



PRIME FOCUS

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President's Report

I wish to thank everyone who made last month's meeting so successful, and it was great to get such a fantastic rollup. Highlights of the meeting include Attila Kaldy's excellent talk on the Solar system's motion, comets, the ice age, asteroids and molecular clouds. Combining this with ancient astronomy made for a very interesting talk, a great effort and well done!

On the night certificates of achievement were handed to John Rombi and Ian Cook for their skills in the M.A.S great Messier Hunt. For those who may be scratching their heads and wondering why many of our members are taking up Messier hunting I'll offer the following information.

Charles Messier was a French Astronomer who in 1781

published a catalogue of more than 100 faint sky objects. It's interesting to note that Messier was a comet hunter and compiled his catalogue of nebular objects in order to avoid confusion with any possible sightings of new comets. So if we observe, say, the Great Orion Nebula, we refer to it as M42, Crab Nebula as M1 and so forth.

When requested our members receive a "M.A.S Messier 100 checklist" to record their observations for the purpose of astronomical enjoyment, which will develop Deep Sky observing skills. It is not a race or competition and no time limit exists. It's great fun with certificates issued at 30, 60, 90 and with a special certificate for hitting the "Big magic ton" 100 Messier objects.

A Big Night Out

A very special event was held on the 29th June at the Campbelltown Art Gallery, and what can I say except "what a night" and thank you to everyone who contributed.

The Macarthur area has such a strong interest in astronomy which is just fantastic. I must admit to getting a little "spooked" at the prospect of talking to such a large crowd. This is the second time recently that the butterflies have been churning in the belly, so I will say that I respect anyone who has public speaking engagements and I also empathise totally with those that suffer some hesitations.

On the night it was a pleasure to hear David Malin and it was very obvious to everyone that David is a very accomplished speaker, who

held the attention of over 200 spellbound to say the least. The audience was well behaved, considering all the youngsters present. I just loved one young man's question: "Why do stars explode?"

It was however, disappointing that the weather was not kind to us. A lot of behind the scenes organising went into the night, such as the blackening of the windows, turning off spotlights, unlocking gates etc.

I know that the Art Gallery's education officer Tristan Sharp (no relation) put a lot of hard work in organising this event. We as a society are grateful for his efforts, it was a great opportunity to "show our wares" so to speak, and a great night was had by all!!!.

Food for Thought

The Society's profile is being raised through events such as "the Big Night Out" and will gain speed when the observatory opens to the public. I am expecting an increase in membership and this will bring new challenges. We will need to provide activities, guest speakers, telescope training, general and advanced astronomical education to a wider cross section than we currently do. For example, I've been speaking to an elderly lady who wants better use from her telescope. There will be challenges ahead but as always the outlook is a

positive one for our Society. I wish everyone well in their astronomical endeavours.

Regards Noel Sharpe ■

Why Don't Planets Twinkle?

I'm often asked: "Why do stars twinkle and planets don't?" The answer is not what you may think.

It has nothing to do with the fact that stars are blazing infernos of seething gases, bursting with light and violent flares, while planets are placid spheres merely reflecting a small amount of light falling on them from our Sun. All that is true, but it is not why stars twinkle and planets do not.

Have you looked along a hot road in summer and seen the heat waves shimmering above it? When a car comes towards you, the car seems to shimmer and shake a little bit? Exactly the same thing happens to light from the stars and planets as it travels through the Earth's atmosphere to your eye. The atmosphere has turbulence and as a narrow ray of light passes through it, it is bent and lands on slightly different parts of your eye in a random pattern.

Now a star, while it may be millions of km in diameter, is a very long way away and to our eyes is a small single point of light. The atmosphere

causes the light from this point to jump about very quickly on your eye and this gives the impression of 'twinkling.'

Planets, though smaller than stars, are much closer. We can see their disks as larger sources of light. Each point on that disk sends out a ray of light at the same time as the other points. The air turbulence plays the same trick with them but there are many more of them so their individual 'twinkling' gets averaged out, giving a much steadier image in your eye.

*"Though we can see you from afar,
You twinkle twinkle little star,
But planets don't, it's just not fair.
So, simply blame it on the air."*

Bob Bee ■

Oaks Observing Night (24th June 2000)

I arrived about five o'clock and set up the stands and lights that were put together by our resident Mr Gadget, Dick Everett. The consensus amongst the members that have been guided in the darkness by them, is that they are most effective. WELL DONE DICK!!!!.

I was soon joined by Lloyd and new member Keith. A short discussion on telescopes was interrupted by a tide of eager astronomers arriving one after another. I felt like one of the lollipop men at Sydney airport. It was a great feeling to see such a large

number of our members that were keen to utilise the dark skies at this site.

About 18 months ago our Deep Sky section leaders Pete & Bobbie Elston started the Messier Objects Hunt. This is a list of the brighter deep sky objects. e.g. galaxies, nebulae, glob clusters etc. We now have 8 people hunting Messiers and they are all at different levels of achievement.

Pete and Bobbie, you should be very happy with the interest you have created.

The weather was a lot kinder than the previous month (no gale force winds or snow) but it was still COLD.

The photographers Peter Druery and Attila had a good night. If you're interested in astrophotography these are the people to speak to. OOPS, I mustn't forget our President, El Sharpo who has become quite a successful shutter bug over the past twelve months.

The Messier hunters list for those that are interested stands at: Daniel Ross 30, Randall Press 35, Ian Cook 40 plus, Attila Kaldy 15, Pete & Bobbie 97, I am up to 82.

It was also great to see a new addition to our family - a healthy, bouncing 9 $\frac{1}{4}$ " **Celestron telescope**. The proud father is none other than our editor, Bob Bee. I'm sure if you ask Bob he will be happy to show you snapshots

of his pride and joy. The views through this scope are breath taking and I'm sure that once Bob is proficient in its use, we will see many great shots of the **HEAVENS ABOVE**.

I had to leave early on this night but I was pleased to see the dozen astronomers still there were continuing the tradition set up by our Society founder Phil Ainsworth, and that is to have fun.

John Rombi. ■

The Red Planet - 3

What would you say if someone walked up to you and asked, "Hey, has there ever been any evidence of intelligent life in our solar system other than our own planet?" A common response would be, "No, of course not!" However, if we were to respond the opposite way then our chances of being ridiculed would be quite substantial. But why is that?

Probably because various government institutions are covering up our beliefs and evidence by declaring that people who believe in such things are absurd and that there has never been evidence of intelligent life beyond our planet that would support any theories.

Imagine that a radio telescope picks up an inferior signal from deep space that when translated into images by

computer it would display the complexity of an intelligent alien life form or perhaps complex mathematical equations that would enumerate the formula to produce worm holes for distant space travel.... Would NASA or the various government institutions file these images away claiming that they are merely a trick of radiation and noise?

When Viking 1 Orbiter took the first images of the Cydonian Plateau in 1976, A scientist by the name of Dr Tobias Owen discovered the unusual "face on Mars", only to be later regarded by NASA as *merely a trick of light and shadows*. Hours later, the spokesman for the Viking project announced the same words to the press and also indicated that another image taken some hours later showed no evidence of a mesa-like formation, that it all went away. It was then discovered years later that no such photo of the missing face ever existed. Further more, hours later after the first image, Cydonia had been in total darkness and the Viking orbiter was elsewhere photographing a completely different section of the Martian surface.

In 1992, Mars Observer was launched in order to relay back high-resolution images of Mars with the hope to resolve the controversy against the Cydonian monuments. There was an attempt to persuade NASA

into pointing the cameras to the Cydonian plains (where the face and other possibly artificial monuments are located) and just 24 hours before the matter was debated on national television, the probe was lost. Was this another attempt by NASA to keep everything under wraps, to withhold valuable information that would prove the existence of another intelligent civilisation?

However, in April 1998, Mars global surveyor succeeded in rephotographing the *Face* under more illumination and much higher resolution. The images produced the following evidence: A human-like visage, approximately 2.6 kilometres in length from crown to chin, and 1.9 kilometres wide. It appeared that half of the structure was damaged or incomplete however certain characteristics were identified under computer enhancement such as the bilateral symmetry of a human origin face, teeth in the mouth, all other facial features including a supposed tear drop under the right eye. The other fascinating feature discovered were the stripes in the so-called pharaonic nemes or headrest, identical to the ones worn by the ancient Egyptian Pharaohs.

According to Dr Mark Carlotto, expert in computer image-processing, all of these features appear both in the original Viking images, are coherent shapes and are structurally integral to the

object, therefore could not have been caused by distortion during restoration and enhancement or any other means of effects rendered by *light and shadows*.

Perhaps NASA and other institutions are attempting to prevent a similar outbreak of public hysteria like the one caused by the Orson Welles broadcast in the late 1930s of H.G. Wells *The War of the Worlds*. Since then, a lot of things in the human society has changed and improved. A recent survey was carried out (originally an air force pilot study) concerning the relationship between religion and the existence of intelligent extraterrestrial life. A typical multiple-choice question begins the respondents to categorise their reactions. The question put to them were as follows:

Official confirmation of the discovery of an advanced technologically superior extraterrestrial civilisation would have severe negative effects on the country's moral, social and religious foundations.

- A, strongly agree
- B, agree
- C, neither agree nor disagree
- D, disagree
- E, strongly disagree

The conclusion: 77 percent of the respondents either disagreed or strongly disagreed with the proposal. The end result is that the general community is a victim of a brilliant propaganda that

in turn slowly destroys the belief and reality of intelligent extraterrestrial life in individuals. However movies such as *Independence Day*, *Close Encounters*, *The X-Files*, including various institutions' tenacious attitude of not releasing information about possible primitive life in Martian meteorites, have all contributed to the relatively open-minded state of public opinion relating to ET existence and contacts.

(Continued.)

Attila Kaldy ■

Next Meeting
will be on
Monday 21st August

Star Nights for remainder of this year.

29/7 TBA	5/8 Oaks
26/8 TBA	2/9 Oaks
23/9 Oaks	30/9 TBA
21/10 Oaks	28/10 TBA
18/11 Oaks	25/11 TBA
16/12 Oaks	
23/12 TBA (Merry Christmas)	
30/12 Oaks	

Messier Poster:
All those who bought the June 2000 *Astronomy* magazine now have a 3 page fold-out colour gallery of all 110 Messier Objects. It's a great tool for recognising the Ms.

A Taste of Oak

Well, thank goodness, I finally got there.

I was beginning to worry that my friends at MAS thought I was backsliding from the true path of astronomy – the observing bit. I hadn't been to a Star Night the whole year... I had bought my long awaited telescope and I still hadn't attended a Star Night... what was Bob playing at?

I'll spare you the excuses and just say – constant clashes. But on 24th June, I made it to the Oaks. Just.

I was beginning to despair of finding that “small track off to the left.” I had driven past it three times, and yes, I did get as far at Oakdale once. I had made my return to McIntosh St at Oaks, determined to have one last go. If I didn't find it, I was going home. (Remember – this WAS at night.) Then I saw some tail-lights heading left at approx. where I thought the track should be.

Encouraged, I slowed as I approached the spot and saw two wooden posts and a cart track. They had to be kidding.

If it hadn't been the tail lights (they turned out to be Dave Macey's) I would never have seen it. I drove along the pot-holes from hell and finally reached the gathering of apertures. Safe arrival.

From that point on, the night improved greatly. After establishing my presence, I

plucked up my nerve and started to put my scope together. Many thanks to Daniel Ross (I think it was Daniel – with all those layers of clothing, in the dark he looked more like the Michellin Man) for helping me manhandle the bits and get the scope levelled and balanced. (It can only get easier... right? There are some practical points there that are probably worth discussing but another time.)

It was a different experience setting up the telescope in the field in total dark to my previous set-ups in my back yard with helpful houselights. Even without worrying about perfect polar alignment (now that's something to look forward to) it took me over 40 minutes to be ready to “rock 'n roll.”

The biggest frustration was setting up the declination balance. This is when the scope and counterweight were locked in a horizontal position and the declination clutch released. If the scope swings up or down in declination axis, it is not balanced. The trick is to slide the scope backwards or forwards along its mounting bracket, lock it in place and then see if it is balanced. You do this after all the scope's attachments (including the dew shield) are on the scope. It was very frustrating. (Ask Daniel).

But it was all worth it. At this stage, I only have a 26mm eyepiece. With a focal length

of 2300mm, this gives me a magnification of about 90x (compared to about 50x with MacDob.)

After some practice with the equatorial movement, Daniel and I were soon checking out the Jewel Box, Omega Centauri, Alpha Centauri, Eta Carinae. They were magnificent.

I was very chuffed that a number of people wanted to look through my scope (even though they had great scopes of their own.) Then the fun began and the hours passed without notice.



(Centaurus A – Photo by D Malin. Used with permission)

Peter Druery came over and gave me an eye-opening talk about the G9 Lasmonde mount. Until then, I didn't realise how fortunate I was. He produced some wide field eyepieces and we compared the effect on the Jewel Box and others. Amazing.

Daniel (or was it Attila?) loaned me his 40mm eyepiece to give a view with lower magnification (about 58x.) Great stuff – I'm going to buy one. There are times low mag. is better.

Then Dick Everett strolled over for a peek. Showtime! He took me on a tour of objects I would have struggled to find for myself. (I had the 26mm back in at this time.) Firstly Centaurus A. I was impressed that I could make out the spherical shape with the dark dust lane slashed diagonally across it. (Not quite like David Malin's picture but... hey, 235mm compared to 3900mm aperture!)

Then... hey presto, Dick located M104, the Sombrero Galaxy. Though small in the eye piece, there was the distinctive horizontal dark lane with the central bulge above and below. Not bad for something 35 million l.y. away.



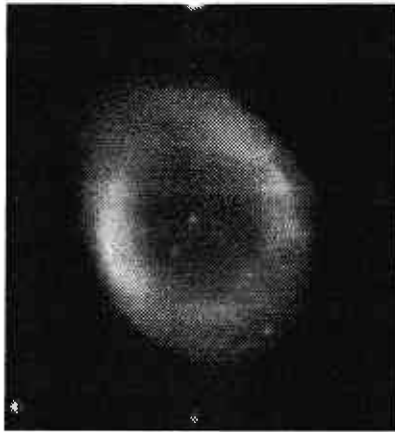
M104 Sombrero Galaxy
Photo by D Malin
Used with permission

We explored Sagittarius with Lagoon Nebula (M8). It had a ghostly appearance, with reasonably distinctive boundaries and the dark 'lagoon' region at its centre.

Then the Triffid Nebula (M20). Though obviously not

as distinct as the AAT photo, the general shape was obvious and I'm sure I could detect the three main dividing dust lanes.

M22, the globular cluster, was very spectacular. Jumping back and forth from M22 to Omega Centauri, the difference in structure was quite obvious. Omega C is more concentrated across its full diameter, while M22 appears concentrated at the centre then gradually thinning out towards its extreme boundaries.



M57 - Ring Nebula

As a special treat, Dick aimed my scope to the north. He pointed out Lyra with the bright star Vega (mag 0.03) and the parallelogram of stars above and to its right. Midway between the top two stars was the Ring Nebula M57 (he said.) He aimed the scope and, voila, there it was, like a smoke ring. Awesome.

But after all those galaxies, nebulae and clusters, who would have thought that the highlight of my night would be a simple double star. Dick

pointed out a 3rd mag star in Cygnus, approx the same distance to the top right of M57 as M57 was to Vega. This was Cygnus B, or Albireo. (I have read up on it since that night.) When we focussed, it was an absolutely beautiful double star with very distinct and bright components. The larger appeared yellow and I was tossing up between blue or green for the second.

Then I remembered David Malin's trick of defocusing the scope to distinguish colour. I turned the focusing knob until I had two 'doughnuts' in my view. One was a distinct golden yellow, while the other was an azure blue. Beautiful. I have since read that Albireo is considered one of the show piece doubles in the sky. They are right.

By the time the Moon rose and people started drifting homeward, I decided I was getting tired. Daniel kindly helped me pack the scope away. (It's a bit of a chore until I devise a more compact padded box for the bits and pieces.) Feeling satisfied with a great night's viewing, I drove home. I glanced at the clock as I drove into my garage. 2.00am.

Overall, I decided I was glad I bought that scope.

Bob Bee



**What's To See This
Month?**
17th July – 20th August

The inner planets this month are not in very opportune locations for viewing, but there are a few miscellaneous events that are worth noting.

Mercury is still low in the twilight and basically non-viewable.

Venus however appears in the evening twilight, the more so towards mid-August. There is one 'treat' on 19th July when Venus passes directly over M44, the Beehive Cluster in Cancer. You'll have to look carefully as this is in mid-twilight and M44 stars will be fairly faint.

Mars is still lost in the Sun's glare. (Sorry Phil.)

Jupiter and **Saturn** are still putting on a show, but you have to be up early in the morning for it. There will be series of nice arrangements with Jupiter, Saturn, Aldabaran (in Taurus) and the Moon throughout the month. e.g. on 24th July, J, S and M will be in a straight line while on 25th, the Moon falls inside an acute triangle formed by Jupiter, Saturn and Aldabaran. In fact, Jupiter and Saturn spend all this month hanging around in Taurus with Aldabaran.

Uranus will be basically visible all night (at mag. 5.7, it is theoretically a naked eye object if you know where to

look) rising progressively from 7pm to 4.30pm. It is at opposition on 11th August (a mere 2.8 billion km away). You may be able to spot it on 15th August when it will be less than 2° from the full moon.

Neptune also is up all night and is at opposition on 28th July (4.37 billion km away.) At 7.8 mag, Neptune is a binocular object (again, if you know where to look.) As a 'treat', Neptune will be seen about 0.3° from the Moon's limb on 14th August, at about 4.30am. (We don't get to see the occultation that the penguins in Antarctica will.)

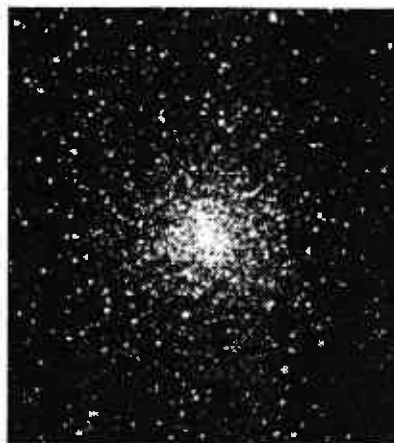
The Minor Planet **4 Vesta** will be at opposition on 17th July. (The date of the July MAS Meeting). It will be in Sagittarius at mag 5.4 so it should be visible in binoculars even from the UWS car park. Its position that night will be 19h 47m, -23° 39'. Have a go!

Constellations:

Scorpius and **Sagittarius** are still high overhead and ideal for viewing (unless you have a fork mount alt-azimuth telescope.) Together with **Ophiuchus** to the north, they contain 25 of the 110 Messier objects. A big chance for some quick scalps in your Messier Hunt.

Of particular interest in Scorpius is the Glob M4, near Antares. It is one of the closest globs at 6,800 l.y. and is of interest because of its

lack of strong condensation and its loose scattering of stars. Try to pick this 6th mag fuzz ball in your binoculars and then a telescope.



M4 in Scorpius

Another delightful feature of Scorpius is the area near the base of the scorpion's spine, before it curves over into the tail. There is a beautiful collection of star clusters here. One cluster is NGC 6231, with about 120 stars. The brightest of these, seen in binoculars or low power scope bear a resemblance to the Pleiades. Attached to 6231 by a chain of stars is a large cluster of faint stars, H12.



NGC6231 in Scorpius.
Photo by D Malin - AAT

Finally, as a simple treat, Aquila in the north east, marked by the 1st mag. white star Altair has a star 15 Aql (19h 05m, -4°) which is a double containing a mag. 5.4 yellow with a purple mag. 7.2 companion. Try the defocussing trick to check out the colours. Purple! Now I'd like to see that.

Bob Bee ■

Astrophotography Tips

For those interested in learning the basics of astrophotography and then moving upwards in skill, there is a great series of articles in the June issue of Astronomy magazine. (No, I don't have shares in it.)

There is "Getting Started in Sky Imaging"; "Basic equipment, Majestic Photos"; "A simple Guide to Piggy-backing"; and "Through the Telescope Photography".

Each article is easy to read and full of helpful tips. Combined with advice from our resident expert Peter Drury, you'll be taking smashing photos in no time. But remember, first get a camera.

Bob Bee ■

ALBIREO.

One of the great small-telescope showpieces of the sky, Albireo, or β Cygnus is

a magnificent double whose components have contrasting blue and golden colours. In a romantic mood, astronomers have called the pair topaz and sapphire. With a separation of 34" of arc, the pair is easily seen at low telescopic power. It looks great in a higher power too. Albireo, about 380 l.y. away magnificently shows how an apparently single star when viewed through the telescope can actually be double. Such "binary" stars appear all over the sky.

Recent surveys show that more than half of the local stars are actually members of some kind of double or multiple system, the stars in orbit about each other.

Albireo's component stars are quite far apart and if actually attached gravitationally have an extremely long orbit with a period estimated to be about 7,300 years. (My rough calcs give a distance between components of about 5,000 AUs or about 0.07 l.y.) The brighter yellow-coloured member of Albireo is itself a much closer double but its two stars are not separable in the telescope. (i.e. it's a spectroscopic binary.) It consists of a bright, but cool, evolving giant coupled with a dimmer but hotter "dwarf," a star that, like the Sun, fuses hydrogen into helium in its core. The dimmer 5th mag. visible blue component of Albireo is apparently single, and is a blue dwarf just a bit cooler than the companion to the yellow star.



Though the above tends to the technical, it is still very interesting to find out what makes a simple, but beautiful double star tick. It adds what I all the 'Wow! Factor' to our observing.

The picture above gives an idea of the appearance of Albireo in the scope. The only thing missing is the glorious technicolour.

Bob Bee ■

Re: The Red Planet - 3

At the Oaks night on 24th June, Attila and I had a great discussion about The Face on Mars. We agreed to disagree, respecting each other's views. I hoped to do an article in this issue responding to Attila's points, but ran out of space. Hopefully, next issue. But I will make one point here – if NASA is so desperate to get funding for Mars missions and is using the 'life on Mars' ploy (e.g Antarctic meteorite) to gain support for funding, why would it 'hide' any evidence such as the Face? It doesn't hold up.

Bob Bee ■