

# Ayrshire Astronomical Society Newsletter February 2015



Please send articles to [newsletter@ayraastro.com](mailto:newsletter@ayraastro.com)

## January Meeting review

**Name an exo-planet** : Thanks to John, who gave us an overview of the name an exo-planet competition and answered queries on rules and conditions of entry. More details on pages 7 to 9.

**Star camp** : Allan spoke about the upcoming star camp at Kilkerran in March. There is an article relating to this in this issue of the newsletter.

Unfortunately, due to unforeseen circumstances, the talk on building a barn door mount was cancelled. We hope all is well with Paul and look forward to the talk at the next meeting.

Big Big thanks to Roger, who stepped up to the plate with a highly interesting talk on beginning astro-photography. I'm thoroughly looking forward to the next talk in the series.

Again, unfortunately due to time constraints Graham had to forego his talk on "Stellarium". Another one to look forward to in the future.

Nick finished off the evening with a brilliant talk and presentation on comet Lovejoy. Some of the photographs were, I hope you agree, "breath taking".

## Loudoun Hall Feedback

Please continue to let us know your thoughts, both positive and negative, on the new venue. Any of the committee members can be approached at the meetings (They don't bite), or just e-mail. [president@ayraastro.com](mailto:president@ayraastro.com).

This month the talk will be, the long awaited, **Making and using a barn door mount.** (Talk about building up tension) and will be presented by our own Paul Cameron

Unfortunately I will be working on Monday night so will miss the meeting. If there are any articles please send them to the usual e-mail : [newsletter@ayraastro.com](mailto:newsletter@ayraastro.com)

Or by snail mail to     George Corner,  
                                  101 Lynn Drive,  
                                  Kilbirnie. KA25 7HL.

## March Skies:

March 5<sup>th</sup> Full Moon, the moon will be directly opposite the Earth from the Sun and will be fully illuminated.

March 6<sup>th</sup> NASA's Dawn spacecraft will enter orbit around Ceres. Images of the dwarf planet have already been sent back to Earth and quality will improve as the craft spirals in toward the dwarf planet.



March 20<sup>th</sup> is a special day . Partial solar eclipse approx. 94% in the morning, There will be an observing session on the Carrick Hills (Above Craig Tarra) on that morning. Set up will take place at 07:30 hr. Several high power solar telescopes will be available for viewing. All welcome. Flyer on page 3 Courtesy of Roger.

## March planetary viewing.

<b>Mars</b>	(Early to mid-evening)
<b>Venus</b>	(Low in South West after sunset)
<b>Jupiter</b>	(Early evening to dawn)
<b>Saturn</b>	(South East pre-dawn)
<b>Mercury</b>	(Pre-dawn South East). If you've never seen Mercury, March is a great opportunity.
<b>Neptune</b>	(Early evening)
<b>Uranus</b>	(Early evening to after midnight).

## Star Clusters



Courtesy of NASA The Pleiades

Star clusters are close associations of thousands of stars or more. They can be open clusters or globular clusters. Star clusters offer spectacular views in a small telescope. One example is the Pleiades in the constellation Taurus (Above). The Pleiades has seven bright stars that can be seen with the naked eye; but when viewed in a small telescope, many thousands jump out at you.

# Eclipse 2015

Friday 20th March



**A partial eclipse of the sun (approx 94% totality) will occur on the morning of Friday 20th March 2015. An observing session is planned on the Carrick Hills above CraigTara that morning.**

**Set-up will take place at 7.30am UTC to enable us to track the Sun. High power solar scopes will be available for viewing.**

**All are welcome!**

**Details from Roger 07880 634775**

## Alex's Space.

Last month I talked about Earth's natural cycles and how Earth re-cycles ALL its waste using ingenious chemical and biological engineering.



I suggested "Is this perfect recycling"?

This suggestion pales into insignificance when one considers that there is a far superior force in operation all around us --- The universe itself --- Let me explain.

### THE STARS AS OUR ANCESTORS

Stars come in different masses depending on how much material was available locally when the star was forming. The more massive stars have greater pressures at their centres due to the weight of the material being attracted by gravity. This means massive stars have to burn their nuclear fuel faster to produce sufficient radiation to retain their structure, but they can run out of hydrogen in only a few million years.

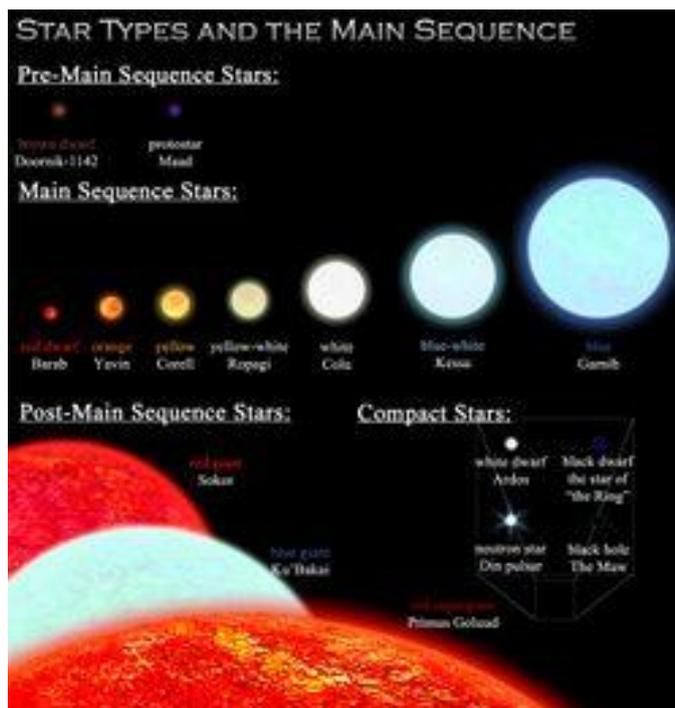


diagram illustrating different star types (Open University, Moons, 2014)

Smaller stars, such as our sun burn their hydrogen relatively slowly and have lifetimes of around 10 to 15 billion years. It is likely that the universe still contains stars that were amongst the first to form after the "Big Bang", however, most of the very first stars would have a very different make up from the stars we see today. Although the stars that are forming now are still made almost entirely of hydrogen and helium, they also include some traces of heavier elements such as carbon, oxygen, and nitrogen which are found in today's giant molecular clouds.

This evidence shows that the first generation of stars must have been the factories of all the heavy elements found around us ---and within us, but like people stars are born, live their lives, grow old, and die. This happens when a star has used up all its hydrogen and helium and so, with no more fuel left to drive the reactions necessary to hold it up against gravity, any star with iron at its core is in big trouble! It will succumb to the inward pull of gravity and the end of the stars life is nigh.

The star implodes so quickly that within seconds it reaches very high density, the core recoils very briefly, which drives shockwaves out through the rest of the star at tremendous velocities and blasts much of the stars heavy elements into the depths of space -----



Picture of the Cats eye nebula (Stock photo)

enter stage left ----- The supernova. The energy released is so great that for a while, the star will shine brighter than a galaxy. These cosmic detonations are events that seeded the universe with the first heavy elements, and it is because of stars and supernovae that we have planets, mountains, trees, ----- and people, all of which are made from material made in stars and supernovae. Other debris left in space combines with the debris of other stars and “assembles” itself into giant molecular clouds ----- and the cycle of star-birth starts all over again. The Cosmos is indeed the ultimate recycling machine.

Back next month,

Alex Baillie.

## Star Camp 2015

(Allan McIntyre)

Starcamp Friday the 20th of March is of course the day of the solar eclipse and like most people interested in astronomy I am looking forward to it. As its something I wanted my son to enjoy as well I will be involved in getting as many of his fellow school friends to safely enjoy the spectacle too from the comfort of their playground. what could be a better end to the week? I will tell you what. Having a star camp to attend on the Friday and Saturday night as well.



Yes star camp 2015 will be held like last year at The Walled Garden campsite at kilkerran near Dailly. The campsite's secluded location close to the edge of the Galloway Forest park and its excellent facilities make it a great place for observing. On the agenda this year will be taking part in timing the moons of Jupiter for the 2015 year of light, some wide field astrophotography (good for beginners, I will be borrowing my wife Christmas present almost as if I had planned it) and of course some general observing. If the weather turns against us the site has a warm room with log burner where we will hold an informal workshop where we can hopefully help anyone who is having problems with their kit, teach a little astrophotography and generally show off our scopes and of course enjoy each other's company. Prices for camping are £5 per night per head although not per pitch. To give an example, suppose you came with let's say a well-appointed caravan for two nights but you were from Yorkshire and thought you might get away with smuggling your wife in for free like last year. Well that wouldn't be allowed as both of you are using the site's facilities even if your good lady isn't interested in astronomy. So instead of £10 for your weekend break it would actually be £20 but still the cheapest weekend away since, well, last year I suppose. If you don't fancy camping in March or can't afford this generous pricing structure then why not just visit for a night observing for just £3 per head. A percentage of charges goes toward future star camps which we would like to improve year on year and perhaps have a guest speaker or an astronomy vendor

attend and maybe a barbeque. No food will be served at this event but we will be able to sort out hot drinks and feel free to bring you quality biscuits but please as I said last year no cakes, we don't like that sort of thing. If you intend to come along for a nights observing then just pay me on arrival but If you are camping could you please bring full payment to Mondays meeting. so if you haven't worked it out yet Graham its £20 if your bringing Irene this year. see you all Monday.

Allan.

## Name an Exoplanet Update

Following our successful registration with the International Astronomical Union – the Only Society in Scotland to be registered so far!! We had the opportunity to select up to twenty star systems containing exoplanets to be put forward for the next stage which is naming the stars and the exoplanets. Due to the very tight deadline in that submission had to be submitted by last Sunday the 15<sup>th</sup> Feb and the fact that selection had to be made using an online process, the Committee undertook the activity on Wednesday the 11<sup>th</sup>. The criteria for selection were:

1. Visible in the Northern Hemisphere from Scotland
2. Visible with naked eye or binoculars
3. Star and planets available for naming

Using the above twenty systems were selected and submitted. Details of the process for the next stage have not yet been published by the IAU but essentially it is likely to involve confirmation of the star systems selected to be named (assumed to be the most popular of all those selected by the various Societies) and then the actual naming process and final public voting procedure. At this stage it appears that each registered society will only be able to submit one name for the star of one system. The exoplanets in that system will then be named "starname" a, b, c etc. It appears that names will be put to Public vote in March although it is understood that the date has been extended. Even so we need to complete our own process as soon as possible. [If you have some names in mind make sure they comply with the naming rules and if possible draft a brief explanation for the choice and hand these in to a committee member or email to \[president@ayraastro\]\(mailto:president@ayraastro\).](#)

A copy of the systems selected by AAS is attached to this newsletter but note that this may not be the final list actually available for naming

# ayraastro

We are asking you to select systems to be taken to the next stage of the naming proces. You can select as many systems as you like but only once on each system

## Your selections

You have 0 selections remaining

Host Star (catalogue)	# Planet (designation)	Planet Mass (Jupiter mass)	Planet Mass (Earth mass)	Orbital Period (day)	Semi Major Axis (au)	Discovery (year)	Constellation (English)	Visibility	V magnitude
epsilon Tauri	epsilon Tauri b	7.6	2415.5	594.9	1.93	2007	the Bull	Visible to the naked eye	3.5
HAT-P-2	HAT-P-2 b	8.74	2777.8	5.63	0.0674	2007	the Hercules	Visible through binocular	8.7
HD 102195	HD 102195 b	0.45	143.0	4.11	0.049	2005	the Maiden	Visible through binocular	8.1
HD 13189	HD 13189 b	14.0	4449.6	471.6	1.85	2005	the Triangle	Visible through binocular	7.6
HD 1237	HD 1237 b	3.37	1071.1	133.71	0.49	2000	the Male Water Snake	Visible through binocular	6.6
HD 177830	HD 177830 b	1.49	473.6	406.6	1.2218	1999	the Lyre	Visible through binocular	7.2
HD 185269	HD 185269 b	0.94	298.8	6.84	0.077	2006	the Swan	Visible through binocular	6.7
HD 23596	HD 23596 b	8.1	2574.4	1565.0	2.88	2002	the Hero	Visible through binocular	7.2
HD 3651	HD 3651 b	0.2	63.6	62.23	0.284	2003	the Fishes	Faint to the naked eye	5.8

HD 46375	HD 46375 b	0.25	79.1	3.02	0.041	2000	the Unicorn	Visible through binocular	7.9
HD 50554	HD 50554 b	5.16	1640.0	1293.0	2.41	2002	the Twins	Visible through binocular	6.9
HD 68988	HD 68988 b	1.9	603.9	6.28	0.071	2001	the Great Bear	Visible through binocular	8.2
HD 81040	HD 81040 b	6.86	2180.3	1001.7	1.94	2005	the Lion	Visible through binocular	7.7
HD 81688	HD 81688 b	2.7	858.1	184.02	0.81	2008	the Great Bear	Visible to the naked eye	5.4
HD 99492	HD 99492 b	0.11	34.6	17.04	0.1232	2004	the Lion	Visible through binocular	7.4
kappa Coronae Borealis	kappa Coronae Borealis b	1.6	508.5	1251.0	2.6	2007	the Northern Crown	Visible to the naked eye	4.8
tau Bootis	tau Bootis b	5.9	1875.2	3.31	0.046	1996	the Herdsman	Visible to the naked eye	4.5
WASP-11-HAT-P-10	WASP-11-HAT-P-10 b	0.46	146.2	3.72	0.0439	2008	the Ram		11.9
HD 108874	HD 108874 b	1.36	432.2	395.4	1.051	2003	the Bernice's Hair	Visible through binocular	8.8
HD 108874	HD 108874 c	1.02	323.6	1605.8	2.68	2005	the Bernice's Hair	Visible through binocular	8.8
HD 73534	HD 73534 b	1.15	365.5	1800.0	3.15	2008	the Crab	Visible through binocular	8.2