of evening fill the air, punctured only by the sounds of Rary crunching a bag of treats. By the time I get the Barlow and eyepiece in the tube, the occultation has taken place. Thanks Rary.

Next evening we turn up and everyone is expected to shake Elmo's paw. The pies are hot and complimented by a nice "Cabernet Sauvignon". The lady has taste. Rary has put in an appearance sitting on the shed roof, glaring at Elmo and me in no particular order. Valerie is busy filling glasses and dispensing pies, the ever-faithful Elmo by her side. Suddenly Ken puts his pie down by the side of his chair, Elmo reveals his true nature, snatches the pie and races down the garden, closely followed by Ken. Elmo disappeared under the shed and Ken now joined by Valerie spent several minutes trying to talk him out. Oh do come out Elmo, for mummy, be a good boy, please. All of a sudden Rary jumped down using Ken's back as a convenient landing stage causing Ken

to utter some very naughty words, (lucky I was standing next to Mrs Powell, and was able to cover her ears, just in time). and rushed under the shed. Lots of spitting, growling, and bad noises followed. You can't blame Ken, I said. It's not Ken it's those two. Seconds later Elmo rushes out, straight into the house, Rary appears a little later, looking rather to smug for his own good. Excitement over we saw little of Valerie afterwards; she was on her hands and knees looking under her bed trying to talk Elmo out, and promising to talk to that man about his nasty pussycat!

Later back home the cat flap opens and in comes Rary with a pie in his mouth. He deposited it in his basket and went out again. What are you doing? Asks Mrs Powell. I am not letting the cat have the pie. Dave it's been in Elmo's and Rary's mouth. I know but Rary gets the blame for everything around here. Did you notice not one person thanked him tonight? Well I am going to return the pie to its rightful owner tomorrow. I will not have people think this cat stole a Clark's pie. I placed the pie between two dishes and went to bed. Next day I forgot all about the pie, Lynda went to have her hair done and I went down Dyffryn Gardens. On my return I notice our son Gareth has been in. Did you see Gareth I ask Mrs Powell? No but he has been here; his tea mug is in the sink so he must have had something to eat. Oh dear you don't think, no he would not have, its got ginger hairs all over it, oh surely not. I lift the top dish up just a little, quickly replacing it. Its gone I said. Lynda is already on the phone to his partner. Nicola, its Lynda, is Gareth home? Yes, do you want to speak to him? It's a little awkward at the moment he is up on the shed roof. Give me the phone. Nicola, its his dad, what's he doing on the shed roof, is he curled up sleeping, he is not licking himself, is he? Is he scrapping his nails on the wood? Have you two been drinking? He is tacking some new felt on the roof. Ask him if he had a Clark's pie at our house. Sigh of relief he made a bacon sandwich. So what's happened to the pie? It's never been found. I will not believe the cat can take one dish off another take the pie and replace the dish. I mean Rary is good but come-on.....

# Up-coming CAS Public Events

Date	Time	Event	Venue
3 <sup>rd</sup> & 4 <sup>th</sup> September	10:00am to 4:00pm	SAFE solar viewing at the European Heritage Weekend	Dyffryn Gardens
10 <sup>th</sup> September	All Day	Usk Show	Usk Showground
17 <sup>th</sup> September	7:00pm to 9:30pm	Blaenavon Stargazing Evening	Blaenavon
8 <sup>th</sup> October	7:00pm to 9:30pm	Stargazing from a Dark Site and International Observe the Moon Night	Brecon Beacons National Park Visitor Centre
29 <sup>th</sup> & 30 <sup>th</sup> October	Overnight	Stargazing and Solar Observing on Flatholm	Flatholm Island
8 <sup>th</sup> November	Early Evening	Brownies Evening	Techniquet
3 <sup>rd</sup> December	7:00pm to 9:30pm	Observatory Stargazing Evening	Dyffryn Gardens

## CAS Lectures September to December

Date	Title	Lecturer
1 <sup>st</sup> September	The Search for the Tenth Planet.	Duncan Lunan, Glasgow.
15 <sup>rd</sup> September	Astronomy in the Early Royal Society.	Dr. Allan Chapman, Oxford.
29 <sup>th</sup> September	Mercury - A Relative Planet.	Andy Lound, Birmingham.
13 <sup>th</sup> October	Sophisticated Small Satellites from Surrey. A light hearted look at current and future missions using small satellites, with an emphasis on activities at SSTL and the space-science missions that are now becoming possible as small satellites become increasingly sophisticated.	Dr. Stuart Eves, Reading.
27 <sup>th</sup> October	Visual Planetary Astronomy.	Paul Abel FRAS, University of Leicester.
10 <sup>th</sup> November	The Debate, What was the greatest Astronomical Discovery ever?	Dr. Jon Davies and Prof. Mike Edmunds. Cardiff University
24 <sup>th</sup> November	Astronomy, the Ultimate Question.	Roger Butler, Cardiff Astronomical Society
8 <sup>th</sup> December	Mission to Mars.	Gemma Lavendar, Cardiff University.



# Almanac

## Compiled by Ian Davies

### Sun Rise/Set & Twilight

Date	Astronomical Twilight Begins	Sun Rise	Sun Set	Astronomical Twilight Ends
01 <sup>st</sup> September	03:18	05:24	19:01	21:07
08 <sup>th</sup> September	03:34	05:35	18:45	20:46
15 <sup>th</sup> September	03:49	05:46	18:29	20:26
22 <sup>nd</sup> September	04:03	05:57	18:13	20:07
29 <sup>th</sup> September	04:16	06:08	17:57	19:49
01 <sup>st</sup> October	04:20	06:12	17:53	19:44
08 <sup>th</sup> October	04:32	06:23	17:37	19:28
15 <sup>th</sup> October	04:44	06:35	17:21	19:12
22 <sup>nd</sup> October	04:55	06:47	17:07	18:58
29 <sup>th</sup> October	05:07	06:59	16:53	18:45
01 <sup>st</sup> November	05:11	07:04	16:47	18:40
08 <sup>th</sup> November	05:22	07:17	16:35	18:30
15 <sup>th</sup> November	05:32	07:29	16:24	18:21
22 <sup>nd</sup> November	05:42	07:41	16:16	18:14
29 <sup>th</sup> November	05:51	07:51	16:09	18:10

## Meteor Showers

Date	Meteor Shower	RA	DEC	ZHR
9 <sup>th</sup> June	Piscids	00h36m	+07°	10
21 <sup>st</sup> June	Piscids	00h24m	+00°	5
14 <sup>th</sup> July	Piscids	01h44m	+14°	??
23 <sup>rd</sup> July	Orionids	06h24m	+15°	25
4 <sup>th</sup> July	Taurids	03h44m	+14°	8
18 <sup>th</sup> July	Leonids	10h08m	+22°	10

## Observers Club Meetings

Date	Day	Time	Venue
30 <sup>th</sup> September	Fri	20:00 - 22:00 BST	Black Cock Inn
28 <sup>th</sup> October	Fri	20:00 - 22:00 BST	Black Cock Inn
25 <sup>th</sup> November	Fri	20:00 - 22:00 GMT	Black Cock Inn

## Observing Sessions

Date	Day	Time	Venue
2 <sup>nd</sup> or 3 <sup>rd</sup> September	Fri or Sat	20:30 - 24:00 BST	Dyffryn Gardens
23 <sup>rd</sup> or 24 <sup>th</sup> September	Fri or Sat	20:30 - 24:00 BST	Castle Heights Golf Course*
1 <sup>st</sup> October	Sat	20:00 - 24:00 BST	Dyffryn Gardens
21 <sup>st</sup> or 22 <sup>nd</sup> October	Fri or Sat	20:00 - 24:00 BST	Castle Heights Golf Course*
4 <sup>th</sup> November	Fri	20:00 - 24:00 GMT	Dyffryn Gardens
18 <sup>th</sup> or 19 <sup>th</sup> November	Fri or Sat	20:00 - 24:00 GMT	Castle Heights Golf Course*
2 <sup>nd</sup> December	Fri	20:00 - 24:00 GMT	Dyffryn Gardens
16 <sup>th</sup> or 17 <sup>th</sup> December	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.

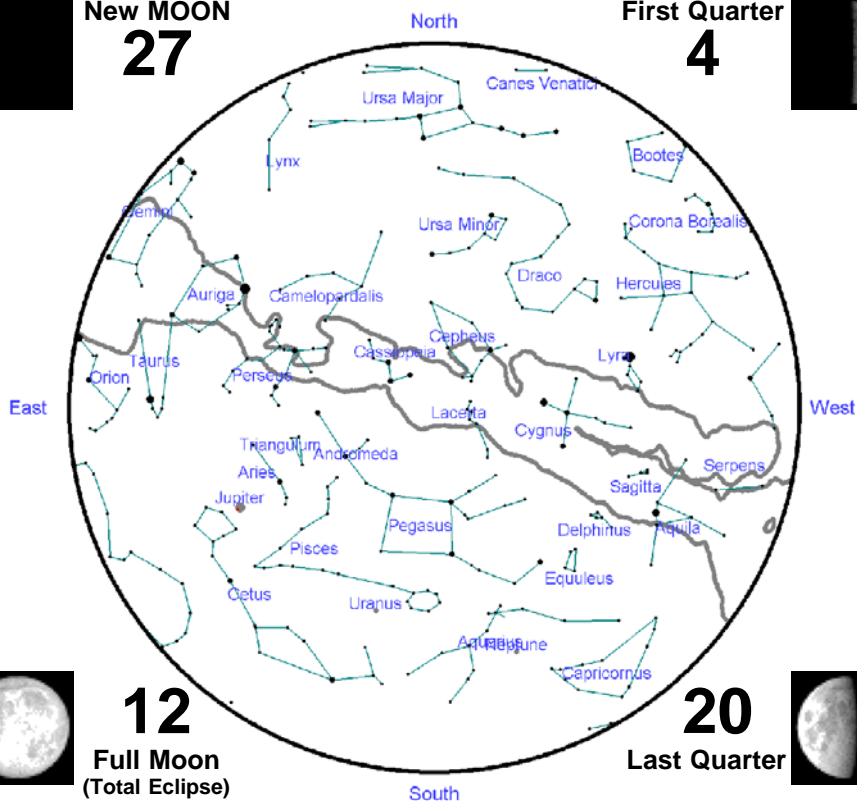
# Almanac September

New MOON

27

First Quarter

4



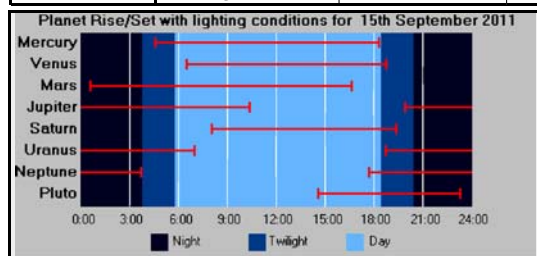
12

Full Moon  
(Total Eclipse)

20

Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
<b>Mercury</b>	Leo	10h48m05s	+09°29'14"	04:32	18:14	-1.2
<b>Venus</b>	Virgo	12h01m34s	+01°15'24"	06:28	18:46	-3.9
<b>Mars</b>	Gemini	07h58m59s	+21°32'02"	00:33	16:37	+1.4
<b>Jupiter</b>	Aries	02h32m03s	+13°26'36"	19:52	10:21	-2.7
<b>Saturn</b>	Virgo	13h05m08s	-04°28'36"	08:00	19:20	+0.4
<b>Uranus</b>	Pisces	00h12m18s	+00°29'30"	18:40	06:54	+5.7
<b>Neptune</b>	Aquarius	22h14m14s	-11°31'05"	17:44	03:55	+8.0
<b>Pluto (Dwarf)</b>	Sagittarius	18h19m55s	-19°06'25"	14:37	23:19	+15



## Planet Events

- 8<sup>th</sup> Mercury at Perihelion (0.31 A.U.).
- 25<sup>th</sup> Uranus at Opposition.
- 28<sup>th</sup> Mercury at Superior Conjunction.

The data presented here is for the 15<sup>th</sup> September, positional data is at 00:00 GMT/UT

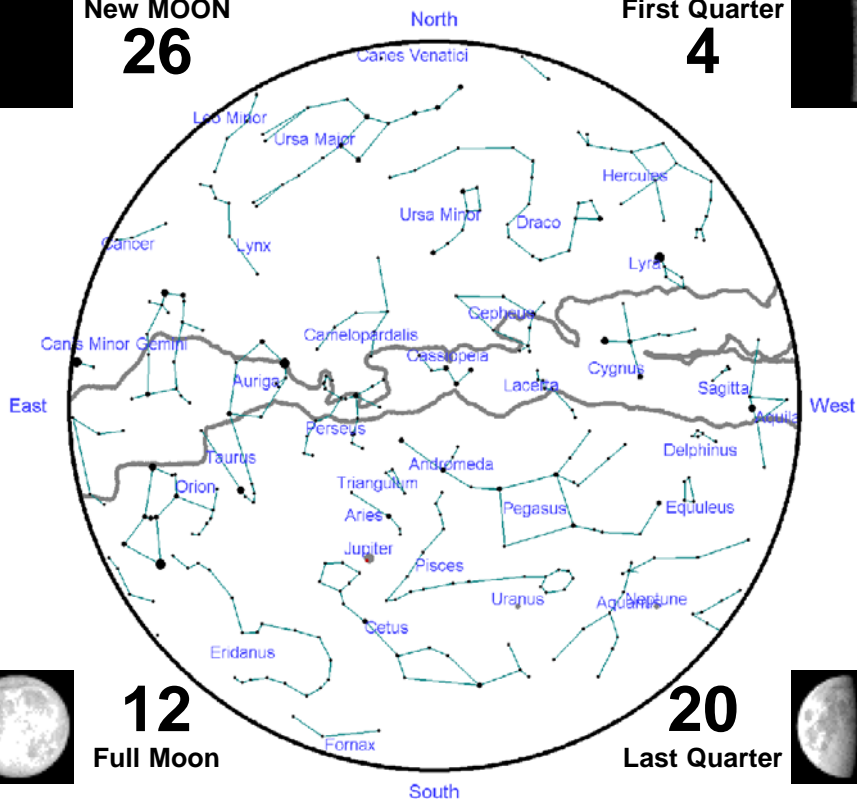
# Almanac October

New MOON

26

First Quarter

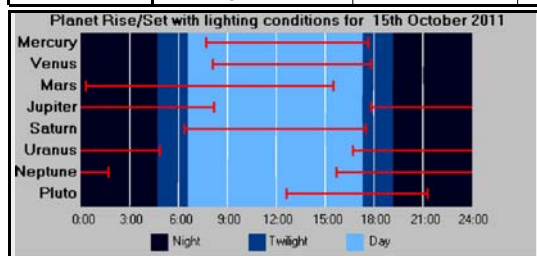
4



12  
Full Moon

20  
Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Virgo	14h00m32s	-12°39'22"	07:40	17:35	-0.6
Venus	Virgo	14h19m52s	-13°28'15"	08:04	17:50	-3.9
Mars	Cancer	09h12m53s	+17°30'25"	00:14	15:27	+1.2
Jupiter	Aries	02h21m14s	+12°29'51"	17:49	08:07	-2.9
Saturn	Virgo	13h18m27s	-05°51'06"	06:22	17:28	+0.5
Uranus	Pisces	00h07m57s	+00°01'29"	16:40	04:50	+5.7
Neptune	Aquarius	22h14m22s	-11°30'20"	15:46	01:57	+8.0
Pluto (Dwarf)	Sagittarius	18h20m49s	-19°12'55"	12:40	21:21	+15



## Planet Events

- 13<sup>th</sup> Saturn at Conjunction.
- 22<sup>nd</sup> Mercury at Aphelion (0.47 A.U.).
- 29<sup>th</sup> Jupiter at Opposition.

The data presented here is for the 15<sup>th</sup> October, positional data is at 00:00 GMT/UT

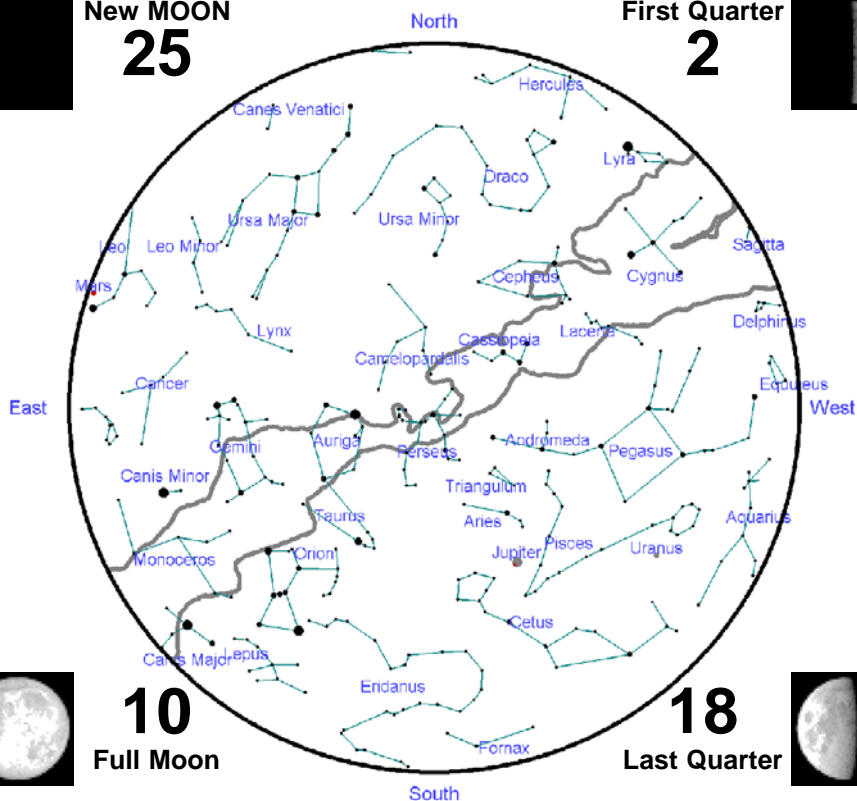
# Almanac November

New MOON

25

First Quarter

2



10

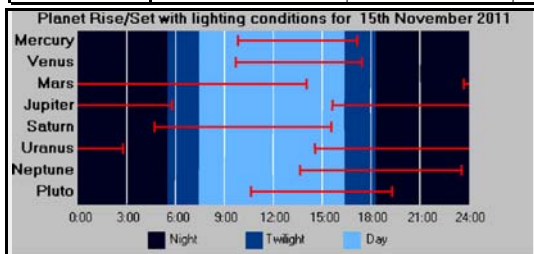
Full Moon

18

Last Quarter



	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Scorpius	16h52m54s	-25°13'35"	09:48	17:06	-0.2
Venus	Ophiuchus	16h57m28s	-23°31'02"	09:41	17:23	-3.9
Mars	Leo	10h18m21s	+12°32'10"	23:42	14:01	+1.0
Jupiter	Aries	02h05m28s	+11°10'55"	15:38	05:42	-2.9
Saturn	Virgo	13h32m16s	-07°11'13"	04:41	15:34	+0.4
Uranus	Pisces	00h04m32s	+00°19'51"	14:33	02:46	+5.8
Neptune	Aquarius	22h14m30s	-11°29'34"	13:44	23:52	+8.0
Pluto (Dwarf)	Sagittarius	18h23m40s	-19°17'45"	10:41	19:21	+15.1



## Planet Events

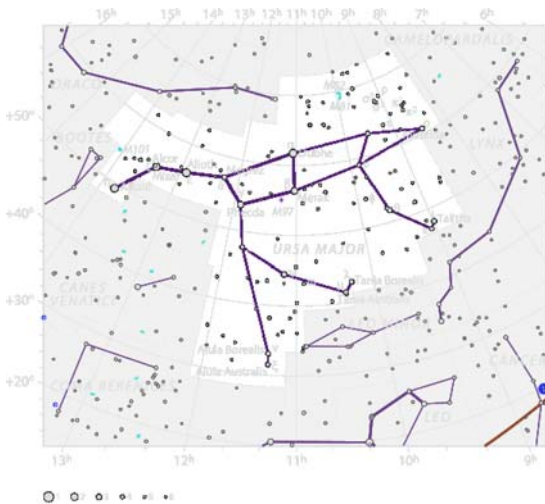
29th Venus at Aphelion (0.73 A.U.).

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

# The Junior Page

## Northern Circumpolar Constellations

Constellations that never set from certain locations on Earth are called circumpolar.



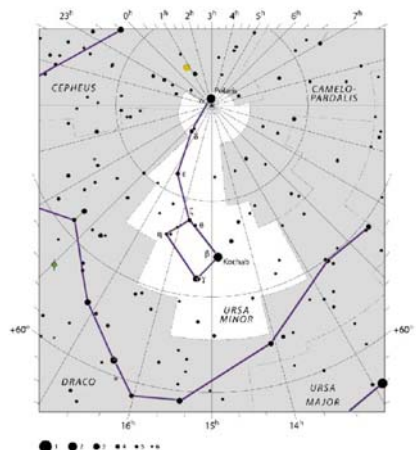
Megrez, Phecda, Merek, Alioth and Dubhe make up the famous Plough or Big Dipper pattern.

Ursa Minor is in some legends the son of the Great Bear. It contains Polaris the Pole star. Kochab and Pherkad, two bright stars in Ursa Minor, are known as the guardians of the pole. Ursa Minor resembles a mini big dipper shape. It is called the little dipper in America.

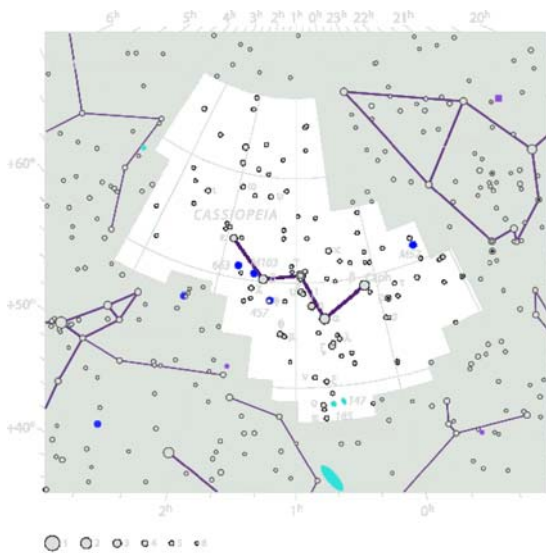
Cassiopeia the Queen was the wife of King Cepheus. They had a

From the UK the most famous circumpolar constellations are Ursa Major the great Bear, Ursa Minor, the little bear and Cassiopeia the Queen.

Ursa Major is supposed to represent a bear. Originally a woman she was turned into a bear for upsetting a Goddess. Alkaid, Alcor,







daughter called Andromeda who was to be sacrificed to a sea monster but was rescued by the hero Perseus. This constellation has a distinctive W shape.

Draco the Dragon in mythology was the Dragon that guarded the golden apples of the Hesperides. It winds it's way around

the Pole. The star Thurban used to be the Pole star about five thousand years ago, around about the time the Pyramids were being built.

