



Volume 16, Issue 2

April 2011

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President's Report:

John Rombi

Welcome to the month of April and our AGM.

I would like to thank **Les Dalrymple** for his presentation on "**Globular Clusters**" at our last Forum meeting in March. Les certainly had a great impact with his presentation, and I know he will be asked to make a return in 2012.

Whilst the "thanks" are being handed out, I would like to thank Trevor Rhodes (VP) for taking over the running of the forum in my absence . See Trevor, it doesn't hurt!!

On behalf of Jenny and myself, I would like to thank everyone for their condolences.

Jenny's Mum passed away suddenly in mid March...

This is going to be a short report, as most matters have been covered in my president's AGM report.

Well, this is it.....after 11 years on the committee it is time for me to fold up my tent.

I've learnt a lot over this time and have been guided by a great group that have taken the responsibility of a committee chair. I will never forget your guidance and friendship.

I will continue to be an active member, and the "Deep Sky" section will certainly be in for a major upgrade over time.

I can now sit in the audience and heckle the new president, whoever they will be!!!

Cheers, John Rombi

MAS Committee

President

John Rombi

Vice President

Trevor Rhodes

Secretary

Roger Powell

Treasurer

Tony Law

Merchandising Officer

Stewart Grainger

Webmaster

Chris Malikoff

Committee Members

Lloyd Wright
Stuart Grainger
Carol McVeigh

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MAS Dates 2011

March	12	Public Night, The Oaks	30	The Forest
	26	Stargard		
April	2	The Forest	August	27
	9	Stargard	September	3
	30	The Forest		24
May	7	Stargard	October	22
	28	Stargard		29
Jun	4	The Forest	November	19
	25	Stargard		26
July	2	The Forest	December	17
	23	Stargard		24



Secretary's Column:

Roger Powell

SECRETARY'S COLUMN

Roger Powell

This is the time of year when we have to deal with the formalities of the Annual General Meeting, including the election of office bearers and (this year) a motion to change our constitution. The formal Notice of Meeting appears elsewhere in the Annual Report document which is distributed along with this issue of Prime Focus magazine. Suffice it to say that the outgoing Committee endorses the proposed new MAS Constitution, commends it to members and hopes that you will all support the proposed new document.

Our Treasurer, Tony Law, has advised that a number of members are yet to renew their membership. Those who have not renewed prior to the AGM will be unable to vote, so please try and get your dues to Tony before the meeting. You can pay by PayPal, direct transfer or by sending a cheque to PO Box 17, Minto, NSW 2566. Renewals do not require a membership application form but please consider sending one if your personal details have changed in any way. When transferring money electronically, please make sure that you advise Tony separately, so that he knows what it is for.

Following the success of our trip to Siding Springs last year, the committee recently discussed the possibility of organising two more trips. One would probably be a weekend to Parkes or Narrabri, with the other being a more expensive visit to Mauna Kea at Hawaii. Members interested in either trip should register their interest with Treasurer, Tony Law.

The AGM will be followed by a presentation from Daniel Ross about his time at Space Camp. This has proven very timely as a local school, Macquarie Fields High School recently issued a public appeal via Radio 2GB for financial assistance to get ten of their students to Space Camp. The committee agreed that this was a worthwhile cause which fits in with our charter to foster the science of astronomy and has decided to support the appeal by making a contribution of \$500 to the appeal and by inviting the students to hear Daniel's talk.

The election of office bearers provides an opportunity for change on the committee for 2011-12 and this year our President, John Rombi, is standing down. John has always been very quick to praise and encourage the rest of his committee members but now it falls to me to say something about him.

John joined the Society in 1998 and became Vice-President in 2001, where he served for six years alongside the then President, Noel Sharpe. When Noel stood down in 2007, John was the natural replacement and he has served with distinction as President for the last four years.

Ten years served on the Management Committee is a very long time by anyone's standards and no-one can be in any doubt that MAS is currently in excellent shape. This can be attributed largely to the hard work put in willingly by John on a daily basis, with the strong support of Jenny.

John has always wanted the best for MAS and he wanted our star to shine brightly. He has always been very keen for MAS to visit schools and show the night sky to young students and one of his most admirable passions has been to assist the less experienced members of MAS to blossom as amateur astronomers, especially on field nights. There are so many occasions when I've glanced over and noticed his telescope was vacant. Where was John? He was off giving helpful advice to someone else, of course!

On a personal note, I have thoroughly enjoyed a great friendship with John over our three years together on the Committee and I am sure that he will remain as a very active MAS member for many more years. I'm sorry to see him stand down (and I will greatly miss his occasional outbursts about "b@#\$%y* bureaucrats!!!") but he's earned a break and perhaps now he can now concentrate more on astronomy instead of administration!

One of John's responsibilities as President has been to secure guest speakers and last month's speaker was a real 'breath of fresh air'. Les Dalrymple is an amateur astronomer with Sutherland Astronomical Society who demonstrated an astounding knowledge of globular clusters in a superb talk. He's a walking talking Wikipedia and I wish I had his capacity for storing all that useful astronomical information!

John's last act as President will be to hand out membership awards. They are a recognition that the long-term support and good will of it's members is a prerequisite for the successful and harmonious Society that we have been over the last fifteen years. The friendship, rapport and lack of dispute over this entire period is a hallmark of MAS of which we can all be very proud.

It has been a pleasure serving as MAS Secretary for a third year and I thank all members for their support of the Society. I hope the next year for MAS will be as good as the last. Maybe with a just a few less clouds and a little more starlight along the way.



Comprehending the Incomprehensible Davy Jones

The most incomprehensible thing about the universe is that it is comprehensible.

A. Einstein

Last month, I made a vain attempt to define energy; as an adjunct to that article I felt it worthwhile exploring human scientific thought and development generally. The human pursuit of understanding the natural world and all that surrounds us culminates with the ultimate answers to the ultimate questions: 'Where did it all come from'? And - 'what the heck is it all about'?

During February's Forum, Prof. Fed Watson mentioned in passing the recent advances in technology that allows never before dreamed of results in the areas of amateur and professional astronomy and cosmology. It seems difficult to believe that for thousands of years, the human race had such an extremely unrealistic view of the universe, and our place in it. Yet, without the historically flawed models, the assumptions, and wildly mythological structures, much of what we take for granted today, might remain cloaked in mystery. It is this human ability to build upon accumulated knowledge – sometimes renewed after a lengthy hiatus – or even transferred across racially differing societies – that facilitates genuine scientific progress.

Human curiosity is not culturally exclusive; from the earliest times, every culture, worldwide, has had some form of mythical version of the creation story. Each 'creation story' mirrored the situation and society from which it originated; and each story symbolised the 'supreme truth' within its own society. Scientific progress would not truly begin until many of these ancient traditions, bound up in folklore and myth, started to decline.

In trying to make some sense of order in the various models that have impacted the most on today's perception of the universe, I think one of the earliest notable hypotheses is the 'Mesopotamian Model'. This model was developed by the inhabitants of the Nile and Tigris-Euphrates valleys. The Earth was depicted as flat, and surrounded by lofty mountains. The sky was a solid dome upon which the stars were placed, and water canopies emptied their rainfall. The planets, the Sun and the Moon, were all imagined to be relatively small, and guided by celestial forces. Interestingly perhaps, aspects of this model are offered in the Bible (Joshua 10 & Psalm 19).

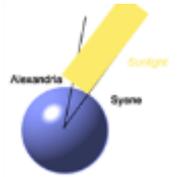
Whilst still containing strong mystical overtones, over time the Mesopotamian Model was adopted and modified by other civilizations. Around the 6th century BC early theorists such as Anaximander (possibly also the founder of evolutionary theory) and Xenophanes appeared on the scene, and whilst their explanations of the natural world were still far removed from modern ideas, they nevertheless did develop theories that didn't rely on supernatural elements for support. These ancient philosophers are recognised as the first true cosmologists, by virtue of the fact that they were genuinely concerned with the scientific study of the physical universe and its genesis. The ancient Greek word – kosmos – from which our modern word – cosmology – is derived, literally translates into - to order or to organise.

Every authentic scientific premise must make a prediction about the universe that can be measured and observed; history recognises Pythagoras as the man who made such scientific enterprise possible through mathematics. His successors developed and enhanced his ideas, allowing science to become a sophisticated and authoritative discipline capable of some amazing early achievements. Amongst these early achievements – without which later developments would have been impossible – were the measuring of the dimensions of the Earth – the Moon – and the Sun; and the distances between them. To quote the author, Simon Singh: "these measurements were a milestone in the history of astronomy, representing as they do the first tentative steps on the road to understanding the entire universe."

At this point it is worth taking a closer look at how some of these early measurements were achieved, and the human logic that lay behind such discoveries. Aristotle (384 BC-322 BC) is acknowledged as being the first to write down a complete set of rules for logical analysis.

Whilst earlier philosophers had merely suspected the Earth was a globe – by drawing on their observations of the Sun and the Moon; Aristotle established these assumptions as fact.

He observed many eclipses, and obviously recorded his observations over time. He noticed that during a lunar eclipse, the shadow of the Earth on the Moon was circular. Naturally, a flat round object may also cast such a shadow. However, Aristotle noted the shadow remained circular no matter in which direction the eclipse took place – in Aries, Capricorn, Gemini or Sagittarius. It followed; the only object capable of casting a circular shadow from all directions is a sphere! Thus, based on his empirical research, Aristotle affirmed the Earth was indeed spherical.



Eratosthenes (276 BC-195 BC) is reportedly the first person to have used the word 'geography'; he also 'invented' a system of latitude and longitude. More impressively, he accurately measured the size of the Earth. His measurement of about 39,250 km was accurate to 2% compared to modern measurements. How he achieved this feat with the most basic tools available is testimony to human ingenuity.

Whilst studying at a library, Eratosthenes learned of a water-well with extraordinary properties. This well was situated near the township of Syene (near modern day Aswan). Each year – at noon on the 21st June – the day of the summer solstice - the Sun shone directly into the well, illuminating it right to the bottom. Being an erudite chap, Eratosthenes realised for this to happen, the Sun must be directly overhead. Eratosthenes, who resided in Alexandria, was aware that such an event didn't happen in his locality. Being aware of the Earth's curvature, he reasoned that the Sun could not be overhead in Alexandria and Syene (several hundred km south) simultaneously; he decided to exploit his discovery in an attempt to establish the actual size of the Earth. Today – we call this a 'problem-solving approach' – in which we take a problem and reduce it to simpler terms before making extrapolations to arrive at our final conclusions.

It is not within the scope of this article to explore too deeply how Eratosthenes arrived at his final results with little more than a stick and a brain; but by coordinating his readings to occur at the same time as the Sun was overhead and shining down the well in Syene, he placed a stick in the ground in Alexandria. At the appropriate time, Eratosthenes recorded the angle of the shadow cast by the stick at mid-day. Having established the size of the angle – 7.2° - the rest of the equation became academic. Using the distance between the two towns, he extrapolated his results to estimate the distance around the Earth. Having established the size of the Earth – it then became possible to estimate the size of both the Moon and the Sun – and their distances from Earth!

I can only reiterate this is: 'a man – with a stick and a brain!' Human resourcefulness leaves me quite flabbergasted – as does its frequent lapses in common sense!

In fairness to earlier philosophers, it was they who laid much of the foundations relating to the measurements mentioned above. However, there was always one missing value – the size of the Earth. Now this value was available, the remaining values were a matter of course. Using Earth's shadow cast on the Moon during a lunar eclipse, it didn't take Eratosthenes long to estimate the Moon's size as about one-quarter that of Earth. Thus geometry, logic, and empirical research began to pave the way to genuine scientific discovery. Measurements, sizes, distances, all relating to our own solar system became firmly established. As indicated earlier, these measurements were remarkably accurate and have stood the test of time and advancing technology.

Other suppositions being made about the universe at that time were not as accurate. The influences of mythology and religion were, and

(Continued on page 4)



Comprehending the Incomprehensible

Davy Jones

still are, deeply entrenched in the human psyche. These suppositions and the logic that lay behind them will be explored in later articles.

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MAS MONTHLY FINANCIAL REPORT

Tony Law, Treasurer

MAS Treasury & Membership Report 31st March 2011

Treasury

Cash float of **\$40.00** for coffee etc.

Stewart has **\$100.00** cash float for merchandising

PayPal account **\$292.37**

Un-deposited Cash/cheques **\$502.00**

Term deposit **\$7,000.00**

Closing Balance \$3,760.35

Membership

We have one return Membership from Kate Ross rejoining after 2 year's Maternity leave, have automatically re-listed her. We have two new Membership applications, Allan Hobbs and Luke Williams, to consider. With these the total Membership stands at 93 members and 3 Honorary – if all outstanding (20) renew. Clive Pickup has resigned due to age.

Have PM'd all un-financial members requesting payment or a reason for not renewing.

Tony Law
Hon. Treasurer

Prime Focus Article Submission

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

Monday 11th April 2011

All articles can be submitted via email to editor@macastro.org.au