



Volume 15, Issue 10

October 2010

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President's Report: John Rombi

A BIG welcome, to our October edition of "Prime Focus"

Last month, Prof Naomi McClure-Griffiths (A.T.N.F) was our guest speaker; her presentation on

"What goes up and what comes down, in the Milky Way", brought us up to date on the latest research into our galaxy and it's interaction with others in our region.

Naomi also gave us the latest on the SKA, and its proposed date of location to be late 2012 or early 2013.

2010 Speakers

Novembers meeting will host our Patron Prof. Bryan Gaensler; his presentation will be on **"The Square Kilometre Array"** Bryan is the foremost authority in Australia on this facility and its possible location. It will also be our first occasion to welcome Bryan since he became our Patron last year.

2011 Speakers

We now have a full house of speakers for 2011; I encourage you to go to the Guest Speakers page to check out the timetable. Some of the months have not yet been allocated, but the speakers have committed to pay us a visit.

Magnitude

Well.....after a year of sweat and toil (by a group of very dedicated people) magnitude has come to an end.....or has it? More on that at the next meeting.

I won't go into describing the event day to day, (I'm sure you were there) but I will say I was impressed with the professional way that all members carried

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MAS Dates 2010

October 2010

02/10/10	Stargard
4-9/10/10	Magnitude: C'town Art Gallery
09/10/10	The Forest
18/10/10	General Meeting
30/10/10	Stargard

November 2010

06/11/10	The Forest
13/11/10	Public Night; The Oaks
15/11/10	General Meeting

December 2010

04/12/10	The Forest
11/12/10	Stargard



President's Report:

John Rombi

themselves whilst interacting with the public, gallery staff, former mayor and guest speakers.

There will be a "*post mortem*" on the event carried out at the next (and ensuing) committee meetings, to improve the event for any future date.

When trying to thank the people responsible for the staging of an event, invariably (accidentally) someone is left out. So.....I would like to thank everyone associated in any way with magnitude, you have certainly showed what "*club spirit and dedication*" is all about. I would like to single out one person though, Chris Malikoff, (Special Projects Manager) without his knowledge, expertise and drive, magnitude would not have reached the heights of professionalism that it did. We are indebted to you.

I spoke to David Malin after his presentation; he encouraged me to advise the owners of the images on the wall to enter their work in "The David Malin Awards" for 2011, great praise from a great man.

Observing Nights

Stargard unfortunately for this month was clouded out.

The Forest, cancelled due to magnitude.

This Month

We have our own Bob Bee taking us on "**A brief overview of the Stargazer II tour of the old and the new in European astronomy**" + **Chris Malikoff will take us for a refresher tour of the MAS website.**

So if you have ANY questions concerning the website, please bring them with you on Monday.

Until next month,

Clear Skies, John Rombi.

Secretary's Column:

Roger Powell

Magnitude. What a brilliant public event! The array of members' astro-images and telescopes on public display at the Campbelltown Arts Centre earlier this month was a superb effort!

The exhibition was conceived in a meeting between MAS and Campbelltown City Council last November, so it took eleven months of planning to accomplish. It was the first event of its kind in the history of the Society and it proved to be very successful, thanks to the commitment of John Rombi to organising it; the amazingly professional material that was put together single-handedly by Chris Malikoff; the financial support provided by Campbelltown Council; the support of the event in the local media, especially by The Macarthur Chronicle which published two great articles; and the active support of many of our committed members.

The exhibition was well organised, well promoted, well executed and well attended. We may have liked even more patrons but suburban art galleries simply do not get congested with flocks of visitors and I believe we had more visitors than the other exhibition which was in the main hall. I walked around it five times and only saw one other person and that was the receptionist. Most of our own visitors, young and old, expressed their amazement that our images on display looked so stunningly detailed, colourful and professional. I understand that Dr. David

Malin was also surprised!

We had two great guest speakers on the final day, Dr. David Malin and Dave Reneke, both of whom aroused the interest of the members and the public who attended.

The front fascia wall of the Arts Centre became the screen for our projected astro-images and I hope you all managed to see it. If not, this is what Barry Moore's "Star Trails" image looked like:



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Secretary's Column:

Roger Powell

The event was a Herculean effort and perhaps some time in the future we may be able to do it again - but in the meantime we can all go back to looking through our telescopes for a while.

Planetary enthusiasts may catch a quick glimpse of Mercury over the next few weeks but the enlarging crescent of Venus is about to disappear. Mars is gone and so is Saturn but Uranus and Neptune are visible through a telescope or binoculars. Jupiter dominates the evening sky and still seems to be missing its South Equatorial Belt. It has disappeared twice before over the last forty years, so look out for its reappearance. I hope to be able to image Jupiter again at the next Stargard and Forest nights but it will look great through the eyepiece too. No more clouds please.

We had a great guest speaker last month in Professor Naomi McLure-Griffiths, an influential radio astronomer and someone whom I believe has the capacity to become a very influential person in Australia's astronomical future. She talked about her cutting edge research into matter that is being ejected from the galactic plane into the galactic halo and how the galaxy eventually reclaims it.

Don't forget you can find us on Facebook!

Fred Watson vs Messenger 9

Bob Bee

On the night of 21st May in Berlin, prior to the official commencement of the 2010 Stargazer II tour, Fred Watson delivered one of his inimitable presentations at the Urania Institute. This had been advertised publicly so there were others present outside the group of Stargazer members who attended. While we can always expect the unexpected from Fred, even we were surprised by events that night.

Fred's talk was titled "Pluto and the Ubernerds" – a typical Fred title. In a very comfy mini-auditorium, with wall sized Power Point images, Fred stood at the front lectern and gave a witty and entertaining talk about the history of the discovery of Pluto, some of its astronomical details and, finally, an account of the IAU committee's determination of the status of Pluto. It was the members of this committee, who met in Prague, who Fred described as "The Ubernerds". They achieved this status in a headline in a major newspaper: "Pluto dumped by the Ubernerds in Prague". Something to show their grandchildren no doubt.

It is interesting, as a side note, that the state of Illinois, the home state of Clyde Tombaugh, have legislated that Pluto is still a planet. Only in America!

At the end of Fred's talk, the Urania moderator asked if there were any questions. After a few general questions from the floor, a voice **boomed out** from the back of the auditorium. "I have a question, mon." Fred looked up towards the speaker and his eyebrows almost went into orbit.

Imagine a 2 metre tall West Indian fast bowler, black dreadlocks down to his shoulders, very black skin, wearing a full length Moses style cloak, over pantaloon pants with puffy shirt, all in vivid purple. On his head was a floppy wizard style cap, also purple. And in one outstretched hand, a head high gnarly staff of polished white wood (or was it ivory?).

He went on to question how astronomers could know what they say they know about Pluto's orbit. Fred tried to explain how these things can be measured but the apparition would not hear any of it. Eventually, Fred asked, quite politely, "who are you?"

"I, mon, am Messenger 9." It seems he represented some cult that worships (if that's the word) Pluto, and they have taken exception to their 'deity' being demoted. We could only assume that there must be other adherents out there somewhere named Messenger 1 – 8.

Messenger 9 then pronounced that his society was so in tune with Pluto that they could reliably predict coming disasters on Earth. In fact, this very coming week ("mon"), there would be a Force 8 earthquake occurring at mid-day on the 28th May. "Where, exactly?" Fred asked. "30 degrees west of the equator," Messenger 9 answered. "How can it be west of the equator?" Fred asked (quite reasonably, we all thought between our stifled laughter). "Don't play word games with me, mon".

At this stage, the moderator stepped in and closed the meeting, thanking Fred etc. Then, as we all craned to look at M9, he strode down the aisle, staff in hand, accompanied by his acolyte (or body guard), who was dressed all in black, and a tad taller than M9. They engaged Fred in, what he said later, was very friendly discussion but they weren't giving ground on their belief in Pluto and the earthquake.

I have to say that, as excellent as Fred's talk on Pluto was, my clearest memory is of his encounter with Messenger 9. My biggest regret is that not one of the Stargazer group, who had taken plenty of photos of Fred, thought to take a photo of Messenger 9. So you will have to take my word for all this.

You can always ask Fred the next time you see him at MAS.



Lunar Crater Zwicky: It is Amazing Who You Meet on the Moon Pt 9 David M Jones

"I have a good idea every two years. Give me a topic, I will give you the idea" Fritz Zwicky – (1898-1974)

Lunar crater – Zwicky – is an impact crater, situated on the far side of the moon. It is attached to the western rim of Vertregt – and lies to the west of crater Aitken. Zwicky is considerably worn with an irregular rim and interior. While portions of its southern rim still survive, the remainder has been almost completely destroyed. (Encyclopedia, 2010)



The oldest of three children, Fritz Zwicky was born in Varna – Bulgaria, on February 14th 1898. His father was Swiss and his mother, Czech. At the age of six, in 1904, Fritz was sent to live with his grandparents in the Zwicky's family home in the Glarus area of Switzerland, with the intention of studying commerce. However, over the years he became more interested in maths and physics. Later he studied mathematics and experimental physics at the Swiss Federal Institute of Technology. In 1925 he emigrated to America, where he received an 'International Fellowship' from the Rockefeller Foundation, and took up a position with the Californian Institute of Technology (CalTech). (Encyclopedia, 2010)

America provided Zwicky with numerous career opportunities, of which he made the most. In 1942, he was appointed Professor of Astronomy at CalTech. He also worked as a research director and consultant for Aerojet Engineering Corporation (1943-1961), and a staff member at the Mt Wilson and Palomar Observatory for most of his career.

Known as the 'Father of the modern jet engine', he is acknowledged for developing some of the earliest prototype jet engines. An article in TIME – March 14th 1949 – proclaimed Zwicky as the inventor of the Underwater Jet (U.S. Patent 2461797) – the Two Piece Jet Thrust Motor (US Patent US2426526) – and the Inverted Hydro Pulse (US Patent US3044252). These patents can still be viewed, complete with original drawings, on the Internet today. All together, Zwicky held around fifty patents related to jets and thrust. He is also recognised as performing well-respected research in gaseous ionization, crystals, and the physics of solid state, slow electrons and thermodynamics.

As an indication of Zwicky's range of abilities, it is worth mentioning a method for investigating the totality of relationships contained in multi-dimensional, usually non-quantifiable problem complexes. **BAFFLED** – so was I - **Morphological Analysis** – to give the method its cor-

rect name, was 'a way of thinking about any problem'. Zwicky developed his *method* to apply to situations arising during World War II. Unfortunately – his system bewildered both government and military officials alike. Nevertheless, his analytical method - now *computer assisted* - is still used today in a variety of areas. (Ritchey, 1998)

Naturally, a man of such inexhaustible aptitude also has a very distinguished list of accomplishments in the world of cosmology. As mentioned above – he was known as the 'Father of the Jet Engine' – in addition, he is also referred to as the 'Father of Dark Matter'! Whilst other astronomers assumed the distribution of galaxies to be fairly uniform throughout the galaxy, Zwicky tended to analyse situations from a physicist's point of view. He is recorded in a Swiss journal as arguing the case for virtually all galaxies being in clusters. Furthermore, he proposed that these clusters appeared to be moving in relation to one another at rates that would violate the laws of gravity – unless one accepted the unexplained presence of a vast amount of - *Dunkie Materie* – Dark Matter. (Panek, 2009) In so many ways, and as so often happens, he was a man far ahead of his time.

Zwicky, with a colleague, Walter Baade, established and encouraged the use of the first Schmidt telescopes – used in a mountain-top observatory in 1935. In 1934, he and Baade also created the term 'supernova'. They hypothesised that supernova were the transition of normal stars into neutron stars, as well as the origin of cosmic rays. In pursuit of his theories, Zwicky proceeded to hunt for supernovae – in total he found one-hundred and twenty over a fifty-two year period. In 1938, it was Baade who put forward the idea of using supernovae as *Standard Candles* to estimate distances in deep space. Around the same period – 1937 – Zwicky speculated that galaxy clusters could act as gravitational lenses – as predicted by none other than Albert Einstein. This prediction was finally confirmed in the year 1979.

Between the years 1961 and 1968, Fritz Zwicky committed a substantial amount of time to his search for galaxies. This protracted search culminated in the production of a six volume Catalogue of Galaxies and Clusters of Galaxies. These catalogues were all published in Pasadena, by CalTech.

With such an obvious array of achievements – which this article scarcely scratches the surface of - one might have imagined '*Fritz Zwicky*' to be a name that came easily to mind. However, in spite of his triumphs, he received very few public accolades during his lifetime, or since. History records Zwicky not so much as an inventor, physicist, scientist, astronomer and cosmologist extraordinaire – but rather as an '*oddball astronomer*'.



Lunar Crater Zwicky: It is Amazing Who You Meet on the Moon Pt 9 David M Jones

He stands charged with calling a close colleague a Nazi and for claiming credit for everything that happened in cosmology after Einstein! He is remembered for attacking his peers both in print and in person! He was described by the media of that period as a *curmudgeon*; that being a bad-tempered, difficult and cantankerous person! At the Mount Wilson Observatory, he was renowned for referring to other staff members as 'spherical bastards' – clarifying his remark – he would add – 'you are bastards, whichever way I look at you'. (Soylent, 2010)

One famous story relates to the time when Zwicky's laboratory was due an official visit from high-ranking members of the military. Zwicky is said to have banned them entry to the laboratory, on the grounds that the generals and admirals were not scientists, and therefore would not understand what they were looking at!

Like so many brilliant minds, Zwicky was obviously quite eccentric and clearly had a collection of rather unsavoury idiosyncrasies. Twice married and lacking it seems, the most basic of social skills, Fritz Zwicky somehow also managed to gain a reputation as a humanitarian. He demonstrated a genuine concern for wider society, and in the aftermath of World War II collected literally tons of books on astronomy and other subjects. These books were shipped to the war-torn scientific libraries of both Europe and Asia. He is also known to have had a long-standing association with the charitable Pestalozzi Foundation – supporting orphanages. In 1955, Zwicky received a gold medal in acknowledgment of his services to this foundation.

This then was the complicated character – Fritz Zwicky – a man who once considered the possibility of rearranging the universe to our own liking. A man who spoke of changing and relocating planets within the solar system; and even outlining how this might be achieved. In the 1960s Zwicky considered how the entire solar system might be moved like a huge spaceship to travel to other stars. Only a man of Zwicky's intellect could propose anything as outrageous and not suffer ridicule.

His honours include the 1949 Presidential Medal of Freedom, for work on rocket propulsion during World War II, and being made professor emeritus at CalTech in 1968. In 1972, he was awarded the Gold Medal of the Royal Astronomical Society, for his distinguished contribution to astronomy and cosmology; with particular mention of his work on neutron stars, dark matter, and the cataloguing of galaxies. Fritz Zwicky passed away in Pasadena USA on February 8th, 1974 – six days before his 76th birthday. He was buried in Mollis, Switzerland, the village where he grew up. The asteroid 1803 Zwicky and lunar crater Zwicky are both named in his honour.

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Prime Focus Article Submission

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

Monday 8th November 2010

All Articles can be submitted via email editor@macastro.org.au
Or via snail mail to the MAS Postal address

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