

# MAS Newsletter

Volume 1 Issue 4

APRIL 1996

## PRESIDENT'S REPORT

Welcome new and old members. Newsletters may be in a slightly reduced format for a while so we can concentrate on bringing you a tri-monthly Journal.

I would like to thank all those who attended the inaugural star night. Despite a huge cloud cover around comet time, we all saw some great celestial bodies. Special thanks to Carol for the use of her property and those members who brought equipment. A great night was had by all.

During the night we observed Sirius (The Dog Star), Omega, Alpha and Beta Centauri, Aldebaran, Betelgeuse, the Large Magellanic Cloud (nearest galaxy to our own Milky Way - approx. 170,000 light years away) and many other stars and star clusters.

## RECENT EVENTS

A brief note on some recent events:

1. The Shuttle launched on 21st March and successfully docked with MIR (Russian Space Station) 26th March.

2. As from 25th March, the CSIRO Parkes Radio Dish has been boosted in power to pick up more of the Galileo probe data. The Dish links with Tidbinbilla at Canberra providing a huge area for picking up signals.

3. Dr Ed Stone gave a wonderful talk on the Galileo mission despite no new information being conveyed. It was encouraging to see some MAS members at this event.

4. On 30th March Robert Zubrin gave an amazing talk on the topic of 'Mars Direct'. He enthusiastically explained his model of how humans within the next decade and with current technology could be walking on the Red Planet. There will be more details about his talk in the coming Journal.

5. Thank you to all those who have paid their members fees. We can now become insured and, when our application is approved, incorporated.

6. Our next Star Night is at Robbie's house at Bringelly on Friday 26th April. The address is:

63 Mersey Rd, Bringelly.

Ph(047) 749331.

This will be a Lunar night from 7-10pm (or later if desired). This will give our younger members a chance to see some interesting objects in the sky. ie the Moon, Venus.

7. The Committee meeting is held on the 1st Monday of each month at my home. Any member is welcome to attend. See myself or Robbie for a copy of last meeting's minutes.

## PRESIDENT'S REPORT (Cont.)

8. If you are lacking in astronomical knowledge but want to know more at a fairly basic level, watch 'Astronomy' on Channel 2 (tape it). It's on Tuesday morning at 3.30am and repeated on Thursday morning at 7.30am. It is currently up to Episode 5.

9. Our next speaker will be Phillip Young from the National Space Society and the Star political party. He will enlighten us on inter- stellar space travel.

10. This week I received a compliment on our Newsletter from Campbelltown Library. They are putting our Newsletters on display and in their catalog as a reference item. Well done Bob and all those who help in writing and compiling the material for this (now) widely read Newsletter.

## SPECIAL NOTE

I had the pleasure of meeting two of the most interesting people last week. Jill Tarter, head of the Phoenix project and Bobbie Vaile. I have asked Bobbie if she would like to be an Honorary Member of the Society.

## LIBRARIANS REPORT

It is great to see people borrowing the magazines I bring to the meetings. Later some videos and books will be available for borrowing or browsing. Thanks to those members using this facility.

Phil Ainsworth  
President & Librarian.

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## SOCIETY JOURNAL

As Phil has indicated in his report, we are working on producing a 3-monthly Journal for members. This is intended to be a means of bringing to members more in-depth articles than is possible (or practical) in the Newsletter.

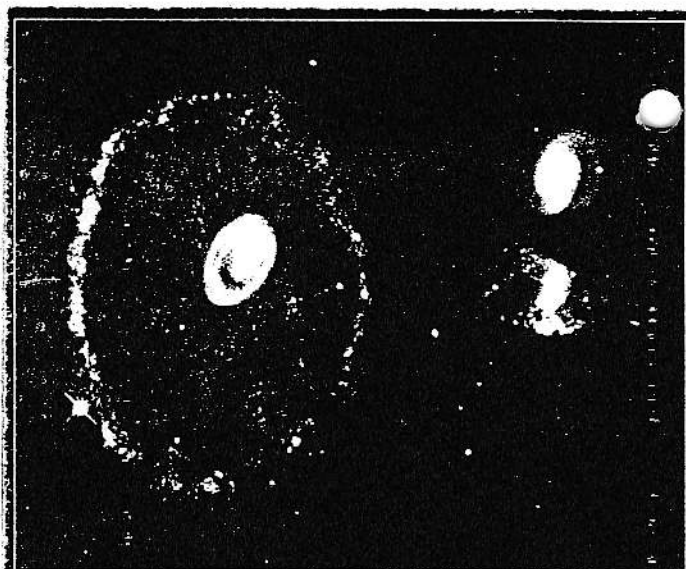
The Newsletter is intended as a vehicle for advising members about what is happening in the Society as well as tit-bits of what is happening in the world of astronomy. Though it may include the odd technical or detailed article, this would be the exception more than the rule.

The Journal will be our chance to bring out the big guns. It is hoped it will cover a wide range of subjects to suit all members tastes and be recognised and respected outside our Society.

I invite you to contribute to the Journal if you feel you have a subject you can shed light on.

**Target date for the 1st issue is end of June.** Please contact me if you wish to discuss ideas.

(Robert Bee - Editor)



### Cartwheel Galaxy

This image shows the results of a rare and spectacular head-on collision between two galaxies.. The bright (blue) ring around the galaxy reveals billions of new stars born because of the collision. (Picture: Courtesy of Hubble Space Telescope)



## INAUGURAL STAR NIGHT

On Friday 22nd March, about fifteen Society members converged on Carol's property at Wilton. It was our inaugural Star Night and Phil, our president, hoped to climax the evening with a sighting of the Comet Hyakutake which was due over the horizon after midnight. We were prepared for a long night. These are my personal impressions of the event.

There was a wide range of instruments available. Eric had his three telescopes set up. A TASCO 60mm refractor, a home built 150mm Newtonian and a 200mm Meade Schmidt-Cassegrain. Noel also had his 150mm Newtonian and we plebs had binoculars ranging from 7x50 to 12x50.

From the middle of this paddock we explored the dark and clear sky. We were blessed with no moon and, initially, only occasional cloud. During the long wait for midnight, we shared our pool of favourite sightings.

Orion the Hunter was high in the North, so all instruments were aimed at the Great Nebula (M42) in the Dagger. The progression of clarity and detail as I moved from my 12x50 binoculars, to the 150mm Newtonian and then the 200mm Meade (on low power) was, although to be expected, quite an eye opener. While not exhibiting the glorious reds and oranges familiar from the David Malin photographs, the near black and white display of glowing gas was a sight to see.

Then it was open season as we independently, or working in pairs, searched the sky (sometimes between the gathering clouds), then shared our discoveries.

Omega Centauri was a nice compact fuzzy ball in my 12x50s, then a larger but more diffuse object in the Meade. This spectacular cluster of stars virtually filled the field of view, and I was

able to resolve a myriad of individual stars. Marvellous!

The Jewel Box under Beta Crux was no less spectacular. The familiar 'A' shape in my binoculars exploded into a mass of stars in the larger Meade. I could clearly see the red giant surrounded by a cluster of blue-whites.

Our faithful neighbour, Alpha Centauri was resolved very humbly but nicely by the TASCO, then the Meade completed the job displaying a huge separation of its two component stars.

I gave a shout of surprise as, during a random speculative search of the Large Magellanic Cloud, I discovered a nebula I'd never seen before, probably because of the improved seeing away from the Campbelltown lights. "That's the Tarantula Nebula," Eric advises the group, so all instruments turn to this new marvel. A bright smudge of light attached to the LMC, as revealed at first by my binoculars, through the Meade became a larger area of diffuse gases, traced with dark lanes and patches, thus earning its ominous name.

Time races on, as do the clouds. The comet is starting to look 'iffy'. Coffee is consumed and the muesli bars are broken out.

"Trapezium, anyone?" Eric asks. A queue quickly forms at the Meade to view these young stars in the Orion Nebula. (Only 100,000 years old). What amazes me is how distinct the trapezium shape of this group is. I expected to see them lost in the glare of the Nebula. But there, hovering in the eyepiece, were four clear sharp stars against a relatively dark background.

After the Milky Way and constellations had rotated for four hours above our heads, the sighting of Comet Hyakutake was becoming decidedly unlikely. Clouds were solid for 30 degrees above the horizon and getting thicker. By midnight most of the Society members had



## INAUGURAL STAR NIGHT (Cont.)

bade goodnight and with more sense than stubbornness had gone home to a warm bed.

A handful of die-hards (guess who) stayed, willing the clouds to disperse. But by 12.45am, even Scorpius had been drowned in cloud. Enough. The telescopes were packed away and our Star Night ended. Rain fell on my trip home.

No comet! A fizzer? Hardly. As an initiation into the rites of Star Parties, it had been a great success. We are now truly an Astronomical Society. Friendships were made or welded. We all saw new and wonderful sights, with first hand experiences of different types and sizes of telescopes.

So. When's our next Star Night?

(Robert Bee)

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## A TALK ON SETI

At our last meeting on 18th March, we were treated to an excellent discussion on the Search for Extra Terrestrial Intelligence (SETI) by Carol Oliver, the UWS (Macarthur) Science Journalist.

Through the medium of colour slides, Carol gave a clear, informative and entertaining history of the Project Phoenix. The immensity of the task tackled by SETI became clear to those present, as did the ingenuity of the technology used in the search.

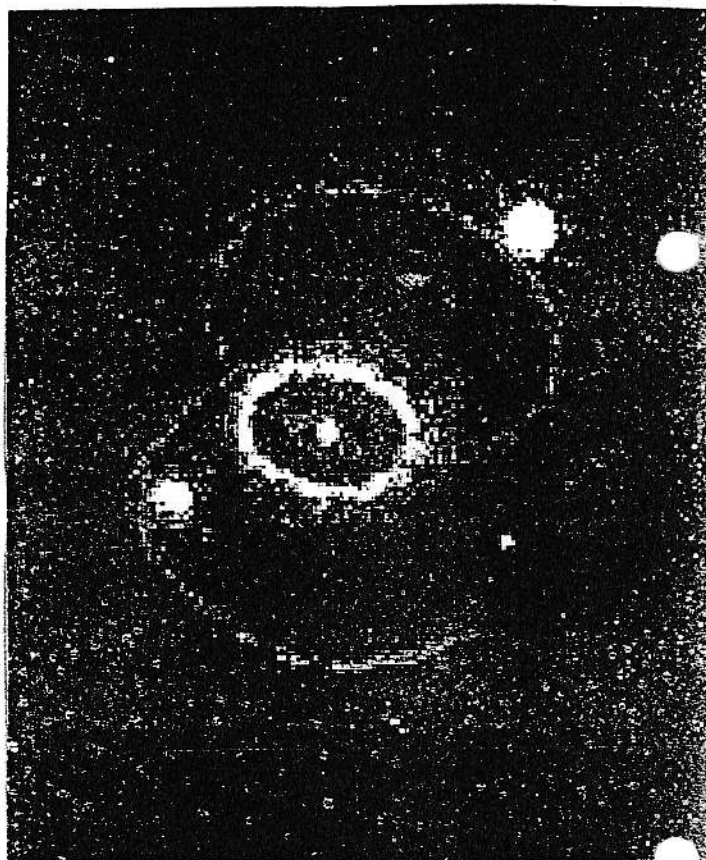
Following her talk, Carol ably fielded a barrage of questions ranging from "what were they listening for", "what frequencies were monitored", to "what would we do if we actually detected intelligence out there?"

Thank you Carol for a first class address.  
(RB)

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*Two ex-astronauts opened a pub on Mars, expecting to make a fortune from the new wave of tourists NASA was ferrying over. But it had to close. Went broke. You see ... it had no atmosphere.*

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### SUPERNOVA SN1987A -

#### The Death of a Massive Star

This image, taken with the Wide Field and Planetary Camera 2, shows the details of the triple ring structure associated with Supernova SN1987A, which occurred in the Large Magellanic Cloud. Supernovae are very rare, occurring when massive stars eject most of their mass in a violent explosion. Never before has such an event been imaged with comparable detail. We are still trying to understand the origins of the rings and their unique symmetries, which seem to defy conventional explanations.

(Courtesy : Hubble Space Telescope)

## ASTRONOMERS TAILING COMET

The Northern Hemisphere is having a treat with Comet Hyakutake. (Discovered by a Japanese amateur astronomer, the comet is officially designated as C/1996 B2.)

Its tail is far longer than astronomers expected. However, its core, expected to be up to 10km diameter, is possibly as little as 3km diameter.

Despite its unexpected small core (a 'dirty snowball of rock and ice') its tail is leaving a display across the night sky already being described as the most impressive since Halley's 1910 passage.

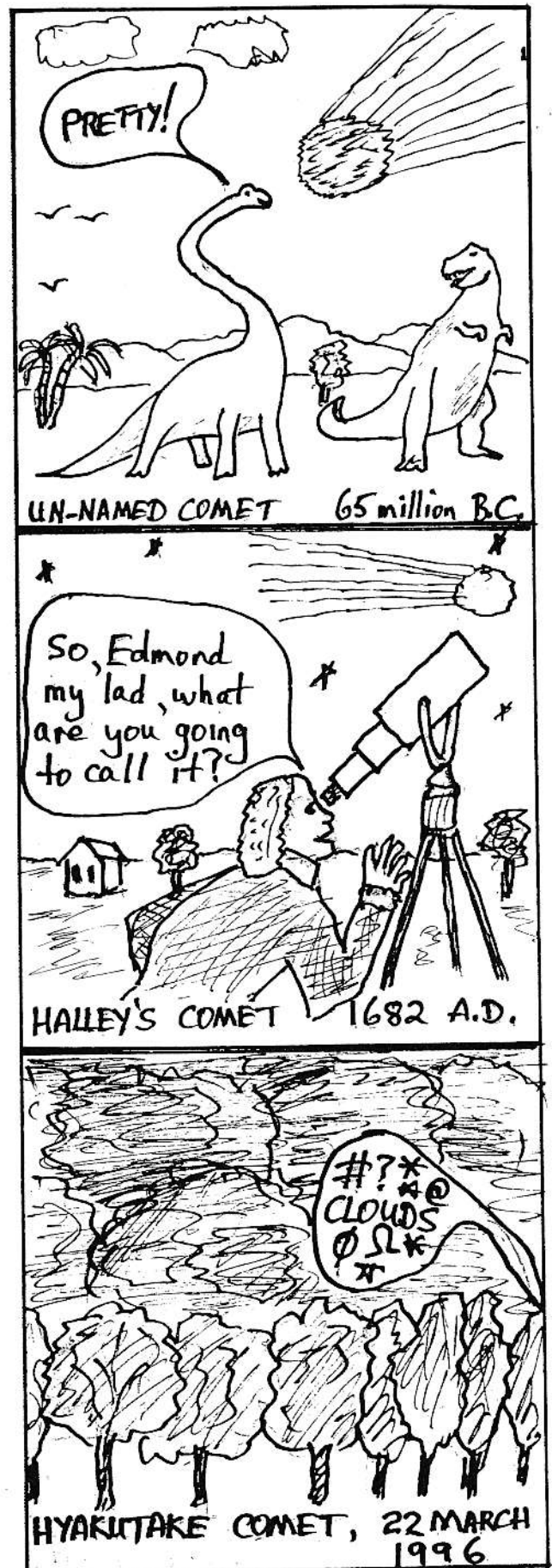
During its passage around the Sun, Hyakutake came within 15 million km to Earth. That is, about one tenth of our distance to the Sun. This makes it the fifth closest comet to approach Earth this century.

The 'awesome spectacle' of the tail, as described by one astronomer, is as long as about 80 moon diameters. The tail develops as the core's surface material evaporates in the approach to the Sun's heat, leaving a spray of gases behind it.

At this stage, having passed out of view of Sydney on Monday 25th March, it is visible only from the Northern Hemisphere. It reached its closest approach to the Sun on Monday 1st April.

Study of the comet's core, made difficult by its small size, is hoped to provide data on its chemical composition. This may provide insights into the solar systems' formation, estimated at about 4.5 billion years ago.

## A TALE OF THREE COMETS.



RB



## A GLOSSARY OF DIMENSIONS AND DISTANCES

Moon's diameter: 3,473 km  
 Distance of Moon from Earth: 384,400 km.

Sun's diameter: 1,392,000 km.

Diameters of Planets and Mean distance to Sun:

<u>Planet</u>	<u>Diameter ( km)</u>	<u>Mean Distance to Sun (million km)</u>
Mercury	4,880	57.9
Venus	12,104	108.2
Earth	12,756	149.6
Mars	6,787	227.9
Jupiter	142,800	778.3
Saturn	120,000	1,427
Uranus	51,800	2,870
Neptune	49,500	4,497
Pluto	2,300	5,900 (Mean), 7,375 (Max), 4,425 (Min)

Diameter of Typical White Dwarf Star (eg Sirius B) : 30,000 km

Diameter of Typical Red Super Giant Star (eg Omicron Cetus): 500 million km

Distance to Nearest Star - Alpha Centauri 4.3 light years

Average Distance between stars in Milky Way galaxy: 1 parsec (= 3.26 light years)

Diameter of Milky Way galaxy: 100,000 light years

Distance to Large Magellanic Cloud galaxy: 169,000 light years

Diameter of Large Magellanic Cloud: 30,000 light years.

Distance to Small Magellanic Cloud: 190,000 light years.

Distance to Andromeda Galaxy: 2,000,000 light years

Diameter of Andromeda Galaxy: 150,000 light years.

Distance to Virgo Galaxy Cluster: 50 million light years.

Distance to Quasars: Varies - Quasar 3C273 = 3 billion light years

- Quasar 3C196 = 9 billion light years

- furthest Quasars = 15 billion + light years.