



**Southampton
Astronomical
Society**

Founded 1924

Newsletter

February 2005

**Next Meeting February 10th - Christian Kaiser - "The Search For
Extra-solar planets"**

Programme of Events

All meetings commence at 7-30 pm . Please note we're now attempting to start promptly!

Club Evenings and Observing Meets:- Maps to venues are available at meetings or from the Secretary.

First Thursday Observing Evening, Out of Town Centre in Beaulieu

These meetings are no longer being held as Society events - members are still welcome to attend though

Third Thursday Observing Evening, Lilian Hobbs'

Depends on availability - please contact Lilian

Programme

Thurs 10th Feb	Christian Kaiser - "The Search For Extra-solar planets"
Thurs 24th Feb	Club Evening with Steven Cole
Thurs 10th Mar	Bob Mizon - "Astronomy and the Ancients"
Thurs 24th Mar	Club Evening with Jeff and Nancy Higgins
Thurs 14th Apr	James Fradgley "Life in the Universe"
Thurs 28th Apr	Club Evening with Fay & Simon Capstick
Thurs 12th May	Another of Michael Hobbs' famous quizzes!
Thurs 26th May	Club Evening with John Eckstein

Venue for Monthly Meetings

Meetings on the 2nd Thurs of each month are held in:-

Seminar Room, Physics and Astronomy Building 46, Floor 5 University of Southampton unless stated otherwise.

Directions:-

From Burgess Road (A35) traffic lights, enter University Road

Take first right into Salisbury Road. At end of Salisbury Road turn left into access road

At end of this road Physics and Astronomy Building 46 is on your left with large car park

OR

From The Avenue, turn into Highfield Av, then take 2nd left into Hawthorn Road.

At end of Hawthorn Road turn left into Chamberlain Road, then right into University car park beside Physics and Astronomy Building 46

Addresses

Society Web Page:- <http://www.southampton-astronomical-society.org.uk>

President:
Lilian Hobbs

Secretary:
Ian Gore

Treasurer / Membership Sec:
Michael Hobbs
e:- Hollies@tcp.co.uk

VERY IMPORTANT!!

Access at the University

As many of you are aware, gaining access to the University has been difficult with the introduction of their new security system. We have found a solution to the problem during term time. There will be a student on the door from 7pm-8pm who will let you into the building. However you must show your SAS Badge to gain entry.

This process will be in effect from the February meeting and we will have someone down on the door who knows everyone so you can get in. Please contact Lilian if you have paid your subscription and lost your badge.

AGM September 2004

The meeting was chaired by Lilian Hobbs.

The minutes of the previous AGM were unanimously accepted - proposed by Ian Gore, seconded by Neil Gwilym Michael Hobbs presented the Honorary Treasurer's report, which was unanimously accepted - proposed by Neil Gwilym, seconded by Les Olding.

The committee then stepped down and the election of the new committee was chaired by Paul Mark. As in previous years, the committee was proposed and accepted unanimously en-bloc. Proposed by John Eckstein, seconded by Les Olding.

Ron and Dorothy Dean were kind enough to accept the post of Honorary Auditors.

Michael Hobbs proposed that the Society subscriptions should remain the same. Neil Gwilym seconded the proposal and it was carried unanimously.

John Thompson was fondly remembered by winning the Saturn Award.

The meeting closed at 19:55

The John Thompson Memorial Lecture

September 2004

The inaugural John Thompson Memorial Lecture was given by Lilian Hobbs, who spoke on "The Evolution Of Astronomical Imaging"

This was Lilian's personal evolution, but she began by talking about the origins of photography itself, before its first use as a scientific tool when the 1858 solar eclipse was photographed from Paris. This was closely followed by Jules Janssen taking "moving pictures" of the 1874 transit of Venus.

Lilian had attempted to use 35mm camera equipment to photograph Halley's comet, and had achieved a 1:72 success ratio. Things could only get better, and in 1987 she had started using CCD equipment, which had improved things enormously! She spoke about the practicality of CCD work and in particular the use of cheap webcams, and demonstrated

some of the image processing software available to amateurs.

As to the future, Lilian predicted that equipment will get cheaper, but technically better with bigger and more sensitive chips.

Our First CCD Image of the Trapezium

Fay Capstick

This is our first image taken with the new Meade DSI (Deep Sky Imager). It is a close-in look at the Trapezium (the four bright stars in the middle of the image) in M42, the Orion Nebula. We pre-ordered ours from Telescope House a few months ago, and it arrived just in time for Christmas. Amazingly enough, we even got a perfectly clear night a couple of days later to try it out. The current price at Telescope House is £269.00. We have found the product, which comes complete with the Meade Auto Star Suite of software, to be extremely easy to use and set up.



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Our first picture was taken during a full moon, so we are hoping for better images in the future. We also used some badly chosen software settings (we saved the image as a compressed 14KB jpg rather than in FITS format), but again we are still learning, so hope to improve. Unfortunately, we

have forgotten the exposure times, so the one below is a guess. The blocking effect is the result of the jpeg compression.

Image Specifications:

- * CCD Imager: Meade DSI
- * Telescope: Meade 12" LX200 Classic
- * Focal Length: 3000mm
- * Mount: Tripod and Alt-Az mounted.
- * Exposure: about 17 x 8 second exposure, no dark frames used.
- * Ambient temperature: -1 degrees celsius
- * Field of View: 5.6 arcminutes x 4.2 arcminutes

How Deep Is Your Sky?

Lawrence Harris

I took my first astronomical image back in 1961. I had a box brownie camera and wasted several pictures photographing the moon. When they were processed at the chemist (remember those days?) I was not charged for printing because they felt that the pictures were "no good". In a sense they were correct, but the negatives showed me that the moon was over-exposed and the

image scale was far too small. Next time I tried photography, I fixed the camera on a tripod (literally a chemistry tripod!) and held the shutter open for a minute or two – pointing at the stars. This time I was very pleased with the results: they showed many stars. By comparing the results with my copy of Norton's star atlas, I was one very excited 16 year-old! I could identify constellations, and also realise that I had recorded stars not shown on the Atlas.

I still have that original copy of Norton's, dated 1961, and it shows a selection of stars as faint as magnitude 8. It does not show *all* stars down to that magnitude – as I discovered when I thought that I had found a nova or two or three in my first attempts at astro-photography! This was real astronomy, and I realised at that point that chemistry, which until then had been my hobby, was relegated to an interest, and astronomy took over. Later that year Yuri Gagarin clinched the deal and space had to be my career (well at least the first part of it!).

Those first pictures of the sky were taken in Plymouth, and showed that an exposure using an unguided camera loaded with ASA200 to 400, could reach at least mag 8. I don't recall any real concern about artificial light pollution, although I do remember that one still had to avoid 'imaging' near street lights.

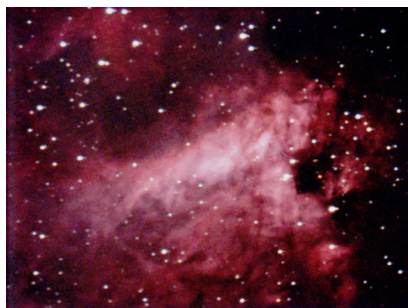
Find a suitable place to look at the night sky, and check the faintest star that can be seen. In bad areas this may be limited to mag 3 or worse. Mist or other unseen meteorological features can dramatically affect this magnitude.

During the following years, my imaging sessions ceased, not returning until about 1986 when I had the use of a small telescope in Plymouth and occasionally took some general pictures with it. Around 1991 I bought an early LX200 (computer driven) telescope and one of the early SBIG CCD cameras, and resumed imaging. Pictures taken with this set-up recorded stars and asteroids down to magnitude 16 or so – a huge leap from those early pictures! My home in Plymouth was well within the city boundary, and light pollution was really quite bad. Despite this, it was clear to me that if I improved the tracking (no guiding, just computer drive accuracy) I should be able to reach 'deeper'. A friend suggested that I use a light pollution filter, but the loss of sensitivity could not be compensated for by lengthening the exposure, so I did not venture along that route.



The move to Southampton and the setting up of my observatory put me in a new ball park. After improving the drive accuracy (using a process called Periodic Error Correction) I was able to take unguided images of varying lengths – depending on which part of the drive's worm I might be on – between 1 and 6 minutes. It became possible to 'track and stack', where several short exposure images are taken and added together to see 'deep'. Even without adding images, some of my 2 minutes and more images were fine and showed stars or asteroids down to mag 17, sometimes beyond.

Finally, the addition of a guide-scope and (more recently) working software took me to a new level. Some recent tests using my one-shot colour camera (that loses sensitivity for the sake of getting colour in one shot) using my standard 10 minute exposures recorded a few stars reaching magnitude 19. To get this deep you really have to have clear skies and good hardware. I suspect that I can go slightly deeper but it becomes significantly harder, requiring much longer exposures. A couple of nights ago I took my first guided MX916 shot – a normal CCD camera of good sensitivity. These were test exposures under a bright moon, used to check guiding only. The results were excellent so I am hoping this combination will get me really deep. My aim now is to resume astrometry (measuring asteroids) and nova hunting. Both are long-term aims that may never pay off with a discovery – but going deep into space is fascinating; at any time, you are possibly the only person looking at that location



Photograph Details

M27 and M17: these were taken with the 12" LX200 at f6.3. They are 10-minute exposures using the SXV-H9C one-shot colour camera.

Buying & Selling Used Astronomy Equipment

Lilian Hobbs

Do you have astronomy equipment that you are no longer using, or looking for some equipment but don't want to pay full price? There is quite a thriving market for used astronomy equipment in the UK, and the good news is that all you need is a computer. There are now 2 sites that you can use and both are free! You do have to register and unfortunately there are people out there

scanning sites looking for addresses to add to spam lists - a tip to avoid spam email is to encode your email address. So, if your email is fred@provider.com, specify your email as fred at provider dot com. It's not fool proof, but it helps.

That said, you still have to be careful as the spammers are still at work and will try to buy your goods. However, you can usually pick out their emails due to poor spelling and the way they ask for best price. I have used the sites and met some really interesting people. It's through these sites that I now own a 7" TMB and I sold my 14" there. You can find the sites at

<http://www.astrobuysell.com/uk/index.php> this one allows photos

<http://www.astronomy-uk.co.uk/> this is run by members of Norwich Astronomical Society

Members' Feedback

Fay Capstick

For those of you who don't know, I have been appointed Members' Liaison officer for the Society. I would be interested in any feedback that members have to give. Obviously, we would like to know where we are getting it right, but we would also like to know where we have room for improvement. We would also welcome any suggestions that you may have regarding any aspect of the Society. You can remain anonymous if you wish, and all feedback will be given proper consideration.

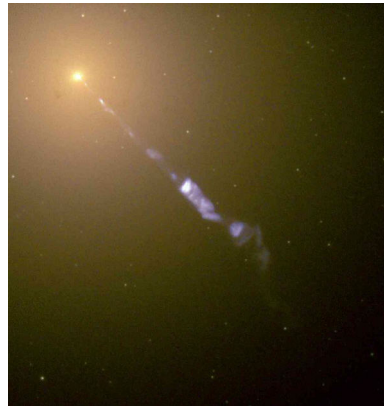
Some ideas to get you started thinking: What do you like best about the Society? Which speakers have really captured your imagination? Do you enjoy the Observing Evenings and the Club Evenings? How about the Barbecues and Skittles Evenings? If you don't currently attend the Observing Evenings and social events, why not? Have any speakers been of no interest to you, if so what would you be interested in having lectures on? Should we have events for newcomers to astronomy as a hobby, if so what type? Do you find the society library to be a useful resource? What do we do best as a Society?

Please feel free to come any talk to me at any time with your feedback and suggestions. You are also welcome to email me at: fay@snookums.co.uk .

Society Meeting

October 2004

This month's guest speaker was Professor Ian McHardy from Southampton University, talking about black holes. By definition it's impossible to know what's happening inside a black hole, but there's a lot of interesting things going on outside! It now seems that most galaxies have giant black holes at their centres, with tens or hundreds of millions or even billions of solar masses. These black holes are thought to be "fossil quasars", left over from a time when the galaxies were younger and more active. Things are still happening now,



though, as can be seen from the jets, light years long, appearing at the poles of the black holes. These jets are thought to be linked to accretion disks surrounding the black holes and indicating that they're still "feeding". The exact mechanism by which they're produced isn't known, but there are some intriguing clues in the structure.

Skittles Evening 31st March

Ian Gore

The society's honour is at stake! The last time we played Andover AS at skittles, they had the audacity to beat us! This clearly cannot be allowed to continue, so please start oiling your skittling arms and make a date in your diary to come and help avenge us.

We'll be playing at the Star Inn at Tytherley on 31st March - please let me know if you'd like to play.

Society Meeting

November 2004

Unusually for an astronomy society, November's talk wasn't about astronomy! Instead, our guest speaker, Gerald Ponting gave us a talk entitled "Going Round in Circles". This was a virtual tour of some of the prehistoric stone circles of Britain. Armed with two slide projectors and some music, Gerald started at the most famous circle of all - Stonehenge. Surprisingly (to me at least!) the astronomical connection isn't proven. More surprising was learning that Stonehenge was still being worked on in 1500AD! In keeping with the title of the talk, Gerald took a circular route round Britain to tell us about several more circles including the 'Nine Stones', 'Merry Maidens' and 'Long Meg and her Daughters' before returning to Stonehenge. A fascinating and unusual evening!