



Southampton
Astronomical Society
Founded 1924

Newsletter

June 2009

www.southampton-astronomical-society.org.uk

NEXT MEETING Thursday 9th July
Talks Given by Members

Programme of Events

June 25th	Tim Stretton	CLUB EVENING
July 9th	Talks Given by Members : To Include a talk on the "Worldwide Telescope"	
July 23rd	Stephen Cole	CLUB EVENING
Aug	N/A	
Aug 27th	Michael Hobbs	BBQ
Sept 10th	Ian Gore	SAS AGM + John Thompson Memorial lecture.
Sept 24th	TBA	
Oct 8th	Jerry Workman	The Apollo Missions Title TBC

Venues for Monthly Meetings

All Meetings start promptly at 7.30 pm.

Club Evenings and Observing Meets:

Maps to venues are available at the Monthly Meetings. Alternatively, please E-mail:

Stephen Cole (gabbs@fatcontroller.org.uk)

for a map.

Meetings on the 2nd Thursday of each month are held at:

Edmund Kell
Unitarian Church Hall,
Bellevue Road,
Southampton,
SO15 2AY.

Parking Arrangements: On-street parking is usually available in Bellevue Road. There is a car park in King's Park Road nearby. From the car park there is pedestrian access to Asylum Road. Please ensure that your car is securely locked.

Please note that our venue is accessible by Disabled Visitors

Contact Details:

President:
Ian Gore
Ian.Gore@fshfc.org

Treasurer/Membership Sec:
Michael Hobbs
secretary@southampton-astronomical-society.org.uk

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Minutes for Meeting - Thurs 12th March

The Antikythera Mechanism (the first mechanical computer)

[History](#)

Antikythera is an island on the edge of the Aegean archipelago between the island of Crete and the peninsular of Pelopónnisos.

In 1901, sponge fishermen found a shipwreck and thought that they saw bodies. The shipwreck was dated to 80 BC to 50 BC. The timbers however were radio carbon dated to circa 200 BC. Jacques-Yves Cousteau had recovered Perganese coins dating around 86 BC to 67 BC but found no more remains of the Antikythera mechanism on his last visit in 1978.

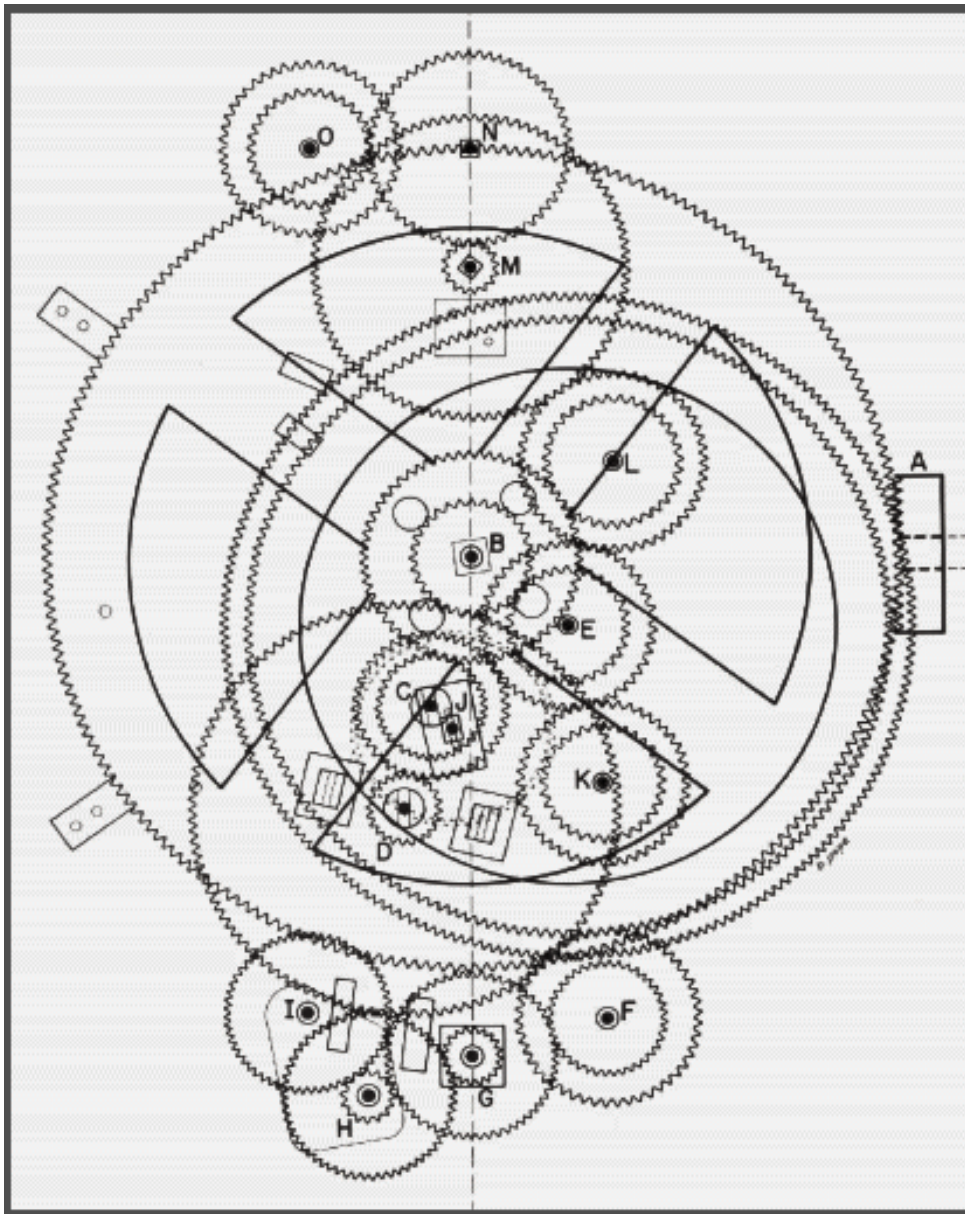
Scientists dried out the mechanism but it unfortunately started to break. They found that it was made of bronze and had a diameter of 200mm (8"). Although the mechanism remained a puzzle for 100 years, it had been recently deciphered using x-ray tomography. British physicist Derek de Solla-Price carried out the first x-ray images. The mechanism was made for the solar and lunar cycles by turning the wheel once a day to establish the 19 year solar/lunar cycle called the metonic cycle equal to 19 tropical years, 235 synodic months, or 6940 earth days to the nearest earth day.

There had been a similar device, albeit simpler, was made more then a thousand years later by Islamic counties. The astrolabe was made in 1221 AD by Abi Baker in Persia.

Scales are shown on the wheel and layers in the tomography show that the mechanism had gears, thirty in all, and were cut by hand from a single bronze sheet 2.0mm to 2.3mm thick. There were divisions on the wheel showing the constellations of the zodiac and Egyptian month names.

[Conclusions](#)

The amazing thing about the Antikythera mechanism was that it was a device of such amazing complexity that it was not equalled for more than a thousand years! It was not known who, or where it was built, or for whom. It is astonishingly accurate, based upon hundreds of years of patient Greek observations. Not prototypes or copies are known.



Minutes for Meeting - Thurs 9th April

M31 or NGC 224— The Andromeda Galaxy

Alan Drummond

Alan Drummond said that the Andromeda galaxy has been an important object historically. It is the largest object outside our solar system to be visible to the naked eye. He located the galaxy on a night sky map and showed the location of the galaxy again on a photograph with another one showing a close up view.

VIEWS

Alan Drummond showed us that we could just see the galaxy as a blur with the naked eye. Next, he showed us that through a pair of binoculars or a small telescope we could see a bit more definition. This was followed by a larger telescope showing just the nucleus only. A very large telescope would give us a brilliant image.

MAPS, CATALOGUES, AND OBSERVATIONS

Ptolemy showed in his Almagest that the Orion nebula, M42, as a 'cloudy star' but didn't show the Andromeda galaxy because he failed to notice it. One catalogue had showed Andromeda with two fishes across her chest; the galaxy being presented on one of the fish's 'nose'.

Alan Drummond said that the Andromeda galaxy has first been observed by a Persian astronomer, Abd al-Rahman al-Sufi who described it as a small cloud in his fixed book of stars. Byer's map didn't show the galaxy although Edmund Halley did show the orientation of the 'ellipse'. It had been observed by Messier in the 1780s.

William Herschel said that he could make out individual stars this is doubtful. However John Herschel, William's son, could make out the nucleus as a 'nipple'.

William Huggins saw the galaxy as gaseous.

The Victorians thought that M31 was in the Milky Way galaxy. We now see M31 as a spiral object. A lady in the United States saw Cepheid variables in the Small Magellanic Cloud and considered that she could determine the distance of the Cepheid variables from the Earth.

Edwin Hubble discovered novae in M31 along with a Cepheid variable and measured it as 900,000 light years away. It is now found to be 2,000,000 light years away.

The Hubble Space Telescope (H.S.T.) has taken two photographs of M31; one in red light, and one in blue light. The red light had showed fuzzy patches.

There is a radio emission close to visible light emission. The Andromeda galaxy has a mass of about 1 million million stars.

Minutes for Meeting - Thurs 14th May

OBSERVATIONAL REPORTS

Tim Stretton was talking about a very large halo around the moon that he saw within the last month.

Stella Collisions and near misses by Tom Maccarone

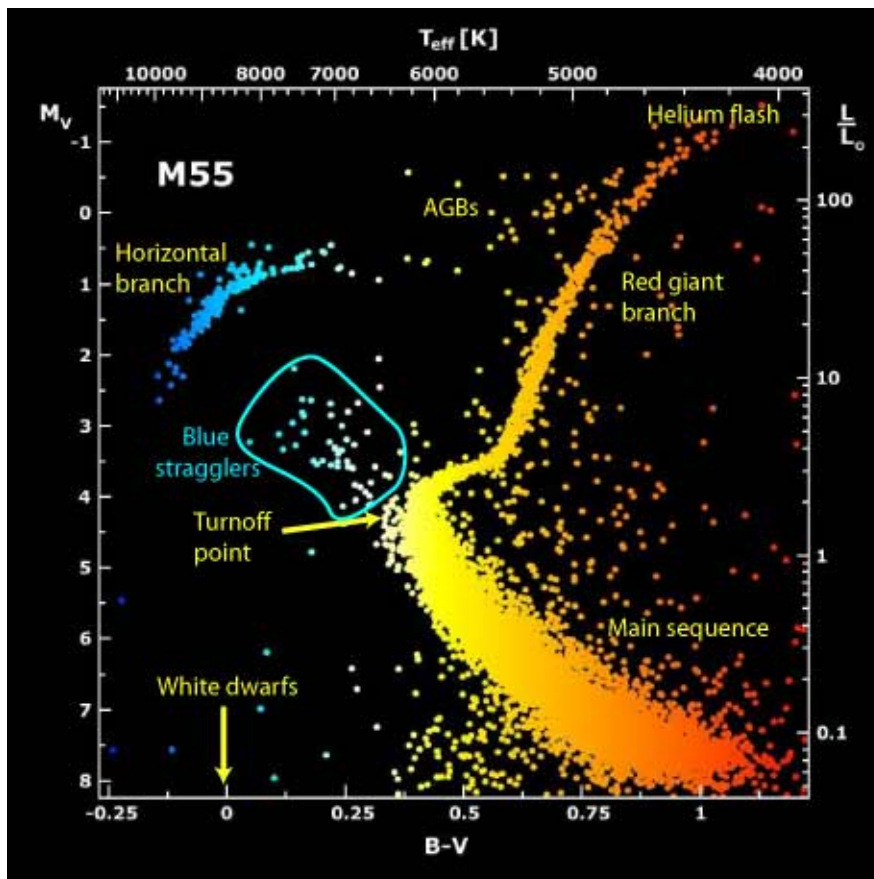
In this talk, Tom Maccarone talked about the star group densities.

He told us that M15 is one of the brightest globular clusters in the northern hemisphere and has several million stars in it, a density of 1×10^5 (or 100,000) stars/ cubic parsec.



M15 (NGC 7078) globular cluster in Pegasus

Tom Maccarone introduced us to a diagram, similar to but not identical to the Hertzsprung-Russell (HR) diagram.



The diagram showing the position of the 'blue stragglers'.

In the diagram on the previous page, Tom Maccarone showed us the stars called 'blue stragglers'. These stars are unusually hot and bright stars found in the cores of globular clusters; they are hotter and bluer stars than those found in other star clusters but having the same luminosity and thus they are separate from the other stars from the cluster's HR diagram.

[Star movements](#)

Tom said that the stars have a crossing time, a relaxation time, and an evaporation time. The term 'evaporation' refers to the cluster being dispersed.

[Mass segregation](#)

The larger and the more massive stars are the slower they are.

[Forming stellar exotica](#)

Tom said that there are examples of this.

There are x-ray star pairs, one normal star and a neutron star or black hole, and binary stars. Some binaries have orbital periods of as little as 11 minutes! When clusters get dense, binaries form. The clusters will puff out, collapse, puff out, collapse etc.

[Conclusions](#)

Globular clusters have a wide range of exotic stellar objects. It is still not clear if any of the brightest globular cluster objects are intermediate mass black holes.

Information From The President Ian Gore

[Our Web site](#)

Hopefully you'll have noticed that our web site: -

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

This has now been updated. Please have a look at it and tell the committee about any changes / improvements you'd like to see.

[E Mail](#)

Wherever possible we're distributing this Newsletter via E-Mail - it reduces the cost of postage and makes things easier to manage. We're also sending out meeting reminders the same way. If you've received this newsletter by snail mail and you have email, please send an email to :-

news@southampton-astronomical-society.org.uk.

If you want to be on the email list but would prefer to receive the hard copy Newsletter, please add a comment to that effect.