Stargazey Pie!

A slice of Highlands astronomical life!

Tues 3rd May 2011

INTRODUCTION

Well, the shenanigans of the AGM meeting are behind us now, and somehow the Society has survived! Better than that, we have a great programme of events ahead of us this year. This meeting's talk by Ken MacTaggart on the Moon Landing Hoax was the start of the post-2011 AGM era, and what a start it was! Before you get to that, though, have a look at this month's notices:

- **2011-12 Programme.** Please let Pat Williams know if you have not received a 2011-12 Programme. These were sent to all 2010-11 members on e-mail on 2nd May. Those members not on e-mail should pick up a named envelope at the registration desk at the May Meeting. Those not collected will be posted out this week.

- **Observing: JSL Solar Saturdays.** Solar Saturdays are back: observing in the warm with toes frost-free. The Observatory will be open, weather permitting, on Saturdays 14:00 – 16:00 when a supervisor is available. Please check the website for the most up to date information. If you are interested in training as a solar supervisor please contact Gerry or Rhona.

- **Take a bite.** The *Stargazey Pie* was sent in April to all members who were unable to attend the monthly meeting. If you did not receive your copy by e-mail or by post please inform Pat Williams.

- **Have a SOAKE this summer.** SIGMA has kindly invited us to their **S**olar **O**utdoor **A**stronomical **K**itchen **E**vent (**SOAKE –** Stan Barber has an aversion to the B.. word) on Fri. 1st July at 19:00. Look at the Sun and eat burgers and hot dogs (well away from the equipment I hope – Ant) prepared in the kitchen. This takes place at the Lhanbryde Community Centre, Robertson Road, Moray IV30 8QQ. If you are planning on attending please let Pat Escott, HAS Events Secretary, know.

- **Apollo 15 Astronaut.** Al Worden, of the Apollo 15 mission, is giving a public lecture at Glasgow Caledonian University on 20th May 2011. For further information go to www.walkwithdestiny.com

- **HAS Subscriptions.** Thank you to all who have paid their membership fees. You will receive a receipt from Paul, a letter from the Chairman, a copy of the amended constitution and will retain your voting rights (First past the post, naturally!)

- **HAS Exhibition.** The Scottish Archive Centre at the Bught has invited HAS to stage an exhibition there. More details will be available soon. If this is of interest to you, Pat Escott would be delighted to make use of your talents. Please contact her if you're interested in making an exhibition of yourself.

- **Breakout!** Help is requested to organise these. Gordon McKenna will take on this role, but as he is away on business some of the time he is asking for a member to assist him! Any volunteers contact Gordon or Pat Williams.

Shooting Stars: Other Important Club News!

Paul Jenkins' observatory report this month had some interesting points. First off, the Solar Saturdays are going well and are making it possible to enjoy fantastic views of a very active Sun on Saturday afternoons when the Sun is shining. Hydrogen alpha views are yielded by the Society's Lunt LS60Tha scope (which was in operation outside the meeting prior to its start) and filtered white light views are offered through some of the Solar Squaddies' own telescopes.

As mentioned below in Highland Skies, May is a good month for galaxy spotting, though it takes place late at night. One "ad-hoc" session has already taken place at the observatory, and others may follow. Paul promised that the members would be made aware of them if they took place, though no mention was made of exactly how that would happen. I suggest you keep referring to the website in the meantime as updates usually go to the Observatory box on the right hand side of the front page.

Finally, owners of green laser pointers are asked if they could report to the session host when they first arrive at the observatory and let them know if they would like to use their pointers. The hosts can then advise the individuals about the preferred way of using them, when it's safe, when it's not, etc.

More news from the JSL Observatory next month!

Highland Skies – April 2011

You might be forgiven for thinking that there's nothing to look at in May's skies, seeing as it doesn't get dark until well after 10pm now. However, I personally wouldn't forgive you, because you would be wrong.

Leo is very high now in the south-west when it gets dark, meaning that all those lovely galaxies are nice and high too, waiting for you to hunt them down with your great big 12" Dobsonians and 14" Schmidt-Cassegrains and… yes, even 90mm refractors! And trailing Leo come the galaxy fields of Virgo as well. There are far too many "island universes" visible to list here but if you take a reasonable guide, like the ones published in Astronomy Now or Sky and Telescope magazines, and a good well-aligned finderscope on your telescope, to a dark sky site you will likely bag quite a few in a couple of hours observing time, although it will have to be a late-nighter.

Add Saturn to the mix and you've got the best of both worlds – galaxy fields and a beautiful ringed planet with plenty of observable features. Can you make out the Cassini division yet? How about the Encke Division? The Crepe Ring? The shadow of the rings on the planet's disc? How many moons can you resolve? Any storms on the disc? Subtle coloured bands? And the best thing is it doesn't have to be completely dark to observe Saturn in detail, so you can spend an hour hunting down those features before you even start on Leo and Virgo's galaxies!

During the day, of course, the Sun will be out every moment of free time that you have, calling out to you to slip your solar filter/Herschel wedge/solar projection screen into place on your telescope and go take a look at it. There are Sunspots galore at the moment as Sol is nearing the maximum of its 11-year cycle, and it's predicted to be a big one! Sunspots are photosphere features easily seen through a safely filtered telescope and on days when the seeing is good and the sky clear you can resolve considerable detail in and around them. The umbra, penumbra and faculae are all features of Sunspots and can be seen through a relatively small 80mm refractor. Granulation can also be seen if the conditions are favourable and if you're really lucky, maybe you can see a lightbridge structure within the spot. The best thing about observing the Sun, though, is that the view changes every single day.

Lucky owners of Hydrogen-alpha telescopes can see dynamic features in the Sun's chromosphere – prominences and filaments are outpourings of solar material along magnetic field lines. Active regions are brighter areas, appearing as spirals and convoluted "knots" in the bubbling h-alpha layer. Prominences and flares can be seen jetting off into space, away from the Sun's limb, often for hundreds of thousands of miles. The smallest that we can see easily dwarf the Earth.

Perhaps you have already seen some of these features through the Society's own Lunt H-alpha telescope? If not, why not? Our Solar Saturdays have been a major success since they were started last year, and they are now back on track again for 2011. If it's a sunny Saturday, check the Society website (www.spacegazer.com) for a status update, and if there's one of the Solar Squad members on duty you could come along to the observatory between 14:00 and 16:00 to see the dynamic Sun in action. As likely as not there'll be one of the members' white-light filtered telescopes there too, so you can compare the views of photosphere and chromosphere and see how the features relate to each other.

So next time you hear "Nothing to see here," remember they're not talking about the sky this month!

The Main Event:
'The Moon Landing Hoax?' by Ken MacTaggart

This month's guest speaker, Ken MacTaggart, is editor of NASA's Apollo 11 Flight Journal and a contributor to the Apollo Lunar Surface Journal, which are a record of the moon landings and the science they undertook. He has had a lifelong interest in astronomy and in particular the moon and the planets, and also the new sciences of planetary cartography and geology

Ken started off by pointing out the question mark in the title of his presentation and by making his position clear, that he is not on the side of the conspiracy theorists, but rather uses historical and practical evidence to dispute their claims. In the United States, 15% of the population do not believe the Moon landings took place, and there is a much higher level of doubt in other countries.

One of the biggest questions that is regularly asked about the landings, is why have they not been repeated? It's many decades since the last landing took place, and usually when a scientific or explorative endeavour is completed it continues to be repeated indefinitely. For example, Columbus's "discovery" of America, followed by many other trips and colonisation, etc.

The popular fictional film "Capricorn One" with its star-studded cast served in some way to fuel the "hoaxists" point of view, as the story was that of a fake Mars landing, staged in film studios, and was linked to the already present theory that the Moon landings were faked. A Fox Television documentary in 2001, entitled "Conspiracy Theory: Did We Really Land On The Moon?" further fuelled the debate, though the producers of the documentary were keen to point out that the opinions aired in the programme were not necessarily those of the film-makers.

Ken then started to go through some of the issues and apply practical logic to them to explain how the "hoaxists" arguments were wrong.

The first picture shown was of the view out of the lander window. No stars are seen in the sky – a point that the naysayers use in their arguments for a black cloth backdrop or similar in staged photograph sessions. Interviews with the astronauts who landed on the Moon show that none of them ever recall seeing any stars in the lunar sky. This might have been to do with the brightness of the lunar surface compared with the darkness of the sky. With no atmosphere to blur the edges, the contrast between bright surface and ultra-dark sky might have "blinded" the astronauts' eyes to the stars that were there. Photographically the same argument could be used: that the exposures simply were not adequate to show

the stars in the sky without overexposing the surface and vehicular details, which is what the subject of the photographs were, after all.

Other criticisms of photographs cite the illumination of objects that should be in shadow. This is easily explained due to the Moon's high Albedo or reflectivity. At 12% it is quite highly reflective, so that ambient light could easily be reflecting back onto objects in shadow and illuminating them enough to show up in photographs.

Why is the American flag seen to flutter? Well, in comparing two photographs taken several seconds apart, Ken showed that the position of the flag's material hasn't actually moved. In fact, it is not "seen to flutter", even in video. Certainly there are ripples in the surface of the flag, perhaps because of the vibration induced through the flagpoles when erecting it, and sometimes the extender bar across the top of the flag was not fully extended, meaning that the flag would not be uniformly stretched taut. The lack of atmosphere on the Lunar surface would also mean that any motion induced by movement of the flagpole would not die down so quickly, as there would be no air resistance to dampen the motion.

My favourite argument of Ken's, among the many that he presented, has to be the case for non-parallel shadows. In one photograph, an astronaut's shadow and that of a tool or camera spike stuck into the lunar soil, are seen to be not parallel to each other. Funnily enough, the same thing happens on Earth, as was proven by Ken's own experiments with photographing shadows at Walker Park in Inverness. Shadows follow lines of perspective. If a distance of even a few yards separates two objects that cast shadows, their shadows will not be parallel – it's that straightforward! When you then incorporate rises or depressions in the terrain into the equation, they change in even more subtle ways, again, all of which can be replicated in our everyday surroundings.

More arguments were proposed and then countered by Ken, magnificently so. We were interrupted by a fire alarm which meant we had to evacuate to the car park for a minute or so, but it wasn't long enough for the "hoaxists" to infiltrate the church hall and destroy or discredit Ken's excellent evidence and counter-arguments.

One final argument is this. If the first Moon landing was faked, that would involve thousands of individuals and mean depending completely on their discretion to keep the secret. If that was so, then why take the risk, thus compounding it, a further five times? What then are the odds of the secret being spilled to the world at large? Why take the risk? If it were faked the logical thing to do would be to stop after the first 'landing' and let it be.

Ken's talk always stayed in the realm of logic, detection and the interpretation of solid reliable evidence. I can only say how much I enjoyed his talk and the precise way in which he debunked the conspiracy theorists. As a discussion of the truth of the Moon landings, this presentation will not be eclipsed for a long time!

Next Time

The next meeting takes place on Tuesday 7th June at 19:30. We are fortunate in having Ken Kennedy, the newly appointed Aurora Section Director of the British Astronomical Association to speak to us about *The Aurora Borealis.* This should be electrifying, or at the very least, ionising. Having heard him before, I know he has a "flare" for this type of thing. Groan… He is also Section Director for Noctilucent Clouds. The Youngstars session for children (8-14 years old) is held before every main meeting, running from 19:00 until 19:30 led by Pauline and Triona.

Look forward to seeing you there, and there's always the cuppa and biscuit at teatime as well as the chance to catch up with all the latest astronomical news.

Clear skies (and a lack of midgies),

Antony McEwan