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Presidents Report

John Rombi

Good evening and welcome to our July meeting.

I would like to thank our speaker for June, Dr Laszlo Kiss (Syd Uni) for his fascinating presentation on "*Exploding Stars*"

Unfortunately due to the inclement weather our public night at The Domes had to be cancelled.

It appears that the next opportunity for the open night will be in September, so please visit the website for further information.

Website

Is now up and running, Chris has made many improvements since it went live, and both he and I encourage you to visit it as much as possible.

The major addition to the website is the forum, this is a great place to ask questions about any astro matter that might be posing a problem for you.

It's also a great place to share information and have a chat with other members.

All the section leaders have a forum area to help you with particular problems.

There's also a Presidents Corner, if you need general information on M.A.S. please drop me a line, I'll keep the coffee brewing!!

Observing Nights

Again have been few and far between, even though the rainfall has been below average, we constantly end up with our observing nights being clouded out.

Guest Speakers

For the rest of the year will be

August: **Ian Cook**
 M.A.S Member
 T.B.A.

September: **Andrew Jacob**
 (University of Sydney).
 "Cepheid Variable Stars "

October: **Dr. Lisa Harvey-Smith,**
 Postdoctoral Fellow
 School of Physics,
 Massive Stars: "Live Fast & Die
 Young"

November: **Dr. Greg Madsen,**
 University Postdoctoral Fellow
 School of Physics –
 The University of Sydney.
 "How does our Galaxy work?"

Need Help

Bob Bee has requested help from the members, to accompany him to The Oakdale Workers club Tuesday August 5th. There will be approx 40 guests attending from the Probus Club. If you can help, please contact Bob, or speak to him tonight.

We will be holding our annual Observing night for the students of International House (Syd Uni) on Saturday August 23rd, we need as many scopes on the field as possible.

There will be approx 80 students, as well as Jessica Carroll (director of I.H.) I.H. will provide us with dinner. I've had 6 members respond positively to this request, I hope you can join us as well.

Until next month,

Clear Skies, John Rombi.

Observing Dates

July

23/07/08 General Meeting
26/07/08 Stargard

August

2/08/08 The Forest
18/08/08 General Meeting
23/08/08 Stargard
30/08/08 The Forest

September

15/09/08 General Meeting
20/09/08 Stargard
27/09/08 The Forest

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



MAS Website

Check out the new MAS website

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

Secretary's Column

Roger Powell

At its last meeting, the committee formally created the position of Webmaster and appointed Chris Malikoff to that position.

The committee spent a lot of time evaluating and approving the new web-site, which is the result of a most extraordinary effort by Chris. The results of his work can now be seen by all members at www.macaastro.org.au and I doubt if any comparable society has such an advanced site. Well done Chris, the Society is indebted to you.

The primary intention of this new website is to make it a place where all members meet and communicate on a daily basis, especially using the forum and private messaging facilities. News about major MAS events will be indicated prominently on the home page, the diary page; and in the forum, so make sure you check in regularly.

With the new site now fully operational, the Society must also express its appreciation to Martin Ferlito, who was primarily responsible for our previous website.

Among the other things currently under review by the committee are toilet facilities at Stargard and finding a suitable date for the next Public Observation Night (following the late cancellation of the last one). The committee has also moved to make the winner of the recent logo competition our official logo.

I asked our resident author, Bob Bee, if he would like to write a more detailed history of the Society, which would replace my hurriedly written effort, currently posted on the website. As an office bearer for the first eleven years of the Society's existence, Bob is ideally positioned to write such a narrative and I am pleased to advise that he has accepted the offer.

I had an interesting phone call from a member of the public recently - I will call her Mrs. W.

Mrs. W had seen my letter in the Advertiser about the cancelled Public Night and she thought I might be able to help her locate a star that had been named after her late son by the so-called International Star Registry (ISR).

Mrs. W fully accepted my explanation that the naming of stars by the ISR was a commercial enterprise and that the names recorded by them are not recognised by the International Astronomical Union. However she still wanted to know the location of the star that is dedicated to her late son.

A fair enough question, I thought, especially as the ISR itself did not give her a map. I agreed to try and help her, despite thinking that - as ISR have so far claimed to have named over a hundred thousand stars - it would obviously not be one of the brightest objects in the sky.

The star's coordinates were provided to Mrs. W by the ISR but she - understandably - did not comprehend what the numbers meant:

Sagittarius; RA 18h 46m 59.53s; Dec-28° 15' 30.09".

I thought my Tirion Sky Atlas 2000 might help but it had insufficient details. Using my Meade Autostar planetarium software, I tracked the location to a region of the sky near the magnitude 3 Phi Sagittarius and close to a magnitude 7 star named SAO 187286. However, the exact location nominated by Mrs. W appeared as empty sky.

I reviewed the software and discovered that I could add the Hubble Guide Star Catalogue to it. I was then able to locate a star at the exact coordinates and identified it as GSC 68710659,659, a magnitude 11.7 star.

This was a very interesting exercise and I may have helped ease the mind of Mrs. W by confirming the existence of a star that really means something to her and her husband. I was even able to send her an image showing the star.

What is the point of this article? Well, Mrs. W indicated that she or her husband may come along to our next public night. So if this happens, members may know the background and why she wants to see it, even if it may not be the easiest object to locate.

Letters to the Editor

Hello Fellow Astronomers.

May I start this letter by stating that being Astronomers we combat the elements that the gods throw at us like, frost, snow, sleet, ice buildups, fog, dew, clouds, mosquitoes. Now being Astronomers we absolutely love the cold, don't we?

Well a few weeks ago while I was at the State Belanglo Forest one of our BRAVE members was "sprung" putting (DARE I SAY IT??) an "Electric Blanket" on his bed?, well I couldn't believe my eye's, Do you believe that? well I was SHOCKED to see this, and may I say that he didn't know what to say to me when I sprung him. "AH, AH, AH, AH, AH" was all he could say, speechless are we I said? I can understand that TRAITOR?

How dare he do this in front of me, while I was half to three quarters frozen, with icicles hanging off my nose.

Well I must go now, I'm freezing here doing this, I am going to my bed with Electric Blanket on FULL BLAST....

PS, .By the way I can't tell you who this is BUT,.....Don't worry" NED PASTOR" I won't say a word,

Your mate Lloyd Wright...

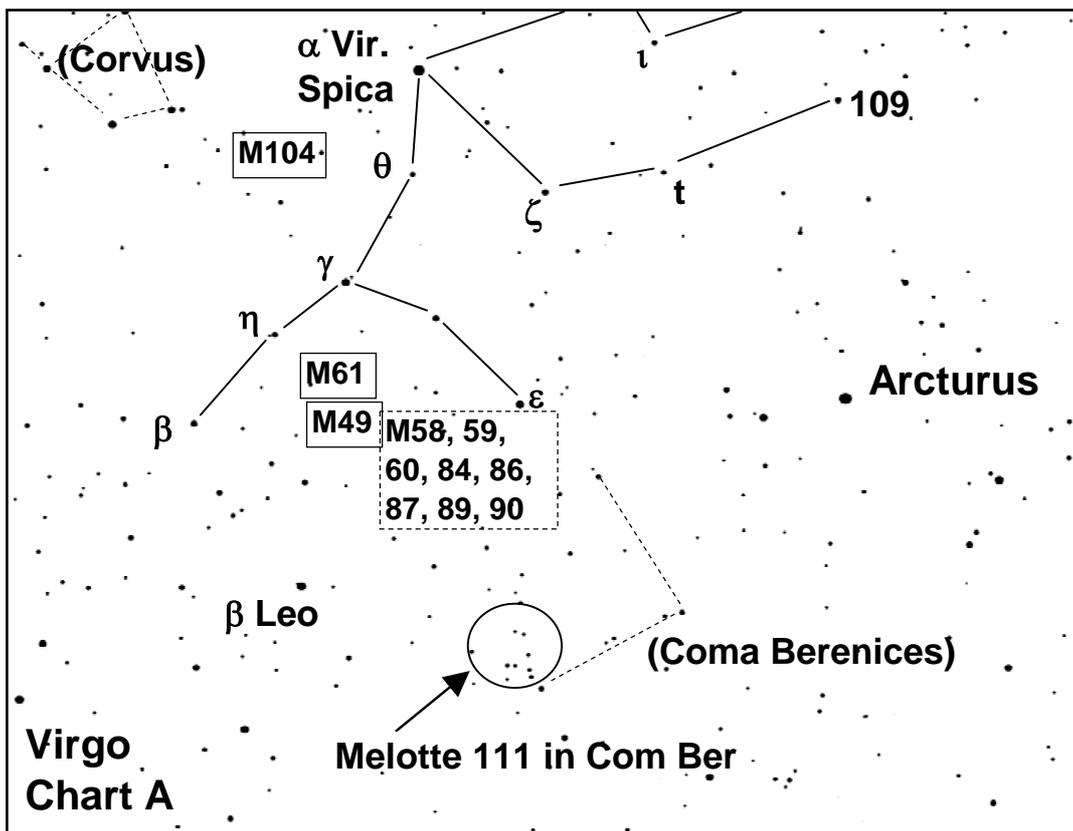
Star Hopping to Messiers #6

Virgo (M49, 58, 59, 60, 61, 84, 86, 87, 89, 90, 104)

Bob Bee

Virgo is a happy hunting ground for galaxies. It contains the nearest major cluster of galaxies to us and it spills over into Coma Berenices below (to the north of) it. A number of the huge cluster's members are visible in modest sized telescope (say over 150mm) and 11 of these are Messier objects. Apart for M49, M61 and M104, the others tend to be crowded together which makes precise identification a bit of a challenge. Still that adds to the fun (doesn't it?) The month of July has Virgo in the north-west so don't leave it too late to chase these Messiers or you'll need to wait to next year. The charts with this article show orientations for July around 7pm.

Chart A below shows the general location of the eleven Messiers in Virgo, with their relative position with respect to Virgo's stars and Coma Berenices. Note the wide cluster of stars known as Melotte 111. As you can see, our Virgo Messiers are generally above this cluster. Arcturus is shown on the right to help you locate the general area in the sky. Also note the stars of Corvus to the west of Virgo.



The galaxy type, magnitudes and size for each are shown in the table below.

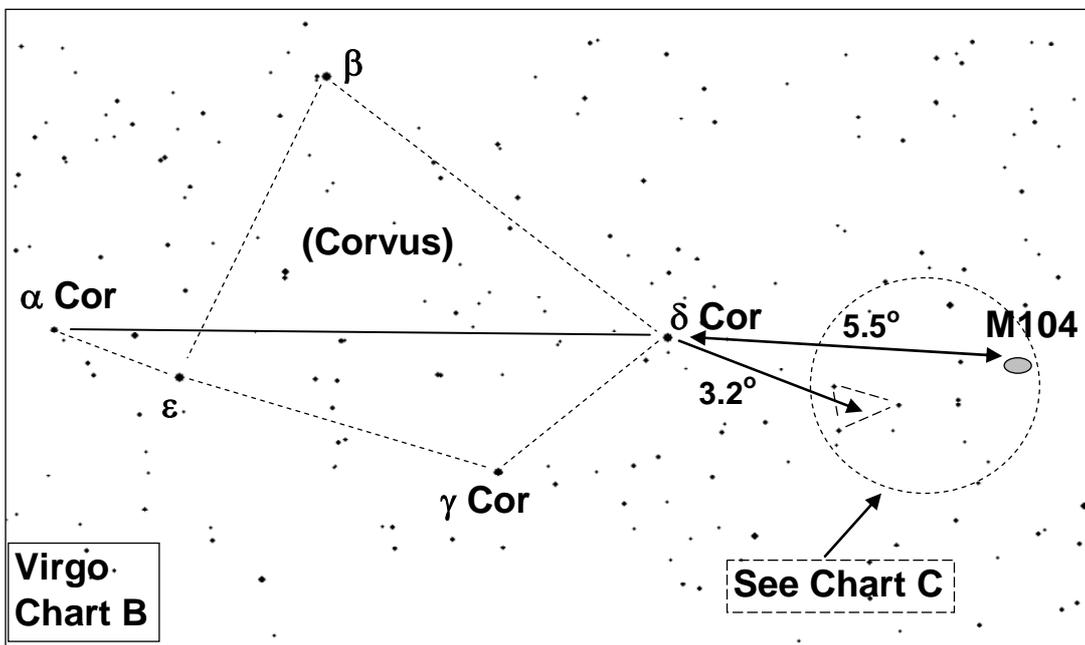
Messier	M49	M58	M59	M60	M61	M84	M86	M87
Type	EG	SG	EG	EG	SG	EG	EG	EG
Size (')	8.9	5.4	5.1	7.2	6.0	5.0	7.4	7.2
Mag.	8.4	9.8	9.8	8.8	9.7	9.3	9.2	8.6

Messier	M89	M90	M104
Type	EG	SG	EG
Size (')	4.2	9.5	8.9
Mag.	9.8	9.5	8.3

Let's do the easier ones first. Start with **M104, the famous Sombrero Galaxy**.

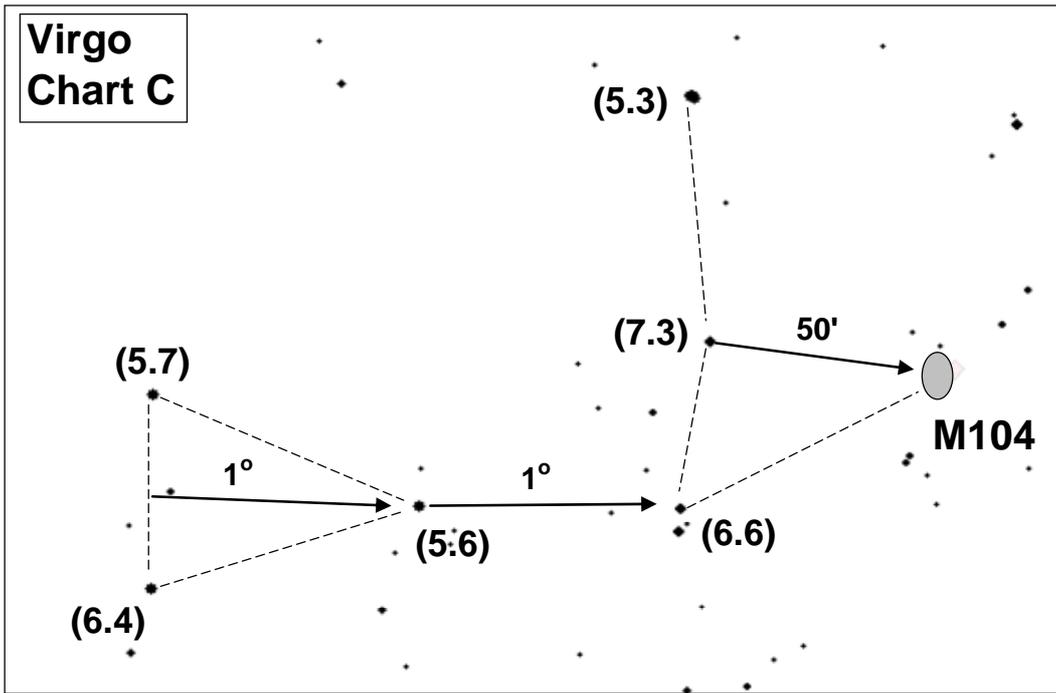
M104 is on the border of the constellations Corvus and Virgo. My star-hop method is based on the stars in Corvus, not Virgo. The center of the Corvus asterism is only 17° west of the star Spica, in Virgo.

If you look at the Chart B below, with North at the bottom, you will see that if you extended the line from α Corvi to δ Corvi by 5.5° (a tad over ½ the α to δ distance) it will land right on M104.



Now that's easy enough to say, but it can be tricky judging angles of displacement in a finder scope. There is guide-star help at hand, though.

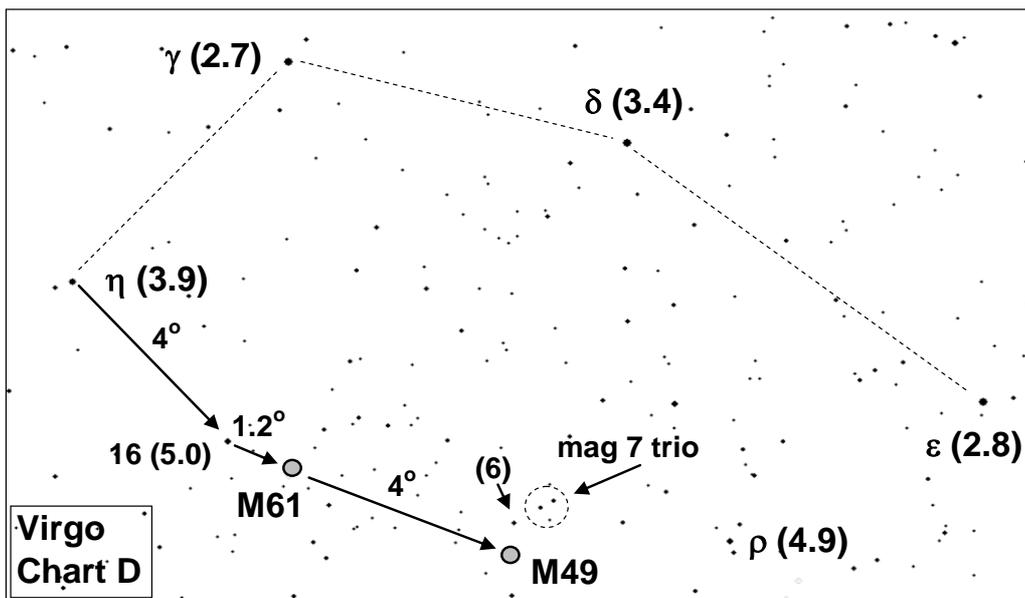
In the chart above, I have circled an area near M104 a few degrees from δ Corvi. You will see a triangle of stars pointing roughly towards M104, with a line of three stars (one is actually a double) between the triangle and M104. This area is blown up in the Chart C below. This should correspond roughly to the view in your finder scope as you pan north-east from δ Corvi.



You can see from this Chart C that the triangle of stars (of magnitudes 5.6 through to 6.4) is just 3.2° from δ Cor. And it points conveniently to the mag. 6.6 double star. In the finder scope you will easily see a mag. 5.3 star about 1.5° above the double mag. 6.6, with a fainter mag. 7.3 star in between, forming a slightly bent line.

Now, just using your eye, mentally form a right angled triangle with the line from the 6.6 and 7.3 mag. stars as its base and the position of M104 as the sharp point. The distance from the 7.3 mag. star to M104 is $50'$, just under one degree. If you put the center of your finder scope in roughly that position, then your telescope eyepiece, at your lowest magnification, should show M104. You can then center M104 and pump up your magnification. A grand sight.

Now let's find M49 and M61.

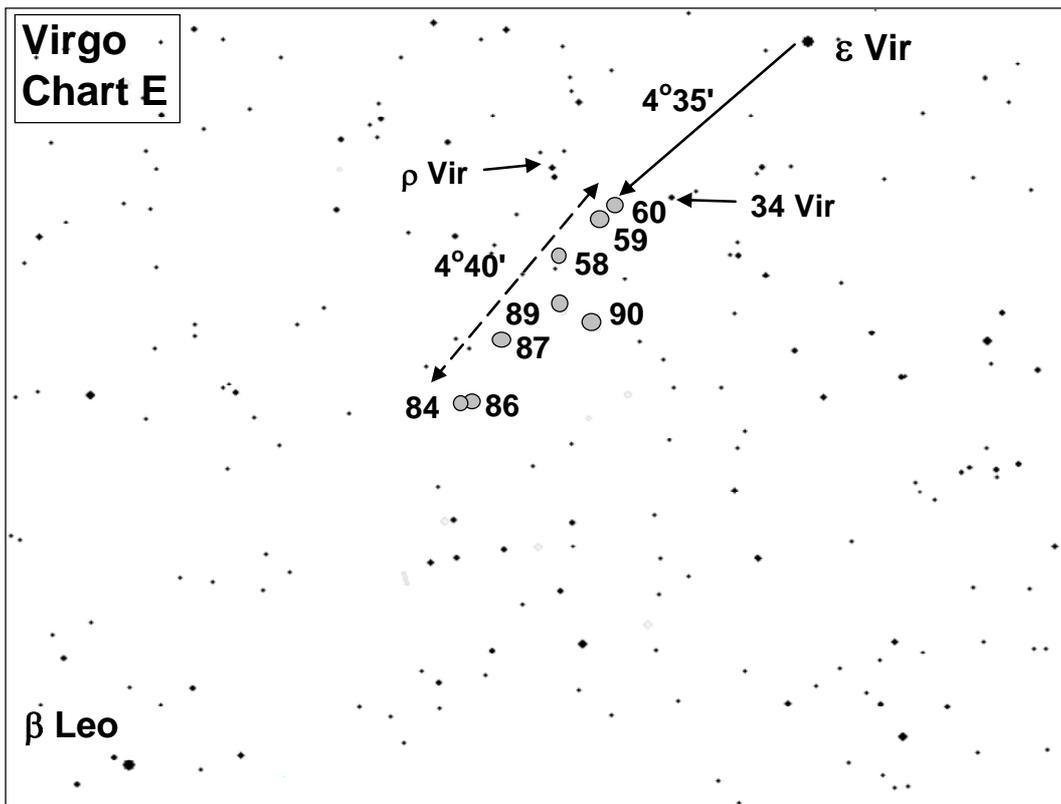


First you need to identify γ (mag. 2.7) and η (mag. 3.9) in Virgo (see Chart A). Once you have them, switch to Chart D above.

You'll notice that 4° north-east of η is a mag. 5 star, **16 Vir**. The line from η to 16 Vir is exactly at right angles to that from γ to η . Centre your f/s on 16 Vir. Continue the line from η another 1.2° and centre on that spot. Check your main eye piece. You should have M61, a 10^{th} mag. face-on galaxy.

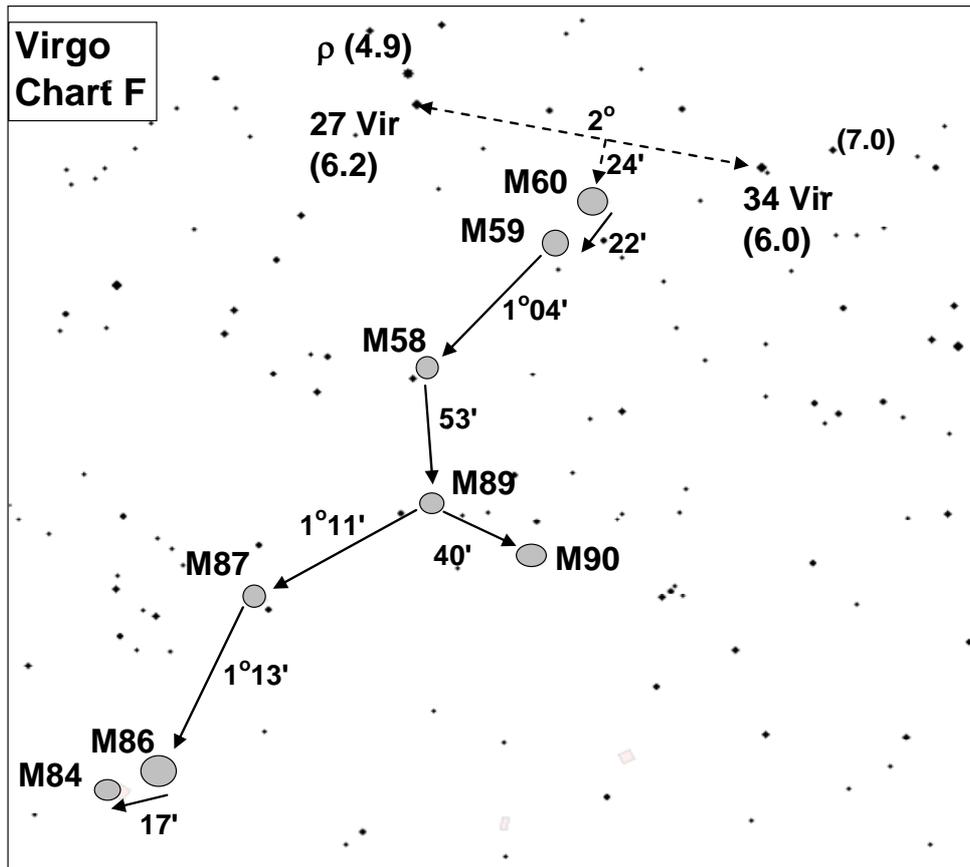
Now continue along the line from 16 Vir to M61 another 4° and this will put you right on **M49**. If you have any doubts about being in the right spot, look in your f/s for the small triangle of mag. 7 stars with a 6^{th} mag. star just to their west. M49 is just $33'$ below the 6^{th} mag. star.

Now for the crowd, 8 M galaxies in all. Our area of interest is the patch of sky between ϵ Virginis (Vindemiatrix) and β Leonis (Denebola). See Chart E below.



The first thing you'll notice is, if you have a f/s with a FoV of 5° , that the 'top' of the string of galaxies (M60) and ϵ Vir are in the same FoV. Also, that the string of 8 Messiers is $4^\circ40'$ long, also within an f/s FoV. Note also the two stars labeled **34 Vir** and ρ **Vir**, on either side of M60. These are mag. 6.0 and 4.9 resp.

My suggestion is to move from ϵ Vir down to ρ Vir as ρ is the next brightest star in the vicinity after ϵ . (ρ and ϵ should be in your same f/s FoV.) Once you have ρ Vir, refer now to Chart F below, which provides a closer view of the Messiers.



Let's first find the 'top' Messier, **M60**. See that beneath (north of) ρ Vir is a 6.2 mag. star, 24 Vir. If you get 27 in your FoV, you'll also see the mag. 6 star 34 Vir only 2° to the east. Try to place the centre of your f/s FoV at the point midway between 27 and 34. Then, only $24'$ below (north) of this midpoint is where you should find M60. Check in your main eyepiece. Got it?

From this point on, as the other stars in the area are all faint (mag. 7 or worse) and hard to spot in the f/s, we won't be star hopping but galaxy hopping. Keep in mind all the Messiers from M60 to M84 should fit in the one FoV of a 5° finder scope, so you will be hopping very short distances. I suggest you tick off the Messiers on the chart as you find them, otherwise you'll forget where you are up to. Also, it would be VERY handy if you know the precise FoV of your finder scope so you can estimate the necessary hops in arc-minutes. Don't be too worried if you don't know the exact value, it just makes it easier.

M59: Move down and west just $22'$ from M60.

M58: Move down and west again $1^\circ 04'$. There is a small help here. M58 is just $7'$ above-right of a mag. 7.7 star.

M89: Move from M58 straight down by $53'$. The closest stars on the chart are mag. 8 or fainter.

M90: Move east and slightly down from M89 by $40'$ to find M90. There is a mag. 8 star $13'$ immediately above M90, if that helps.

M87: Go back to M89. Move west and down a bit by $1^\circ 11'$ to M87. The star shown just below M87 is a faint mag. 8.4 and is $5'$ away.

M86: Drop down and a bit west from M87 by $1^\circ 13'$ to M86. M86 (and M84) appear to be in the centre of a 1° radius circle of mag. 8 stars. There is nothing brighter inside that circle. That may help.

M84: Once you have found M86, M84 is only $17'$ to its west.

There they are. Good hunting.

Black Holes Ain't Holes – Part 2

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.)

INTRODUCTION (cont.)

General statement

By now (2008), a cornerstone of the standard cosmological model – the SCM – is the concept of 'the black hole' at the centres of the big bang of the entire cosmos and of galaxies. Cosmology has in relatively recent decades developed the concept of *black holes* with their attendant centrally located *singularities* and unique properties. Black holes have become such an integral part of the standard cosmological model – the SCM – that it could well come as a great surprise to most, if not all, cosmologists, both professional and amateur alike, to find, not only that the very concept of black holes could be subject to serious challenge, but that there is the likelihood that black holes simply cannot exist at all, although some cosmologists may already, and for sometime, have become profoundly uncomfortable with a number of aspects of black holes. Theories about black holes simply don't add up, as the saying goes, and are therefore *not internally self-consistent*, and some of these theories also *seriously violate natural laws and philosophical logic*.

Objective of this paper

This paper will endeavour to demonstrate that the name 'black hole' is a regrettable misnomer, and that the entire concept of the black hole is a serious misconception in principle and the result of misinterpretation, because:

- It is not black, as it inevitably radiates energy and it is thus 'grey' (Refer to the work by Stephen Hawking).
- Black holes consist of, or contain, the *substance* of not less than three, to millions or even billions of solar *masses* (see below for references).
- It is not a hole, as it is most massively compressed and is thus a *solid* cosmic core body with massively high, but never infinite or near-infinite levels of density, pressure, temperature and gravity, and with cosmologically significant dimensions, as will be demonstrated below.
- Physical laws prohibit the existence of black holes and their putative singularities.

Problems underlying the SCM and cosmology

This essay specifically addresses the issue of black holes and the SCM and I propose to challenge other relevant sub-issues as well.

There are some aspects of the concept of black holes that are significantly problematic. The problems associated with black holes are directly associated with two even more fundamental problems, which, however, are the subject of separate discussions elsewhere, but which are:

- The cosmological insistence on an absolute 'beginning of the universe'.
Note: "...it is not really known whether or not the universe started from a singularity (and thus) ideas about the nature of the cosmos at the start of the big bang are mostly unproven conjectures (Robert J. Nemiroff, Assistant Professor of Physics at Michigan Technological University, Scientific American, 25 November 2003), and

- The 'observable universe' is deemed to constitute the *entire* cosmos, as the 'unobservable universe' which surrounds and contains and is thus larger than the observable universe, is deemed to be scientifically irrelevant and is almost entirely ignored by scientists when addressing matters concerning the more limited 'universe'.

Scientific paradigm

A major contributing inhibiting factor in the development of a comprehensive history of the evolution of the *total* cosmos, as well as a viable Theory of Everything (ToE) – the Holy Grail of cosmologists – is the 'inviolable' scientific principle "that only that which is *observable* is testable and thus provable and is therefore scientifically relevant". The corollary, in other words, of this scientific principle, implies that "that which is *not* observable cannot be tested and is therefore scientifically unprovable, is thus scientifically irrelevant".

This latter concept may be a sound fundamental scientific principle, but its true validity may well be seriously questionable in the broader context of cosmology. That can only lead to the conclusion, that if science is to be truly relevant to society as a whole, science may need to re-consider its hardline approach to the universal application of this self-imposed principle.

Preconditions for scientific theories

A comprehensive scientific theory, such as the standard cosmological model, must satisfy three fundamental requirements in order to be *scientifically* acceptable as valid. It must:

- Obey natural laws.
- Satisfy philosophical logic.
- Be self-consistent in a comprehensive context.

Failure to satisfy any one of these basic requirements in any theory, may, and should, render the theory scientifically unacceptable or even invalid. I believe that various aspects of the concept of black holes, as well as the SCM, fail in one or more of these basic requirements.

In this paper, although there may be a degree of overlap in some issues which could therefore be addressed under more than one heading, I shall address each of these issues under the most relevant heading.

Primary considerations concerning the cosmos

This essay is predicated on the following premises:

- That the interpretation from Hubble's observations of galactic redshift measurements that the cosmos is expanding, is correct.
- That the speculative presupposition of the cosmic expansion is mono-phasic (occurs only in one place and one time and not simultaneously in multiple cosmic places).
- That the physical derivation, that the cosmos is spheroidal, is due to its intrinsic gravitational force.

DEFINITIONS AND DESCRIPTIONS

A description of cosmology versus astronomy

It is important to distinguish clearly between the concepts of astronomy and cosmology. Modern physical cosmology is the *speculative partner* of astronomy, which is essentially involved with observations of the *observable part* of the total cosmos, whereas cosmology primarily addresses regions and matters that, by definition, are unobservable and therefore untestable and unprovable, both within the limits and beyond the boundaries of the observable universe, as well as issues concerning the origin of the cosmos, the longer term evolution and history, and the ultimate fate of the cosmos as a whole, none of which are ever observable. Astronomy represents the *scientific realms* of the cosmos, whereas cosmology represents the *speculative realms* of the cosmos. Any part of cosmology that can be observed, tested and proven therefore and thereby becomes scientific, moves over into the realm of astronomy and, in light of the above definition, can no longer be classified as cosmology, any possible protestations notwithstanding. Cosmological issues may be and are assessed and addressed scientifically, of course, but that does not render cosmology scientific. Cosmology must therefore remain firmly outside the strict scientific paradigms.

It is clear, that with research into yet unknown cosmic issues and phenomena, astronomy is constantly – and by definition – working ‘at the edges and in the realms of cosmology’ and that by changing ‘the unknown’ and speculative into the ‘known’ and scientific astronomy, it is in effect *cannibalizing* cosmology. It is, after all, the primary purpose of astronomy to wrest ‘the secrets’ – the speculative – from its cosmological partner and thereby enriching its astronomical self. Thus astronomy thrusts its research tentacles deeply into speculative cosmology.

..... STAY FOCUSED FOR MORE NEXT MONTH.....

Prime Focus Article Submission

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

Monday 11th August 2008

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

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

MAS Guessing Competition

Prizes include 8" Celestron Telescope, Meade Binoculars and a signed Fred Watson book.

Ticket prices are \$5 each or 3 for \$10

The Competition will be drawn at the next General Meeting July 23rd 2008.

Please return tickets and money to Kate Johnston or a committee member.