

MACARTHUR ASTRONOMICAL SOCIETY Inc.

Journal



PRIME FOCUS

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President's Report

When we last met

Greetings to all fellow Martians, we welcome you to our home. It's very nice of you to drop by for a visit, how long has it been? 50,000 years did you say!

Yes folks, its time to get up close and personal with our very mysterious friend who has landed right on our doorstep, a fact that's hard to miss unless you've been living on another planet. I cannot remember a time that has sparked the public's imagination in such an astronomical way. 4 hour waits to look through a telescope in the freezing cold, just to grab a glimpse of a rather difficult and small astronomical object.

In saying that I can attest to having some fine views of Mars for a while now and this should continue into the near future. So what's all the fuss about?

Mars Attacks!

Tonight we are very fortunate to have as our guest speaker Michael West. Michael is the NSW branch co-ordinator for the "Mars Society of Australia". Michael currently is a 3rd year undergraduate student at the University of Sydney's school of Aerospace, specialising in astrophysics, mechanics and mechatronics.

His other interests include space engineering, physics and geology and has given talks at the Sutherland Astronomical Society and most recently Sydney Observatory. I thank Michael for taking the time to visit us tonight and I'm sure we will make him feel most welcome.

Dr Russell Cannon from the Anglo-Australian Observatory brought us up to date last month on a whole number of things. I especially found the information on the Dover Heights radar station to be fascinating. What a classic piece of Australian ingenuity and invention.

The development of a planet-finding 100m telescope called OWL (Overwhelmingly Large telescope) as well as the big guns of SALT and Lamost telescopes makes our own collection of optical instrumentation seem rather feeble. 100 metres, that's big isn't it?

How exciting would it be to have your own research confirmed with other research projects around the world to prove that galaxies combine together to form spheres. This is the wash-up of the extensive 2 degree field survey that has been part of Russel's life for over 6 years. Throw in a few slides of a trip to India and there you have it. What an evening. Thanks Russell!

The Martians are coming

The Campbelltown public night was held on 6/9, time frames are tight and I cannot file a report, suffice to say that there is a lot of interest and if we don't get around say 500 people it would be a surprise. The weather does not look good and a few of our guys have not been well of late, I will ask Bob Bee to file the goings on of what may be a huge night for us. In advance I wish to thank every one that has made the night possible.

[Report on 6th September, by Bob Bee, cub reporter. In a word – bummer! The cloud outnumbered the crowd 1000 to 1. The interest was there, it's just that the stars and Mars weren't. We ought to hire ourselves out to drought-ridden towns as rainmakers, or at least cloud bringers. The faith of a young child for me to show her Mars through 1000ft of cloud is touching, but in vain none the less. In all, I suspect that about 30 members of the public arrived, probably, like us, hoping that the cloud will eventually disperse. That was not to be the case, so we packed up around

8.30pm.. As Noel said, thanks to everyone, especially Ragbir, who supported the night. The publicity was there, and I'm sure if the sky has been clear, we would have had a bumper crowd. Che sera sera. That's astronomy for you.]

Coming Up!

15/09/03	General Meeting
20/09/03	The Oaks
27/09/03	The Forest
18/10/03	The Oaks
20/10/03	General Meeting
25/10/03	The Forest
01/11/03	Observatory Public Night
17/11/03	General meeting

The Gremlins

We had a problem with a member's car giving up the ghost at the last forest night. It needed a call to the NRMA. Please let's look out for one and other, leave in pairs and never be the last to leave. I myself have been left stranded a few times and without some help it would have been a bit nasty.

Check your revision mirror and see who is following, obtain mobile phone numbers and be prepared for anything. It's great that we all get along so well and I know of many friendships that have developed. Please let's be careful out there!

Well that all folks!

Regards
Noel Sharpe [President]

What IC This Month

September 15 – October 19, 2003

Overhead at 8.30 pm

On the western horizon Spica, then overhead Antares, followed by the Teapot, Altair, Vega and low in the north Deneb. The northern Summer Triangle is straight north. Mars should be up above to the east. Turning southwest you can see Crux sinking down round the pole with the Pointers above, then follow the circle of Ara, Grus and Fomalhaut in Pisces Aust, with Achernar rising out of the southeast.

The Earth & Moon Diary

19/9 Last Quarter (LQ)

26/9 New Moon

3/10 First Quarter (FQ)

10/10 Full Moon

18/10 Last Quarter (LQ)

The point on the horizon where the Sun sets on the 23/9 is exactly due west because it's the spring equinox.

Evening Sky Planets

This month **Venus** is still climbing away from the setting Sun each day in Virgo and will continue to do so till April next year. On 26 and 27/9 it will be 5° from a New Moon but in bright sunset. On 4/10, Venus on its way into Libra, will pass by Spica low in the western sky

Neptune continues sailing along quietly in Capricornus. On 6/10 it will pass by the First Q Moon around 8 pm. It sets early morning the whole month.

Uranus will have a close 3.5° pass with the FQ moon on 6/10 at 7.30 pm, but will be overshadowed by bright red **Mars** just 3°

away in Aquarius and the Moon occulting at 2.45am in the early morning of October 7. We are nearing the end of good telescope views of the red planet as its disk size decreases quickly after this month.

Morning Sky

Saturn rises in Gemini about 2.30 am, and even earlier in October. On 18/10 the LQ Moon will rise alongside just after midnight

Jupiter rising at 5 am is still too close to the Sun for good observation. The following month on 22/10 Jupiter will pass close to a sliver of Last Moon an hour before sunrise.

On 25/9 **Mercury**, Jupiter and the dark moon will have a little dance in the morning sunrise just after 5 am.

Comets

Over the next two months **C/2002/O7** is expected to brighten to 7th magnitude as it passes through Hydra and Antlia to just west of Eta Carinae.

During October **2P/Encke** is expected to be 9th magnitude and on the 10/10 it can be seen 0.4° south of NGC 752 and then late October make an approach to M31 Andromeda. Watch out for that!

Portraits in The Sky

DELPHINUS - "The Dolphin"

An ancient constellation located just west of Pegasus. The constellation is associated with Poseidon, as his way of thanking one of his messengers for a job well done.

As God of the Sea, Poseidon had fifty sea-nymphs known as the Nereids at his court.

While Poseidon had many casual love affairs, when he set out to take a wife he needed to know that she would be accustomed to life in the sea. His first choice was Thetis, one of the fifty Nereids. But it was prophesied that any son born of Thetis would grow to become greater than his father. Poseidon would have none of that!

His next choice in marriage was a sister of Thetis, called Amphitrite. But when he asked her to marry him, she was quite disgusted by the thought and fled to the far-off Atlas Mountains. Poseidon sent a number of messengers to persuade her to return to his underwater realm, as his wife, but without success. In desperation he sent the dolphin Delphinus, who was known for his persuasive powers.

Amphitrite was so completely won over by Delphinus' pleadings she relented and returned to become the Queen of the Sea with Poseidon. They had many children, and Delphinus was placed in the heavens by a grateful Poseidon.

The asterism is known for its four main stars which form a rectangle called "Job's Coffin". Delphinus was previously interpreted as a whale and there could be a connection with Job in the Bible being challenged to land a whale with a fish hook. However, there is no reference to Job being swallowed by a whale, as happened with Jonah, so Job's Coffin remains a mystery.

The constellation's Bayer stars are not complete, and are mostly fourth and fifth magnitude. The *alpha* star is called Sualocin, after an Italian astronomy assistant in the 19th century. If you want to know his real name pronounce it backwards; and if you want to

find out his family name just spell the name of *beta Del*. backwards also

Sualocin is a B class star spinning rapidly at 160 kilometres a second, 70 times faster than the Sun. It shines 195 times brighter than Sol and has a class A companion star similar to Sirius. The primary star will die first as a dim white dwarf, and then the companion will be seen shining much the same as Sirius shines with its dim companion now.

Delphinus has several fine binaries and a very remote globular cluster.

Double Stars:

Beta Delphini is a very close visual binary 4.0, 4.9; sep. 0.5", but too close to split.

Gamma¹ and gamma² Del form a fine binary with subtle colour change 4.5, 5.5; separation 9.6". Some find them both yellow, others that the companion is greenish or bluish:

Struve 2725 is a wonderful sight in the same field as gamma Del (to the SW): 7.3, 8.0; separation 5.7".

Deep Sky Objects:

NGC 7006 is a very remote globular cluster, perhaps as far as 200,000 light years away. Because of its distance it is extremely difficult to resolve. It is located fifteen arc minutes due east of gamma Delphini.

MICROSCOPIUM "The Microscope"

Another of Nicolas de Lacaille's creations celebrating another scientific instrument. The asterism gives a vague suggestion of its subject, there are only a handful of Bayer stars but some interesting facts.

The brightest star is **Gamma Microscopii** a 4.6 magnitude class G6 giant 10 times bigger than the Sun and 64 times brighter. It is

burning helium into carbon and oxygen and has a 14th magnitude dim red dwarf companion.

A strange fact about Gamma Microscopii, is that it's in the wrong constellation! John Flamsteed mapped the constellations and numbered the stars from east to west, 100 years before Microscopium was cut out from the boundaries of Pisces Austrinus. Consequently the star is also named 1PsA. Other stars in Microscopium also have PsA.- Flamsteed numbers.

3.8 billion years ago Gamma Microscopium was the nearest star to our solar system, and brighter than Venus.

Double stars:

Alpha Microscopii is a yellow fixed binary star with a faint grey companion: 4.9, 10.6; separation 20.5".

M1b0 6 is a Melbourne Observatory yellow and white double star, 5.6 magnitude, separation 3.9". You can find it 1.5° from Theta 2, at coordinates RA 21.27, Dec - 42.33.

AT Microscopii is twin red M class stars 10.5, 10.8, 3" separation. Located just 1° east from NGC6925, you will need 200x magnification to split it

Deep Sky Objects

NGC6925 is an edge on galaxy 3x1 arc minutes size and 11.3 magnitude located just under 6° west from Gamma Microscopii

AQUARIUS "The Water Bearer"

The constellation seems to have represented water in a number of ancient cultures. In Greek mythology Aquarius was Ganymede,

"cup-bearer, or butler to the gods". His position to pour wine for all the gods on Olympus, was far removed from the initial concept of Water Bearer.

The three brightest stars all have proper names and reflect the constellation's reputation as a bringer of good fortune or luck. **Alpha and Beta Aquarii "Sadalmelik"** and **"Sadalsuud"** have the names "The Lucky One of the King" and "The Luckiest of the Lucky".

Gamma Aquarii "Sadachbia" also shares in the good fortune called "The Lucky Star of the Tents, or Hidden Things". "Why so much luck in Aquarius?"

When the sun entered Aquarius the new year was about to begin, Spring was on the horizon and the rainy season would assure abundant crops. In Egypt, the constellation was thought to cause the Nile annual flooding. When the June night sky showed Aquarius at the zenith, the waters of the Nile, far to the south, would start to rise as the rains from the Ethiopian highlands began to run into the Blue Nile. Therefore Aquarius was the water bearer.

Incidentally the "Age of Aquarius" is still some 600 years off, when the vernal equinox, marking the return of the Sun into the northern celestial hemisphere, will be in Aquarius.

Aquarius is home to four meteor showers, the largest being the Delta Aquarids in late July and August. The stars are generally fourth magnitude.

The most recognizable part of the constellation is the 2° diameter water jug

itself, made up of Zeta, Pi, Eta and Gamma Aquarii. This small asterism, also called the "Y" of Aquarius, is just west of alpha Aquarii and fits nicely into a binocular field of view.

Sadalmelik and **Sadalsuud** are both yellow class G supergiants about the same temperature as our Sun, but about 2-3000 times brighter. They are part of a trio of stars including Enif (Epsilon Pegasi), which were born as hot B class stars, like the Pleiades, but will soon die as massive white dwarfs, like Sirius B. Sadalsuud has a brighter magnitude than Sadalmelik only because it is 140 light years closer to us.

Sadachbia is located in the water-jar asterism which the Arabs called "the Tent". It is the only star in the water-jug to have a name and is the southern-most one at the bottom of the Y. This is an ordinary hot A class star, like Vega, on the main sequence burning hydrogen. It shines 62 times brighter than the Sun, is 3 times larger in size and 3 times heavier. It actually has a unknown companion star orbiting every 58 days at the distance of Mercury, making it a 'spectroscopic double'.

Double stars in Aquarius:

Zeta² and **zeta¹ Aquarii** in the "water jug" form a binary of two equal white stars with an orbit of 760 years. **Zeta² Aquarii** is the primary: 4.4, 4.6; with tight separation: 2.3".

Three other doubles of easier separation are: **41 Aquarii** 5.6, 7.1, sep 5.1"; **94 Aquarii** 5.2, 7.6, 12" sep, and **107 Aquarii** 5.6, 6.7, - 7".

Struve 2944 is a nice triple system, 2° due east of **kappa Aquarii**, with all three in a neat line. AB: are very close 7.0, 7.5; separation

2.5", but component C: 8.4; has an easy separation of 50".

Struve 2988 is a very attractive pair of equal 7.2 magnitude stars located 3° SW of **psi¹ Aquarii**, separation 3.5".

Deep Sky Objects in Aquarius:

M2 (NGC 7089) is a beautifully bright and compact globular cluster, 5° N of **beta Aquarii**. About 50,000 light years away it has a bright centre with outlying rays of stars



M2

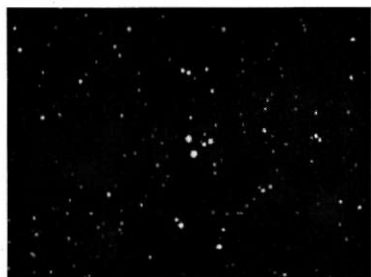
M72 (NGC 6981) is also a globular cluster, about 3° WSW of the Saturn Nebula. It is one of Messier's faintest and smallest objects. Observers have differing views about M72.



M72

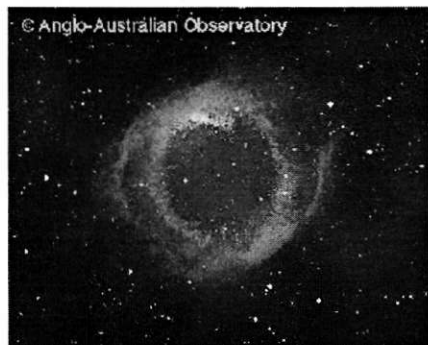
I found it most elusive and difficult to spot the first time due to low surface brightness, but others find it to be prominent and bright.

Close by, 1.5° east, is another mystery Messier, **M73 (NGC 6994)** which is a tiny 'cluster' of four unrelated stars. With my particular star-hopping track I found this far easier to find than M72. Apparently Charles M thought it was 'nebulous' in his telescope and therefore a pseudo-comet candidate.



M73

NGC 7009, "Saturn Nebula" is a planetary nebula quite spectacular in large instruments. It has 'rays' which extend from both sides of the main disc, giving rise to its name. The nebula is 1° west of *nu Aqr*. Burnham's book has a finder chart.



NGC 7293, "Helix Nebula"

NGC 7293, "Helix Nebula" (or the "Helical Nebula"), is a planetary nebula about half the size of the moon, 1.5° W of *upsilon Aquarii*. It is really a ring nebula, much larger and fainter than the Ring Nebula in Lyra, and is said to resemble the DNA double helix. The nebula is easier to see with low power, 21° due south of *zeta Aquarii*.

LACERTA "The Lizard"

Lacerta, lying between Cygnus and Andromeda, is one of seven constellations introduced by Johannes Hevelius. Born in Gdansk, Poland, 28 January 1611, Hevelius died on the same day in the same place 76 years later. He is mostly known for his 1647AD *Selenographia*, atlas of the Moon. His star catalogue of 1564 stars was published posthumously in 1690, along with a celestial atlas, and was regarded as the most complete up to that time. It was in these works that he introduced seven new constellations.

Hevelius had built his own observatory, on the roof of his house, as well as a number of quality telescopes. His stellar observations were most accurate, and the celestial atlas was a remarkable achievement.

It was John Flamsteed who popularised Hevelius' new constellations: Canes Venatici, Lacerta, Leo Minor, Lynx, Scutum, Sextans, and Vulpecula in his own star catalogue of 1725. The stars in Hevelius's constellations were borrowed from neighbouring constellations, and therefore most have incomplete Bayer (Greek labelled) stars. Thus Lacerta only has two Bayer stars with a few fine binaries and several nice deep sky objects.

Alpha Lacertae is a 3.7 magnitude blue-white class A star like Sirius but 100 light years farther away. It is situated on a similar latitude to M51 so will require a good northern horizon and clear seeing. Shining 27 times brighter than the Sun, twice as heavy, and twice the size, it makes a full rotation in 17 hours and is spinning at 146 km/sec. Still quite young it will take about a billion years before turning into a red-giant.

Much higher in the northern sky is **BL Lacertae** which gave its name to a category of variable stars. However BL Lac itself is now known to be the bright core of a distant elliptical galaxy whose light varies from 14-16 magnitudes.

Binary stars:

8 Lacertae is a multi-system with the three brightest components quite wide. AB: 5.7, 6.5; separation 22.4". AD: 9.3; and 81.8", and AE: 7.8; separation 336.6".

Struve 2902 is the most attractive binary in Lacerta: 7.6, 8.5; separation 6.4", 1.5° SE of 2 Lacerta, along a line between 2 Lac and 6 Lac.

Struve 2890: 8.5, 8.5; separation 9.4" is in the midst of the open cluster NGC 7243, (see below)

h1823 is a fine multiple system 1.5° northeast of 12 Lac. AB: 6.8, 12.5; separation 19.2", AC: 8.5; separation 82.1", and AE: 8.9; 18.3".

Deep Sky Objects:

NGC 7209 is an open cluster of fifty stars about 5° NE of M39 ranging in visual magnitude from nine to twelve. The cluster is 2.5° west of 2 Lac.

NGC 7243 is another open cluster of forty or so stars 2.5° WSW of alpha Lac. It is

probably too low on the horizon for us to see from here, but keep it for another place. The brightest star here is a fine binary *Struve 2890* mentioned above.

So put the portraits of The Lizard and The Water Pourer under The Microscope this month.

Good seeing

Dutch Duo vs Bayer

I had some luck recently in looking for information about who really discovered the 12 southern constellations attributed to Bayer. Peter Druery had loaned me his copy of "Star Names – Their Lore and Meaning" by Richard Hinckley Allen, first published in 1899. (That's 104 years ago.)

Browsing through it, I found the following passage (p14): "The greater part of the new constellations were of course in the south, quarter of the heavens which, although alluded to by a writer of the time of Pharaoh Neku, who sent a Phoenician fleet to circumnavigate Africa about 600 B.C., practically was unknown till the discovery of the New World stimulated the efforts of the early voyagers at the beginning of the 16th century."

Some of these have left records of their stellar observations – among them the Italians Corsali, Pigafetta and Vespucci, and the Dutch Theoror of Embden, *alias* Pieter Dircksz Keyser, and Friedrich Houtman. But the results did not formally appear till a century later in the works of Bayer and Kepler, though they were mentioned in the *Decades* of Peter Martyr and in Eden's translations of it and similar works."

So there it is. As I suspected, these constellations were observed at sea by the Dutch Duo, but not formally 'recognised' till published much later by Bayer. I suppose you can give credit to either – the discoverers or the publisher... interesting!

RB

Mars – Been there, done that!

Well, that was the best Mars opposition we'll see in our lifetimes. We've been told that it was the closest it's been for 60,000 years and won't be that close again until 2287. But just how close was it, and how close will it be again IN our lifetimes?

We know that Mars gives a *favourable* opposition every 15 to 17 years, but due to perturbations in Mars's orbit caused by the giant outer planets, it sometimes wanders closer to Earth than its normal perfect elliptical orbit would do. That's the reason we had this sex-deca-millennial event (I made that up – it's supposed to mean 60,000th anniversary). Nick Lomb, Curator of Sydney Observatory, told me that Mars will be the following distances in these coming years:

2018 – 57.59 million km

2035 – 56.91 million km

2050 – 55.96 million km

Though not as close as this year's opposition (55.65 million km), for all practical viewing purposes these are just as close and favourable oppositions. (Work it out – 2050 opposition will be 0.55% further away than the 2003 – big deal!)

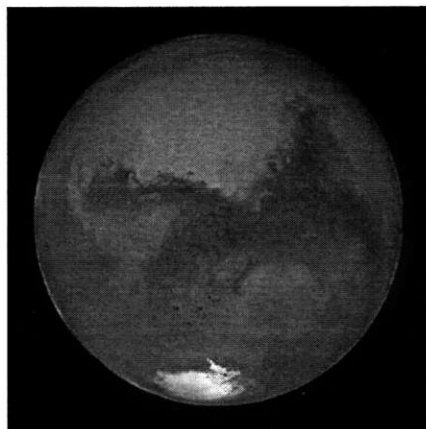
So, how good was the viewing? Depends on your telescope. In this case, I believe, size does matter, but quality optics are just (or

more) important. But, at the end of the day, it's the 'seeing' that blesses or kills you. I understand that Ned, with his 6" refractor and awesome magnification in excess of 300, had some impressive sightings, if his detailed sketches are anything to go by.

I had some modest success with my 9.25" SCT, managing a reasonably stable image with a 9mm eyepiece (that's x260). As the seeing came and went on the 27th August, with Mars almost directly overhead at midnight, I was able to identify the alarmingly reduced polar ice cap, and some hints of bluish features on the orange-yellow disc. But even though I was viewing through minimal atmosphere, the high magnification caused the image to ripple and shimmer on the surface, even though the disc's circular edge remained firm.

I'd be very interested to receive and publish reports (or even photos?) of observations by other MAS members.

RB



Mars on 27.8.03 by Hubble ST

For Sale

Martin Ferlito, phone 0417 423492, has the following **telescope for sale**:

6" (150mm) Meade EQ Starfinder, F8. R.A. motorised, with new motor and circuit board. Fully portable due to modifications made to the legs (rotational & pivotal adaptations made to legs mean levelling and uneven ground is no problem.) Primary and secondary mirrors are in good condition. 6x30 finder scope. Meade 25mm possl eye piece. Price: \$750.

Optional extra:

Meade Magellan 2 computer system:
Features: Celestial navigation; two star alignment; alignment accuracy display; 12,218 object built-in library; large membrane key pad; dual axis drive corrector; liquid crystal display; digital read outs on both axes. Price : \$800.

Belanglo Fairy Tales...

The Fallen Forest Giant and the Mysterious Holes!

Excited and leading the way, the two junior star gazers and forest explorers, Simone and Larissa, brought Bob, Paul, Lloyd, Noel and Ned to the site of a 40 – 50 metre pine tree lying on the forest floor. Felled by a destructive combination of forceful winds and wombat diggings undermining the giant's root system, down it had come. Truly an amazing scene.

But it was the nearby lichen covered granite rock that captured this group's imagination. Four circular holes in an interesting pattern, one hole possibly depicting the Sun, the other three of varying smaller diameters... the planets?

The band aired many explanations such as:
Meteor impact?
UFO landing site?
Aboriginal rock carvings?
Auger drilled holes?

How old are they and who created them?
Why and what does the pattern signify?
It was decided that more investigation and some surface excavation is to be attempted to get to the bottom of the mystery of these holes.

Ned

Could Barely See Andromeda for the Trees

It was a great night down at Belanglo on Saturday 30th August. What a fantastic facility we have access to. It's a pity more of our members don't avail themselves of it. There's a certain degree of 'being spoilt' when you can decide on a break from the cold and wind, star-bleary eyes and maybe cramp in the old legs, and move into the fire warmed cabin with boiling urn, coffee or tea, maybe a drop of port, a snack and a good chat with other R&Rers. Then back out into a drop-dead-gorgeous dark sky with a Milky Way so bright you could read from it (well, almost.)

And when you've finally had enough, instead of a dangerous sleep-at-the-wheel threatening drive home, to pop into a warm bunk and sleep what's left of the night away.

Then in the morning, a refreshing walk around the grounds in the brisk fresh air, maybe a stroll through the outskirts of the pine forest, followed by a barbecued breakfast. Gee, it's a tough life!

That's what an intrepid 5 (and ½) (plus 2) had to put up with that week-end. The five were Noel, Lloyd, Paul, Ned and moi, plus Ned's cheer squad Simone and Larissa. The half was Ian who arrived latish and returned that night.

Each have their own story of what they did astronomically that night, and as it happens down at Belanglo in the deep dark, each keeps pretty well to own's self, except for the odd "did you see that meteor?" or "anyone want to see M33?" occasion, plus some brief sharings in the cabin over the ubiquitous port.

As it happened, I found myself on my lonesome down at the south end of the grounds (near the entry gate), while the other four set up at the more northern end. Strange, I thought, until I realised I was the only bunny out in the freezing westerly wind – the others had sheltered in the lee of the cabin. Very smart of them, except I was the only one to have a reasonable view of the low northern sky, which come Andromeda time, was a great advantage. So there!

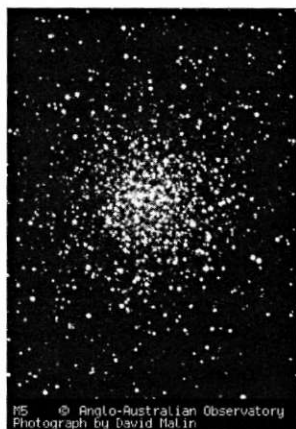
My program for the night was to verify the visibility through binoculars of some of those objects I have said in my 'astronomy for binoculars' book are visible, as well as to improve my skills in identifying some of the major (but less obvious) constellations. To achieve that, I needed a good northern horizon. In the process, I hoped to 'nail' some more Messier objects to add to my

scalp belt. A reasonably ambitious program, I think you'll agree.

I hadn't factored in the wind (let alone the cold) that kept blowing my charts and notes (and even my reading glasses) off my table. But I persevered, with some satisfying results. Here are some of them – they may be of interest or help to some of you, old hat to others.

In Aquarius (as per Ian's article earlier), I was able to see M2 in my binoculars. It was clearly a glob, and not just a fuzzy star. Then the Helix Nebula, about 20° south of the 'Y' in Aquarius, appeared as a faint circular foggy patch, barely visible even in the dark Belanglo sky.

Serpens was a pleasant surprise. I always found it hard to get excited over an obscure constellation split into halves on either side of a large (and not so obvious) constellation like Ophiuchus. But with my binoculars I was able to find M5 as a fuzzy ball forming the tip of an equilateral triangle with α and μ Serpens (Caput.) (See image below)



M5 © Anglo-Australian Observatory
Photograph by David Malin

Jumping across to the other side of Ophiuchus, I located the star cluster which marks the location of the fabulous Eagle Nebula (M16). (I did this by star hopping in Serpens Cauda [east, the tail], then by accident realised it was only 3° north of M17. Both were visible in my binocular field of view.) Unfortunately, binoculars only gave a suggestion of mistiness around the stars – my telescope then gave a better (but limited) view of the famous nebula itself. However, the star cluster was quite pretty in my 12x50 binoculars.



M16

Then a bit of a mystery. I was checking in Ara for the glob NGC 6397 and open cluster NGC 6193 which are supposedly (and actually were) visible in binoculars. In the process, I found a faint misty patch hanging about 1° just below α Arae. It was not marked in Collin's Pocket Guide. The nearest thing to it was NGC 6352. (Collins has that as a glob, while Herald-Bobroff has it as an open cluster. Either way, it was in the wrong place and too faint for my binoculars.) I marked its place on a sketch and checked it out at home.

According to Herald-Bobroff, there is an open cluster IC 4651 in the location I marked. I have to assume that is it. There is nothing special about the cluster, I suppose, but it was one of those little mysteries that makes field observing so interesting, especially when you can track down its identity.

Though I observed (and confirmed) a number of other binocular objects that night, the big thrill was around midnight when I finally got to see the Andromeda Galaxy, M31, as it wheeled its way above the northern horizon and obligingly moved between the trees. Even in binoculars, it is magnificent.

Then Paul, Ian and I walked out and up the road past our cabin site. This got us beyond the trees to a wide uncluttered northern horizon. Ian offered to show us M33, Pinwheel galaxy. By star hopping between Triangulum and Andromeda, I could just make out this large but faint misty patch. There was no central concentration and it was a case of if you weren't specifically looking for it, you'd pass over it. But there it was, 2.7 million light years away. Wow! (RB)

