



AYLESBURY ASTRONOMICAL SOCIETY

What's Up?! JUNE 2010

Aylesbury Astronomical Society Newsletter Issue No. 506

Your committee

As voted in the AGM: Chairman: Ralph Campbell; Treasurer Ian MacDonald; Secretary: Sue Macdonald; Site Officer: Steve Edwards; Pub Officer: Simon Leach; plus Geoff Evans and Ray Wood as committee members without portfolio.

Please give these heroes your support in any way you can eg. volunteer for grass cutting at the observatory.

Membership renewal

Please forward subscriptions to Ian Macdonald asap. Fees have been held down this year: £25 full membership; £15 concessions; £10 juniors.

We need new members, *please try to find another friend* to ask to a future meeting. Personal invitation is perhaps the best recruitment.

Your newsletter

The editor is grateful for contributions to *your* newsletter. Articles, your own observations, photos etc can go in the newsletter. Also, your corrections – I would like to be accurate!

PLEASE SEND YOUR NEWSLETTER CONTRIBUTIONS TO THE EDITOR AT ANY TIME. (Inclusion dependent on next available space.)

I would like to forward newsletters by email to as many members as possible. You can have it before the meeting saving postage and printing costs. I appreciate that many will still prefer a hard copy and I will try to serve your preference.

NEXT MEETING: Saturday 3rd July: General clear-up and BBQ

Observatory, Upper Winchendon. Please come for a few hours between 11 am and evening. Wear old togs; bring garden tools and your own handwash! (No running water on site.) BBQ food and drink provided by AAS. Phone Steve Edwards 01296 428098 for details. Your help will be appreciated.

Monday 2nd August: Speaker Dr Allan Chapman to talk on the history of the Royal Society. 7.30 pm, Scout Hut, 50 Oakfield Road, Aylesbury HP20 1LL.

Monday 6th September: Sandy Lane and Steve Edwards to talk on Annalema. 7.30 pm meet at Scout Hut, 50 Oakfield Road, Aylesbury HP20 1LL, then go to observatory if weather fair.

OBSERVING: Sorry, no official star parties this month

The Meade telescope is still yet to be re-installed. You can still bring your own telescope by arrangement with the committee.

ANNUAL TRIP: Herschel Museum in Bath, 11th September

The Herschel Museum of Astronomy is dedicated to the many achievements of the Herschels, who were distinguished astronomers as well as talented musicians. From this house, using a telescope of his own design, William discovered Uranus in 1781. A special exhibition at the Herschel Museum of Astronomy this year celebrates the amazing work of William Herschel and his sister Caroline during their years living in Bath making extraordinary telescopes and setting new standards in observation. In addition to the general access to the museum, there will be presentation by a museum expert specifically for our Society.

If you are interested and would like more information, please contact a committee member. For more information specific to the Herschel Museum, see <http://www.bath-preservation-trust.org.uk/?id=8>

WHAT ARE YOU LOOKING AT?

Moon: 4th last quarter; 12th, new moon; 19th, first quarter; 26th full moon.

The moon will be close to: Jupiter on the 6th; Mercury 11th; Venus 14th & 15th; and Mars 17th; Saturn, 19th and Ceres on the 25th.

Mercury visible at dawn low to the horizon in the north east.

Venus very bright at magnitude -4 in the western evening sky will slowly move back to the horizon from mid-month.

Mars now quite low after sunset in Leo in the western sky close to Regulus.

Jupiter visible in the low south eastern sky before sunrise quite bright at -2.4.

Saturn is at its best visible in Virgo fairly high in the sky. The rings are still tilted slightly towards us at 2 or 3° – worth viewing even with a modest telescope.

Uranus is not visible this month.

Neptune is not visible this month.

Ceres this dwarf planet reaches opposition on the 4th in the southern part of Ophiuchus. Feint at 7.8, viewing with a telescope essential.

Stars: At 10 pm, Ursa Minor is right in the middle of the sky with Ursa Major to the south and west. Follow the curve of the pan handle to Bootes to view the bright orange star Arcturus. In the south east are the giants Ophiuchus and Hercules above the “claws of Scorpius” just poking above the horizon. Cygnus and Aquila are rising in the east with their brightest stars, Deneb and Vega. Skirting the northern horizon are the bright stars Capella in Auriga and Mirfak in Perseus.

The summer solstice (from Latin *solstitium* meaning 'Sun stands still') is on 21st June and midsummer's day on 24th meaning very short nights and lack of completely dark skies of course.

ASTRONOMY A to Z: C is for Comets

In 1950, Dutch Astronomer Jan Oort proposed a large, spherical cloud of comets surrounding the solar system. The Oort Cloud is almost 1 light year in radius and could contain up to a trillion small, icy comets. Small perturbations to the very slow motions of these bodies will cause one of them to start its long, slow journey towards the inner solar system under the gravitational pull of the Sun.

Sometimes, during its journey through the solar system, a comet may pass close to one of the major planets. Then the gravitational pull of a planet may dramatically change the comet's path to a closed, elliptical orbit. The comet then becomes a periodic comet with a definite period for its returns close to the Sun. Halley's comet is the best known example of such a comet. The existence of periodic comets, with orbital periods less than 200 years, led to the proposal of a second source of comets:

The Oort Cloud does not explain comets with periods less than 200 years. In 1951, another Dutchman, Gerrit Kuiper suggested that another belt of comets existed beyond Neptune, between 30 and 50 astronomical units (4.5 to 7.5 thousand million km) from the Sun. In 1988, a group of astronomers at the University of Hawaii and the University of California at Berkeley began searching for Kuiper Belt objects using a 2.2m telescope in Hawaii. They discovered the first Kuiper Belt object in 1992. Subsequent observations from Hawaii and with the Hubble Space Telescope have discovered dozens of icy objects, each a few hundred km in size and with orbital periods of hundreds of years. The Kuiper Belt may be composed of comets from the Oort Cloud, which have been deflected into smaller orbits the larger outer planets.

Some comets have very short periods. Comet Encke has a period of 3.5 years, with an orbit inside the orbit of Jupiter. The gas tail can be about 100 million km long while the dust tail is around 10 million km long. The longest observed tail on record is the Great Comet of 1843, with 250 million km long tail (greater than the distance from the Sun to Mars!). Most comets are not periodic and therefore not predictable. Some of the most spectacular comets have appeared only once never to be seen again.

The Stardust Mission

On February 7 1999, the joint NASA/European space probe *Stardust* was launched from Cape Kennedy in Florida. The probe will make three loops around the Sun. During the second loop, on 2 January 2004, it will catch up with Comet Wild-2 and pass within about 150 km of the comet's nucleus.

A tennis-racket-shaped particle catcher filled with a low density foam, or 'aerogel', will then be used to slow down and capture particles of dust from the head of the comet. Once the encounter is over, the aerogel device will fold into a capsule which will return the sample of comet dust to Earth.

Dr. Don Brownlee, Stardust Principal Investigator writes (29th Oct 2009): The primary goal of the Stardust mission was to collect samples of a comet and return them to Earth for laboratory analysis. On examination the nature and origin of the particles were quite unexpected. It was believed comets would be made of dust that formed around other stars, and older than the Sun. Such particles are known as "stardust" or pre-solar grains.

Remarkably, it was found that most of the comet's rocky matter formed inside our solar system at extremely high temperature. In great contrast to its ice, our comet's rocky material had formed under white-hot conditions. Even though we confirmed Comets are ancient bodies with an abundance of ice, some of which formed a few tens of degrees above absolute zero at the edge of the solar system, comets are really a mix of materials made by conditions of both "fire and ice". Comet ice formed in cold regions beyond the planet Neptune but the rocks, probably the bulk of any comet's mass, formed much closer to the Sun in regions hot enough to evaporate bricks. Materials collected from comet Wild 2 do contain pre-solar "stardust" grains, identified on the basis of their unusual isotopic composition, but these grains are very, very rare.



NexStar SE

In the tradition of Celestron's famous orange optical tubes, the new NexStar SE Family combines the classic heritage of the original orange tube telescopes with state-of-the-art features including a fully computerized operating system, flash upgradeable hand control, superior StarBright XLT coatings, revolutionary SkyAlign™ telescope alignment software and much more.

Whether you are a seasoned astronomer looking for a portable scope with advanced features, or just starting your astronomy adventure and looking for an easy way to enjoy the night sky, a NexStar SE will help you take a closer look.

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NexStar 5 SE	5" Schmidt Cassegrain
NexStar 6 SE	6" Schmidt Cassegrain
NexStar 8 SE	8" Schmidt Cassegrain



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