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Presidents Report

John Rombi

Welcome to all members and guests to our October meeting, time is really flying as we journey toward the end of another year.

I would like to thank Daniel Ross (our V.P.) for filling in at the last moment in August; this was due to Ian Cook having to step down from giving his presentation because of illness. After some early setbacks, Ian is now recovering very well and should be back in our midst soon.

Daniel brought us up to date on the Mars Rovers and the latest Polar Lander, Thanks Daniel.

I would also like to thank Andrew Jacob (Syd Uni) for his presentation on "**Cepheid Variable Stars**"

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Daniel Ross

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International House

International House were our guests at The Forest on August 23rd. Approx 60 students along with the Director Charlene Griffiths and her family, enjoyed dark brilliant skies with the expertise of M.A.S members taking them for a journey through the Universe.

We were amply satisfied with a delicious B.B.Q dinner supplied by Int House.

The students left at 9.00pm having enjoyed the wonderful southern sky and engaging conversations.

A BIG THANK YOU was received in the form of an email from Int House for the effort put into the night. Well Done M.A.S.

Later On

We all continued to enjoy the brilliant sky as the night went on, along with the plunging temperature!!

By 2.00am it was -5C!! and all the equipment that was soaked by the dew earlier on, turned to blocks of ICE. This was a good test for my dew heaters and I must say they all passed with flying colours.

With only Chris, Noel and I left at this time, Chris set up his camera to image the rising Moon.

A good 15 Degrees above the Moon and trees, we thought we could see a U.F.O, or was it a Super Nova?

After 15 minutes of excitement we worked out that it was only a flare through the lens!!!

Well.....we were nearly famous!! Go to the website to see images of that cold, eventful night.

The Forest

The Forest weekend in September was moved to Stargard, this was due to a request from International House to allow their students to have use of the cabin, a request I was happy to agree to.

Stargard

In September Stargard was well attended with 15 members making use of the first great sky we've had all year. Our newest members Don & Shelley Jephcott have really taken to observing and are learning very fast

Eventful Nights

In October M.A.S was to be involved in two events; the first at The Domes on Saturday October 4th and the second on Saturday October 11th at Macquarie University (North Ryde) Unfortunately The Domes night was cancelled due to the weather; we may schedule another before the end of the year.

The Macquarie night was hampered by the weather, but the Moon and Jupiter did make a few appearances. We were very fortunate to have a shadow transit of Jupiter by its moon Callisto. M.A.S saved the night with **10 members**, eight manning scopes in the car park and two at our information desk in the main hall. We were all outfitted with our new club shirts, a very professional looking outfit!!!! Thanks to you all.

Tonight

I would like to welcome Dr Lisa-Harvey Smith (Syd Uni) she will be discussing "**Massive Stars: Live Fast & Die Young**" I'm sure you will all join me in welcoming Lisa here this evening. For the latest news, remember login to the website www.macaastro.org.au See you there!!

Cheers, John Rombi.

Observing Dates

October

20/10/08 General Meeting

25/10/08 Stargard

November

1/11/08 The Forest

17/11/08 General Meeting

29/11/08 Stargard

December

20/12/08 Stargard

27/12/08 The Forest

TBA - Xmas Party

Secretary's Column

Roger Powell

It is not an understatement to say that the introduction of the Forum and Private Messaging facilities on our website has been one of the most significant developments in our history, now enabling members to easily communicate, ask questions or chat at any time, on-line.

I have to admit that I had some initial skepticism about how effective this innovation would be in a club of our size but the Forum is a great way for John to make leadership announcements and has already proved to be a very successful way for members to keep the dialogue going in-between meetings and observing sessions. It is encouraging that so far, twenty-four members have actively participated in the on-line Forum. Many others have logged on to watch with interest. If you haven't yet looked at the Forum, all you need to do is go to the MAS website, log on and go to 'Forum and Private Messaging'. It is only visible to MAS members. Sometimes it's serious; sometimes it's just a bit of fun, so why not join in?

The Committee is conscious that a number of members are worried about how the new laser pointer laws affect their own legitimate use of these tools. To keep you up-to-date with the situation, the Society has recently achieved listing as an 'approved astronomical society' with the NSW Police. This listing exempts members from paying for individual laser pointer registrations - provided that the only use is astronomical. The exemption does not apply to laser pointer use for any other purpose; it does not exempt members from having to provide a "reasonable excuse" for possession of a laser pointer in a public place; it does not relieve members from the procedures required for importing a laser pointer; and remember - different laws may apply outside NSW.

Our own voluntary register of members with laser pointers is now established and I urge members with a laser pointer to register it with the Society, if they have not already done so. To aid members in proving membership of the Society to the police, the Committee will introduce membership identity cards next year. Letters introducing MAS have been sent to Camden and Campbelltown Police Local Area Commands, advising them of the use of laser pointers by members in the district.

The response from Camden Police indicated to me that police at a local level are taking the issue very seriously and it was strongly suggested to me that, on each occasion members use their laser pointers, they should call local police station in advance. Without wanting to pre-empt what individual members intend to do, I said that I doubted this would be very practical. However, I was urged to put this to members "in their own interests."

So there are three points to remember if someone reports a member to the police for using a laser pointer. The first is that the police are duty bound to investigate reports of laser pointer usage. The second is that members have every right to use a laser pointer for astronomical purposes, any time, any place, without necessarily telling the police. If interrupted by the police, be prepared to prove legitimate astronomical use and membership of MAS. The third point is the prevention of unnecessary intervention by the police by warning them in advance. Our letters to local police have broadly sought to do this but it is up to you to decide whether or not you wish to advise them in advance each occasion you wish to use it.

The penalties for contravention of the laser pointer laws are very, very severe. The new legislation, now in force, treats laser pointer offences and misdemeanors on a par with firearms offences.

Which brings me to my next topic. The committee was for a while concerned by reports that Belanglo might become one of the State Forests to be redesignated for hunting wildlife, so we invited an experienced licensed shooter to talk to a recent committee meeting. He advised us that Belanglo is not one of the Forests where legal hunting is permitted, nor does he expect it to be.

He told us that any shooting heard in The Forest is illegal; should be logged & reported to the Police; and that, if shooting were to be legally permitted there; it would be in the daytime only, in zones well away from the observing site.

Congratulations to our Editor and Vice-President on the birth of their daughter Izabella last month. Everyone at MAS is delighted with the news and we hope that, despite family responsibilities, we will still see Kate and Daniel regularly at our activities.

312

That's the number of extra-solar planets that have now been discovered in orbit around other stars.

Last year, fifty-five exo-planets were discovered and already thirty-five have already been announced this year. Most of them are gas giants and no earth-like planets have yet been found. The smallest exoplanet known so far is 3.3 Earth masses, which was discovered only four months ago.

Over forty known exo-planets orbit around naked-eye stars, including exo-planet HD62509b, with a mass of 2.3 Jupiters (discovered two years ago) and whose host star is the easily visible first magnitude star, Beta Geminorum (Pollux).

Prime Focus Article Submission

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

Monday 10th November 2008

All Articles can be submitted via email

cyberpiggy@optusnet.com.au

Or via snail mail to the MAS Postal address

MAS Website

Check out the MAS website

<http://www.macaastro.org.au/>

Prime Focus now available on-line.

Take part in the members' forums

Keep updated with all Society News



Star Hopping to Messiers #8

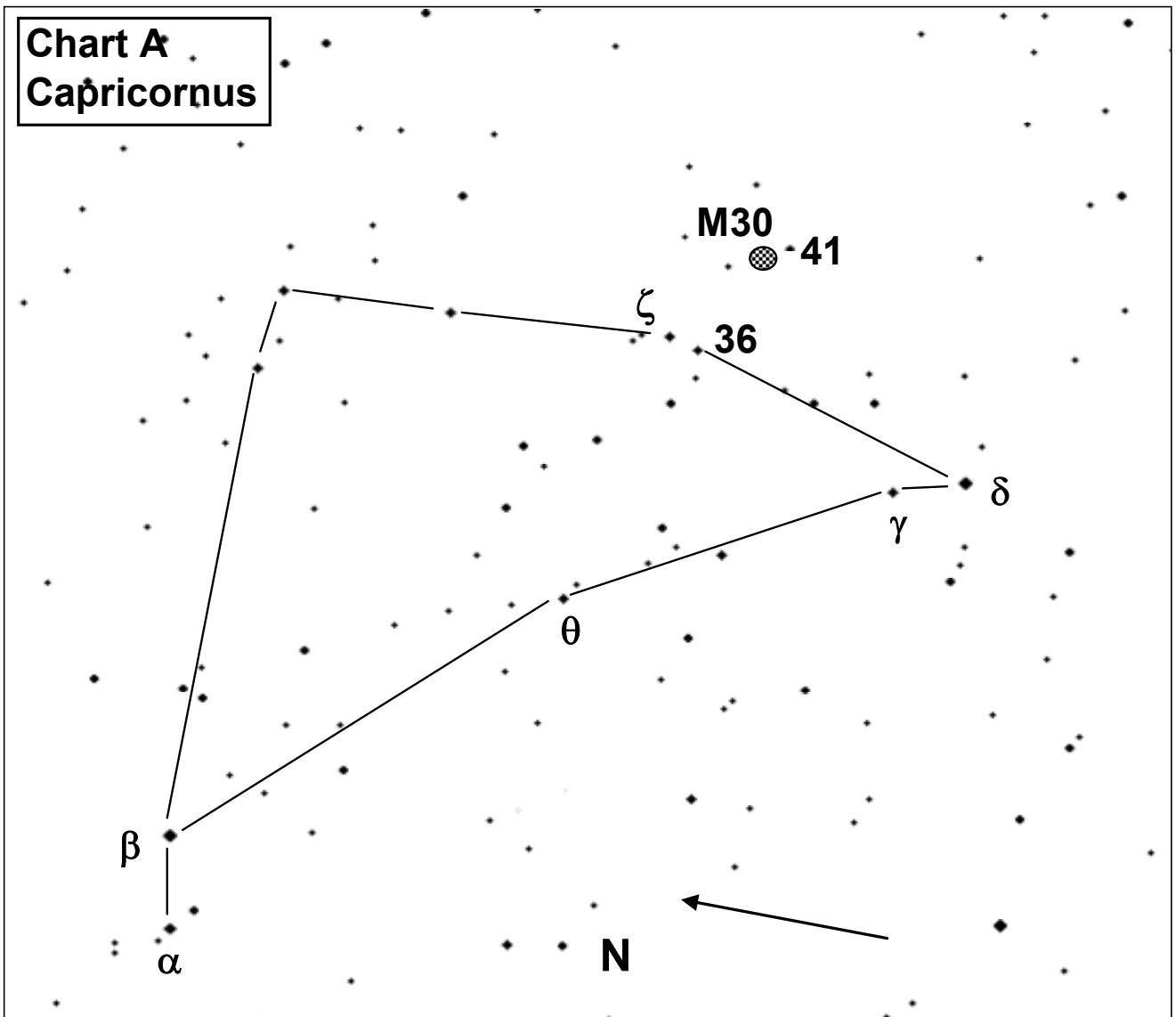
Capricornus (M30), Aquarius (M2, 72, 73) and Pegasus (M15)

Bob Bee

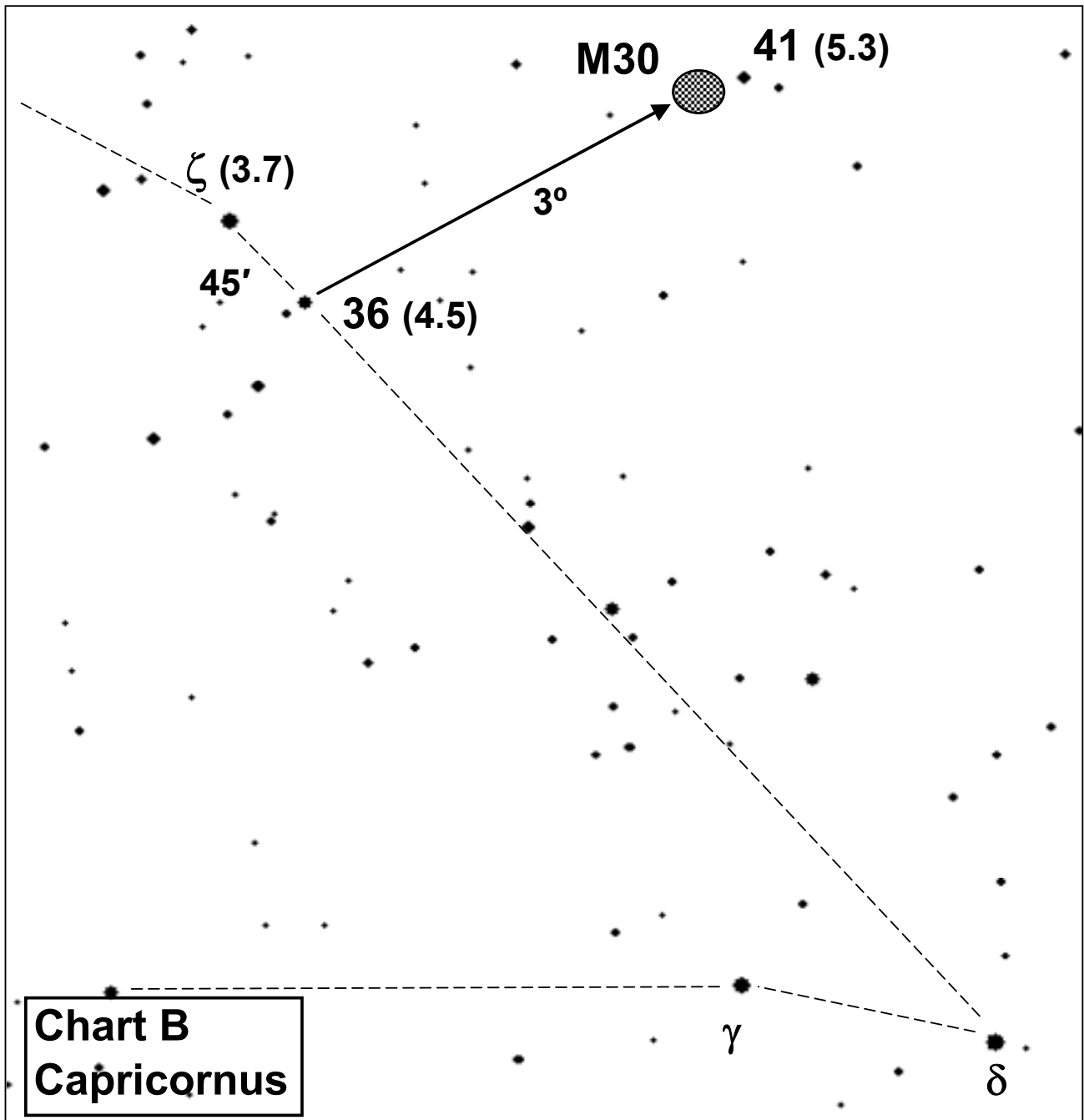
This is a mixed bag of three constellations currently available to the north, with only a small number of Messiers each, a total of five.

Capricornus: M30.

Let's start with the western-most constellation, Capricornus. This has the magnitude 7.5 globular cluster **M30**. It is fairly easy to find, though it won't be easily visible in your finder scope (f/s). To see its general position, look at Chart A (Capricornus) below.



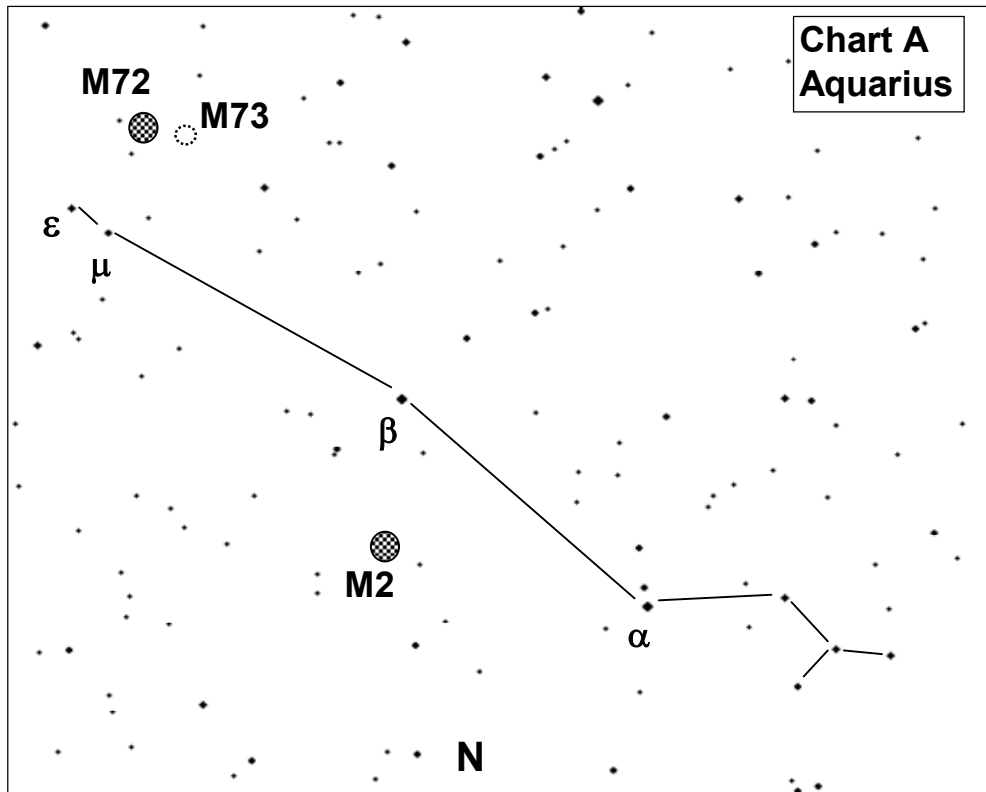
You'll note that M30 is located very close to a star 41 Cap, which is to the SE of two stars ζ and 36 Cap. So, first identify the maddeningly faint stars in Capricornus itself, move from δ and γ SW about 8° to 36 (mag 4.5) and ζ (mag 3.7). Then refer to Chart B (Capricornus) below.



When you find 36 Cap and ζ Cap in your f/s, move east until you have those two plus the mag 5.3 star 41 Cap. As 41 Cap is only 3° away from the other two, they should all fit comfortably into your f/s FoV. Centre the f/s on 41 Cap. Now M30 is only $23'$ from 41 Cap back towards 36 Cap, as shown. Move back approx that much, then check your main eye piece. You should have M30. Enjoy!

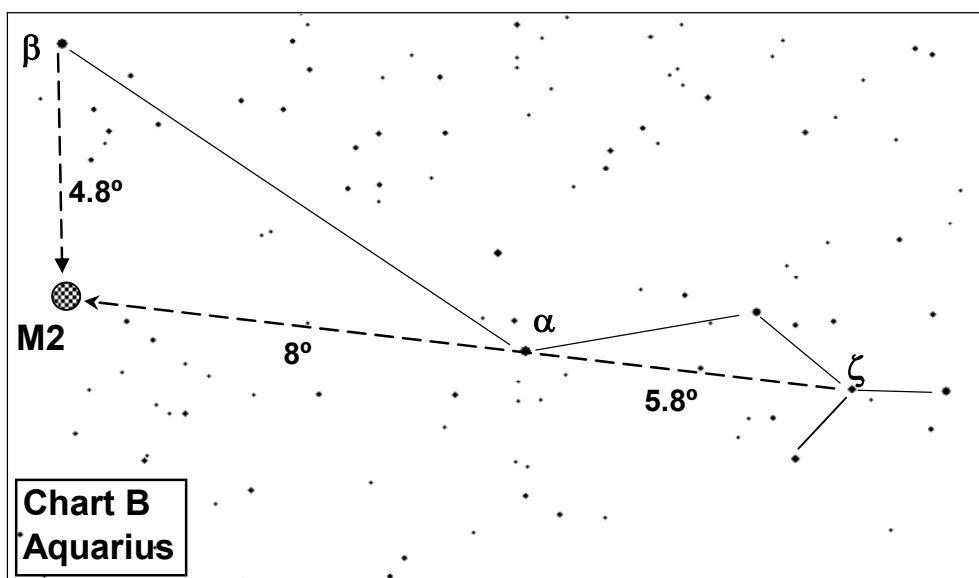
Aquarius: M2, M72 & M73

As all three Messiers are at the western end of the constellation, the Chart A (Aquarius) below only starts from the famous 'Y' asterism and ignores the eastern half. Simpler.



Start with M2, a mag.6.5 globular cluster. It's actually visible in 50mm binoculars so should show up in most finder scopes.

Locate the 'Big Y' asterism. Its centre star is ζ (zeta). Then locate mag. 2.9 α Aqr, 5.8° to the west. Refer to Chart B (Aquarius) below.

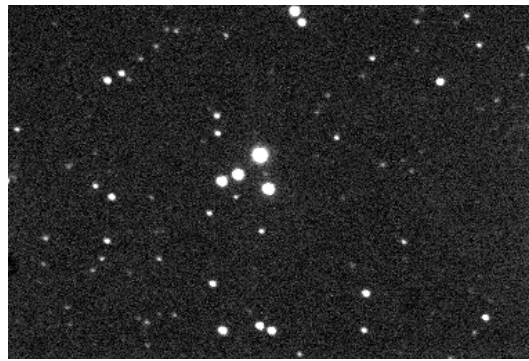


The line from ζ through α takes you straight to M2 exactly 8° beyond α . If you can move your f/s along that line, you'll see M2 in it. If you want to be different, drop down north by 4.8° (inside a f/s FoV) from β Aqr.(mag. 2.9). It should also land on M2.

Now we'll find M72 and M73. M72 is a 9th mag. globular much further away than M2 and much smaller in apparent size. M73 is... well, I don't know how many glasses of champagne Messier had before he mistook this for a comet. It is the most unimpressive of all Messiers and even when it is in your main eye piece, you are not convinced you have it. Four stars in a bent 'Y' shape.

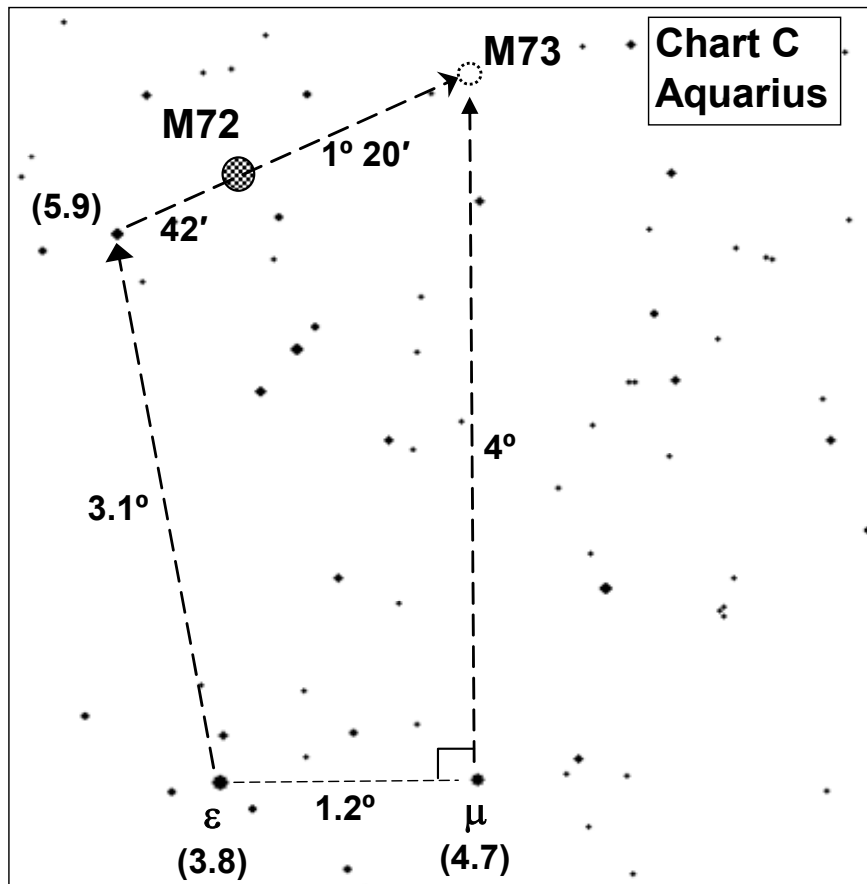


M72



M73

First locate the two stars μ (mag. 4.7) and ϵ (mag. 3.8) to the west of β as shown on Chart A (Aquarius). They are 1.2° apart. Now refer to Chart C (Aquarius) below.



Take note of the relative distances that M72 and M73 are from each other and also μ and ε Aqr. The whole arrangement as shown in Chart C should fit inside the FoV of a typical 5° f/s. Unfortunately, both M72 and M73 are too small to register in your f/s so you have to estimate locations then check in your main eye piece.

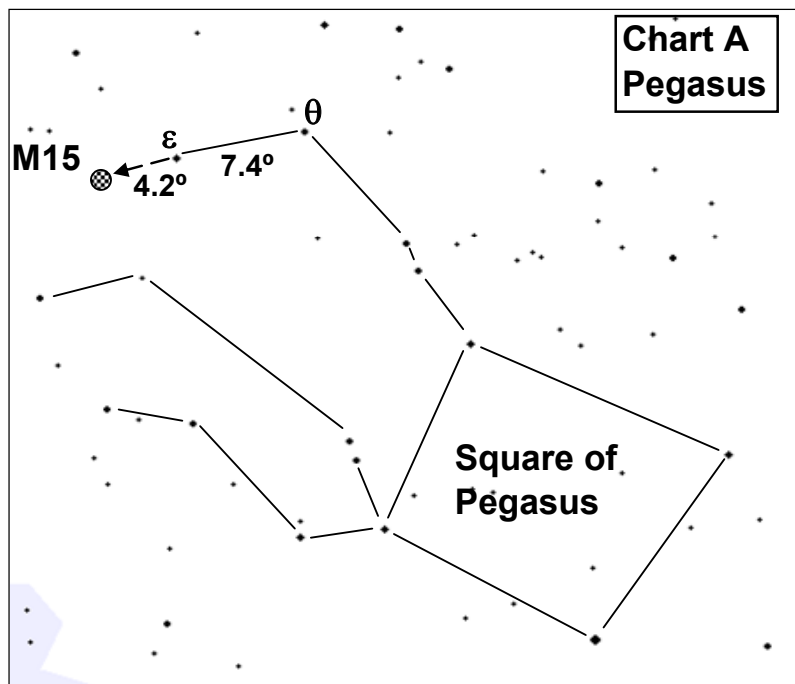
See the mag 5.9 star that is just over 3° above (south of) ε Aqr. Try and put it and μ and ε in your f/s as a longish triangle. Now, as shown on Chart C, if you draw a line from the mag. 5.9 through M72, it would land exactly on M73. First move the f/s by $42'$ (that's about half the angle between ε and μ , as a guide) from the mag. 5.9 star in the direction shown and check your eyepiece. At low power, you should have found M72.

Now put M72 in the centre of your eye piece, then go back to your f/s. Estimate the spot twice the distance from M72 that M72 is from the mag. 5.9 star, in the same line that M72 is from the star. (The Chart shows it better.) You need to do this as accurately as possible as M73 can be mistaken for any other gaggle of 4 stars. The thing to know is that the distance of M73 from M72 ($1^\circ 20'$) is exactly twice the distance (and in the same line) that M72 is from the mag. 5.9 star.

Once you've put the f/s on that spot, check your main eye piece. M73 will not look like the image above until you pump up the magnification somewhat. When you see four stars in that 'bent Y' shape, you can say 'well done', followed by 'what a waste of a Messier number'.

Pegasus: M15.

M15 in Pegasus is an attractive 6th mag globular cluster, also visible in binoculars like M2. It should be visible as a misty smudge in your f/s. Simply stated, M15 can be found on the line extended from θ to ε Pegasi. See Chart A (Pegasus) below.



As Chart A shows, M15 is 4.2° from ε Peg. So, after finding θ and then ε in the sky, place your f/s edge on ε Peg. On the opposite side of the FoV you should see the faint smudge of **M15**. Move the f/s centre to that and check your main eye piece. It really should be that simple.

Good Messiering!

Black Holes Ain't Holes – Part 4

An essay on the problems perceived with the concept of black holes

Robert Zindler

(Editors Note: Robert Zindler has kindly offered the readers of Prime Focus sections of an essay he producing. Each month you will find the next extract from this essay.)

Some definitions of a black hole

In the interest of clarity in this document, it is important to be precise with the meanings of words in order to avoid ambiguity, or worse, misunderstanding. In this section I quote some experts. This list is clearly not exhaustive. In the next section I offer some of my own definitions.

- *Black hole*: "A region of space-time in which the gravitational field is so strong that light cannot escape." (Fred Adams and Greg Laughlin, *The Five Ages Of the Universe*, The Free Press, 1999, p 207, and quoted by almost all scientists)
- *Singularity*: "A *pathological* mathematical behaviour in which the value of a particular variable becomes infinite." (Peter Coles, *The New Cosmology*, Icon Books, 1998, pp 136 & 321)
- *Singularity*: "In 1924 (Arthur) Eddington proposed that under...(extreme) gravitational pressure...atoms (of matter) would loose their 'boundaries' and might be squeezed together into a small dense package. (Scientific American Report Edition, April, 2007, p 8)."
- *Schwarzschild radius*: "(Karl) Schwarzschild found something disturbing. There is a distance from the centre of the star at which the mathematics goes beserk. At this distance, now called the Schwarzschild radius, time vanishes and space becomes infinite. The equation becomes what mathematicians call singular. Schwarzschild was, of course, aware that his formula went crazy at this radius, but decided that it did not matter. The finding, he argued, served no practical interest." (Jeremy Bernstein, *The Reluctant Father of Black Holes*, Scientific American Report, Special edition, April 2007, p 9)
Note: We may, perhaps, find here one of the reasons why some of the serious defects in the development of the SCM have so mysteriously been neglected or ignored by the cosmological community.
- *Spin*: "...concrete evidence (? – my question mark in view of the next part of this statement) that some black holes actually *spin* as they suck in their surroundings. Almost every kind of object in space spins, such as planets, stars and galaxies. With black holes, it is much harder to directly see that they are spinning, because they don't have a solid surface that you can watch spin around." (*Scientists Verify That Some Black Holes Spin*, News, Scientific American, May 2, 2001, and: *A new spin on Black Holes*, Sky & Space, August/September, 2001, p28)
- *Gravity*: "The force of gravity at the surface of a body is proportional to its mass divided by the square of its radius." (Iain Nicolson, *The nature of black holes explained*, Astronomy Now, February 1999, p 49)

Notes:

1. "Even though astronomers can't see black holes directly, they can detect X-rays radiating from (surrounding) matter that heats up before it falls into the abyss during the accretion (absorption of matter) process. (David Castelvecchi, *A New Breed of Black Holes*, Australia Sky & Telescope, April 2006, p 44).
2. But the fact must never be lost sight of, that singularities are merely *idealizations* of general concepts and can never represent physical identities in the reality (extrapolation of comments made by George Musser, Scientific American, 25 November, 2003).

3. "In his 1939 paper...Einstein's intension...(was) to kill off the Schwarzschild singularity once and for all. At the end of it he writes: 'The essential understanding as to why (Karl) Schwarzschild singularities do not exist in physical reality. In other words, black holes cannot exist.'" (Jeremy Bernstein, *The Reluctant Father of Black Holes, Scientific American Reports, Special edition, April 2007, p 19*)

Note: It is now a matter of history, that 'Although Einstein's reasoning is correct'. Einstein's views have been ignored and that his paper "is now a historical artefact."

I posit, that this essay will be showing Einstein's detractors to be wrong.

Other cosmological terms may be explained in the text.

Additional definitions

I propose the following definitions:

- *Cosmos*: Constitutes the *total* cosmic body, consisting of the technology-limited, borderless, anthropocentric, observable universe *and* the entire unobservable universe, which surrounds and contains the observable universe. (The word *cosmos* can clearly not be substituted for this narrower meaning of *universe*.)
- *Pristine space*: The space beyond the physical limits of the cosmos and could also be defined as cosmically 'external' space, as distinct from the space within the, albeit variable cosmic boundary, which could be defined as 'internal' cosmic space.
- *Convergent-compression* (with hyphen): The continuous pressure exerted by the converging trajectories on all particles of matter within a spherically contracting 'big cruncher' due to the ultra-high levels of gravity emitted by the cosmic or galactic core. (A term I have coined to denote a specified cosmological phenomenon.)
- *Proto-energy* and *proto-energy strands*: My proposed term for my proposed structurally configured form of energy, as the foundational element of matter and all four natural interactions of strong, weak, electromagnetic and gravitational forces.
- *Infinity*: Meaning 'beyond comprehension and imagination'; nothing more, nor less. (This simplified definition of infinity is self-evident and needs no further elaboration or explanation for its distinction from all other more elaborate definitions of infinity.)

Infinity

With the scientific 'qualitative' view of *infinity*, it may be interesting to reflect on the following:

If a million solar masses accreted into a black hole result in, say an *infinite* level of gravity, and if a billion is equal to 1000 million, does the singularity of a black hole which has accreted one billion solar masses, manifest 1000 infinities of gravity? By the same token, does a black hole with half a million solar masses, attain only one half of infinity of gravity?

It is clear that this line of reasoning is invalid. It is equally clear that infinity is neither qualifiable nor quantifiable and, therefore, cannot mean any more nor less than 'beyond comprehension and imagination'. This precisely coincides with my definition of *infinity* which I shall use throughout my book, without exception.

***A Shinning New Star ***

Proud parents Daniel and Kate Ross

Meet the youngest Member of the MAS Family,

Izabella Harriett Ross



Born 6:02am
Saturday 13th September 2008.



Apologies from the Editor

I must apologize for not publishing the September Issue of Prime Focus, our little Princess Izabella decided to make her grand entrance 2 weeks early, catching both Mum and Dad by surprise!!!

Reminder to all Members

*****MAS SHIRTS *****

Get your Order in Now!!!!

For those interested in purchasing a MAS Shirt please contact John Rombi ASAP,

The second order is being placed very soon.

Cost : \$30 each