

Night Sky

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SECOND IN A CONTINUING SERIES: AMATEUR ASTRONOMERS WHO MAKE A DIFFERENCE AL NAGLER

THE AMATEUR ASTRONOMER
WHO CHANGED THE WAY WE
SEE THE UNIVERSE.

Al Nagler was born at a very young age in New York in 1935. His family lived in the Bronx and by the time he was of high school age Al had started to become interested in science. When he was eleven, his father took him to the famous Hayden Planetarium at the New York Museum of Natural History, where he watched enthralled as the stars traced their way across the dome.

Al bought his first telescope, a 76mm Newtonian reflector and joined the Junior Astronomy Club at the Planetarium. His high school years were spent at the Bronx High School of Science where Al decided to build his own telescope. Using information supplied from amateur telescope making books, he bought a mirror grinding kit from Precision Optics, an optician also in the Bronx. He ground and polished the 8" mirror, producing an f6.5 with a focal length of 52-inches. Under the guidance of the school shop teacher, Al built a hexagonal wooden tube which was attached to a massive iron-pipe equatorial stand for the mirror. The school awarded Al a prize for his work on the telescope. When he graduated from High School in 1953, his intention was to become a machinist. That telescope, which was refined and improved over subsequent years, was instrumental in shaping Al's future.

Al bought an old car to carry the scope and soon after he was nearly arrested by the police for carrying a dead body in his car when patrolmen mistook the telescope for a coffin! With his friends, he would travel about forty kilometres north of New York City

to do some observing near Mt. Kisco, NY. It was near there that another brush with the law occurred when he was almost shot by trigger-happy police who glimpsed him walking on a country road on a foggy mid-winter night wearing a shaggy coat. They thought he was a dangerous brown bear on the loose! His untrusty car had broken down and he was walking to the next town.

Right: The Nagler family: Al and Judi with son David and daughter-in-law Sandi

In 1958, he won 3rd prize at Stellafane, the most famous 'star-party' in America, for 'Mechanical Excellence' with the scope. Al still attends Stellafane every year to meet and mingle with fellow amateur astronomers.

Al wrote an article for 'Mechanix Illustrated' magazine about the building of his telescope. This paid the handsome sum of \$80, a lot of money in those days! The article paved the way to a job at Farrand Optical Company, where he worked from 1957 to 1973. All the while attending City College of New York at night, where he earned a degree in Physics.

Whilst at Farrand he was associated with Martin Shenker, Earle Brown and also met Albrecht Tronnier, who had worked for the Schneider company in Germany. Al became senior Optical Designer at Farrand and was instrumental in the design of wide-angle projection systems used by NASA for the Apollo moon-landing simulators. The ability to simulate everything from accurate star-fields to lunar touchdowns was work that gave him immense satisfaction. The star fields were precise enough that the astronauts used them to train on. The views, as seen through the windows of the lander simulator were equivalent to an amateur astronomer using an eyepiece with a 110° apparent field of view with a 300mm eye-relief and a 300mm exit pupil!

Al moved on to Keystone Camera company which had produced a long line of 16mm and 8mm movie cameras. He was involved in designing lenses for the new range of 'Instamatic' cameras that were becoming popular.

In 1977 he decided to go into business himself and set up Tele Vue Optics to design and market lenses for television projection. By 1979 he was designing



The Nagler 13mm

a telescope eyepiece that would eventually revolutionise amateur astronomy. The complex design of what became known as the Nagler eyepiece was expensive to produce and far more costly than amateur astronomers were prepared to pay. Al decided to introduce amateurs to a less expensive, but still high quality eyepiece by producing a range of Plossl eyepieces that had been adapted and optimised to produce the best possible results at a reasonable price. At the time, most amateur astronomers were using eyepieces that had their design origins in the nineteenth century. Only a few had been designed in the early twentieth century and these were more suited to military applications than use in astronomical telescopes. The Tele Vue Plossl eyepieces were introduced to the public and sold by mail-order for \$45 each. They were parfocal, had edge-blackened, multi-coated lens elements in a matte black barrel to give maximum contrast and reduce stray reflections. The 26mm Plossl was so well received that it pretty much became the standard focal length that shipped, and still ships, with new telescopes produced by many companies.

MAD RUSSIAN SCIENTIST SAYS THERE'S LIFE ON VENUS!



An otherwise intelligent Russian scientist claims that he has found signs of life on Venus!

His claim is based on photographs that were taken by a Soviet venusian probe around 1972. Strange shaped objects are seen near the Venera 13 lander that look like discs (UFO's?) and scorpions (armoured shell-backed insects?). "Let's boldly suggest that the objects' morphological features would allow us to say that they are living," said scientist Leonid Ksanfomaliti in his article in the journal 'Solar System Research'. Careful analysis of the image suggests that the object is simply a camera lens cover that popped off and landed on the surface in the wrong place. An identical object shows up in a photograph taken by an identical landing probe, Venera 14, which landed elsewhere on Venus. That lens cover landed precisely where a probe was designed to test the surface for compressibility. All the probe managed to test was the lens cover that had been taken all the way from Earth! Sometimes you just can't win!

Eyepieces could be designed and produced that would give a very wide field-of-view, but there was usually unacceptable astigmatism at the edges of the field. This was not so important for military use but was unacceptable in astronomy where stars are meant to look like stars, not like seagulls. To produce an eyepiece with a wide field and acceptable sharpness, contrast, no astigmatism and a flat field of view had been considered virtually impossible. By employing a negative lens ahead of the focal plane and matching it to the precise requirements of the upper section, Al was able to design an eyepiece of 13mm focal length with an eye relief of 18mm that worked well with telescopes from long focal ratios all the way down to f/4. Its field of view was almost thrice that of the popular Orthoscopic eyepiece. The eyepiece design was patented with the title "Ultra Wide-Angle Flat Field Eyepiece." Not a very commercially acceptable name, so Nagler simply called it "Nagler" since eyepiece designs were often traditionally named for the designer. *Continued Page 4*



Interest is steadily building for two great solar events scheduled for this year. A transit of Venus on June 6th and a solar eclipse on 14th November. The transit will be visible for many hours from most parts of Australia, the full eclipse from only a small area around Cairns. The solar eclipse will be visible as a partial eclipse from many places in Australia.

We're often asked for advice on astronomy courses available to members of the public. Whilst we don't offer such courses ourselves we're often able to point people in the right direction. Currently, we'd suggest for interested folk in the Sydney area that they look at the information on Page 4.

One of the most useful accessories for amateur astronomers is the 'Stellar Seat', a portable chair with a fully height-adjustable seat. It saves many a cricked neck by allowing amateur astronomers to vary their viewing position more comfortably. Stock wasn't available at Christmas but a new shipment has just arrived. Still by far the best!

We hear that a well-known German filter manufacturer is experimenting with a telescope filter that can block frequencies of light absorbed by clouds... and to some extent by rain. They're offering to send some of these filters for testing by Australian amateur astronomers. I'm sure we'll get a large number of offers by frustrated amateur astronomers keen to try them out!

Before you jump on the phone to order the 'Alpha fog & cloud filter' be aware that they will be the most expensive filter we've ever seen. They are being looked at by airlines keen for their pilots to fly in rain, fog and cloud.!

One of Meade's latest telescope systems will make its debut in the Southern Hemisphere shortly. A model will be given a run around the block and a good shake-out to make sure it understands that things move differently down here. We're looking forward to this. The fun should start fairly shortly!



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SOLAR ECLIPSE TRIP TO NORFOLK ISLAND

INTREPID ADVENTURER TO LEAD PARTY



Jimbo Barclay with some of the solar telescopes he will use.

Queensland astronomer, photographer and photojournalist James (Jimbo) Barclay not only owns and operates Queensland's largest self-funded Maidenwell Astronomical Observatory near the Bunya Mountains National Park, he is hosting an Astronomy Week on Norfolk Island between November 10 - 17 which includes the Total Solar Eclipse on the 14th. Partiality on the island will be 98%. The table below is NASA's calculations for Nov. 13 in UT or GMT (hour minute second) for the two regions. Eastern Australia is UT+10hrs and Norfolk Island is UT+1130

Oak Beach	Sun's Altitude	Norfolk Island	Sun's Altitude
C1 19h 44m 31.6s	1 deg.	20h 01m 14.9s	18 deg.
C2 20 38 09.6	~13 deg.	-----	-----
Max. 20 39 11.9	ditto	21 07 32.2	42 deg.
C3 20 40 14.6	ditto	-----	-----
C4 21 39 48.9	27 deg.	22 22 07.7	57 deg.

On the eclipse day, Jimbo said his group will assemble and set up their gear at 4.45am prior to sunrise at 5.16am, on a private property overlooking the ocean. The group will then indulge in a Norfolk Island breakfast BBQ. Jimbo has even organised car batteries to be on hand for scope drives.

To help the group out, he's taking a swag of gear: Lunt LS80TH α /PT/B1800 solar scope, still, video and time-lapse video recording equipment, two C8's and a GOTO mount. One of the scopes will have black Polymer solar film over the corrector plate which gives a nice cool orange image. Those on the tour will be supplied with free solar viewing glasses and some solar film to cover binoculars, camera lens and small telescopes.

The tour package also includes locally produced day and night activities and BBQ's. On other days and nights guests can explore the island's natural beauty at leisure, or join Jimbo as he travels to picturesque places to get spectacular shots. He says he's just a nice all-round guy and has taken the time to learn the islanders' dialect. His astro night tours will allow you take award-winning astro pics from various places around the island and observe the night skies through the C8's. With no light pollution on the island, naked eye limit is Mv6.8. Full tour details can be found on www.starsabove.com.au or call (07) 4164 6194. Photos of the island can be found on www.jamesbarclay.org

LOOKING SOUTH with Mel MEL LOOKS TO THE NORTH AND SEES THE HUNTER

One of the most easily recognised constellations in either southern or northern hemispheres is Orion. Orion is a summer constellation for Australians, and passes slightly to the north of directly overhead. Orion is depicted as a hunter and his 'Belt and Sword' are what many of us see as 'The Saucepan', but Orion is much larger than this. We see this constellation upside down and back-to-front compared to the northern hemisphere, hence the belt and sword's resemblance to a saucepan rather than part of the mythical hunter.

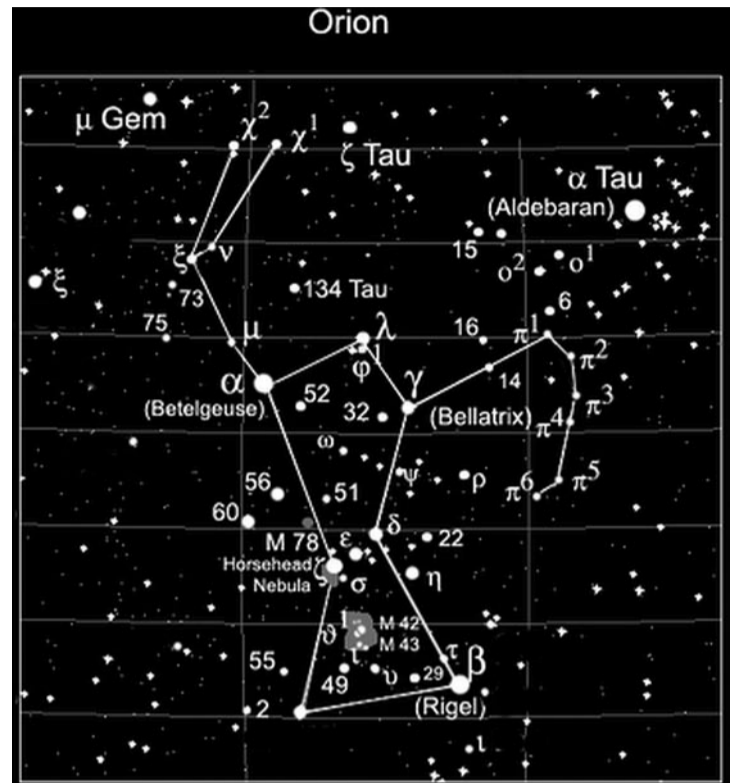
The constellation Orion is an ancient constellation that has a place in the mythologies of many ancient civilizations. In Greek mythology, Orion was a hunter of great talent. He made the mistake of boasting that he could kill all living beasts. The Earth-goddess Gaia upset by this, sent Scorpius (the scorpion) to kill him. In the night sky we see Orion set as Scorpius rises, constantly chasing Orion across the sky. However, Ophiuchus the healer killed the scorpion and then revived Orion, which is why we see Ophiuchus squashing the Scorpion as it sets, and Orion rising in the east once more. Orion also has links with ancient Egypt. It is thought that Orion represented the Egyptian god of the afterlife - Osiris.

Orion contains many great sites, including the brilliant stars Betelgeuse and Rigel.

Alpha (α) Orionis or Betelgeuse is a red supergiant that is 500 times larger than our own Sun. It is so large that it is unstable and this causes it to vary in brightness between magnitudes 0.0 and 1.3. The name Betelgeuse appears to have many translations, from 'shoulder of the giant' and 'armpit of the central one' to a corrupted form of Arabic referring to a hand, however all seem to agree that the name is derived from Arabic. Betelgeuse appears reddish/orange to the naked eye and lies 427 light years away.

Beta (β) Orionis or Rigel is a brilliant blue/white supergiant star (7th brightest star in the sky) and is 773 light years away. Once again some debate arises over the translation of the name, but most references state it's meaning as 'Giant's leg'. It has a small companion star of magnitude 6.8 that can be seen in moderate sized telescopes. Smaller telescopes may pick-up the companion but only in good seeing conditions as the glare from the primary star makes observing difficult in poor conditions. The jewel in Orion would have to be M42 or the Orion Nebula. This object is the middle point of light in the handle of 'The Saucepan'. It is a large cloud of gas (mostly hydrogen) and dust and is a very active star-forming region. To the eye, it has a greenish hue, while in photographic images it appears predominately red with some bluish tones. This is due to the differences in colour sensitivity of the human eye compared to photographic film. In binoculars it is a fuzzy patch of light, but large binocular such as 20x80's will just show the Trapezium stars (see below) as well as the extent of the entire nebula. Moderate sized telescopes show its structure. M42 is about 1,500 light years away and approximately 40 light years in diameter.

Theta1 (θ 1) Orionis is a multiple star in a darker area at the heart of the Orion Nebula. It has recently formed from the nebula and now illuminates it. This group of stars is best known as the Trapezium stars.



Small telescopes reveal four stars, but larger telescopes with apertures of 150mm or more, will reveal two more stars of magnitude 11. The four main stars of the Trapezium are of magnitudes 5.1, 6.7, 6.7 and 8.0 and the group lies about 1,500 light years away. Theta2 (θ 2) Orionis lies nearby and is a good double star for binoculars, of magnitudes 5.1 and 6.4. Iota (ι) Orionis is a double star of magnitudes 2.8 and 6.9. It lies on the southern edge of the Orion Nebula and is easily divisible in small aperture telescopes. Also visible in the same field is a wider double of blue-white stars (Σ 747), with magnitudes 4.8 and 5.7. Iota lies about 1,300 light years away.

M43 lies to the north of M42 and is a smaller region of nebulosity centred around a magnitude 7 star. In fact, it is really part of same huge molecular cloud as M42.

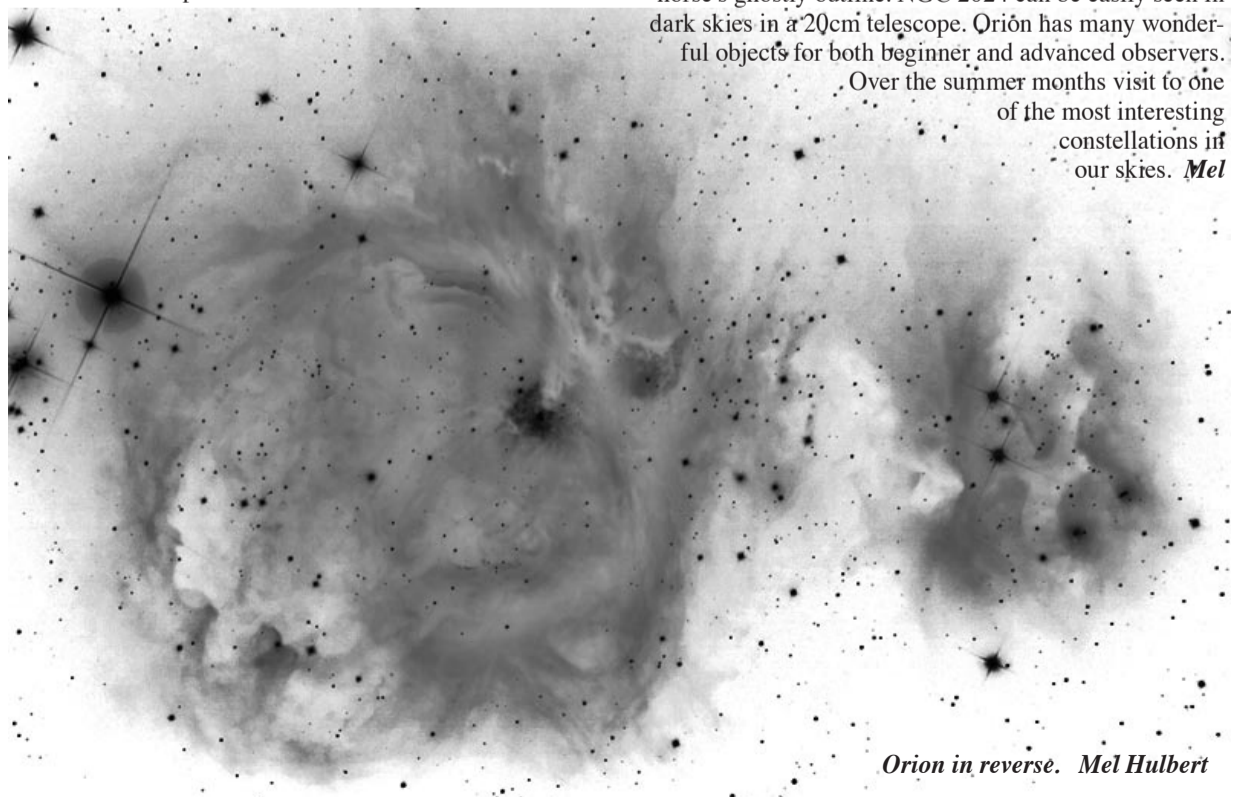
NGC 1977 is a reflection nebula, lying to the north of both M42 and M43. It is centred on the brilliant blue giant star 42 Orion (magnitude 4.6) and also lies 1,500 light years away.

NGC 1981 is a scattered open cluster consisting of about 20 stars, all magnitude 6 and fainter. The cluster is situated to the north of NGC 1977 and includes Struve (Σ) 750, a double star consisting of magnitude 7 and 8 stars.

IC 434 and the 'Horsehead Nebula' is perhaps one of the best-recognised objects in Orion. Being one of the most strikingly beautiful objects also naturally means that it is also one of the most elusive. Located to the south of the brilliant star Zeta (ζ) Orionis is a bar of nebulosity IC 434, in front of which the dark dust cloud shaped like a horse's head sits. In photographs, the nebulosity is red (hydrogen) and the dark Horsehead Nebula is silhouetted in front. Surrounding the star ζ Orionis is nebulosity NGC 2024 known as the 'flame nebula'. IC 434 is extremely difficult to see with most small to medium telescopes.

It takes a large aperture telescope to even glimpse the horse's ghostly outline. NGC 2024 can be easily seen in dark skies in a 20cm telescope. Orion has many wonderful objects for both beginner and advanced observers.

Over the summer months visit to one of the most interesting constellations in our skies. Mel

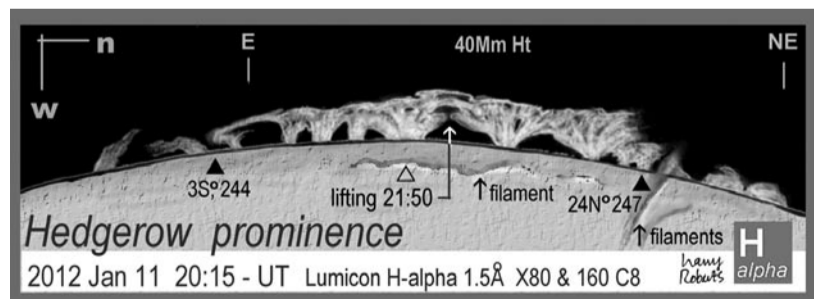


Orion in reverse. Mel Hulbert



SUNNY CORNER with Harry Roberts

HARRY GOES GARDENING ON THE SUN

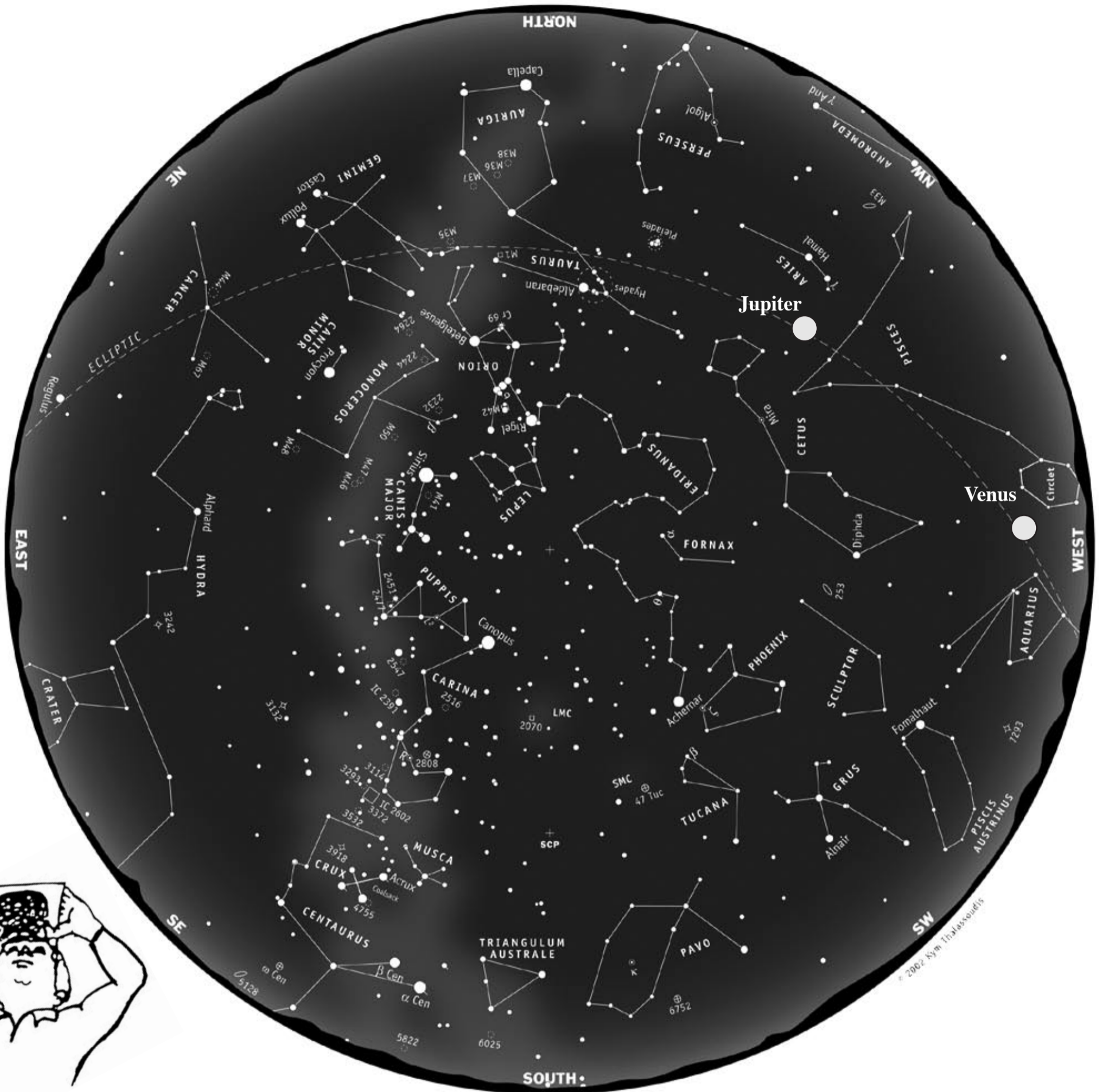


The Lumicon H-alpha filter gives memorable solar views - perhaps due to the 2m focal length of the 'scope, and 2012 January 12 was a good example. While there were few sunspots of note and no flaring there was a fine hedgerow prominence stretched around the NE limb.

The writer and colleague Monty Leventhal often remark the shortage of large quiescent prominences - while there have been many dark filaments on the disc, few that round the western limb seem to cause notable prominences. On this morning, however, we had a textbook example in the east (see Fig).

Timing chords across the disc and "helio" freeware © Peter Meadows gave the coordinates of key points on the large prominence. The major (contiguous) part of the prominence stretched between latitudes 30S and 24oN, 27o in total, but with fainter detached sections would have exceeded 40o overall. The "Helio" chords put the big prominence well within current sunspot latitudes, a somewhat unusual event.

continued Page 4



Early evening sky February 2011

The Moon

Very few space travellers have ever set foot on the surface of the Moon, and all twelve of them were Americans. These were the astronauts on board the Apollo missions between 1969 and 1972. The first two to ever walk on the Moon were Neil Armstrong and Buzz Aldrin. The last person on the Moon was Gene Cernan, who followed his partner Jack Schmitt back into the lunar lander on December 14, 1972 for the return flight to Earth.

- 8th Full Moon
- 12th Perigee
- 15th Last Quarter
- 22nd New Moon
- 27th Apogee
- 31st First Quarter.

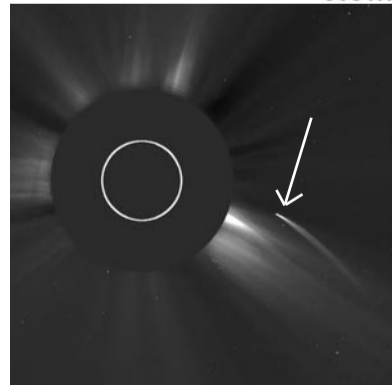


The Solar System

- Mercury:** Is in superior conjunction behind the Sun on 7th, then moves into the evening sky but is difficult to see.
- Venus:** Moves from Aquarius to Pisces in the western evening sky. Brilliant and easy to see. Often mistaken by excitable types as a scintillating UFO.
- Mars** is in retrograde motion and slides into Leo. It rises about 9.30pm, so wait till 11pm for a better view. Still very small, even in telescopes.
- Jupiter** is in Aries, high in the western sky early in the evening. Sets in the west at about 10.30pm. A great telescope view with its moons.

- Saturn** rises in the East in Virgo just before midnight. Good viewing by midnight as its rings are tilted to a decent angle relative to our point of view. Small, compared to Jupiter.
- Uranus:** Is in Pisces, low in the west, early in the evening. Just above and to the left of Venus on the 10th.
- Neptune:** Is in conjunction with the Sun and therefore not visible at all till late next month.
- Pluto:** Has had offers coming in for him to bite a few recalcitrants in the national capital. What's the chance that it will end up in a dog's breakfast, with Julia and Tony watching as Kev and Joe slug it out in a November thrill-a-in-Manildra!

Comets etc...



This comet raced in towards the Sun last July, travelling at 900 kilometres per second and made it to within 150,000 km of the sun's surface before evaporating. When it was visible to the Solar Dynamics Observatory, the comet changed from 200 million kilograms to vapour in just twenty minutes, a fate happily avoided by the recent Comet Lovejoy!

Deep Sky

The "Beehive Cluster" M44, is coming up in Cancer in the eastern sky. Aratos, a Greek was the first who noted this beautiful open cluster as 'a little mist'. Hipparchos described it as a 'cloudy star'. Ptolemy called it 'the nebulous mass in the breast' of Cancer. Galileo was the first to resolve it as a star cluster. He reported: "the nebula called Praesepe is not one star only, but a mass of more than 40 small stars". Now, if they all thought it looked nice, have a look with binoculars or a telescope for yourself!



ASTRO societies

- Macarthur Astronomical Society Inc:** NSW
☎ 0402 479 776 Trevor Rhoades www.macaastro.org.au
- Sutherland Astronomical Society Inc:** NSW
☎ (02)9832 4082 Brett McMillan www.sasi.net.au
- Northern Sydney Astronomical Society Inc:**
☎ Bob Fuller 0423 971374 www.nsas.org.au
- Sydney City Skywatchers (BAA) (NSW)**
☎ 9398 9705 www.sydneycityskywatchers.asn.au
- The Astronomical Society of NSW.**
☎ 0428 965 249 John O'Brien www.asnsw.com
- The Western Sydney Amateur Astro Group Inc**
☎ Gerry Aarts 0416 292 020 www.wsaag.org.au
www4.tpgi.com.au/users/wsaag
- Sydney Northwest Astronomical Society**
☎ (02) 9634 1736 Ken Petersen
- The Hawkesbury Astronomical Association:**
☎ (02) 4572 1568 Adrian Saw
- The Wollongong Astronomy Club. NSW**
☎ (02) 4261 9369 Paul Brown
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☎ (02) 4276 3199 Peter McKinnon
www.illawarraastronomicalsociety.hostoi.com
- Shoalhaven Astronomers: South Coast NSW**
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www.shoalhavenastronomers.asn.au
- The Astronomical Society of the Hunter: NSW**
☎ (02) 4937 4664 Col Maybury colmay@kooee.com.au
- Newcastle Astronomical Society: NSW**
☎ (02) 4950 0725 Allan Meehan www.nas.org.au
- Coffs Harbour Astronomical Society: NSW**
☎ (02) 6653 2742 Win Howard
- Coonabarabran Astronomical Society, NSW**
☎ secretary@coona-astro.org.au
- Central West Astronomical Society, NSW**
John Sarkissian: john.sarkissian@csiro.au
- Port Macquarie Astronomical Association NSW**
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☎ (02) 6643 1349 Mick Austin, President Pro tem.
- Bombala Astronomy Group, NSW**
- University of New England Astronomical Society**
☎ (0427) 892 011 Chris Wyatt
- Clarence Valley Astronomical Society**
☎ (02) 6643 3288 Steve Fletcher
- Ballaarat Astronomical Society: Vic**
☎ (03) 5332 7526 bas@cbl.com.au
<http://observatory.ballarat.net>
- Bendigo District Astronomical Society**
PO Box 164 Bendigo Vic 3552. Kate McMillan
- Astronomical Society of Victoria Inc**
☎ (03) 9888 7130. Linda Mockridge www.asv.org.au
- Latrobe Valley Astronomical Society Vic**
☎ (03) 5122 3014 home.vicnet.net.au/~lvas
- Astronomical Society of Geelong, Vic**
☎ 0407 345 070 Frank Baker for details.
<http://vicnet.net.au/~asog>
- Mornington Peninsula Astronomical Society,**
☎ 0419 253 252 Peter Skilton for details.
- Astronomy Benalla** 03 5762 1523 Rupe Cheatham
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- Astronomical Society of Albury-Wodonga**
www.asaw.org.au
☎ Petra De Ruyter 0431 535 417
- Snake Valley Astronomical Association (Vic)**
☎ 0418 425 207 Me Ken James.
- Canberra Astronomical Society: ACT**
☎ (02)6248 0552 J. Howard
www.mso.anu.edu.au/cas
- Brisbane Astronomical Society: Qld**
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www.bas.asn.au
- Southern Astronomical Society:Qld**
☎ 0421 866 376 Joe Zerafa.
www.sas.org.au
- Astronomical Association of Queensland, Qld**
☎ Peter Hall (07) 3378 1173 www.aaq.org.au
- South East Queensland Astronomical Society,**
☎ (07) 3239 0032. www.seqas.org
- Ingham Amateur Astronomers Club**
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- Bundaberg Astronomical Soc. Qld**
☎ (07) 4159 7232 www.interwox.com.au
- Redlands Astronomical Society Qld**
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- Bundy Skywatchers (South-Central Qld)**
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- Astronomical Society of Alice Springs N.T.**
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www.darwinastronomy.com
- Gove Amateur Astronomers, NT**
☎ 0417 601 490 Ian Maclean for information.
- Astronomical Society of Western Australia, WA**
<http://www.aswa.info>
☎ (08) 9364 9603
- Astronomical Society of The South-West, W.A.**
☎ (08) 9721 1586 Phil Smith.

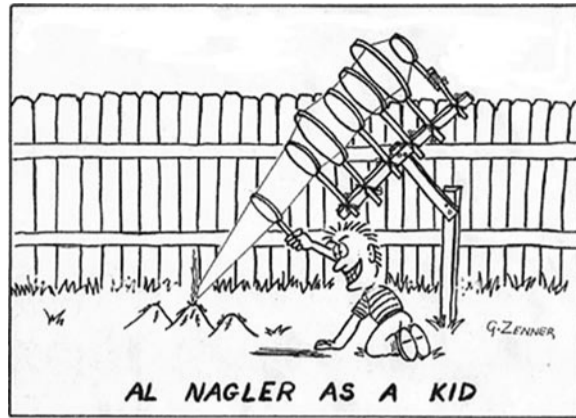
AMATEUR ASTRONOMERS WHO MAKE A DIFFERENCE. AL NAGLER. *Continued from Page 1*

The Nagler was released in 1982 and cost five times the price of a Plossl eyepiece, but was received with acclaim by those who looked through it and marveled at the extraordinary view. More Nagler eyepieces were released, ranging from a high powered 4.8mm to the 13mm. Modifications to the design have been made over the years to improve different aspects. Nagler 2, -4, -5, and -6 series each feature different traits to suit an observer's particular needs; the Type 2 extended the focal length and true field boundary with up to a 20mm focal length while keeping size and weight manageable. The Type 4 gives longer eye-relief for a given focal length. The Type 5 pushed the boundaries with the widest true fields in both 1.25" and 2" models. Finally, the Type 6 reworked and expanded the focal length choices of the original Nagler series and in a smaller package.

Other designs have been released, the Panoptic in the early 1990's, an eyepiece range that has endured till today. They are generally lower powered than the Nagler range and have become firm favourites with many observers. The Radian eyepiece range was introduced in 1998 and was an instant success with those people who didn't need a particularly wide field of view but who wanted longer eye-relief and were favoured by planetary viewers.

The news, in 2007 that Tele Vue was to release a new eyepiece with an extraordinary 100 degree field of view, was received with excitement by amateur astronomers around the world. This time it wasn't Al however. Al's son David, whose career at Tele Vue began in April of 1988, outlined the performance requirements for this as yet unnamed project to Al's protégé and longest standing Tele Vue employee Paul Dellechiaie. The result was the Ethos eyepiece series. Later, with Al's encouragement, Paul pushed to reach 110 degrees in some models. This was the same field of view the astronauts saw 40-years+ earlier. Hence the designation as the Ethos-SX for "simulator experience."

For some purposes such a large field of view isn't necessary, so Paul followed up in 2011 by designing the first of a new group of eyepieces called the Delos. The field of view is modest 72 degrees but the eye relief is a more comfortable 20mm, a boon for veteran sky observers.



Geoff Zenner's wry cartoon graces Al's office wall

The Tele Vue trademarks of sharpness, contrast and colour fidelity have been retained. To check eyepiece quality, Al also developed and patented a fast, 4-element, Petzval type refractor which ultimately led to today's NP series (Nagler-Petzval) of apochromatic telescopes for visual and imaging use. Other useful and unique accessories such as the Starbeam unit power finder, Paracorr Newtonian coma corrector, and the amazing Dioptix eyesight astigmatism corrector, increased the enjoyment of amateur astronomers in their pursuit.

Al Nagler's family is important to the business of Tele Vue. His wife Judi joined in starting the company and managed the office affairs until her retirement in 2006. David, now President, is joined by his wife Sandy who also started at Tele Vue in 1988. Sandy became Vice President and Office Manager upon Judi's retirement. Where would we be without Al Nagler and Tele Vue? Whilst there have been a number of other eyepiece designs produced over the years none has been as successful in the field as the range of designs that have emanated from Al Nagler and Tele Vue. None has consistently produced the high quality that astronomers have come to know with Tele Vue.

Al Nagler has been a keen amateur astronomer for about sixty years and an eyepiece manufacturer for about half that period. His dedication to dramatically improving eyepiece design has ensured that amateur astronomers get the best possible view. This perseverance places him in the front row of people who have changed the way we see the universe.

Mike Smith

ASTRONOMY COURSE IN SYDNEY

Introduction to Astronomy (12A) Course 2012 - Part 1

This 4-week introductory astronomy course is suitable for people with no scientific or mathematical background.

Learn what sorts of objects are visible in telescopes, what they are called and how to find them in the sky using a star map or sky atlas.

Find out what causes the phases of the Moon, eclipses and tides.

Explore the Solar System with images, learn about its planets, moons and minor bodies.

Discover how the sky changes through the night and through the year. A short observing session may be included at the end of each week's class.

The Presenter

Lesla Moore (BSc, MPhil) (aka Starry Lady), a life member of the ASNSW and a Macquarie University astronomy graduate is a specialist in public outreach. **Fees** \$60 for ASNSW members and \$80 for non members. Included in your fees are: colour course notes, light supper and a certificate on completion.

When and Where

Wednesdays 22 February to 14 March, 2012 (4 weeks, total) 7:30pm to 9:30pm at Tara Anglican School for Girls, Masons Drive, North Parramatta NSW 2151

Tara has free car parking.

Places must be booked, paid and confirmed by 10 February 2012. Enrolment numbers are limited. To book a place, please go to the website <http://members.asnsw.com/node/28> and complete the online registration form.

HARRY GOES GARDENING...

There was much to remark in this big prominence. For one thing, it was bright, with maybe eight footpoints, and clear "arches" between them. There was much detailed branching structure, and its highest point was ~40Mm above the NE limb.

The two big detached arches were initially 20Mm clear of the limb – but at 21:40 the larger arch was seen to be parting, and slowly rising (arrowed) – perhaps in a major eruption – but by end of session 22:10UT this had not progressed further. This was a demonstration of the buoyancy of filaments (aka prominences) and that magnetic fields hold them down, not up. (Zirin, H. "Astrophysics of the Sun" P267).

Two filaments were visible on the disc at the N end of the contiguous prominence (arrowed). The darker one could be seen where it rose above the limb to become, it seems, one of the lesser prominences to the north.

A search for the filament responsible for the big hedge-row showed signs of one on the disc, but none of the prominence footpoints was seen against the disc (at the open triangle). Repeat views may link this filament to the prominence.

The Helio longitudes for the prominence relate to the solar limb – the site of its footpoints is speculative. A search for filaments at these coordinates on earlier rotations showed some candidates – but gaps in the logs make this uncertain.

Viewed later (Jan 12, 06:20UT) the big hedge-row showed big changes, with much of the north end rearranged. Spaceweather showed major activity at the site around this time imaged by SDO satellite, including a flare and ejection. Brilliant post flare loops were logged by SDO at the limb near +24o too, and that suggests a large sunspot just behind the NE limb.

Harry

Nervo Shatterini February Quiz

His Eminence Professor Dr Nervo Shatterini, Director of the Observatorio Flattulento near the Italian alpine town of Indigesti wishes readers to partake of the high fibre and protein-rich nourishment in the February Quiz. Go fer it kiddies!

- (1) Which Constellation is known as 'the net'?
- (2) Where will we see the next total eclipse in Australia.
- (3) Where is "The Ghost of Jupiter" nebula?
- (4) Which is the nearest star to us with strong 'D' lines of sodium.
- (5) Who first noted Mira's efforts?
- (6) Does the Sun shine brightly on Venus?
- (7) Who reckoned he came up with the Inverse Square Law first?
- (8) Which objects have 'limb regions'?
- (9) What would an emission spectrum indicate?
- (10) Did the ancient Egyptians see the Coalsack Nebula?
- (11) How often do Saturn's rings seem to disappear?
- (12) What sort of a telescope has a spheroidal primary, spheroidal meniscuscorrector and a spheroidal secondary mirror?
- (13) What is the parent body of the Taurid meteor shower?
- (14) What strange way did astronomer David Fabricius die?
- (15) Where will you find NGC 4833?
- (16) In what year was Pluto's moon Charon discovered?
- (17) Name the iron meteorite types.
- (18) What was top of the pops when Neil Armstrong landed on the Moon?
- (19) Who discovered minor planet Eros?
- (20) How many objects in Sagittarius did Messier note?

Here are the answers.....

- (1) As many as 15 objects.
- (2) Gustav Witt in 1898.
- (3) "In the Year 2525" meth. drite.
- (4) Ataxite, hexahedrite, octahedrite.
- (5) 1978.
- (6) Cross in Musca.
- (7) Down below the Southern by a peasant.
- (8) Hit over the head with a shovel
- (9) Comet Encke.
- (10) A Maksutov Cassegrain.
- (11) Approximately every fifteen years, when they're edge-on.
- (12) Presence of a planetary nebula on their horizon.
- (13) Actually, yes they could, low or a quasar.
- (14) Presence of a planetary nebula.
- (15) Venus and the Moon.
- (16) Isaac Newton.
- (17) Robert Hooke reckoned he beat
- (18) No, it's very cloudy on Earth.
- (19) David Fabricius, in 1596.
- (20) The Sun.
- (21) It's a planetary nebula in Hydra.
- (22) This year, around Cairns.
- (23) Reticulum

Mick 'n Don



Hey Don, I hear the Poms are mounting another 'Venus Transit' expedition to the Antipodes.



Coming down for a 'Captain Cook', as yer might say.



We could set aside a place for them in Botany Bay, and dress up as convicts to welcome them.



Nuh! That would cause big trouble. They might think they still own the place... and want to stay.



You could hardly blame them. Who'd want to live in Blighty these days?

Night Sky

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