

# Stargazey Pie!

*A slice of Highlands astronomical life!*

Tues 2<sup>nd</sup> Nov 2010

## Introduction

The Highlands Astronomical Society's November meeting had a large turnout, due no doubt to the promise of a talk about galaxies by presentation stalwart Pauline, a breakout all about expensive (and not so expensive) eyepieces, and the chance to meet and discuss recent astronomical happenings over a cup of tea and biscuit. Some new faces were seen in the audience, and promises of return visits made.

- **HAS Monthly Meeting Venue** – Smithton Primary School for the foreseeable future. The Society has no resident Chiropractor, so please bring your own cushion if the seating is a problem.
- **HAS Secretary Roles (Membership Secretary and Organising Secretary)**
  - The HAS Secretary role is being divided into two manageable parts:
    - **Membership Secretary:** act as Charity Officer, record and monitor committee meetings and membership of the Society
    - **Organising Secretary:** compile and manage the programme of meetings, organise social events, outings, etc.

**The Committee are making a passionate plea to the membership for volunteers to recruit to these posts.** We are a large Society and, for too long, the running of it has been supported by too small a team of enthusiastic individuals. The Society desperately needs its membership to rise to the challenge and play an active part to ensure its survival and development.

- **HAS Discussion Forum (Messageboard)** – this facility is now operational for all members to take part. Put <http://spacegazer.freebb3.com/> into your web browser and follow the easy instructions to register. We look forward to many interesting discussions, debates, observing opportunities, buying and selling and anything else which stimulates **our** members to regularly use this online resource.
- **Nighttime Observing Sessions:** JSL Observatory – sessions open at 8.00pm with last admission at 10.00pm. Finish time is around 11.00pm. Please check the website for the most up to date information.

Fri 5 <sup>th</sup> Nov	-	public & members	supervisor:	Pauline
Sat 6 <sup>th</sup> Nov	-	members & guests only	supervisor:	Rhona
Fri 12 <sup>th</sup> Nov	-	public & members	supervisor:	Rhona
Sat 13 <sup>th</sup> Nov	-	members & guests only	supervisor:	Rhona

- **HAS Seeing Stars article** will be published in this Friday's Inverness Courier and will shortly find its way onto our website. The article is tentatively entitled "Capricorn" and was written by Pat Williams.
- **HAS Communications with Members** – there has been considerable discussion at Committee meetings as how best to routinely keep members up-to-date with current and forthcoming events. Various options are the website, group texting (SMS), emailing, MFR, Inverness Courier, Society

mobile 'phone, carrier pigeon, smoke signals, astral projection, etc. Suggestions from the membership are welcome for consideration.

- **HAS Christmas Dinner** – Our Christmas Dinner, for members and partners, will be held this year at 'the Dairy', Daviot on Saturday 4<sup>th</sup> December, 7.00pm for 7.15pm. £21.00 per head (£10 deposits – non-returnable – due now to Paul Jenkins). Menu and details have already been e-mailed to members.
- **Astronomical Events & Highlights** – an easy to read and use guide is provided by Manchester University and can be found at [www.jodrellbank.manchester.ac.uk/astronomy/nightsky/](http://www.jodrellbank.manchester.ac.uk/astronomy/nightsky/).

## **Contact List**

Pat Williams had something to say about the Society contact list. We use a kind of "waterfall message" system to alert members to the likes of aurorae, unusual sightings, supernova, incoming asteroids, incoming invasion fleets etc, so that they can leap outside post-haste to see for themselves. If a member should see something on the list above, it should first of all be reported to Eric Walker. Assuming Eric can be contacted, that gets the ball rolling and then the other contacts at the top of the various section lists will be contacted and the message can be passed on. If you receive a phone call, the only thing you have to do is to contact the next person on the list, or if they are not available, the next one down, etc, until you actually make contact with someone and pass it on.

Think Chinese Whispers but on a grander scale.

The system was given a good test run in October when an aurora was sighted and the chain implemented. The system worked well until Paul Jenkins got involved and "terminally screwed it up" (by his own admission). Of all the people contacted though, a grand total of none of them actually saw the aurora, due to cloud cover over the entire area, although Pauline did say she saw a green glow through the cloud (imagination is a wonderful thing, especially when mixed with powerful sedatives).

Pat's earnest entreaty to all the members on the list is "Don't break the chain"! This is obviously important when considering reporting invasion fleets and incoming asteroids, but it would be great (and keep Pat happy) if the same level of import was applied to even such minor attractions as coronal mass ejection related auroral displays and unexpected meteor storms.

For a copy of the list, please contact Pat Williams or Paul Jenkins.

Pat also requests that all members attending the Christmas dinner pay the balance of their fees to Paul as soon as possible, and would like to remind the membership that the position of Secretary is still vacant. See above notice for details of the posts that need to be filled.

## **The Main Event**

### ***'Galaxies' by Pauline Macrae***

The main talk was "Galaxies", by Pauline Macrae. Pauline was chairwoman of our club for seven very productive years, and one of the courses during her degree from the Open University was on astronomy. She works as an Orthoptist in Raigmore hospital and enjoys trying to make her GoTo telescopes work properly.

Pauline's PowerPoint presentation introduced us to the different types of galaxies that exist, or at least most of the different types, otherwise it would have taken longer than the allotted time to go through them all. Elliptical galaxies, spiral galaxies, lenticular galaxies, irregular galaxies, dwarf galaxies, and tastiest of the lot: green pea galaxies, were all introduced to us and their differing characteristics

explained. Within each category, there are many variations. For example, Elliptical galaxies go from E0 (most spherical) to E7 (most elongated). The other galaxy types have similar classifications.

Much progress has been made in the study and understanding of galaxies, and even the discovery of new ones like the Green Pea Galaxies, which are only a tenth of the size of our Milky Way and yet are undergoing some of the highest rates of star formation ever seen.

The different types of galaxies are all made up of generally the same stuff though: stars, stellar remnants, gas and dust all held together in a vast conglomeration orbiting a common centre of mass (usually a black hole at the galaxy's centre).

Many of the galaxies talked about were illustrated in Pauline's excellent selection of images drawn from the Hubble catalogue. Examples were shown of the different types and different classifications within each type. What got me though was the fact that very often there would be other smaller, far more distant galaxies floating around in the background! I mean, just how many of these things are there? The Hubble Deep Field image is a prime example of this and shows that space, vast though it is, is populated in every direction by these cosmic metropolises, and yet there are still vast distances between them!

Anyway, back onto the subject, and speaking of the vast number of galaxies out there, it is perhaps inevitable that collisions between galaxies occur all the time. Pauline showed us a fascinating Youtube video that shows how a simulation of galaxies colliding and merging ties in very nicely with images obtained by Hubble. You can see it for yourself here: <http://www.youtube.com/watch?v=IXy3B2K47Qg> and in fact there are many other examples on Youtube to view. A prime example of galaxies colliding, merging or interacting, is visible every clear winter night in your telescope: M51 (the Whirlpool galaxy) and its 'companion', NGC 5195.

Spiral galaxies were dealt with in some detail, since our own galaxy is one, and particularly the processes involved in creating and maintaining their spiral arms. The proposed solution to the problem of their existence is that they are regions of increased density that rotate more slowly than the areas of gas and dust near the centre of the galaxy. As gas enters these areas of increased density, it is compressed, forming areas of star formation. These areas light up the arms in spiral galaxies, and in our case, one of the stars in the Orion spiral arm – the Sun – has a family of planets as well: the Solar System. We are in a nice neighbourhood with enticing scenery!

Current thinking suggests galaxies have formed through the merger of dwarf galaxies. Looking far out into the universe allows us to look back in time and it can be seen that over six billion years ago there were more galaxies colliding and merging than there were spiral galaxies. This leads astronomers to the astonishing conclusion that galaxy interaction has produced the many spiral galaxies we see today. It had always been assumed that collisions produced ellipticals but since the number of these galaxies has remained almost the same from six billion years ago to the present this cannot be the case.

Pauline covered many other aspects of galaxy formation, structure and composition, and continued to show us some very memorable images throughout her presentation. There was too much detail to include here, so if you get a chance to hear Pauline give this talk again, be sure to book a seat and turn up early!

## **Highland Skies – November 2010**

Good to be back in winter isn't it? Now that the clocks have gone back, the early fall of darkness makes it much more inviting to go out and observe after work/dinner/getting up.

November has lots of treats in store for us, not least of which is Jupiter. Do I go on about the planets too much these days? I wonder why that is. It could be because recent planetary visitations have been particularly conducive to good observation. When Mars was at opposition it was favourably high in the sky, and now Jupiter is at a very observable 28 degrees elevation at its highest. I have been somewhat startled at the amount of detail that can be observed in even small aperture telescopes with simple eyepieces.

The Great Red Spot, though not really 'red' at the moment, is easily seen in an 80mm refractor, along with the bold northern equatorial belt and several other fainter belts on nights of good seeing. Shadow transits (where a Galilean moon passing in front of the planet casts its shadow on the disc) are fascinating to watch, and it is easy to track the shadow's progress across the disc over a short period of time. Larger apertures open up even more detail, with more colour within the belts and zones, and the possibility of seeing festoons and smaller storms in the broiling cloud systems of the Jovian atmosphere.

This brings to mind an interesting (to me) point: the number of telescopes to own. I've just mentioned using a small telescope AND a large telescope to observe Jupiter, and have enjoyed both recently. Is there a need for both types to be owned by one observer? Personally, I think there is a lot to be said for owning more than one 'scope. A small 'scope (80mm – 90mm refractor, 114mm reflector or similar) is usually easy to set up and will cool down to ambient temperature quickly – an important issue for planetary observing. A larger 'scope (8" or more) may take quite a bit more setting up and cool down more slowly, but the difference in the level of detail resolved should make it worth the effort – if the 'seeing' allows. Quite often a smaller 'scope will give a better view on nights of poorer seeing as it will be able to look 'through' pockets of turbulent air more easily than a larger 'scope, which is more likely to see the entire pocket and thus have a distorted image.

Side by side on a night of good seeing, the difference between a small and large telescope should be very obvious. The downsides of larger telescopes are more bulk and weight, so the desire to actually set them up can wane after a while. Smaller 'scopes, though easy to carry and erect, do show less detail, so again, the drive to use them can decrease.

Which brings me to a second point: how to keep your observing fresh. It is surprisingly easy to fall into a habit of looking for/at the same old suspects every time you go out. M-this, M-that, NGC-umpteensixty-one, and a planet. Job done, put the kettle on. This tends to reduce the zeal to actually go out and observe. If you find yourself falling into an observing rut, try taking some time to actually look for completely new objects. Suggestions can be found in our monthly Seeing Stars articles through the winter (see Pat Williams' exploration of Capricorn this month), in the monthly astronomical press, on online astronomy forums, or in books such as "Celestial Sampler" by Sue French. There are almost limitless numbers of observational guides out there to peruse and pick your targets from, and they are not hard to find. They can really transform the observational part of our hobby. My personal favourite is "Celestial Sampler", as although aimed at smaller telescopes, many of the objects really open up when studied with more aperture.

The ultimate combination of small and large telescope ownership of course comes pre-built into your Society membership. Many of you will have one or more smaller telescopes at home, some may not, but you ALL have access to our 14-inch LX200R Schmidt Cassegrain at the JSL observatory. Even in my book, this counts as 'large'!

### **Next Time**

The next meeting will take place on Tuesday 7<sup>th</sup> December at Smithton Primary School (bring your own cushion), 19:30. The main presentation will be by Paul Jenkins: a talk entitled "Beyond Infinity". I might wear my Buzz Lightyear tie especially for the occasion. The Youngstars session will start at 19:00 as usual.

In the meantime, get your 'scopes out and get soaking up those photons every clear night we can!

See you in December,

**Antony**

