

SPACEWATCH

the newsletter of the Abingdon Astronomical Society

8th December 2003

**Dr Andrew Coates
(Mullard Space Science Laboratory)
“Mars Express & Beagle 2”**

Well it's that time of the year again when thoughts move to Christmas stockings and what new eyepieces or other equipment we would like to see in them. We get some long evenings now to observe in, weather permitting. There are a few planets on display at various times of the evening, with Mars slowly disappearing, Venus making a welcome return, Saturn giving a fine show of its rings and Jupiter its family of satellites. That's to say nothing of the deep sky objects. All in all, something for everyone. Best wishes for the festive season – I hope you all get what you wish for - and have a happy New Year. Clear skies.

The Night Sky this Month

By Bob Dryden

Sun - The Sun reaches its most southerly point on 22nd December at 07hr 4mins. Also known as the winter solstice, this means that the days are getting longer again as the Sun starts to move north once more.

Venus - This planet is now becoming prominent at last. It has spent the last few weeks hidden behind the Sun but it is now easy to see very low in the south west after sunset. It is very bright and difficult to miss as long as you have a clear horizon and you look early enough. This is the beginning of an excellent evening apparition and after Christmas the planet rapidly gains height and will be a shining beacon high in the evening sky long after darkness arrives.

Mars - Mars gains in height but gets fainter. It is now a long way behind Earth and so the disc is really too small to see any detail on. The planet is easily bright enough however to be an obvious 'star' in Pisces.

Saturn - Now Saturn is above the horizon at a decent time and you shouldn't miss any opportunity to have a look at it in a telescope. The rings are wide open and

as the planet is located in Gemini, it means it passes almost overhead later in the night. This means the telescopic views will be fantastic, and you have all winter to check out this very opportune scene. Saturn reaches opposition on 31st December which means it rises as the Sun sets.

Jupiter - Jupiter rises much later because it is in Leo. Once it is up however, as always, it is a magnificent sight. Later in the winter and early spring it will be up at a more convenient time but any late birds will be able to get an early look.

Comets - For those with a telescope, comet C/2002 T7 Linear is crossing Triangulum and Pisces this period. It will be about 9th magnitude hopefully. This comet is still brightening and the present predictions indicate it will be naked eye, and possibly zero magnitude, by May. So this is your chance to get an early preview of what may turn out to be a spectacular comet.

Meteors - The Geminids are active between December 7th and the 16th with the maximum on December 14th. This is always a good shower for the non meteor specialist to watch as they are often very bright meteors. This year the Moon interferes rather badly, but fortunately there are usually several Geminids an hour visible in the early evening (which is unusual for meteors as you usually see more shortly before dawn as the atmosphere above you rotates - with you - into them). This is fortunate because there is only a short period of dark sky until 21.17 UT when the Moon rises so you should do your observing before then.

The other major shower active this period is the Quadrantids. However, unlike the Geminids, you need to be observing before dawn on January 4th to see anything. Put your thermals on as it will be cold then if the sky is clear. Even worse this year, there is a bright Moon up all night so you will not see much this time.

Moon Phases:

Full: 8th Dec.; Last Qtr: 16th Dec.; New: 23rd Dec.; 1st Qtr: 30th Dec.

Stan Cocking



Many of you will already know about the death last month of long-standing member Stan Cocking after a long illness.

Stan was originally a member of Fitzharry's Astronomical Society, which became Abingdon Astronomical Society in 1996, and was instrumental in resurrecting the society at that time, acting as the publicity officer.

He gave many short talks at society meetings – often at very short notice. Claiming not to know much about observational astronomy, he was always fascinated by the recent advances in planetary space flight, deep space observations (e.g. results from the Hubble) and advances in cosmology.

Stan is responsible for then new boy Bob Dryden being our current chairman in 1996, having coerced him into it at an AGM when no one else would volunteer. He then supported Bob for a long time by giving or posting him lots of information and ideas.

Together with his wife, Yvonne, he often prepared the teas at meetings and helped out whenever needed.

Stan had worked for the UKAEA at Harwell until his retirement several years ago, and had been a keen diver in his younger days. Until his illness prevented him recently, he was almost always at our meetings, and gave his last talk only earlier this year. Only a month before he died he still managed to take a holiday with Yvonne in Venice.

Bob reports that there was a large turnout at Stan's funeral in Headington, some members of the society included. Yvonne and others gave a very moving account of Stan's life and achievements in what was a non-religious ceremony yet filled with sentiment and emotion. Yvonne would very much like to thank those society members who attended and/or sent her cards.

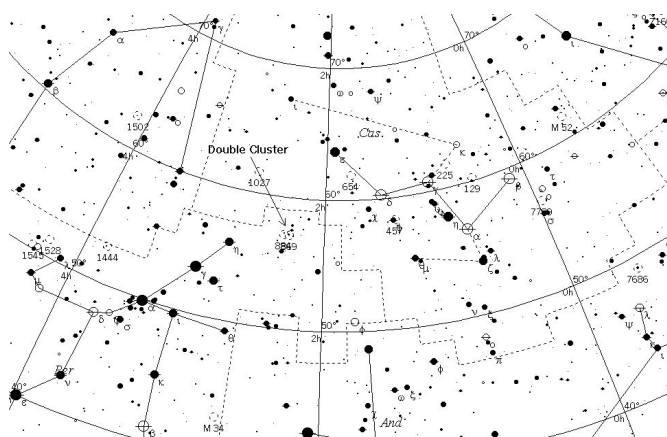
May I take this opportunity to pass on our condolences to Yvonne and the rest of her family at this sad time, and let us all be inspired by Stan's unflinching wonder and enthusiasm.

This month's Deep Sky Object

By Paul Warren

This month's Deep Sky Object is the famous Double Cluster, in Perseus. These clusters are so bright that they can be seen with the naked eye. So, let's start off by finding them.

The usual way to find them is to start off from Cassiopeia. Referring to the diagram below, number the 5 stars of the "W" as 1 to 5, working from left to right. Draw an imaginary line from 3 to 2 and carry on for about twice that distance, and this will take you to the Double Cluster.



The clusters are about magnitude 4, and appear to the naked eye as a nebula spanning $1\frac{1}{2}$ moon diameters, and a pair of binoculars will separate them into NGC869 and NGC884.

As the name suggests, the Double Cluster is a pair of open (or galactic) star clusters. They are located in the Perseus arm of our galaxy, and are about 7000 light years away from us. A distance of a couple of hundred


light years separates the clusters, and they are believed to be only a few million years old – some of the youngest known clusters.

When you view the Double Cluster through a telescope, use your lowest powered eyepiece, to try and get both of them in the same field of view. This is fairly easy for the smaller scopes, but for larger scopes this may only be possible with the wide-angle eyepieces.

The view through the telescope is stunning, no matter how large or small the aperture of the scope is. 200 or more stars are to be seen, and colours show up very nicely in these clusters, especially if you can get a nice dark black sky for the background.

One mystery surrounding them is why they never got mentioned in Charles Messier's famous catalogue. Given that M44 and M45 both made it into the catalogue, it is very strange that the Double Cluster weren't included.





Stardust
By Patrick L Barry and Dr Tony Phillips

Philosophers have long sought to "see a world in a grain of sand," as William Blake famously put it. Now scientists are attempting to see the solar system in a grain of dust-comet dust, that is.

If successful, NASA's Stardust probe will be the first ever to carry matter from a comet back to Earth for examination by scientists. It would also be the first time that any material has

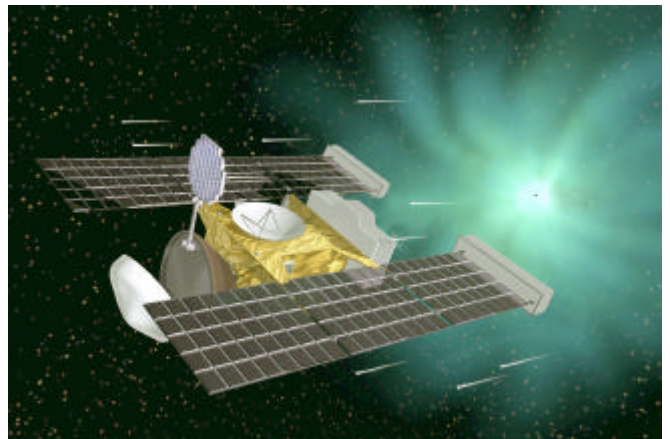
been deliberately returned to Earth from beyond the orbit of the Moon.

And one wouldn't merely wax poetic to say that in those tiny grains of comet dust, one could find clues to the origin of our world and perhaps to the beginning of life itself.

Comets are like frozen time capsules from the time when our solar system formed. Drifting in the cold outer solar system for billions of years, these asteroid-sized "dirty snowballs" have undergone little change relative to the more dynamic planets. Looking at comets is a bit like studying the bowl of leftover batter to understand how a wedding cake came to be.

Indeed, evidence suggests that comets may have played a role in the emergence of life on our planet. The steady bombardment of the young Earth by icy comets over millions of years could have brought the water that made our brown planet blue. And comets contain complex carbon compounds that might be the building blocks for life.

Launched in 1999, Stardust will rendezvous with comet Wild 2 (pronounced "Vilt" after its Swiss discoverer) on January 2, 2004. As it passes through the cloud of gas and dust escaping from the comet, Stardust will use a material called aerogel to capture grains from the comet as they zip by at 13,000 mph. Aerogel is a foam-like solid so tenuous that it's hardly even there: 99 percent of its volume is just air. The ethereal lightness of aerogel minimizes damage to the grains as they're caught.



NASA's Stardust mission will capture dust from comet Wild 2 and bring them back to Earth for study.

Wild 2 orbited the sun beyond Jupiter until 1974, when it was nudged by Jupiter's gravity into a Sun-approaching orbit-within reach of probes from Earth. Since then the comet has passed by the Sun only five times, so its ice and dust ought to be relatively unaltered by solar radiation. Some of this pristine "stuff" will be onboard Stardust when it returns to Earth in 2006, little dusty clues to life's big mysteries.

To learn more about Stardust, see the mission website at stardust.jpl.nasa.gov. Kids can play a fun trivia game about comets at spaceplace.nasa.gov/stardust.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

MARS PROBE DAMAGED

The recent coronal mass ejections from the Sun didn't cause much damage on Earth, but unfortunately the Mars Explorer probe was not so lucky. The radiation monitor on board which was supposed to monitor the levels of radiation that future astronauts might be exposed to on a manned trip to Mars was damaged by high levels of solar radiation, and so far, NASA has not been able to coax it back into life. This does not bode well for future astronauts to the Red Planet who will have no way of avoiding these outbursts from the Sun. Any protective chamber capable of withstanding high levels of radiation may be too heavy to include in a spacecraft.

FURTHER DISCUSSION

The society's e-mailing list is used by members to comment on all things astronomical, as well as other related and not-so-related subjects. The list is also used to publicise "first-clear-night" observing evenings and for alerting members to hot observing news.

To subscribe: send an email to abiastro@topica.com. You will then receive all e-mails

sent to the list. To post e-mails on the list: send an email to abiastro@topica.com. To unsubscribe: send an email to abiastro-unsubscribe@topica.com

Don't forget the Society's web site:
www.abingdonastro.org.uk

Our webmaster, Chris Holt is always on the look-out for members photographs to put on there. Don't forget you can read back copies of Spacewatch on the web site too.

DATES FOR YOUR DIARY

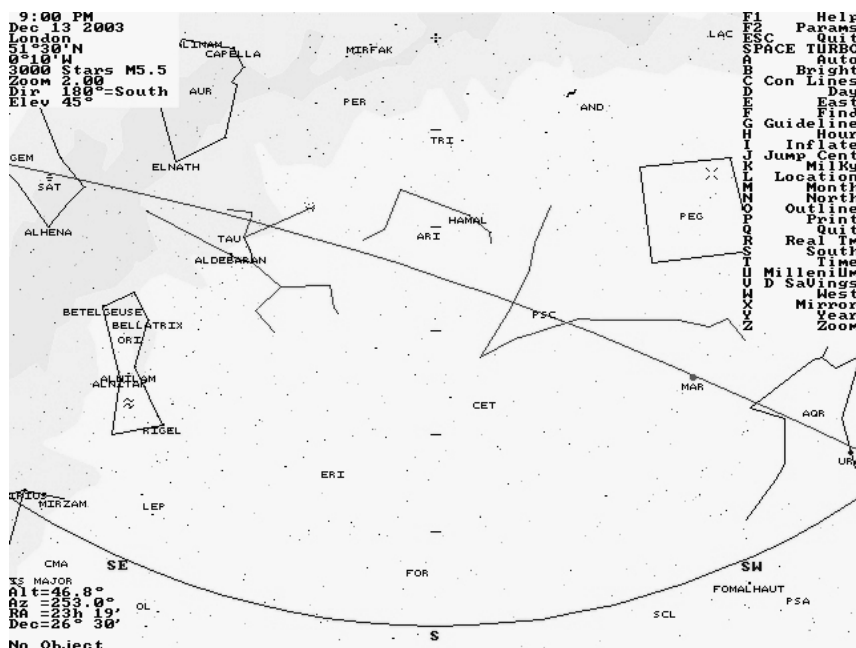
17th to 19th Dec. (FCN): 8pm. Observing Evening, Abbey Meadow, Abingdon.

5th Jan.: 8pm. Beginners' Meeting in the Perry Room.

12th Jan. 2004: 8pm. Talk by Bob Mizon (Campaign for Dark Skies Co-ordinator "14 Pioneers of Astronomy")

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your help and contributions. Please send any news, observations, photos, etc. to:
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E-mail: AbiAstro@ATRamsey.com Phone: 01865 245339

STAR CHART



The star chart at left show the view looking south at 9pm next Saturday evening. Orion is in the south-east, Saturn ("SAT") above left of Orion in Gemini (look out for the two stars named after the twins Castor and Pollux).

Mars is in the south-west ("MAR"). The ragged grey band at top left is the Milky Way.

Follow the three stars of Orion's belt up and to the right to find Taurus with the bright reddish star Aldebaran near the open cluster Hyades, and beyond that the Pleiades or Seven Sisters. How many you can see will depend on how much you have drunk over Christmas!

The chart is also valid for about 8pm on the 23rd and 7pm on the 30th Jan. as the planets do not move much in this time.