



# PRIME FOCUS

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## Presidents Report

John Rombi

### Presidents Report

A BIG welcome to all the members and guests here tonight.

Well, unless you've been hiding in a cave on Mars for the past few months you would have known that last months guest speaker was Professor Fred Watson. Fred spoke on the ongoing discoveries that the current crop of large telescopes are carrying out, including "our own" 3.9metre gem at Coonabarabran. This facility is Fred's responsibility (as Astronomer in Charge)

The second part of Fred's presentation was on the "Future Scopes" Large behemoths of 30, 60 and yes, 100metres across.

These scopes would not be made of one solid piece of glass, due to the constraints placed on an object this big.

The mirrors would be made of smaller segments, controlled by computers of course!!

Go to the A.A.O. Website for further information.

### Tonight

Our Guest speaker will be Mark Suchting, mirror maker extraordinaire.

One of Mark's big achievements is the manufacture of the 24" mirror of the Nepean Observatory. Mark is also working on twin 12" mirrors for our member Chris Malikof; these are for Chris's Binoculars!! His presentation is on "Binocular Telescopes".

## MAS Committee

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John Rombi

### **Vice President**

Martin Ferlito

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Bob Bee

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### **Odds and Ends**

An order for **Astronomy 2008** has been placed and I hope to have them available for sale at the November meeting. The price has not been set, but I'm sure the total price will be cheaper through M.A.S. than any retailer.

The large Star Wheels have also been ordered.

So, don't buy these items anywhere else but here!!

### **Observing Nights**

Are still thin on the ground, due to the constant cloud cover. So nothing to report here.

### **Next Year**

Our first speaker for next year (February) will be Prof Geraint Lewis from Sydney Uni; his topic will be on a fascinating subject "Galaxy Cannibalism"

There is a report on the Magellan Observatory trip further in this month's Issue.

Clear Skies, John Rombi.

### **OBSERVING DATES**

03/11/07 Starguard  
10/11/07 The Forest  
19/11/07 General Meeting  
- Don Whiteman  
01/12/07 Starguard  
08/12/07 The Forest

### **Vice Presidents Notes**

Martin S. Ferlito

I would like to begin by thanking everyone who contributed to this month's Prime Focus. Great job and well done. Don't be afraid to keep contributing.

In regards to our observing nights, please contact John Rombi or myself if you wish to join the rest of us at any of the scheduled observing nights.

MAS always encourages New members to join us on these special nights to either get help regarding your telescope, as well as to get to know better your fellow astronomers. If you are a member and have not come out with us yet, we would be delighted to have you join us.

If you are a member and do not own a telescope, we have a club 8" Dobsonian which you can use.

Hope to see more of the MAS family enjoy the dark sky sites.

Clear skies, Martin S. Ferlito.

## Literary Tales Of Comets

Bob Bee

Comets have been a fact of Earth's life long before man started seeing them and trembling at the sight. Most astronomers feel that Earth's oceans are a legacy of early bombardment by a plethora of comets, as a major component of a comet is frozen water ice. So while superstitious people may fear comets and see them as signs of impending disaster for kings and princes, we have much to thank them for. That's until the next big one hits, of course.

Comets, usually originating in the giant Oort Cloud that surrounds the outer reaches of the Solar System, come in all sizes, degrees of brightness, length of tails and periods of return. Some, like the recent spectacular Comet McNaught, will never return. One thing that all naked eye visible comets have in common is they've stirred the hearts of writers and poets over the ages. Especially those comets with more spectacular heads and long swooping tails. Here is a very small sample of the comet 'literature'.

The Bible, *I Chronicles 21:16*. "And David lifted up his eyes and saw the angel of the Lord stand between the earth and heaven, having a drawn sword in his hand stretched out over Jerusalem..."

In Shakespeare's *Julius Caesar* Act

II Sc.II, Calpurnia says: "When beggars die there are no comets seen,/ The Heavens themselves blaze forth the death of princes..."

Comets are more benign in the opening lines of Shakespeare's *Henry IV Part I*: "Hung be the heavens with black, yield day to night;/ Comets importing change of Times and State,/ Brandish your crystal tresses in the sky,/ And with them scourge the bad revolting stars,/ That have consented unto Henry's death..."

In his *Paradise Lost*, Milton uses popular images of comets, particularly the idea of malevolence, fire and swords.

"Incens'd with indignation Satan stood/  
Unterrified, and like a comet burn'd/  
That fires the length of Ophiucus huge/  
In th'arctic sky, and from his horrid hair/  
Shakes pestilence and war..."  
Powerful stuff. It helps if you know that Ophiucus is a large constellation north of Scorpius and Sagittarius. Then...

"The brandished sword of God before them blazed/  
Fierce as a comet; which with torrid heat.../ Began to parch that temperate clime..."

Daniel Defoe, in his historical fiction *A Journal of the Plague Year* wrote the following about the comet of 1664: "It passed directly over London so that it was plain that it imported something peculiar to the city alone... it was of a faint, dull languid colour, that its

motion was very heavy, solemn and slow, and it accordingly foretold a heavy judgement, slow but severe, terrible and frightful, as was the Plague."

But Jonathan Swift didn't share the superstitions of his peers: "Old men and comets have been revered for the same reason; their long beards and their pretenses to foretell events."

Of course, Alfred lord Tennyson had a lot to pen about comets, as in these lines from *The Lady of Shalott*, even though he confuses a meteor with the comet:

"All in the blue unclouded weather/  
Thick-jewell'd shone the saddle  
leather,/ The helmet and the helmet-  
feather/ Burn'd like one burning flame  
together,/ As he rode down to  
Camelot./ As often thro' the purple  
night,/ Below the starry clusters

bright,/ Some bearded meteor,  
trailing light,/ Moves over still  
Shalott."

When Halley's Comet returned in 1910, the modern scientifically savvy were more rhymesters than poets. Paul West, of the *New York World* wrote:

"No more politicians,/ No more tariff  
schemes,  
No more trust conditions,/ No more  
quick-rich dreams!  
Bang! Annihilation!/ Smash! We fly to  
bits!  
There's some consolation/ If the  
comet hits!"

On a personal note, the view of Comet McNaught from Belanglo Forest in January 2007 even moved this humble astronomer to poetry:

**"In the fading gold of sunset  
As the velvet evening falls,  
The stars appear with Venus all a'glow.  
Then a hand-span to the south  
O'er the rusty clouds a'sprall,  
The name-sake of McNaught puts on a show.  
The comet head is plunging  
T'wards the horizon, blazing white,  
While its tail plumes like a fountain in a blow  
Sending ribbons streaming northwards,  
Like a curtain in the night  
As we stood in quiet awe at Belanglo."**

(R Bee 2007)

## Seeing Double

David Hall

Welcome to the first instalment of my new project, *Seeing Double*. My aim here is to show people who are new to astronomy some of the great double/multiple stars we have in the sky and to give people something to look at while the moon is out: drowning all the DSOs in its glorious (debatable) light.

We'll be looking at visual doubles, multiples and binaries of course so no special equipment (which is probably beyond us all anyhow) has to be used, just your telescope. I am hoping to do this on a monthly or bi-monthly basis depending on when I can get out doing constellation each month including 5-10 doubles drawing information from my own knowledge, various websites and a program called *cartes du ciel*

**Definition:** I could have put this in my own words, but alas I am too lazy... so here is an excerpt from the Eagle Creek Observatory site in their doubles section...

"A "double star", or multiple star, is exactly that. It's a set of two or more stars that appear next to each other. There are two types of double or multiple stars. There are "true" binaries or multiples and "optical" binaries or multiples. True binaries or multiples are stars that are actually physically close and are bound together by gravity. Optical binaries or multiples are stars that are lined up just right so that they appear to be physically close."

Anyhow, enough dribble lets do some observing! :D

This month's constellation is our very own Southern Cross (aka crux). Nestled between Centaurus and Musca (the fly) it is our great southern lands best known constellation and it holds a number of really nice double stars.

**\*\*note, colours mentioned are how they appeared to me and not necessarily their true colour\*\***

1. **Alpha Crux:** well... if the cross was up the right way it would be the bottom star. This star is actually a multiple consisting of 3 parts, 2 bright stars close together and one dimmer star out from the rest. All 3 stars show as blue in my 8" newt. Stars A and B are mag 1.25 and 1.55 and are 3.9" apart star C is mag 4.3

**HJ 4524:** a great little double near the edge of NGC 4439 (open cluster) consisting of a white star (A) and a yellow star (B). Star A is mag 8.05 and star B is 9.93 and separation is 30.3". quite pretty next to the cluster really...

3. HJ 4547: marked on the map for your convenience ☺ a double of white and what looked like blue in my 8" scope. The 2 near stars could be mistaken for part of the double and look nice next to it. A is mag 4.72 and B is considerable dimmer at 10.24 but the split is easy due to the 28.1" separation.
4. Dun 117: It's a triplet! Yup 3 stars in one. This group contains 2 whites and one dimmer blue. A and B are 7.40 and 7.83 respectively, C is 10.24 mag. Separation of A and B is 27.7" its another easy split... I didn't do any hard ones ;)
5. BSO 8: put your hand up if you love yellow stars! We have 2 lovely yellow stars of similar magnitude here right next to NGC 4337. Their magnitudes are 7.84 and 7.98 with a separation of 5.2"... A lovely sight by any standards.
6. Gama Crux: did you know that 3 of the 4 points are doubles/multiples? Well Gama Crux is one of them. Three stars in this one and they are very purdy. A is white and 1.8 mag, B is blue and 6.45 mag, the bonus star C is 9.25 mag. This is practically for binos (except C is bit dim).
7. Beta Crux: another triple system and one I did not conquer, so I thought I'd put this in as an added bonus because of the blood red carbon star near by. A is 1.25 mag and B is 11.4 mag. Although they aren't close (42.3") the dimness of B makes it very hard to see... but hey, check out the carbon star anyway ☺

Now get out there and search for them: D

Please feel free to reply here with any feedback, pics or reports of these objects... I want to know how you go ☺

## Beautiful Scorpius

By Ian Cook

If astronomers in Australia were naming this constellation today we would probably call it the Crayfish or Lobster. However the ancients got there first so just keep that thought in your mind.

Forget about Antares and M4 for a moment and come on a journey to the centre of the galaxy at the other end down at the Lobster Tail (Stinger). Under a clear dark sky this is an extremely interesting area. Scorpius contains more than forty identified open clusters and more than twenty globulars.

The view in binoculars of this area is perhaps better even than with a telescope. Clumps of stars interlaced with dark lanes all packed together, sweeping down to the two stars that form the tip of the stinger. This is the home of the Scorpius OB1 Association. All you star wars fans please sit down; it's not the club where the other Obi Wan goes.

Lets begin at the sharp bend in the body of the Scorpion at  $\zeta 1$  and 2 which is a naked eye orange-red and golden double with a third white star making a neat triangle in a finder scope.

Just half a degree to the northeast is **NGC 6231** a cluster of eight bright stars in a crowded arrowhead shape. Put your scope on this even with moderate magnification and many

more stars appear in the background. This is a famous object "discovered" by many astronomers over the centuries including Ptolemy, Ulugh Beg (15<sup>th</sup> C), Keyser our Dutch friend and Hodeirna (16<sup>th</sup> C), along with Halley, Lacaille, Dunlop and John Herschel. To be fair as telescopes improved each one saw a little more detail and drew more accurate conclusions.

Chains of stars, which are the outline of one of the spiral arms of the Milky Way, lead a degree away to the north, to be swallowed up in a glowing mass with dark lanes a little like the centre of the galaxy in Sagittarius. We now know this huge stellar cloud is connected with 6231 and is called a HII area of ionized hydrogen gas. The northern end of this cloud is called Trumpler 24, (another 'discoverer') and is filled with bright stars arranged in pairs, triplets and groups of all descriptions ranging down to the limit of visibility.

Sweep north a further degree to come to **NGC 6242** a bright compact arrowhead of stars with a shining orange-red star to the southeast. Discovered by Lacaille in 1752, it sits in a nice field of dimmer stars.

Have a glance also at  $\mu 1$  and  $\mu 2$  which are less than a degree to the northeast. This is a naked eye double of equal white stars one of which is an eclipsing binary varying in magnitude every 34 hours.

Before we leave this end of our star field, using  $\mu$  and  $\zeta$  as a baseline, move your binoculars  $7^\circ$  westward till you come to what looks like another Omega Centauri. This is the galactic open cluster **NGC 6124** half a degree in size and filled with twins, triplets and various groups of scattered stars, many of them orange in colour.

Also using  $\mu$  and  $\zeta$  line them up and extend a line out  $2^\circ$  and east  $1^\circ$  to find open cluster **NGC 6952** which has 100  $12^{\text{th}}$  mag stars crammed into 7 arc minutes, with a detached group of 15 stars to the west.

Coming back inside the curve of the scorpion tail using only low power,  $2^\circ$  NE of  $\mu$  is a scattered open cluster called **NGC 6281** with a striking curved diamond pyramid of coloured stars and patterns at its centre.

Moving toward  $\lambda$  and  $\nu$  which form the tip of the stinger, there is lots to choose from, depending on your eyesight and your scope. I couldn't find the Bug Nebula NGC 6302, searching with a qtr moon in the sky, but they tell me it is relatively bright. There are three Gum nebulae here for the astro-photographers, one of them **NGC 6334** is called the Cat's Paw. I did see something which I am calling the "Prancing Dog". If you want to find it, ask to see my star chart.

**Mlb04** is a triple star discovered by observers at Melbourne Observatory late 1800's. The bright 5.9 magnitude orange star has a  $10^{\text{th}}$  magnitude

companion  $31''$  away. The bright star has a similarly bright K class star just  $2''$  away that orbits every 42 years.

OK, now we are looking east of the stinger and naturally the most obvious naked eye object here is **Ptolemy's Cluster (M7)**. Using binoculars or very low magnification with light pollution it looks a bit like a spider. With the stars arranged in clumps starless lanes are created across the cluster. At 900 light years from us it is among the nearest clusters.

The other easily seen object close by is the **Butterfly Cluster or M6**. Twice as far away as M7 a telescope is needed to bring out its best view. Most novices can easily see the wing shape brightly outlined in a one-degree eyepiece.

Out of more than twenty Globular Clusters we will look at 3-4 this month which are usually overlooked. The first of our GC's is an easy find beside the bright 'stinger tail' star 'G' which is about  $2^\circ$  north of M7. Using a scope and low power magnification you can find **NGC 6441** hiding away in the glare of the brighter star in a starry field. Higher powers will allow you to isolate the GC without the glare of the star for better resolution.

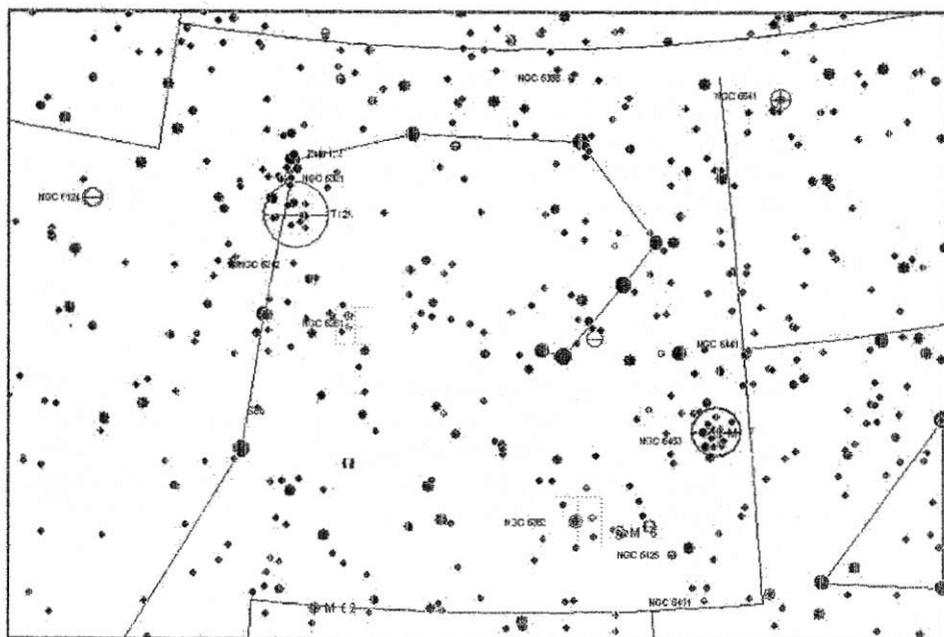
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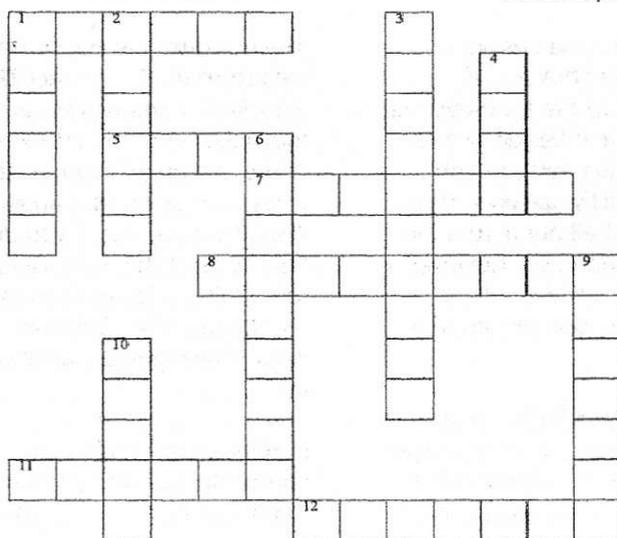
The second is likewise beside a bright star. Follow the line of stinger stars out to the southeast for an equal length and beside two to three medium stars you can find **NGC 6541**. Strictly speaking this is not in Scorpius at all but across the border into Corona Aust. However it is a nice GC also 3.5' diameter like the previous one, well defined in a pretty setting.

Our third GC **NGC 6388** is on an extended line from  $\iota$  and  $\theta$  Scorpii about  $3^\circ$  away and  $1^\circ$  down to the east. Again it is small, tucked in in between stars but glowing brightly in a starry field.

The last one is a real challenge and we return to M7. In fact **NGC 6453** is tucked in among the outskirts of the cluster on the northwest side. There is a bright orange star just 21' away. In any scope under 300mm it will be a success if you discern the faint haze of this 9.9 magnitude 3.5' round glob. No hope under any but the darkest sky. But then that's what challenges are all about, isn't it?

Nothing better than some hot  
Lobster tail on a chilly night!  
Good seeing IC





### Across

1. Meaning the Shield. [6]
5. Sudden Unpredictable Brightening of a Star. [4]
7. Force that binds Protons and Neutrons within Atomic Nuclei. [7]
8. First man to walk on the moon (surname). [9]
11. Outer Atmosphere of a Star consisting of Rarefied heated gas. [6]
12. Surname of Astronomer who discovered that Pluto had a moon. [8]

### Down

1. Cast During an Eclipse. [6]
2. Planet Discovered by Herschel. [6]
3. Orbital Motion of one body around another. [10]
4. First Russian moon probe Satellite launched January 1959. [4]
6. Northern Constellation close to Pegasus. [9]
9. The attractive effect any large object has on all other large objects. [7]
10. Dark Central Region of 1 DOWN. [5]

## Magellan Weekend

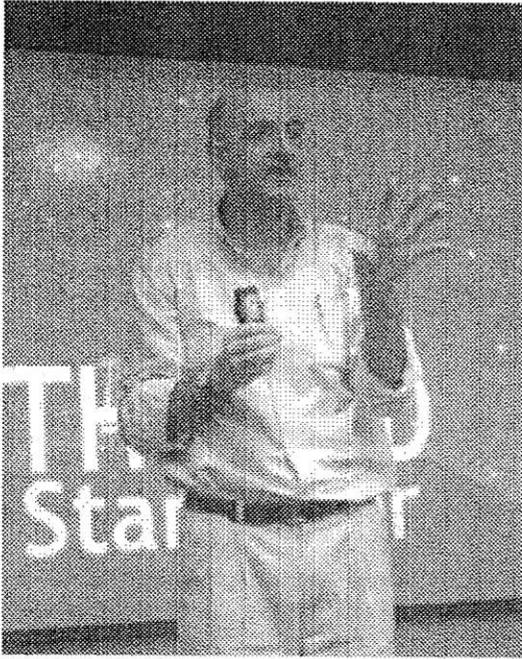
Martin S. Ferlito

What a weekend!! Friday morning the weather suddenly turned and my car got pummeled by hail the size of golf balls, this was not a good start to a long awaited visit to the Magellan Observatory. Still, the MAS optimism prevailed and 10 members including myself turned up. The brave members were Lloyd, Ian, Ivan, Geoff, Ray, Chris & Jenny, Tony, Stuart and myself. I soon was informed that John wasn't going to make it as he was not feeling very well. We really missed you mate! However, rest assured that personally, I was thinking about you and was observing for the both of us. Late Friday afternoon we all ventured off to the observatory and it didn't look very promising, big dark clouds everywhere and then it happened, rain! Not very much, however it was enough to have those with scopes and electronic equipment scrambling for covers to shield equipment. It didn't last very long, but it was enough to instill thoughts of serious doubt. As the evening progressed it got a lot better. Earlier, most of the group decided it wasn't going to be worth it and returned to the house. 10pm and there was hardly a cloud in the sky and improved by the minute. It was now 2am and the sky was magnificent. What a great night. Thinking back to the early part of the day, who would have thought we would be blessed with fantastic skies. Saturday was a lazy day, some planned their evening and some chatted, and some simply watched a bad space spoof flick. In the evening

everyone ventured up to the observatory and the hours flew like minutes. Lloyd was in aperture rapture with the 24" truss. He managed to rack up 39 galaxies. Well done Lloyd. Ivan was diligently continuing with his Messier hunt and I believe that he is almost to the big 100. Ian was moving around trying to avoid the light emanating from Lloyd's Laptop computer which I happened to be using with Bob Sheehan's Gstar-Ex CCD camera. Unfortunately there wasn't anything I could do about it, please accept my apologies Ian. Perhaps if I had an extra 10 meters of extension cord I could have tucked myself away somewhere. Never the less I did manage to work the camera out and was blown away by it's sensitivity. I'll soon have some images placed on the website. Chris was also imaging everything and anything that he could find, Tony also was cutting his teeth with this tricky imaging hobby, Well done Tony. Geoff had a great time observing and helping out too. Thanks Geoff. Stuart was also having a great time moving from scope to scope, not a bad idea mate! Perhaps I'll try it out next time myself. Well the numbers dwindled down to just Ray, Chris and me. It was about 2am when we decided to call it a day. Ray stayed on until about 3am. We had the pleasure of meeting Chris and Jenny's Pugs, very cute dogs. Well Sunday morning came and soon it was time to leave. It was nice to be there and it would have been even better to have stayed on a bit longer. Well there is always next year. Hope to see more MAS's there. MSF

## Another Great Presentation from Fred Watson

A Huge thanks to Fred for a great talk at our September Meeting.



### SEPT CROSSWORD SOLUTION

#### Across

- |           |               |
|-----------|---------------|
| 1. Helium | 3. Eight      |
| 5. Mir    | 6. Hubble     |
| 9. Iceage | 12. Supernova |

#### Down

- |              |                  |
|--------------|------------------|
| 1. Hale-Bopp | 2. Magnification |
| 4. Pulsar    | 7. Venus         |
| 8. Nebulous  | 10. Mars         |
| 11. APO      |                  |

### MAS Website

[www.macastro.org.au](http://www.macastro.org.au)

### Prime Focus Article Submission

Deadline for article submissions for the November edition of Prime Focus is

**Monday 12<sup>th</sup> November 2007**

All Articles can be submitted via email [cyberpiggy@optusnet.com.au](mailto:cyberpiggy@optusnet.com.au)  
Or via snail mail to the MAS Postal address

Thanks to all the contributors for this month.....