



PRIME FOCUS

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Presidents Report

John Rombl

Welcome to all members and guests,

Tonight we will continue with our popular workshops. This will be on Drift Aligning, you may remember that this was last month's topic but with the inclement weather it had to be postponed. Last months workshop was very successful and I would like to thank all the members that provided advice on the many topics covered.

MAS Committee

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John Rombl

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Prime Focus Editor

Kate Johnston
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I know that quite a few owners went home that night a lot more confident in their ability to get the most out of their scopes.

Our observing schedule has again lay in ruins due to the ongoing rains on the east coast. Maybe we should take up knitting!!!

July will continue to be a quiet time for M.A.S. but August will certainly be a busy one. Apart from our Stargard and Forest nights, there will be an Open Night for the public at The Domes on Friday 17th and the other for International House students at The Forest on Saturday 18th.

These two nights will allow M.A.S. to showcase its very knowledgeable astronomers to the very eager public. We will need a strong contingent of members with scopes for these events, so please put up your hand and say YES.

Our other event, again at The Domes will be on Tuesday 28th, this will allow us to show the public the wonders of a Total Lunar eclipse, and again we need your help.

The sales of our DVD "Magnitude" continue to be strong and Martin has sent copies of it to Bintel, Andrews Communication and The Magellan Observatory.

I hope by the time you're reading this article, the weather has been a lot kinder to us and some serious observing has taken place.

OBSERVING DATES

11/08/07 The Forest
17/08/07 Public Night – The Domes
18/08/07 The Forest – Students
20/08/07 General Meeting
28/08/07 Lunar Eclipse – The Domes

Until next time "Keep your feet on the ground, but keep reaching for the stars"

John Rombi.

JOIN US AT THE DOMES TO BE PART OF THE AUGUST 2007 LUNAR ECLIPSE

Tuesday August 28th 2007

Approx Viewing Times for Sydney:

6:51pm	Moon moving into Earth's Shadow
7:52pm	Totality Commences – Moon is completely within Earth's Shadow
9:23pm	Moon starts to move out of Earth's Shadow
10:24pm	Eclipse Finishes

The Month Ahead for the Moon

July

22 First Quarter Moon

30 Full Moon

August

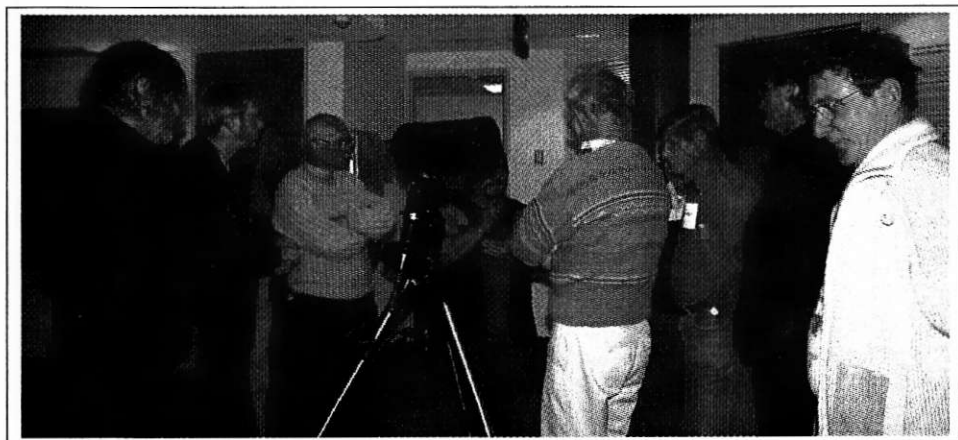
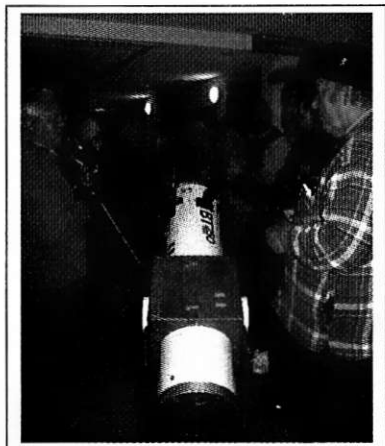
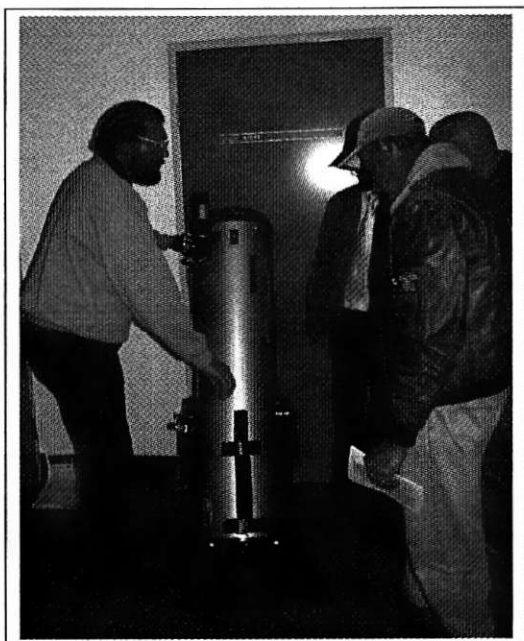
6 Last Quarter Moon

13 New Moon

21 First Quarter Moon

28 Full Moon : Total Lunar Eclipse

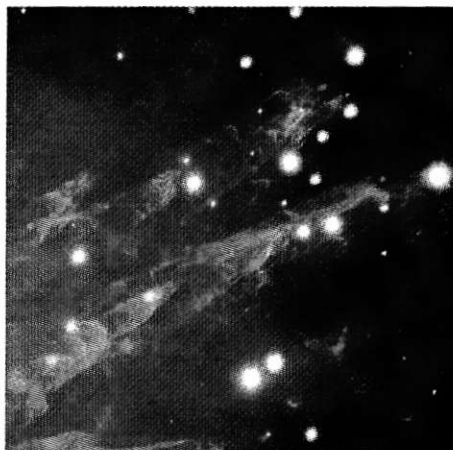
MAS – Collimation Workshop



Orion's Bullets of Iron

Bob Bee

The image below was taken by Hawaii's giant 8 metre Gemini telescope using adaptive optics. It shows 'cosmic bullets', each bigger than our solar system. These bullets aren't made of lead, though, but contain enough iron to meet the needs of many a developing nation for ever. They are flying very fast, faster than the speed of sound.



So who was the 'Lone Ranger' who fired them? No-one is really certain but Australian astronomer Michael Burton, from UNSW, described them as "knots of very dense gas ejected from the core of the Orion nebula, a region of star formation" about 1500 light years away.

It was Dr Burton, along with the late David Allen, who discovered this phenomenon 15 years ago. Since then, astronomers have continued to be fascinated with the discovery and now are gob smacked by this most recent image, amazed by what may have caused it. Dr Burton said each bullet was about ten times larger than our solar system. When each 'bullet' of gas collides with the huge mass of Orion nebula hydrogen gas, they heat up to $5,000^{\circ}\text{C}$, almost our Sun's surface temperature, making the iron atoms they contain glow brightly. In a colour image, they appear blue. In each bullet's wake, the hydrogen gas is brown. There is a lot iron in Orion.

Astronomers are still trying to figure out what catastrophic event within the Orion Nebula, which would have had to occur within the past few thousand years, caused the formation of these bullets. Whatever it was, it has provided a spectacular image, rivaling the 'Pillars of Creation'.

NGC's – Oh Rapture Unexampled!

Bob Bee

Let's look at deep space astronomy – things that make you go "Wow!" in the night.

Some of the most beautiful objects studied by both professional and amateur astronomers come under the mundane title of NGCs. This stands for New General Catalogue and lists objects from NGC1 to NGC9999. But I have my own acronym for NGC – Nebulae, Galaxies, Clusters. That is simply because every object with an NGC number is, in fact, either a nebula, a galaxy or a cluster. If it looks, walks and quacks like a duck, call it a duck.

The sky is teeming with NGCs and with the exception of the galaxies; all are contained within our home galaxy, the Milky Way. Certainly all the other galaxies will have their own collection of nebulae and clusters which we can't see. It is when you stare at such an object through a telescope (in many cases, just binoculars) or gaze on a beautiful full colour photograph taken through a telescope, that you really come to appreciate the awesomeness, the majesty of the universe.

Star clusters come in two types – Open Clusters and Globular Clusters. Each has their own attraction. The 'globs', fuzzy spherical 'balls' of ancient stars, numbering from the tens of thousands to the millions, have their astronomical and

cosmological significance and, to the initiated, are awesome to observe. But for sheer beauty, the open clusters win hands down. Unfortunately, with the exception perhaps of the Pleiades and Hyades in Taurus, the Beehive in Cancer and the Coma Star Cluster in Coma Berenices, very few star clusters were known to the pre-telescope cultures and, more pointedly, poets. We had to wait for the light gathering and magnification of telescopes to reveal gorgeous star patterns and colours in such clusters as the Jewel Box in Crux, the Wild Duck Cluster in Scutum and the Southern Beehive in Carina, to name but a few.

Nebulae are the glamour queens of deep space. Some are huge clouds of glowing hydrogen gas, tens of light years across, giving birth to new stars as we watch. Stellar nurseries. Others are the remnants of the death throes of old stars, lending their used gas and heavier elements to the interstellar medium to help in the creation of new stars, and so on ad infinitum. Like snow flakes, no two nebulae look alike and this leads, with astronomers' overactive imaginations, to names as colourful as their subjects. The Great Orion Nebula, Helix, Saturn, Blinking, Crab, Veil, North America, Tarantula, Clown Face, Ring, Rosette, Trifid, Dumbbell, Swan, Lagoon, Cat's Eye Nebulae are some classic examples. If only Keats or Tennyson could have seen the

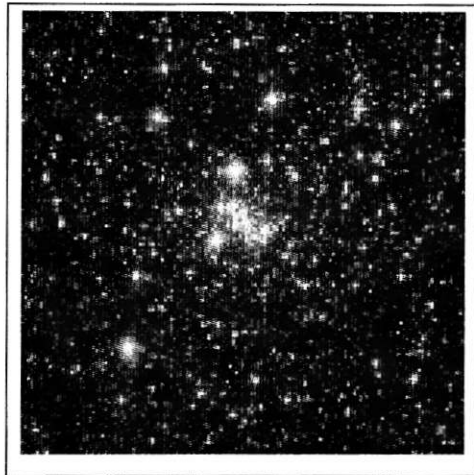
images from modern telescopes, they would have run out of quills and ink in trying to describe the imagery.

Galaxies, galaxies everywhere. Astronomers estimate there are about 100 billion galaxies in the observable Universe, each with an average of about 200 billion stars. To an amateur astronomer through the eye-piece of his modest telescope, a galaxy looks like a wispy white or gray smudge, generally oval in shape, some cigar-like if edge-on, perhaps with a brighter concentration at its centre. One might even detect the hint of spiral arms reaching out from the centre. But in a time-lapse photo taken with the same scope – "How surpassingly lovely is the plainest of them" to quote Frederic from *Pirates of Penzance*.

In looking at galaxies, we are seeing back millions of years in time. The Hubble Space Telescope has captured images of early galaxies from almost 10 billion years ago. But the closer ones we see in detail are indeed surpassingly lovely, with their delicate spiral arms, like Catherine Wheel fireworks. Indeed, one such galaxy has that name, while another is dubbed the Whirlpool Galaxy. Our own Milky Way Galaxy, seen from millions of light years, would appear similar to those. The spiral arms contain the gas clouds with the younger generations of stars, glowing with hues of blue and pink, while the core stars glow with a blazing yellow as they approach stellar senility.

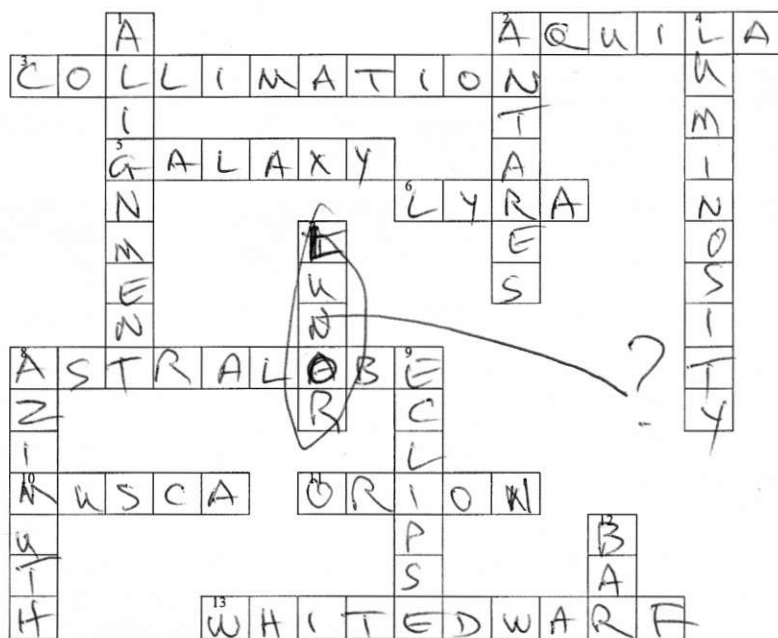
Space is indeed deep, but beautiful.

To quote Frederic again: "... oh, rapture, unexampled."



[Ed ... One of my favorite – NGC 4755 The Jewel Box]

Crossword No 4



ACROSS

2. Constellation depicted as an eagle [6]
3. Subject of last months MAS Workshop [11]
5. The milky way is one [6]
6. Vega is the principal star of this galaxy [4]
8. A historical astronomical navigation instrument [9]
10. The Fly [5]
11. A Greek hunter [5]
13. The sun will become one of these stars [10]

DOWN

1. Tonight's MAS workshop [9]
2. The Brightest star in Scorpius [7]
4. The amount of light emitted by a star [10]
7. The August Eclipse [5]
8. The angular distance of an object around or parallel to the horizon from a predefined zero point. [7]
9. When one celestial object moves into the shadow of another [7]
12. A unit of measure of atmospheric pressure [3]

Back Focus

Kate Johnston

This month I write of my own observing well my attempt. I am only new to observing, still struggling to know where to begin but Bob's article last month gave me that starting point. I was on a mission now to find "The Sombrero Galaxy" – Bob made it sound soooooo easy.... Well here's my short story

So tonight's the night – I've worked myself into braving the cold, I'm going out there now.....ok so I'm back alreadyYep not going out there tonight ..., damn weather And by the way John in reference to your president's report ... I have taken up knitting!

So we try again and again night after night and finally I am out on a clear night armed with my star chart, my telescope and the thought 'No I'm not cold' – my mission begins. Firstly Bob writes find Corvus, well that must be easy I think to myself, I'm sure it is for someone who knows what they are looking for. 'Corvus' – Where are you? Ok so I've found it on paper – Now to the sky – Problem - How do I use this star chart thing again, it's been so long since I was given a lesson. I look to the sky; I turn the chart and look some more and more and more I must have the wrong star chart! It can't be me oh yeah it was me alright the story will continue.....

Bob you haven't defeated me – next time I will succeed. I will defeat the star chart.

MAS Website

www.macastro.org.au

JUNE CROSSWORD SOLUTION

Across

- | | |
|-------------|--------------|
| 3. Halleys | 6. Jewel Box |
| 7. CCD | 10. Auroras |
| 11. Uranus | 12. Wildduck |
| 13. Mercury | |

Down

- | | |
|----------------|-----------|
| 1. White Dwarf | 2. Wezen |
| 4. Rho | 5. Pluto |
| 8. Jupiter | 9. Hubble |

Prime Focus Article Submission

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

Monday 13th August 2007

All Articles can be submitted via email to
cyberpiggy@optusnet.com.au
Or via snail mail to the MAS Postal address

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