

MACARTHUR ASTRONOMICAL SOCIETY Inc.

Journal



PRIME FOCUS

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PRESIDENT'S REPORT

After a slow start to the evening and room change, what a great talk we heard by Andrew James last month. For those of you who missed it, he spoke to us about Stellar Clusters. The talk was very educational and entertaining.

I would like to thank John Casey for volunteering to speak to the Society and welcome him tonight as our guest speaker. It's not easy getting up in front of people, and those of you who do talks for the Society and schools etc, it is very much appreciated.

Star Gazing - many of you went out to the starry skies of Cobbitty last month. I believe it was a great night (some people however have to work), I picked the week before when it rained (Last issue of Prime Focus)

My scope has been gathering dust lately so I wiped off the cobwebs and took it out at about 11pm. Two of the most stunning objects filled the sky. Jupiter and Saturn, what a great view. As the month moves on, these two gradually were seen earlier and earlier.(Sept. viewing).

Anyone typing or writing out their articles (on paper) for Prime Focus could they please hand them to me on the night of the meeting or send them before the end of the month to the MAS P.O. address. I will be typing up and putting all articles onto disk so as to make Bob's editing job a little easier. Thanks, keep those articles coming. (Articles already typed and on disk can be given directly to Bob).

LATEST NEWS

It's those pesky little Martians again interfering with NASA's spacecraft. Yes, The

Mars Climate orbiter which arrived around Mars on September 23rd came a little too close (within 60 miles of the surface) and was never heard of again. I wish these Martians wouldn't shoot down our spacecraft. Let's hope The Mars Polar Lander in December manages to get past the planetary defences of those pesky Martians. In regards to 60 Minutes with their story on the F word being accepted into society, I'll bet a few NASA scientists came up with the F word and a few more expletives I wouldn't dare put into print!

Official Dates for Cobbitty Field Nights for 1999

6/11/99	13/11/99
4/12/99	11/12/99

NEW MARS IMAGES: NO EVIDENCE OF ANCIENT OCEAN SHORELINES

Scientists studying high-resolution images from NASA's Mars Global Surveyor spacecraft have concluded there is no evidence of shorelines that would have surrounded oceans that may have once existed on Mars.

One argument that such a body of water once existed was suggested by features in images from the NASA Viking missions taken in the 1970s, which were interpreted by a number of researchers as remnants of ancient coastlines. The images from Mars Global Surveyor, taken in 1998, have a resolution five to 10 times better than those that Viking provided. With this closer inspection, none of these features appears to have been formed by the action of water in a coastal environment.

"The ocean hypothesis is very important because the existence of large bodies of liquid water in the Martian past would have had a tremendous impact on ancient Martian climate and implications for the search for evidence of past life on the planet," said Dr. Kenneth Edgett, a staff scientist at Malin Space Science Systems, San Diego, CA, the institution that built and manages the Mars Orbiter Camera on board the spacecraft. "The newer images do not show

any coastal landforms in areas where previous researchers - working with lower resolution Viking images - proposed there were shorelines."

About 2 percent of the Mars Orbiter Camera images were targeted to look in places that would test shorelines proposed by others in the scientific literature.

"Even on Earth, looking for ancient shorelines from the air or space is a challenge," said Dr. Michael Malin, principal investigator for the camera at Malin Space Science Systems. "Despite these difficulties, we believe these Mars Orbiter Camera images of the proposed shorelines are of a high-enough resolution that they would have shown features indicative of a coastal environment had there been an ancient ocean on Mars."

The paper containing these new conclusions was published in the October 1 issue of the *Journal of Geophysical Research Letters*.

One area that might have been a coastline is located north west of the great volcano Olympus Mons. Researchers looking at Viking images have suggested that there might be a cliff separating the western margin of the Lycus Sulci uplands from the lower-elevation, smoother Amazonis plains. The proposed cliff looked like the kind that forms on Earth from erosion as waves break against a coastline.

Three high-resolution images were taken of this proposed coastline. The uplands are roughly textured, while the flat plains appear smoother. The image shows that the contact between the two regions is clearly not a wave-cut cliff, nor are there any features that can be unambiguously identified as coastal landforms, according to Malin.

"While the suggestion that Mars at one time had oceans cannot be ruled out, the foundation for the 'ocean hypothesis' developed in the 1980s on the basis of suspected shorelines appears now to have been incorrect," Malin concluded. "However, it should be understood that there is significant other evidence of water on Mars in the past, both from Mars Global Surveyor and from previous missions. Today, the Mars Orbiter Camera continues to acquire new high-resolution pictures, each one helping to search for clues to the very important question of the role of water in the evolution of Mars."

More information and images about the Mars Global Surveyor mission is available at:

<http://mars.jpl.nasa.gov/mgs/> and
<http://photojournal.jpl.nasa.gov>

Additional details about the paper and the new Mars images are at

http://www.msss.com/mars_images/moc/grl_99_shorelines/

Mars Global Surveyor is the first in a long-term program of Mars exploration, known as the Mars Surveyor Program that is managed by the Jet Propulsion Laboratory for NASA's Office of Space Science, Washington, DC.

Phil Ainsworth. ■

SECTION LEADERS

The following members have offered themselves as leaders (or coordinators) of those members with special interests in particular fields

DEEP SKY:

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ASTRO COMPUTING:

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TELESCOPES :

NOVICE/INTERMEDIATE

Noel Sharpe

ADVANCED: Peter Druery.

ASTROPHOTOGRAPHY:

NOVICE: Noel Sharpe

ADVANCED; Peter Druery

MACDOB, the Society's own 6" Dobsonian telescope, is yours for the borrowing if you are a financial member of MAS.

It's a great scope to learn on. Very easy to use, with finger touch controls. Even our experienced scope owners are surprised by the views offered through MacDob.

If you are toying with the idea of buying a scope, why don't you borrow MacDob to get a feel for a reflector, what you can see with it, and how it feels to use.

But be warned, once you've used our 6", you'll want to go out and buy your own (or maybe even make one. See Dick Everett about that.)

To borrow MacDob, see Bob Bee at a MAS meeting or call him at home on 46251623.

Borrowings usually go from meeting to meeting, and you are encouraged to bring it along to one of the set Cobbitty nights.

There is no hire cost, but you are invited to make a donation (no set amount) to reflect the pleasure you gained from the scope. This goes toward the upkeep of the instrument.

ILFORD IN NOVEMBER

MAS members are invited to attend a New Moon Weekend at Ilford, courtesy of ASNSW from 2pm Friday 5th to late on Sunday 7th November.

A \$10 per person camping fee applies, and includes modern toilet facilities, hot showers and cooking facilities.

It is basically a socialising weekend with some observing under a dark sky thrown in.

For details on how to get there etc, ask the Elstons or call Adrian Saw of ASNSW on 02 45721568.

Astronomy 2000

This 'must have' book for Australian amateurs. It has easily readable data on everything you will want to look at in year 2000.

It will be available in November. We have asked Terry Storey of York Optical to bring some copies to the November meeting so members can buy them ready for the New Year. If you want one (and you'll be sorry if you don't) Terry can sell one to you directly.

Price is unknown at this stage, but last year they cost \$14, a lot less than the retail price. So bring your money with you.

WHAT'S TO SEE THIS MONTH

(18th Oct – 14th Nov)

In brief: On 18th October –
Mercury sets at 8:05pm
Venus rises at 3:10am
Mars sets at 11.30pm
Jupiter rises at 6.30pm
Saturn rises at 7.40pm.

Some details:

Mercury gives a good showing in late October as it reaches its greatest elongation from the Sun on 25th October. Its magnitude will be -0.1 .

Of particular interest and also a **Photo Opportunity** is Mercury's passage across the Globular Cluster NGC5897 in Libra on 22nd October. Those who attended last meeting's excellent talk by Andrew James on Globular Clusters will recognise NGC5897 as one of those with a very loose structure with minimal central condensation. (This should allow Mercury to be viewed against it very easily.) 5897 is about 9th mag, so the juxtaposition should be visible to binoculars as well as telescopes. As *Astronomy 99* very neatly puts it, Mercury's 9 minute old light will be travelling to your eye surrounded by 40,000 year old light from the Glob. Something to ponder as you watch and enjoy. (I like to call this type of scenario as the 'wow factor' of astronomy.)

Venus, still a morning object during October and

November, reaches its maximum elongation from the Sun (40°) on 31st October, when it will be mag. -4.4 and in half phase. A particularly nice 4.8° approach to the 25 day old moon (ie a very thin crescent) will occur on 4th November.

Mars is observable all night, and having moved into Sagittarius, is engaging in a number of close war-like duels along the way:

On 18th October (ie tonight!), Mars is 0.8° from M8 (the Lagoon nebula);
19th, 0.2° from GC NGC6544
20th, 0.8° from GC NGC6553
24th, 0.2° from M28 (GC)
26th, 0.5° from GC NGC6638
28th, 1.0° from M22 (GC).

Each a **Photo Opportunity**

Jupiter reaches opposition on 24th October when it will be mag. -2.9 and apparent diameter $49.75''$. (Here's a challenge: Using simple Euclidean geometry, calculate Jupiter's distance to Earth as opposition. Clues: Jupiter's apparent diameter in arc-seconds, and Jupiter's known diameter in kms.)

One of those sweet coincidences of life is that on the night of opposition, the four Galilean moons will all dance their way onto the same side of Jupiter.

Saturn, not to be outdone by Jupiter, will be at opposition on 6th November, mag. -0.2 .

Also, towards the end of October, the rings can be seen at their maximum opening (at least for this year).

This is an ideal time for studying Saturn and its rings. Saturn has a large angular diameter ($20''$) while its outer ring has an angular diameter of $46''$. (Here's the same challenge for Saturn: At opposition, how far is it from Earth? Clues: Observed diameter in arc-seconds, known diameter in kms.)

M31 – Andromeda Galaxy: Milky Way's big brother is in its most viewable location during November. You'll have to try and get away from the northern city lights, as it is only 14° above the horizon.

But it's worth the effort. See what our Galaxy would look like from 'out there'.
[0 hr 43m, $+41^\circ$]

It should be visible to the naked eye as an elliptical fuzzy patch (like the Magellanic Clouds) and it is then best viewed in binoculars or a low powered telescope.

Photo Opportunity

Bob Bee

NEWS FLASH!! 10th solar planet found... 3 times Jupiter, 32,000 AUs out, orbiting in reverse. Is it a planet, or a captured brown dwarf? Is it even there?

Stay tune for more news.