

Night Sky

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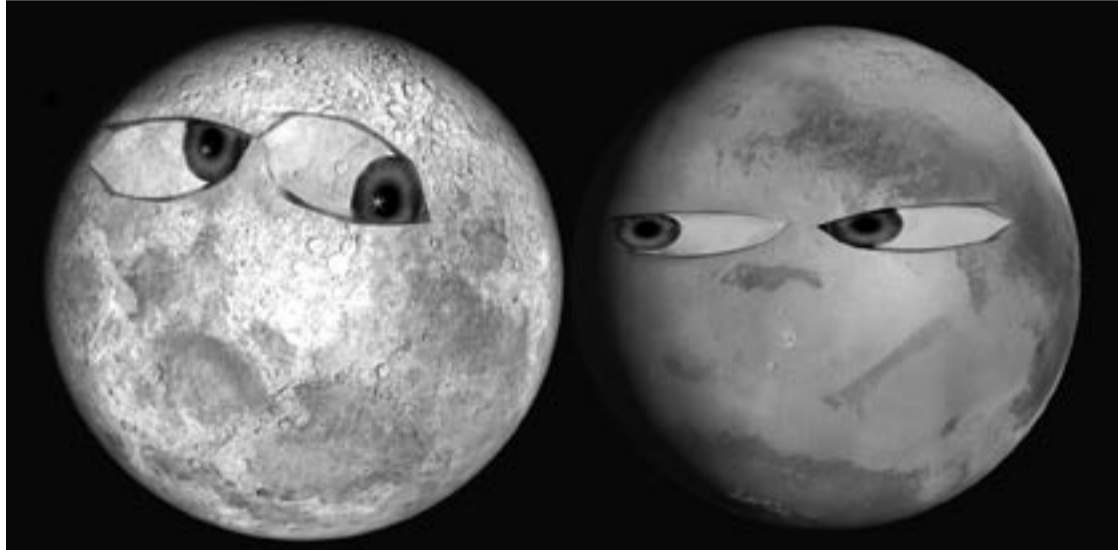
* Volume 314



MARS AS BIG AS THE MOON ?

Closer than it will ever be for 50,000 years? Once-in-a-lifetime view? No, no and no.

“Planet Mars will be the brightest in the night sky starting August. It will look as large as the full moon to the naked Eye. This will happen On Aug. 27 when Mars comes within 34.65M miles of earth. Be sure to watch The sky on Aug. 27 12:30 am. It will look like the earth has 2 moons. The Next time Mars may come this close is in 2287. Share this with your friends as **NO ONE ALIVE TODAY** Will ever see it again.” quoted from the Internet... and we all know that everything on the Internet is factually true.



Actually the distance to Mars this month on the 27th is going to be 301, 047,862.5 kilometres, twice as far from us as the Sun. The planet will be approximately 1.4 Magnitude in brightness. Contrast this with the planet's distance on 27th August 2003 when it was just 55.7 million kilometres from Earth and was several times brighter. So, why does this error keep cropping up every year?

The original commentary included the phrase “... as seen through a telescope...” when comparing Mars to the Moon as seen with the naked eye. This small but important point was missed by a few. Their ‘interpretation’ of the event, either from ignorance or malice rushed around the world, gaining momentum as it went. Unfortunately a few hapless souls keep repeating this nonsense every year. Believe me, it won't happen!



If you visit the Sutherland Astronomical Society's impressive observatory set-up near Como in the ‘Shire’ you will see what dedication, persistence and hard slog can achieve. Well done fellers and ladies of the SASI!

* * *

The Square Kiometre Array radio telescope has two contenders- Australia and South Africa. It needs to be situated in an area where there is little radio interference so that the antennae can pick up the faint emissions from deep space. Now, if Australia is chosen what's the chances of some mining mob finding coal/oil/diamonds/iron ore within a few kilometres and demanding the right to dig in the middle of it? and getting government approval?

* * *

The recent astro-imaging conference held on he Gold Coast was a great success. The more than a hundred keen amateur astronomers who attended had a very intensive and rewarding conference. Makes you wonder where we'll be in ten years from now. Ten years ago the number of successful amateur astronomers taking photographs of the sky could be counted on one hand. Now there are hundreds. Amateurs regularly supplement NASA's efforts to image the planets. Amateur astronomy is definitely looking up!

* * *

Bendigo District Astronomical Society is observing National Science Week on Friday August 19th by having an Open Night at Quarry Hill Golf Course- in conjunction with the Discovery Science and Technology Centre. The event will begin at 6pm, giving the littlies time to have a look at the Jewel Box, Omega Centauri and maybe the Small Magellanic Galaxy before heading home to bed.

* * *

Who has the best story to tell about that ‘first time’ looking through a telescope? Remember when you first saw Saturn's rings or Jupiter's moons? In two hundred words or less... let me know. Best (or funniest) story wins a copy of classic Collins ‘Stars and Planets’. Best stories will be printed in Night Sky.



SUTHERLAND ASTRONOMICAL SOCIETY REACHES THE HALF CENTURY. CELEBRATES !



Artistic Photography corralled over one hundred and thirty present and past members of the Suherland Astronomical Society in the one place and at the same time for a remarkable image of a galaxy of shining stars from the Shire's foremost scientific organization.

The Sutherland Astronomical society was formed in June 1961, as the James Cook Astronomers Club. Like many groups in Sutherland Shire, it honoured Captain James Cook, the English explorer who discovered the East Coast of Australia and landed at Kurnell, after successfully observing a Transit of Venus from Tahiti.

The James Cook Astronomical Club was granted council land at Oyster Bay, on the southern outskirts of Sydney, and in 1969 started construction on its Green Point Observatory which was to be of a dome construction eventually housing an F7 16” reflector . A meeting hall was added in 1974, and the observatory was further extended in 1997 when a roll-off roof observatory, housing a C14 telescope, was added beside the dome observatory. The two buildings were merged in 2007 and the hall was extended. In 1972 the group's name was changed to the James Cook Astronomical Society and in 1978 to Sutherland Astronomical Society.

The society's logo is the galaxy NGC2997 in Antlia, one of the most beautiful spirals in the southern hemisphere. The society was instrumental in organising the first National Australian Convention of Amateur Astronomers in Katoomba in 1966 and has hosted or co-hosted NACAA on three other occasions since then. The society currently has a membership of just over 200 with many active members.

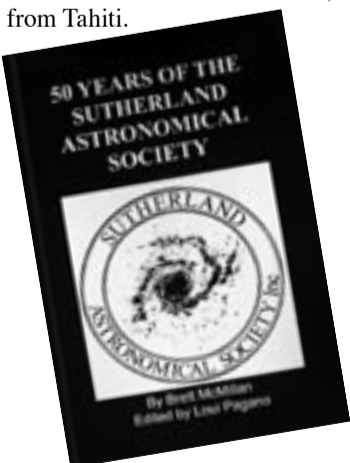
Members of the society have made some significant discoveries:

- Comet 1998 P1/Williams discovered by Life Member and prolific Variable Star observer Peter Williams in August, 1998.
- Comet 1999 H1/Lee discovered by member Steven Lee in March, 1999.
- Nova V382 Velorum discovered by Life Member Peter Williams in May, 1999 (independently co-discovered by P.Williams&A. Gilmore) *Brendon Bell*.

We congratulate the Sutherland Astronomical Society on fifty good years!



Founding member Frank Napier speaks at the SASI 50th Dinner.



A history of the Society, written to coincide with the 50th anniversary.

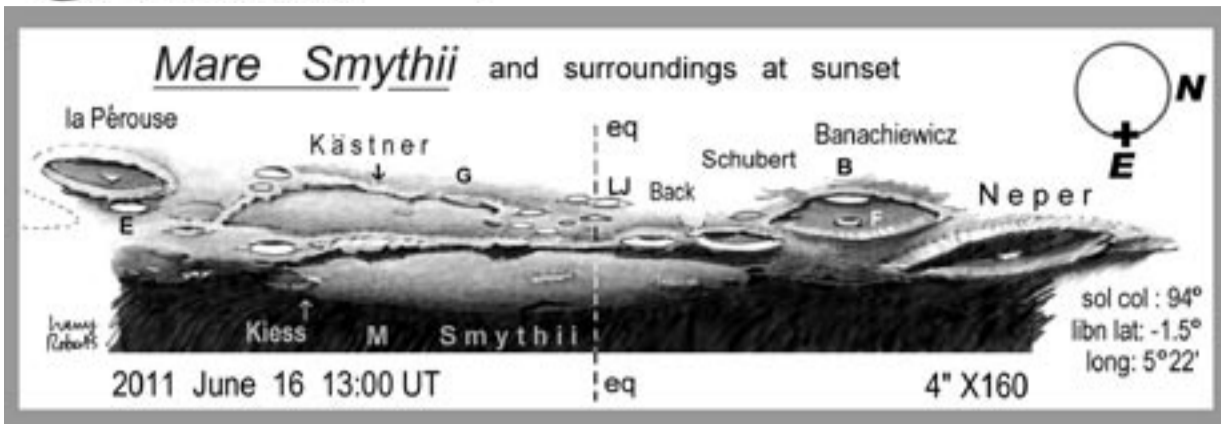
IN THIS ISSUE

Mel looks at a horse's tail	2
Oddie to rise again	2
Star Map for August	3
Mick 'n Don	4

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ON THE MOON with Harry Roberts **Harry's on to Smythii.**



Some sites are very rare sights.

Seldom Seen – Smythii.

The Moon offers many amazing vistas – some may be once in a lifetime views! Riccioli named the lunar “seas” after moods, weather or geographic terms – but there are two exceptions: Humboldt’s Sea and Smyth’s Sea (the latter was a British astronomical Admiral). Both are 19th C additions to the original list of “seas”. Mare Smythii is an old basin formation on the Moon’s extreme eastern limb – and, due to libration, is not often seen.

The writer keeps the four-inch Maksutov at the ready, and on 2011 June 16 the Moon was just past full, a day after total eclipse, and low magnification showed unfamiliar detail all along the eastern limb – amidst which, a round basin stood out strikingly. But what was I seeing?

The basin was large, about 2/3 the size of nearby Mare Crisium. An ortho eyepiece at 167 times was about right for the poor “seeing”. Sketching the basin and its neighbours took about thirty minutes. I searched Rühl for an answer. It was Mare Smythii, – a sight I had not seen before!

The ‘scope showed a round basin, almost side-on, ringed by a low unbroken rim, higher in places, with a smooth floor and hints of low “hills” on the sunset horizon. The view was much like those from Apollo era capsules, a spectacular oblique vista!

An astronaut standing in Smythii would see the sun setting in the west at altitude 60 – casting shadows ten times longer than the height of any feature. The shadows of Smythii’s encircling scarp are about 15 - 30km wide and the 10:1 ratio suggest the rim is mostly 1.5km high, rising to 3km - yet it seemed taller. Virtual Moon put the sunset shadow at longitude 86o, so we see about half of Smyth’s Sea. Some of the “hills” in the basin are floor-fracture craters (FFC, there are many) – but better seeing was needed for detailed views.

Some unusual landforms lay nearby. Most striking was Neper, a huge crater 137km wide, almost half of Smythii (300km). Neper is deep, with multi-terraced walls and a central peak piercing the shadows; a striking crater for further study.

North of it was shallower Banachiewicz. This eye-catching crater contained a brilliant white crescent that is crater Banachiewicz B, the brightest thing in the whole field. SE of Banachiewicz were Schubert and Back, two fresh craters on Smythii’s rim.

South of Smythii we find fresh la Pérouse - with its historic Sydney link, and bright central peak. Between la Pérouse and Back a long thin “walled plain” wavered across almost 200km: Kästner and Kästner G, two ancient overlaps – much like Struve in the lunar NW.

There is much to see in this unfamiliar area – note crater LJ (Fig) is Louise Jenkins (UK astronomer). Compound crater Kieiss is almost ‘sunk’ in the mare by both basin lava and rim shadows (Fig LHS). A superb view of Smythii from the north (Kieiss top centre) is in the “Kaguya Lunar Atlas” – a “must-have” for moon-watchers. Also see the LPOD website image for 2011 April 20.

All told - it was a good return for a short session, on a cold and moonlit night.

Harry Roberts

ODDIE TELESCOPE TO RISE AGAIN

New ‘glass and brass’ Oddie II telescope will be re-built to provide spectacular views of the moon, stars and planets for the public at Mt. Stromlo near Canberra.



The original centre section of the tube.

The original 9 inch Oddie Telescope was a gift of Mr James Oddie, an astronomer at the first municipal observatory in Ballarat, Victoria. Being a Grubb Parsons instrument, the Oddie was built in Dublin in the 1890’s. The Oddie was the first telescope to be installed on at the northern end of the ridge, set on a high point of Mount Stromlo in 1911 and was the first Commonwealth Structure to be built in the ACT. It was initially used to test the conditions for the new observatory. Unfortunately, the Oddie refractor was destroyed along with many other telescopes at Stromlo, during the devastating 2003 bushfires.

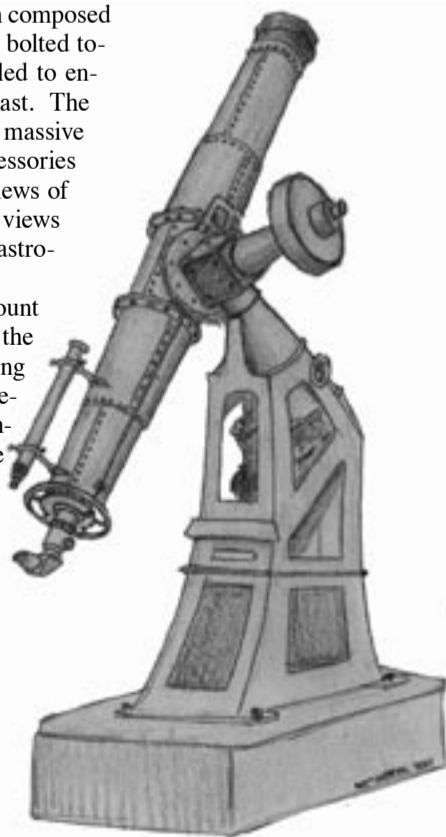
Although the Oddie refractor was no longer part of new research activities, it did serve an equally valuable role in outreach..

The mystique of a large brass refractor drew many visitors to Stromlo and doubtless kindled many a kid’s interest in astronomy and science in general. With this in mind, the observatory has commissioned Tim Wetherell to design and build a replacement instrument to be known as the Oddie II. This will be a telescope of similar design to the original Oddie but tailored specifically to be an outreach instrument from the outset. It will be an artwork in the form of a working modern telescope with a historic look and feel.

The Oddie II OTA will be a 8.7 inch f15 air-spaced achromatic doublet with the objective lens being manufactured by Istar Optical. The optical tube assembly will have a riveted construction composed of three steel sections flanged and bolted together and will be internally baffled to ensure the best possible visual contrast. The Oddie II will be equipped with massive custom made 3” eyepieces and accessories offering spectacular wide angle views of the sky as well as crisp, contrasty views of planets, the moon and other astronomical objects.

The massively original Grubb mount was damaged by the fire but has the potential to be repaired to working order and reused so the final telescope combination will still contain about half of the parts of the original, thus retaining much of its historic value.

The project is currently underway, metal is being cut and glass being ground - The OTA should be complete by the end of 2011 and the mount sometime during 2012. Once the two are coupled into a big classic refractor, a long tradition of brass and glass under the stars at Mt Stromlo will be set to continue.



LOOKING SOUTH with Mel

MEL LOOKS RIGHT UP AND SEES A STRANGE HORSE

Sagittarius the four-legged, two armed archer.

The end of winter sees the constellation Sagittarius high in our night sky. Sagittarius sits below the prominent constellation of Scorpius. Sagittarius is depicted as a half man, half horse aiming an arrow towards Scorpius. In mythology the Greeks associated Cro-tus (half man, half goat with a long tail like a horse) with Sagittarius, the Romans with Chiron the gentle and wise centaur (similar to Centaurus) but Sagittarius is different, in that he has a war-like posture with his arrow aimed at Scorpius. It is thought that Sagittarius can be traced back to the Mesopotamian archer-god Nergal, who was associated with the wrathful god Irra of war and fire. However, in our night sky Sagittarius looks more like a teapot than any of these mythical creatures.

Interestingly, the Sun lies in Sagittarius from mid-December until mid-January, meaning that it lies in this constellation at the time of Summer Solstice – its most distant point south of the equator.

The very centre of our galaxy – Sag A* is found in Sagittarius, along with many great binocular and telescopic objects. Alpha (α) Sagittarii is one of several examples where the star labeled as α which represents the brightest star in a constellation, is not actually the brightest star. Epsilon (ε) Sagittarii has the honour of being the brightest.

M22 (NGC 6656) is a large globular cluster. It is visible to the naked eye (in dark skies) and appears as a fuzzy blob in binoculars and it takes a 75mm telescope or greater to reveal some of the outer stars, some of the brightest appearing to have a reddish hue. Even small telescopes will reveal its elliptical outline. M22 is considered to be one of the finest examples in the sky, third only to omega (ω) Centauri and 47 Tucanae. The nucleus is not as condensed as many of the other globulars and it lies about 10,000 light years away.

M20 (NGC 6514) or the Trifid Nebula is a large gaseous cloud of gas. It gets its name from three dark dust lanes of dust that cross the nebula. It is not as impressive visually, but moderate-size telescopes show a diffuse glow (the dark dust lanes can be easily seen if the seeing conditions are good) with the brightest region of the nebula centering on the double star HN40. HN40 was formed in the nebula and now illuminates it. M20 is about 5,000 light years away.

M8 (NGC 6523) or the Lagoon Nebula is a well-known gaseous cloud of gas and dust (nebula) and in dark skies, is visible to the unaided eye. The eastern half of the nebula surrounds the open star cluster NGC 6530. M8 is an excellent sight in binoculars and telescopes, covering an area equivalent to three full Moons, with a dark band.



Sagittarius is known for its nebulae and clusters, 15 of which Messier cataloged - more than any other constellation.

Beta (β) Sagittarii consists of three stars. The two brightest are unrelated naked-eye stars that just happen to be in the same line of sight. β1 Sgr is a magnitude 4.0 blue-white star that lies 378 light years away.

It has a magnitude 7.2 companion star that is visible in small to medium aperture telescopes. The β2 Sgr is a magnitude 4.3 white star that lies about 139 light years away.

Epsilon (ε) Sgr is the brightest star of the constellation with a magnitude of 1.8. It is a blue-white giant lying about 145 light years away.

M22 (NGC 6656) is a large globular cluster of 30 scattered stars.

M17 (NGC 6618) the Omega Nebula is also famous. Telescopes reveal an arch-shape, like a capital omega (Ω). M18 (NGC 6613) is a loose cluster of about 20 stars, near M17. At 9th magnitude it is best seen in telescopes.

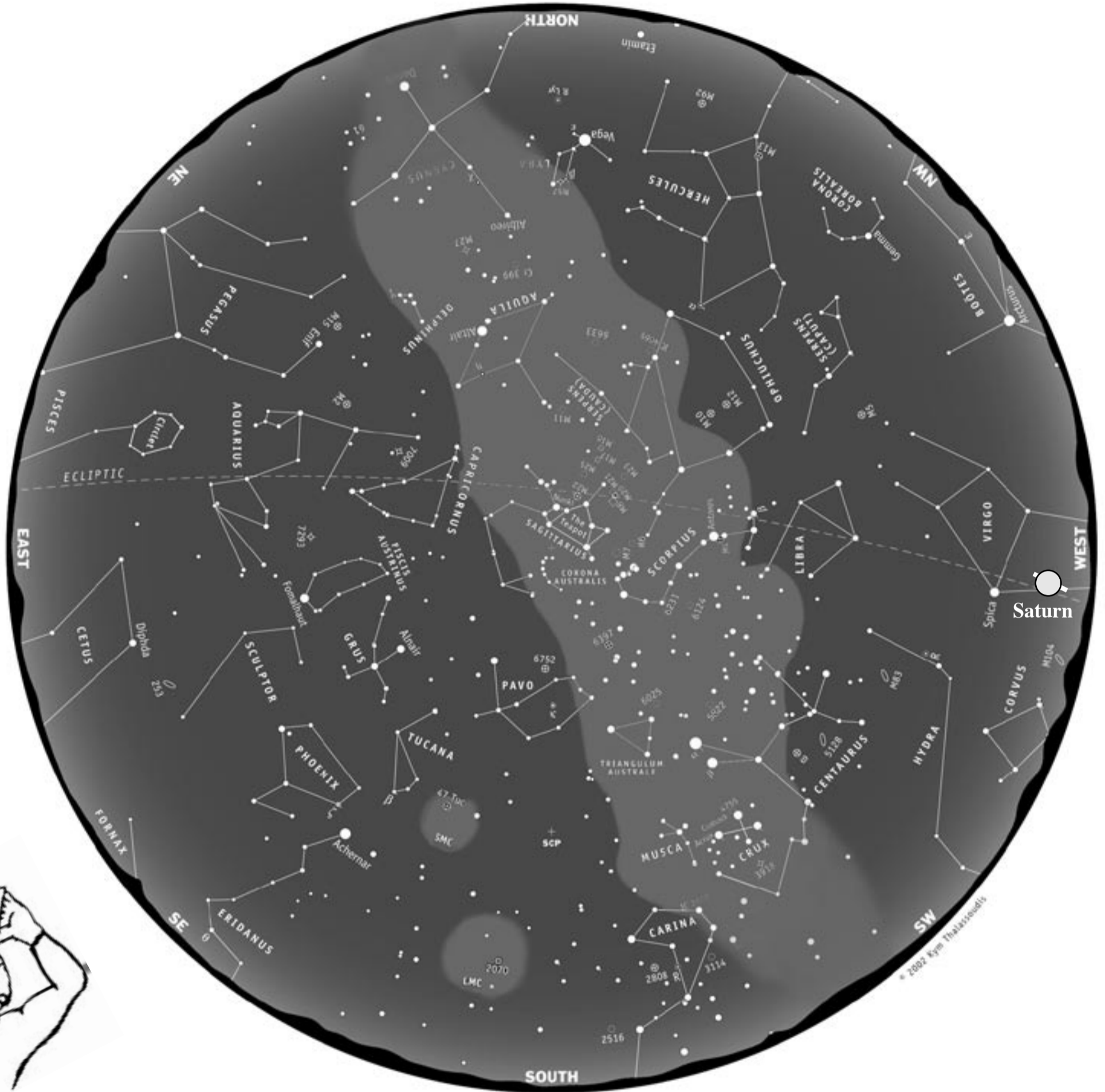
M25 (IC 4725) is a group of approximately 30 scattered stars.

Make sure you catch some of the amazing sights in the “other” Centaur this month!

Mel Hulbert



You can shop on-line at www.bintelshop.com.au for your astronomical needs.



Evening sky August 2011

The Moon

The Moon rotates around its own axis at such a slow rate that the same side faces us. It used to rotate much faster but it has been slowing down over billions of years. At some point in the distant past it just stopped turning from our perspective. The Earth's gravity pulls differently at various parts of the Moon, effectively acting as a brake. A similar situation has happened with most of the large moons in the Solar System.

- 3rd Moon at Perigee
- 6th First Quarter.
- 14th Full Moon
- 19th Moon at Apogee
- 22nd Last Quarter
- 29th New Moon



The Solar System

Mercury: Low in the western sky and getting lower. Disappears from view until the end of the month when it's in the dawn sky.

Venus: Venus is behind the Sun. Directly behind it on the 16th. It will then take a holiday till the middle of September when it comes back into the evening sky.

Mars: Mars slides into Gemini and begins rising around 4am. with the twins. It's easy to see on the 7th near Messier 35, a globular star cluster.

Jupiter: Jupiter is rising just before midnight in Aries. The giant planet will then appear to 'swim against the tide' of the stars for some time.

Saturn: Saturn is in Virgo. It's getting low in the west once the evening starts. You'll need to get a look at it before 9pm, when it's getting too low for good viewing.

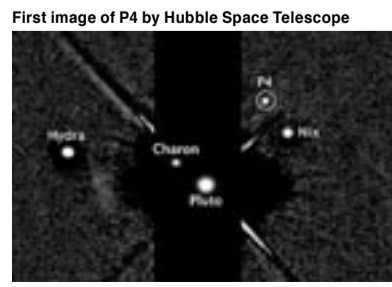
Uranus: Is in Pisces, rising about mid-evening. Brightens slightly. A small bluish-green blip.

Neptune: Is in Aquarius and rises at about 6pm in the eastern sky. Well beyond visual range at Mag 8, you'll need a good scope to see it.

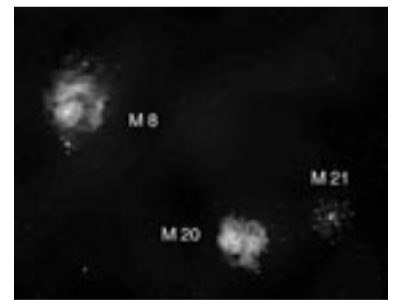
Pluto: Cannot understand why sailors were called sea-dogs. Tried sailing last month. Got as sick as a dog. So, were sailors always sick? And how many sick dogs do you see on boats? It's all far too confusing for this little puppy.

Comets etc...

Astronomers using the Hubble Space Telescope to look for possible rings around Pluto have instead uncovered a fourth, previously unknown moon orbiting the dwarf planet. The moon, currently assigned the temporary name P4, is the smallest of Pluto's satellites. Astronomers estimate that its diameter is somewhere between 13 and 34 kilometres. The largest moon Charon is 1,043km wide and Nix and Hydra are in the range of 32-113 kilometres. P4 is located between the orbits of Nix and Hydra.



Deep Sky



Whilst you're stickybeaking at Sagittarius with binoculars or a low power telescope locate the lovely grouping of M8, M20 and M21. They're easily found. M8, the Lagoon Nebula is a bright emission nebula with a cluster of stars embedded in the middle. M20, the Trifid Nebula is a hydrogen cloud with a blueish dust cloud. M21 is cluster of 60 or so very young stars just to the north of the Trifid.

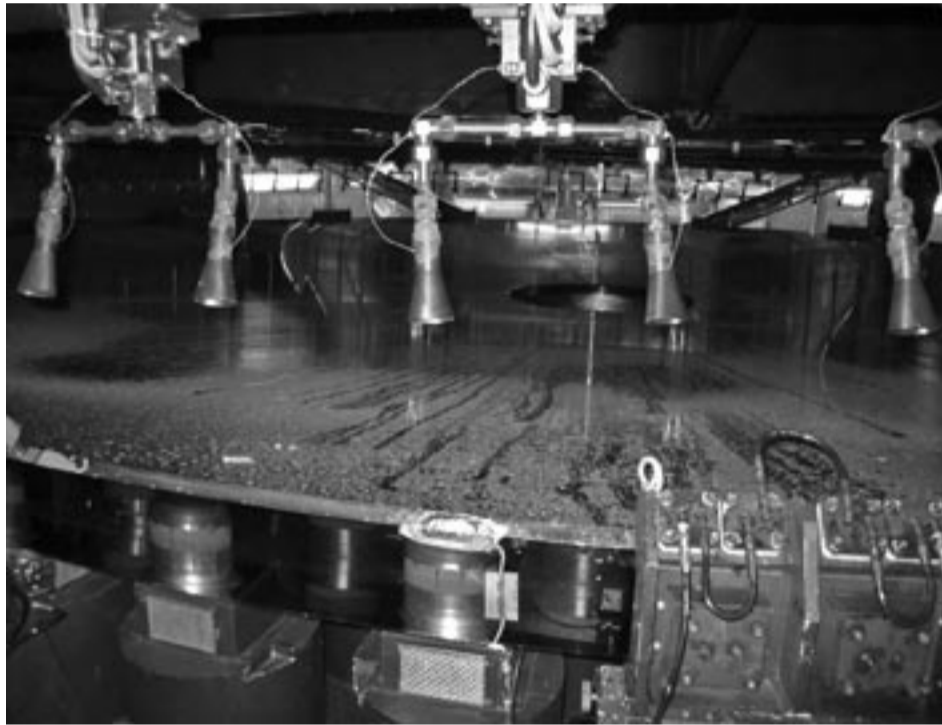
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The sad-looking mirror and its actuators covered in dripping ethylene glycol. Dust blowers are above.

SUBARU IN A MESS. liquid spilt on mirror

A serious hardware incident in early July shut down the Subaru Telescope indefinitely. A leak allowed orange-colored coolant to spill over the primary mirror and into the main camera, as well as into other instruments and the structure of the telescope. The damage is being assessed. During the clean-up and recovery of equipment, nighttime observations have been suspended, as well as daytime summit tours of the telescope.

An announcement posted on the Subaru telescope website said that operators detected an error signal while shutting down the observation system at the end of the night shift during the early morning hours of July 2.

When engineers arrived to assess the situation, they found extensive leakage of ethylene glycol over the entire telescope. The leak originated from the the Subaru Prime Focus Camera and auxiliary optics.

Although they promptly shut off the supply of coolant, a significant amount of leakage occurred down to the tertiary mirror, the primary mirror and some of its actuators, the Faint Object Camera and Spectrograph and its auxiliary optics.

The engineers attempted to clean up and remove as much coolant as possible. However, such areas as optics, control circuits, and the inside of Suprime-Cam and FOCAS were inaccessible during the initial clean-up. The coolant is not corrosive and does not appear to have damaged the primary mirror substantially.

VESTA SEEN CLEARLY FOR THE FIRST TIME.



NASA's robotic spacecraft Dawn has drifted into orbit around Vesta, starting a year-long mapping survey of one the asteroid belt's major inhabitants. Launched from Earth in September 2007, Dawn approached Vesta using its ion engines until Vesta's gravity naturally snared the probe into a slow-moving orbit. The ion engines produce little thrust, but they sparingly consumed xenon propellant over thousands of hours to slowly accelerate the spacecraft to enormous speeds.

Dawn will begin its science mission in August with mapping and imagery collections before moving closer to Vesta for more detailed observations. The closest Dawn will get to Vesta is about 200kms, to get the best views of the asteroid's rocky surface and reveal Vesta's chemical make-up and gravity field.

Vesta was chosen is because it is big and it was also one of the first bodies to form in the solar system. The surface of Vesta will show the early history of the solar system.

Vesta is approximately 500kms in diameter. Discovered by Heinrich Wilhelm Olbers in 1807, it is the second-most massive object in the main asteroid belt. It rotates in about 5.3 hours. Until this picture was taken last month we had little idea of its surface features.

Vesta has an extremely large and deep crater near its south pole. Whatever crashed into Vesta to form the crater ejected a million cubic kilometres of rock into space, spraying debris all through the solar system. It's quite probable that about 5 percent of all the meteorites that fall on Earth originate from that cataclysmic event.

The spacecraft has German cameras, Italian spectrometers and gamma-ray and neutron detector built in the USA. This array of instruments will investigate the composition of Vesta's surface, study the link between Vesta and meteorites that have fallen to Earth, and create a geologic map of the asteroid. Scientists will also measure Vesta's gravity field to determine whether it has a metallic core. In 2012 Dawn's ion engines will ignite in July to propel the spacecraft toward its second destination, the dwarf planet Ceres where it will arrive three years later.

Nervo Shatterini August Quiz

His Eminence Professor Dr Nervo Shatterini, Associate Professor of Planetary Heating, Cooling and Air-Conditioning (weekends) asks these simple questions.

- 1) How many Messier objects are found in Eridanus ?
- 2) Which star cluster was once considered a separate constellation?
- 3) How many constellations directly border Octans?
- 4) Where would you find the Orion Arm, the Sagittarius Arm and the Perseus Arm?
- 5) To what was Pyxis attached?
- 6) In how many constellations can the visible planets appear ?
- 7) In how many constellations are stars are named Alaraph?
- 8) How many Messier objects are in Canis Major?
- 9) Which famous comet was found in Hydra during 1965?
- 10) Into how many constellations was Argo Navis divided?
- 11) What is the most famous star in Auriga?
- 12) Who first compiled a list of stars by magnitude?
- 13) How long is a sidereal month?
- 14) Which is the second largest constellation?
- 15) What's the temperature of the visible surface of the Sun?
- 16) The Germans called it Frederick's Glory. What did the French call it?
- 17) Who discovered the 'canali' on Mars that got Lowell so excited ?
- 18) Who wrote the words for Johnny O'Keefe's "Wild One"?
- 19) Where would you be likely to find pyroclastic rocks?
- 20) Which metallic nuclei are found in great numbers in cosmic rays?

Answers may be found below by turning the page upside down.

- (1) None. Not one.
- (2) The Pleiades.
- (3) Seven. Apus, Chamaeleon, Hydrus, Indus, Mensa, Pavo and Tucana.
- (4) In the Milky Way.
- (5) To Argo Navis. It was the boat's compass.
- (6) Twenty four. Believe me.
- (7) Three.
- (8) M41, just one.
- (9) Ikeya-Seki.
- (10) Three, Carina, Vela and Pup-pis.
- (11) Capella.
- (12) Hipparchus of Nicaea in about 150BC.
- (13) 27.3216 days.
- (14) Virgo.
- (15) It's just 5500 °C.
- (16) The Sceptre and Hand of Justice.
- (17) Giovanni Schiaparelli.
- (18) Tony Withers.
- (19) Near a volcano.
- (20) Lithium, beryllium and boron.

Mick 'n Don



Hey Don, they reckon Hubble found a new moon for Pluto. How can that be?



Yair Mick. It was just a bit too small to see in any other telescope.



But Pluto isn't officially a planet any more, so how can it have a new moon?



Well, it's not as if Pluto has suddenly spawned a new moon.



Possession is nine tenths of the law, I guess.

Pluto's had this moon for millions of years. Nobody can go there and remove it.

Night Sky

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