



Issue: 2

Sirius Issues

Winter 2003

MERRY CHRISTMAS...

Welcome to the Winter 2003 Astrosoc newsletter. In the past term we have elected a new committee, seen Matrix Reloaded, had a talk by Dr Somak Raychaudhury, and had a cocktail named in our honour by Katherine – the Astroshock: one shot each of Red and Blue Aftershock. It smells revolting but is highly alcoholic. Disclaimer: Astrosoc accepts no responsibility for any drunken recklessness, alcohol poisoning, loss of braincells, or involuntary pulling of “eww” faces brought about as a result of drinking this vile concoction.

...AND A HAPPY NEW YEAR!

Events in the coming two terms will include some kind of Easter entertainment, the annual dinner, numerous trips to the pub, and of course observing. There will be another newsletter at Easter.

FORUM

Astrosoc now has an internet forum at www.krioma.net/cgi-bin/cutecast/cutecast.pl hosted on Chairman Sam's website, where members can chatter about space, astronomy, the song “Can You Feel It?” and whatever else their little hearts desire.

Alexandra Yannacopoulou, communications officer.

SWEEPING CHANGES

This year's AGM saw a myriad of changes to the constitution, including the moving of the AGM itself to a later date and new equipment usage rules. From next year the AGM is to be in January, to become more in line with other Guild societies and so that the freshers have more of a chance to find out what Astrosoc does. As far as equipment goes the new rules will require that any member who wants to use the equipment must fill in a form and get it signed by a committee member before they can access the equipment. These are just a few of the changes that were passed, see the AGM minutes for more information.

As for the best part of any AGM, the voting, there was some juicy competition for positions – including a dogged scrap for the position of Chair. All the positions were taken up, some by old familiar faces and others by some not so familiar first years – which is great. Three of the previous committee remained with Scott Porter and Alexandra Sims retaining their positions and Samuel George becoming Chair after two years as Treasurer. The results of the election are as follows:

Chair: Samuel George
Secretary: Scott Porter
Treasurer: Doug Neal
Communications: Alexandra Yannacopoulou
Events & Awareness: Alexandra Sims
Equipment & Observing: Eleanor Czerepara
Vice Equipment & Observing: Anthony Dearden

The now obligatory pictures of the new committee were taken and we were off to sample Birmingham's favourite cuisine, the magic that is the Balti. I wish all of the new committee good luck and hope they can continue the work done by last year's committee.



Left to right: Eleanor, Alex Y, Scott, Sam, Doug, Anthony, and Alex S.

By Samuel George.

HAVING IT LARGE

For thousands of years humans have looked to the sky and wondered what is out there. As our knowledge has grown so has the scale we are contemplating, from the Solar System to the Milky Way out into our local group and beyond to other groups and clusters of galaxies. But is that where the structure scale ends?

Until fairly recently it was thought to be the case that clusters of galaxies were the largest structures in the universe. However, recent large-scale red shift surveys such as the 2dF survey have shown structure on much larger scales. The universe has been shown to be made up of a filamentary structure with a system of walls of galaxies surrounding largely empty voids. A good analogy is the structure of a sponge, with clusters of galaxies forming where filaments converge together. It has also been shown that the clusters of galaxies themselves are clustered forming larger structures called superclusters.

But why is any of this important? The answer lies in some of the basic assumptions of the universe that cosmologists assume when trying to find models of how the universe was formed. By studying the mass, size and the frequency at which superclusters occur cosmologists hope to constrain their models so as to gain a better understanding of how the universe became the incredible

structure that it is today. So when it comes to the study of the universe, bigger is most certainly better.

By Scott Porter.

GRUBBY IS BACK!

You may have thought that I was talking about a new fashion craze but in fact I am talking about Astrosoc's Grubb telescope. The delightful antique telescope has been through the wars over the last few years but as they say you can't keep an old dog down and that's definitely the case with the Grubb.

The story starts about 2 years ago, when I was in my first year. Pigeons had attacked the telescope maliciously but they had been fought off and the shed in which the telescope lives was believed to be a pigeon free zone. The telescope was cleaned and used once. The summer came and in came the second wave; this time much more devastating (that's all I will say). The pigeons even decided to make the Grubb their Headquarters for their war of terror against the Physics department; you can to this day hear the echoes of their evil laughter when you sit in the Small Lecture Theatre. With a nest of eggs we were now in a position where we had to wait for the pigeons to vacate, and when eventually the young birds flew the nest leaving the mess behind up went the pigeon defences mark 2. These new barricades include a big metal sheet to project the exposed back of the shed and some strong fencing around the rest of the shed. They seem to have done the job; all that was needed to be done was to clean the telescope.

The cleaning was going to be left down to the committee members but then Barry Weston (Course 1 technician) decided that it would be easiest cleaned with a pressure hose and that it would be best in terms of health and safety if it was done by technicians. This led to Mark Baugh (the other course 1 technician) being roped into doing the cleaning, so if you walked past Poynting and got wet during the summer then you now know whom to blame (I think they were aiming at the Post Grads as they walked past!). Barry and Mark deserve a big thank you for that.

After that, a few final adjustments have had to be made including fixing the RA and DEC motors, which now seem to work, and having the optics cleaned (ongoing). The eyepiece has also had to be fixed as the screws had rusted badly. Despite this, we have had use of the Grubb throughout the term, leading to some fantastic views of Mars and the craters of the Moon. The future seems good for the future of the Grubb, hopefully minus the 'y' from now onwards.



By Samuel George, sounding like David Attenborough.

JOKES

Astronomer 1: I got pulled over by a cop earlier for running a red light, so I said that I didn't see it as red because it was blue-shifted as I approached it.

Astronomer 2: And he let you go?

Astronomer 1: No. He gave me a speeding ticket instead.

Mars Observer Found

Seen on a hall wall at JPL:
(each letter appears to have been cut out of a magazine and pasted on the paper)

"we have your
satellite if you
want it back
send 20 billion
in Martian
money. No funny
business or
you will never
see it again."

The New York Times, among other papers, recently published a new Hubble photograph of distant galaxies colliding. Of course, astronomers have had pictures of colliding galaxies for quite some time now, but with the vastly improved resolution provided by the Hubble Space Telescope, you can actually see lawyers rushing to the scene...

Heisenberg was driving down the Autobahn whereupon he was pulled over by a policeman. The policeman asked, "Do you know how fast you were going back there?" Heisenberg replied, "No, but I know exactly where I am."

What's the difference between an auto mechanic and a quantum mechanic?

The quantum mechanic can get the car inside the garage without opening the door.

ONLINE

OK, I have the job of writing about some good astronomy websites. You would have thought that with the amount of time I spend on the internet I would know a few. First of all and the most important:

<http://www.astrosoc.org.uk> – this is where you will find out about our activities and find those embarrassing photos!

For the latest Astronomy News I normally use either Astrowire which is on the Astrosoc News Page or Spaceflight Now – <http://www.spaceflightnow.com>, a great resource for all things spacey!

A very cool site is Astronomy Picture of the Day at <http://www.star.ucl.ac.uk/~apod/apod/astropix.html> where they have some absolutely brilliant images, mostly by Hubble.

For more fantastic images I suggest visiting HubbleSite at <http://hubblesite.org> which contains images from one of NASA's great observatories. For another one of these observatories, Chandra (X-ray observatory), see <http://chandra.harvard.edu>.

And finally, possible one of the best websites out there for amateur astronomers is Heavens Above, which has even recently been featured on BBC News 24's Click Online Program, at <http://www.heavensabove.com>.

"NO DOUGAL, THOSE PLANETS ARE FAR AWAY..."

Space may well be the final frontier but there is a lot out there to see, so if anybody is planning on going for a tour then you may find it useful to know about the current knowledge in the field of extra-solar planet detection. Indeed just turning left at Jupiter and heading out into the black stuff may not be such a fruitful experience but some basic knowledge of the planetary sights to be seen may enable the galactic rover to have a informative journey.

The field of extra-solar planet detection only really kicked off in 1995 when Mayor and Queloz discovered a planet orbiting the star 51 Peg. This was a massive discovery as it spawned huge interest in the fields of extra-solar planet detection and groups sprung up all over the world dedicated to the discovery of exoplanets. The discovery of the planet around 51 Peg was made by observing the recessional velocity of the star. As the planet orbits the star its gravitational influence causes the star to move (aside: in fact saying that the planet orbits the star is not entirely true, what happens is that the planet and the star orbit the common centre of mass, but as the star is so much more massive the centre of mass of the system is very close to the centre of mass of the star). The star's movement as the planet orbits it causes a doppler shift in the light emitted from it. The light is blue-shifted when the star moves towards us and red-shifted when the star moves away, and one can easily determine the velocity at which the star "wobbles" from this data and hence infer the presence of a planet.

At present around 111 exoplanets are known and there are a large number of groups looking for more using a number of methods including the aforementioned recessional velocity method, and the transit method which involves looking for dips in the flux coming from a star due to a planet passing in front of it. The first planet to be first discovered via this method was only found in 2002 so this is a very new area of astrophysics. All of the know planets so far have a mass comparable to that of Jupiter and are in orbits ranging from around 0.05 AU to 4 AU. It is hoped that a Uranus sized planet may be found soon and then hopefully an Earth sized planet should be found once technology has improved a little.

Here at Birmingham there is a small group, consisting of me and my PhD supervisor, devoted to looking for extrasolar planets, via the transit method, and despite the relatively small amount of man power we have, once data analysis begins, it is hoped that almost 200 new planets can be found from the data. We are using photometric data from the Solar Mass Ejection Imager (SMEI) satellite which is currently in a sun-synchronous orbit at an altitude of 830km. This satellite, as well as observing solar mass ejections, observes around 200,000 stars every orbit, and this is the data we will use.

There are a number of space missions planned for the near future as well though including the French COROT mission due for a 2005 launch, and the NASA Kepler mission due for a 2007 launch, which are both photometric satellites which will be looking for planetary transits. As well as these there may be a mission known as Darwin which will be an suite of interferometers that will look for planets by blocking out the light from a star via interferometry of infra-red light, leaving the reflected light from the planet.

If anyone would like to know more about exoplanets there are numerous websites that are full of information

for example www.exoplanets.org, or for information on what I do and some general info on the transit method go to www.sr.bham.ac.uk/~sas.

By Steve Spreckley MSci Hons.

OH, THE WEATHER OUTSIDE IS FRIGHTFUL...

This is a phrase that I have had pop in to my mind on one too many occasions this term. In general the weather has not been great for observing but when it has been clear it has been wonderful.

The weather has affected our observing on more than 6 occasions and since we have only been observing 11 times this term that means that over 50% of our meetings have been 'weathered out'. However the only big event we missed out on were the Leonids, something I have never seen due to the weather! For the past 6 years now all I have seen during this fantastic meteor shower is the orange glow of sodium lamps reflected back to Earth from the clouds.

We may complain that the weather has let us down but when we have observed it has been nice to us. It all started on the 9th of October. You can tell when an astronomer is rusty because takes him more than a minute or two to find the Moon and on this night this was the case! Once it was found the full glory of the surface features of the moon could be clearly seen. We then managed to get a good view of Mars through the Grubb.

As term progressed Mars was still the main object to view, what with it being so close. We managed to get some good views but as it was quite low in the sky it was hard to get a good sight due to the atmospheric extinction. The next fantastic view we achieved was after the Vale fireworks on the 6th of November, a stunning view of the Moon along the terminator though the Grubb (5.5" refractor). On the 8th of November was the total Lunar Eclipse, however I was ill and not able to take part in the festivities at Selly Park.

Again there was a gap before we were able to get in a good night's observing but on the 27th of November at last we were able to explore the night sky. It started off great when Scott, Steve and I had an impressive view of the Moon through Scott's telescope while setting up but it dropped off when we could not even focus mine on BT Tower! Scott's telescope is a 5.25" Newtonian Reflector and mine is a 3.5" Newtonian Reflector.

It was a great chance for us to go looking for other objects, and we managed to get a wonderful view of

Saturn (with Cassini division and Titan) and a nice view of Mars followed by the diffuse Orion Nebula (M42) and a look at the belt of Orion. The Pleiades were fantastic and we even got a glimpse of the Andromeda Galaxy (M31).

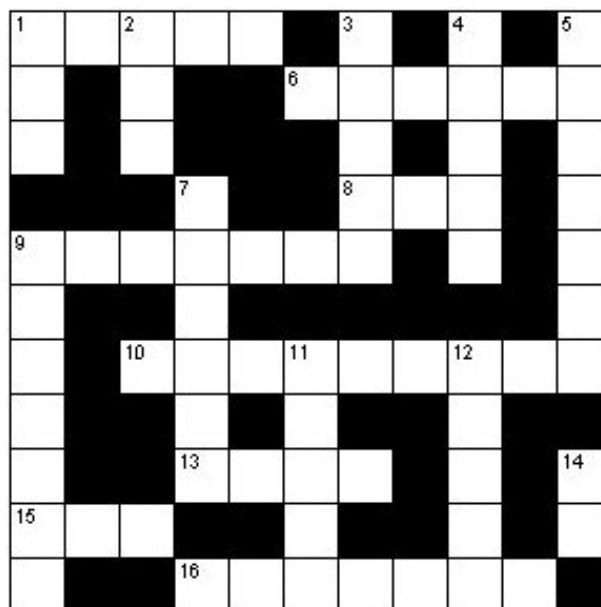
And finally our attention was dragged open cluster-hunting on the 5th of December when we managed to get a good view of M36, an open cluster in Auriga.

By Samuel George.

CROSSWORD

All entries should be submitted via email to astrosoc@bugs.bham.ac.uk by 18th January 2004. The prize is some chocolate and a Chandra poster.

By Samuel George and a computer program.



Across

1. Not solar but...? (5)
6. Directly overhead (6)
8. Ursa Major, abbrev. (3)
9. Part of the Eagle Nebula, ____ of creation (7)
10. Death of a star (9)
13. Black ____ (4)
15. Solar ejection, abbrev. (3)
16. Closest planet to the Sun (7)

Down

1. The Lion (3)
2. A phase of the moon (3)
3. Planet with a runaway greenhouse effect (5)
4. Largest moon of Saturn (5)
5. X-ray observatory (7)
7. Well-known asterism (6)
9. Unit of astronomical distance (7)
11. He stared too long at the Sun (5)
12. ____ space (5)
14. Right Ascension, abbreviation (2)