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Astronomical Society of Frankston Inc.
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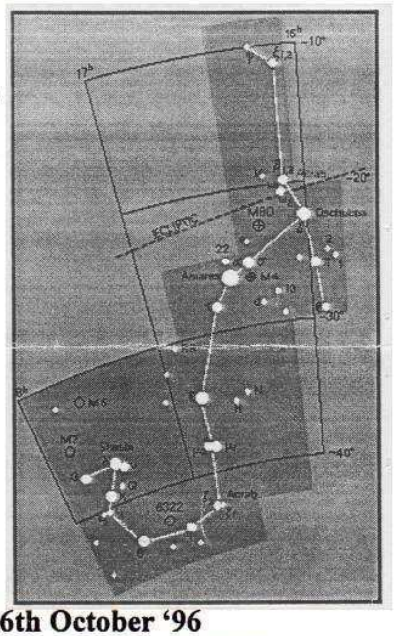
(Jul - Aug)

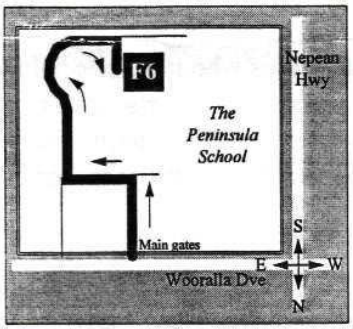


The Astronomical Society of Frankston was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights, both private and public are arranged to observe currently available celestial objects. In addition, the Society provides the services of its members for educational presentations or observing nights for schools and local community groups.

Meeting Venue:

The Peninsula School, Wooralla Drive, Mt.Eliza (Melways Map 105/F5)
Room F6 at 8pm on the 3rd Wednesday of each month except December.

Visitors are always welcome.



Annual Membership	
Full Member	$30
Pensioner	$25
Student	$20
Family	$40
Family Pensioners	$35
Newsletter Only	$10

Due 1st of January each year

President & Editor
Peter Skilton (03) 9776 5898

Vice President
David Girling (059) 76 2806

Treasurer
Peter Brown (03) 9789 5679

Secretary
Don Leggett (059) 85 4927

Committee
Ken Bryant, Bob Heale,
Peter Lowe, Ros Skilton,
Ken Stratton

Phone calls before 8:30pm please.

FUTURE EVENTS

General Meetings:

Wed 17th July '96
Session 1: David Girling and Peter Lowe on *Life in Space.*
Session 2: Peter Skilton sheds light on *Occultations: When the Lights Go Out.*

Wed 21st August '96
Session 1: Video on *Formation of the Solar System.*
Session 2: Bob Heale on *The Colour of Stars.*

Wed 18th September '96
Session 1: Peter Norman on *The First Three Minutes*
Session 2: Ken Bryant on *Measuring Distances.*

Wed 16th October '96
This meeting **will be held at *The Briars* Visitors Centre, and will involve being out of doors.** Attendees will be treated to a slide show, bush walk, damper and trailer ride by the ranger showing what we share our visits with in the dark. Dress warmly with walking shoes and bring mosquito repellent just in case.

Viewing Nights:

Members Only:
Sat 20th July, Aug 10th & 17th, Sept 7th & 14th, Oct 5th & 12th all at *The Briars*, Nepean Hwy, Mt.Martha (Melways 145/E12).

If weather forecast for the Saturday looks bad, the Friday before may be used instead. New attendees must always confirm with David Girling on (059) 76-2806 before attending. Follow the signs at *The Briars* from the Visitor Centre. Remember you can only attend on planned Members' Nights, unless by prior arrangement with David.

Public/School/Community Groups Viewing/slide nights or slide nights:

If you can assist, please contact the Secretary.

- The ASF Winter Lectures in basic Astronomy are on again this year at *The Briars* Visitors Centre on Wed 3rd, 10th and 24th July. The public are encouraged to become members to attend. Further details from the Secretary.

- Please note that an earlier advised Public Viewing night at Ballam Park on July 27, has been postponed due to unavailability of several members at active member John Cleverdon's 21st birthday party. We're not sure if its fancy dress, but think everyone should pretend to be Astronomers.

- Mentone Girls Secondary College have asked us for a night on Mon 21st Oct at 7:30pm. About 100 pupils. Melways 86/H6, enter oval at Charmans Rd and drive to the portable classrooms.

Social Events:

- Seventeen braved our very mild Winter conditions to celebrate the Solstice at the Dava Hotel, 7 hours after it occurred on Friday 21st June. Another dinner will be held at the Dava on Fri 23rd Aug at 7pm, Esplanade, Mornington. Melway 145/C6.

Phenomenal Events:

- Remember Sun/Mon 17/18th November for our inaugural **"Leonids All-nighter"** meteor watch *at The Briars*.

- Comet Hyakutake was exceptionally prominent in late March before passing over our Northern horizon. Photos shown in this issue.

L to R - Cassandra & Ros Skilton and Don Leggett pose with the Peter Norman scope at *The Briars* on the proposed site for the observatory concrete slab.

- There is a Blue Moon on 30th July. This is the first one since 1993 Nov 30. Because our Moon orbits the Earth in just under a calendar month, it is possible to get two Full Moons in the one calendar month. When this occurs, the 2nd is known as a Blue Moon. The *Penguin Dictionary of Astronomy* says that the actual origin of why it is called "blue" is obscure, though it is often colloquially used to refer to a rare event.

- The binary star system *BL Telescopii* is undergoing an eclipse at the moment where the dimmer sun is passing in front of the brighter sun, causing the observed overall brightness of the system to drop until the eclipse is over.

YOUR SOCIETY

NEW MEMBERS

Welcome to the following new Society members:

Allison Gurney
Bronwyn Isarin
Sue & Ian Trotter

The ASF is the 2nd largest Society in Victoria. Membership currently stands at 70. Please feel free to say hello at general meetings. Society badges, Planispheres, books & posters are available at monthly meetings to full members. A limited supply of Society windcheaters is available from the Secretary. Special name tags are free to new members who attend meetings. Lost ones can be replaced for $2.

HELP NEEDED

Do you have connections with local tradesmen or businesses who might be able to donate materials or services towards our constructing the observatory or fences at *The Briars*?

Since being given the job of Librarian, I feel I now belong to the Society, where before I was (and still am) an ignorant listener. To make the position of Librarian work, I need the co-operation of all borrowers. The rules are few and are now posted inside the cupboard. Going through the old catalogue, I found many books were missing. Could members please hunt around at home to see if they can find any forgotten books. These can be returned to me or left on the front desk at meetings during the tea break, no questions asked, to be stamped and listed. I realise that some of these books will never come to light, as some previous members are no longer

in the Society. Books are valuable, and it is disappointing to those folk who have kindly donated some to the Library, to find they no longer exist. Meanwhile, happy reading all. We have lots of new books and magazines recently donated - so check it out.

Kathy Stabb

SECRETARY'S JOTTINGS

The Mornington Peninsula shire has included the Australian Standards Assoc draft code 4282 on *Obtrusive Effects of Outdoor Lighting* into our lease for *The Briars* site, which has now been signed. As a result we will be pouring the main concrete slab, and a significant proportion of Society funds, in early August. The lease unfortunately will only extend until end June 2005, when all leases held at *The Briars* will simultaneously come up for renewal. The Society is looking for a further lockable cupboard to cater for the expansion of our library material. One similar to that currently in the room would be ideal. We have duplicate copies of *Astronomy*, *Sky & Telescope* and *Astronomy Now*. These are on offer at meetings for $1 each.

Don Leggett

RECENT MEETINGS

May's meeting was run by Peter Skilton, and saw about 45 in attendance. The splendidly made video about the Galileo probe at Jupiter was screened, which several members related they had missed previously and enjoyed thoroughly. Eyepieces and comets were the order of the evening in the session next door. Ken Bryant gets to curl up with a good Astronomy book this Winter, after pulling off the monthly raffle.

June's meeting was run by David Girling who presented the *Astronomy in Australia* slide set to a full house. Next door, Roger Giller undertook to explain Right Ascension and Declination to those uninitiated in the finer points of star charts and navigating the sky. Newer member Allison Gurney found the meeting a sobering experience after she nabbed the medicinal raffle prize.

Ros Skilton

RECENT VIEWING NIGHTS

About 50 Mt.Evelyn Primary students gathered at Camp Manyung on June 5 to hear Ken Bryant and David Girling give a lively talk and slide show after total cloud cover prevented viewing outside. I believe this didn't dampen the questions.

Roger Giller captivated the Peninsula Field Naturalists on June 12 at their monthly meeting in Frankston where they heard all about the Tides. This was followed on the 15th by a viewing night at *The Briars* in conjunction with a members' night. I am told members Sharron Fletcher, Peter Elias, Ken Bryant, Bob Heale, Bruce Tregaskis, Don Leggett and David Girling would not let them go home until 1 am. All saw Jupiter's Great Red Spot, comet Hale-Bopp and many, many galaxies.

NATIONAL AUSTRALIAN CONVENTION OF AMATEUR ASTRONOMERS

While the rest of you were wallowing in Victorian rain over the Easter weekend three pilgrims (Ken Bryant, Peter & Vivienne Lowe) from the ASF trekked to sunny Queensland and attended the XVII NACAA in Brisbane. It was hell! Sunshine and 30+ degrees every day but we did it for the good of the Society.

Over 100 amateurs from across Australia met to talk Astronomy and generally have a great time. Like earlier NACAA's, this one was a great success and the hosting Societies are to be congratulated for their efforts. There were four host societies for this NACAA: The Astronomical Association of Queensland (AAQ), The Southern Astronomical Society (SAS), The Brisbane Astronomical Society (BAS) and The South East Queensland Astronomical Society (SEQAS). NACAA's are somewhat academic in structure and a formal format seems to have evolved over the years. Good Friday is reserved for settling in with a cocktail party followed by the Society Delegates' meeting. Formal papers and workshops are held over Saturday and Sunday while Monday is reserved for socialising at local Astronomical centres of interest.

The theme was "*Celebrating 100 years of Queensland Amateur Astronomy*" and the opening address was presented by Bill Kitson, the Director of the Museum of Lands, Mapping and Surveying, Queensland. Kitson gave a most entertaining talk about the general charting of Queensland and the role Astronomy played. Mainly it was used to establish time and position during surveys. While modern satellite navigation has swept these requirements away,

local amateurs have established themselves as active participants in the growing global Astronomy scene.

The papers presented were all wide ranging and showed the interplay of imagination, instruments and determination. CCD photography is definitely growing. Some spectacular shots of galaxies, globular clusters and planetary nebula were shown. Stars down to 18th magnitude were "regularly" within the range of amateur scopes. Some Canberra Society members presented a paper reporting a photometric monitoring of a 15th magnitude binary star containing a black hole candidate. During the 7 months observing period, over 900 magnitude measurements were made using an SBIG ST-6 CCD camera revealing light variations less than 1 magnitude, and yet from this they have been able to determine the system light curve and measure the period of the binary. While the photometry was done using the 30 inch Reynolds reflector at Mt.Stromlo, their first photography was done using the ST6 on a Celestron C8 with only a 20 second exposure. An amazing result and an example of where amateur Astronomers might be going in the future.

While CCD's were prominent throughout the convention, normal film astrophotography was not left behind. It was pointed out that while CCD's are making great strides they are not going to replace normal film photography for a long time yet. Supporting this, some members of the AAQ gave an excellent paper on optimising of colour negative film performance. By understanding the performance of films under low light levels they have been able to extract more information from their photos. The examples shown were beautiful and, even with an audience of enthusiasts accustomed to astrophotographs, there were general cries of delight.

Comet Hyakutake in Bootes next to bright star Arcturus, with some high level cirrus nearby. North is down, East to the right. Photo by Jim Blanksby, taken at King Lake 1996 March 23 1845 UT. 2 minute guided exposure using 50mm f1.7 lens and 400ASA Ektachrome P1600 Professional slide film push processed to 1600ASA. Approximate position is RA 14hr45m Dec +34d.

One of the observatories I wanted to visit after this year's NACAA was The Taylor Range Observatory built by Peter Anderson, a past president of the AAQ. Located just outside Brisbane, the observatory is a split roll off roof type similar to our own planned observatory at *The Briars*. I wanted to have a closer look at the construction and pick Peter's brains about it and any problems encountered.

The main building is a solid brick construction with heavy C channel tracks to support the roof. Peter explained the designing engineer based the design on crane technology and as much as possible the rest of the building uses standard construction methods. Despite the heavy look of the roof structure the rolling forces are minimal and there is absolutely no need for mechanical drives. Using standard building methods has produced a solid structure requiring no modifications after construction. The triple weather seal at the roof junctions ensures no leaks. In fact the only addition to the building has been the wind ventilator to keep the building cool in the Queensland summer. Overall the building is 4.4 x 6.8 metres in size and has plenty of room to work even with the massive telescope at the building centre.

The main instrument is a Cave 16" f/6 Newtonian with a 10" f/6 Newtonian guide scope. Yes, a 10" guide scope. In addition to this it also has 6" f/5 and 4.5" f/4 Newtonian finder/spotters. There are a few other smaller instruments attached mainly as counter weights as Peter says he never really uses them.

Surprisingly the instruments are rarely used for photography but are mostly for visual observing. Lunar and asteroidal occultation events cover the main work. So far Peter has clocked up almost 5,000 lunar occultation timings and averages about 27 asteroidal occultation observations a year. If the ASF can make a building and instrument as good as that at Taylor Range it would provide a great basis for our observational programmes. Congratulations Peter, a great observatory.

Peter Lowe

JUST FOR STARTERS

IS THERE A BLACK HOLE AT THE CENTRE?

Considerable doubt has been cast over whether a supergiant black hole exists at the centre of our spiral galaxy, the Milky Way. For some time now, astronomers have suspected that a black hole about a million times the mass of our Sun, lurks at the centre. It cannot be directly seen because its gravity is so high that light is captured in orbit around it, and is not free to stream off to an observer's eye. However, in-falling matter that is accelerated rapidly can emit X-rays that are detectable from Earth, prior to the mass being swallowed by the hole. The temperature of the infalling matter rises to around 100 million degrees.

Now, a long duration, high sensitivity X-ray survey of the galactic centre has shown an object of this mass is either not present, or unbelievably dormant (maybe it has already swallowed everything in its immediate vicinity). Already the Hubble Space Telescope has viewed the nearby galaxy M87 and showed dust and gas spiralling into the central region at a speed compatible with a supergiant black hole lurking in that galaxy.

The study of our galactic centre used 1,800 hours of observing time and found only a handful of smaller isolated black hole candidates near the centre, each around 10 times the mass of our Sun, not one giant supermassive hole. There nevertheless is the possibility that one giant does exist, but that its dormant state is only temporary as matter builds up in a swirling disk around it, before falling into the hole in one massive burst. This outburst could occur at any time so we have to be looking at the right time, with the right instrument.

IN THE NEWS

RISING SUN HEADS FOR THE MOON

Well, Japan is off to the Moon with profit as the motive and some long-range vision. A 2 tonne survey orbiter will be launched in the year 2000 onboard Japan's H-2 rocket vehicle. Onboard will be a remote-controlled lunar rover which will scour the Moon's surface for minerals of value, by conducting automated chemical analysis tests. The orbiter, on the other hand, will scan the surface for visible, infrared, X-ray and gamma ray emissions, and use a laser altimeter to determine the exact terrain topography. The Japanese also hope to see if it is feasible to put an observatory on the Moon surface, but that will occur further down the track.

HI HO, HI HO, IT'S OFF TO WORK WE GO

With Saturn recently in our attention, it is interesting to read that 7 tiny new moons have been discovered in orbit around it. British Astronomers wading through 20,000 archival images sent to Earth when Voyager 2 passed Saturn in 1981, have discovered the new natural dwarf satellites of the planet. Saturn already has at least 20 known moons. The presence of the new moons was suspected when Pioneer 11 data on charged particles was analysed and a deficiency was found in certain spots around Saturn. It was thought that hidden moons were responsible by mopping up the particles that got in their way. Sure enough, when the scientists looked in the expected regions they found what they were looking for.

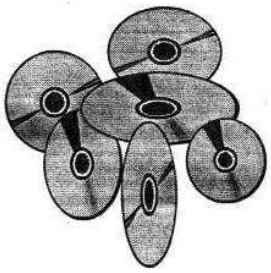
Unfortunately, the resolution of the Voyager photos was not good enough to enable the sizes of the objects to be determined, being around 10-20 km across, just on the imaging system's pixel size. It is not beyond belief that they might even just be electronic noise in successive images. To look for these new moons, Earth-based scopes were pointed in Saturn's direction during the recent ring plane crossings. With the rings edge-on to us, the glare from Saturn is substantially reduced, enabling these ultra-faint objects to be seen directly by sensitive CCD devices on Earth. Regardless of what is found, the Cassini mission to Saturn in 2004 will answer the question of the moons' existence.

YOUR CHANCE TO BE IMMORTAL

NASA's Cassini probe to be launched for Saturn in

October 1997 will carry more than just scientific instruments. It is intended to carry a CD ROM that will hold millions of digitised signatures from anyone who wishes to send theirs in.

Cassini is the largest space probe ever launched, and as such will require several gravity assist slingshot fly-bys of Venus, Earth and Jupiter so as to reach the ringed planet by the year 2004. Once there it will launch an atmosphere probe at the moon Titan, which is known to have organic molecules in its atmosphere, and hence potential precursors for life, and then continue to orbit Saturn for several years. So imagine your name hurtling through the solar system past Venus, back to Earth, out past Jupiter then onto Saturn where it will eventually become part of Saturn's glorious ring system.



Signatures should be on the back of a plain postcard on the non-address side in black ink and sent to:

Cassini Program,
Jet Propulsion Laboratory,
4800 Oak Grove Drive,
Pasadena, California,
91109-8099
USA.

All signatures received will be digitised by volunteers from the Planetary Society and placed onto the CD ROM, provided they are received before the 1st of January 1997 or until the CD ROM is full. It is expected that many schools will take up this chance to tour the solar system and be immortalised in the ring system for eternity.

FEATURE

CHOOSING YOUR BINOCULARS

One frequently asked question from newer members is "*What type of telescope should I buy*?" and the best answer for the newcomer to amateur Astronomy is "Buy a pair of binoculars".

A pair of binoculars as the name suggests is a pair of telescopes; one for each eye. The most common consist of low power telescopes, typically 5 to 20 magnifications with a wide field of view, typically 2-10 degrees.

So the question is now "What binoculars do I buy?". Firstly the only optical instrument you have, you got at birth, and this is of course your eyes. All other instruments enhance your eyesight in some way such as collecting more light so you can see fainter objects or changing their field of view so you can look with higher resolution at objects such as planets that subtend small angular size.

Binoculars are characterised by two numbers such as 8x30 or 8x50. The first number is the magnification (8 times), while the second is the diameter of the front lenses in millimetres (30 mm or 50 mm).

A dark adapted eye has a pupil size of 5 to 7mm in diameter which is about 25 square millimetres in area. So your eye only collects light over this small area. With such a small collecting area most interesting Astronomical objects are too faint to be seen. The faintest star you can see with the naked eye is about 6th magnitude. One aim of the binoculars is to collect light from a larger area and concentrate it into your eye. A 50mm lens has a collecting area of 2,000 square millimetres and can show stars down to about magnitude 9.5.

Two things that must be right to achieve this are:

(1) all the light collected by the front lens must pass through the instrument and come out of the eyepiece and,

(2) the circle of light coming out of the eyepiece, called the exit pupil, must be smaller than your eye's pupil otherwise only some of the collected light can get into your eye.

Regarding magnification, people often assume high magnification is best. While higher powers do have advantages when observing clusters, double stars and the like, higher magnification also means reduced field of view. This can make it harder to find objects as well as imposing higher tolerances (and thus costs) on the optical components. Typically 8x power is recommended although you can use up to 12x power handheld. I use 16x50's and find I must provide some fixed support. With practical binoculars it is not possible to achieve all these criteria and so some compromise must be had.

When selecting binoculars we must remember that these will be used to look at stars and the star

test is the most exacting test of any optical instrument. Factors to look for in good binoculars are:-

1) Power & Aperture
2) Optical quality
3) Mechanical Stability
4) Size of your Wallet
5) Seeing Conditions including how good you eyesight is.

Power & Aperture

Generally we want the largest aperture your wallet can stand so you can view faint objects. In high light pollution areas it is better to look for higher magnification even if you must sacrifice aperture because of cost. The higher magnification can penetrate the pollution better. Above 10 power you might consider a tripod support.

Optical Quality

Don't fall for the trap that high cost means high quality. I have seen some expensive binoculars that are absolutely hopeless for Astronomical work. Firstly to get the most light through the instrument the manufacturer often puts anti-reflection coatings onto the various optical surfaces. The ideal is to have all optical surfaces coated but this is expensive.

When selecting binoculars firstly look at the general finish and overall workmanship, this is often an indication of quality. Look into the front lens with a white light shining over your shoulder and look deep into the barrel. You want to look right into the guts of the instrument. If you see dirt, mildew or haze on any inside surfaces reject it. You should be able to count the number of reflections from the inside surfaces. Coated surfaces are coloured (blue or amber) while non-coated surfaces are white. The ratio of coloured to white images tells you how many coated surfaces there are. In most models the front lens surfaces and eyepieces are coated while very good models will have all air-glass surfaces coated.

Turn the binoculars over and hold them out at arm's length aiming at the sky or a bright wall. Look for the little discs of light floating on the eyepieces. This is the exit pupil and shows how much of the front lens can be seen by the eyepiece. You expect to see clean, round, uniformly bright discs. Ragged edges or squarish pupils means the prisms are restricting the light path and losing light inside the instrument. This is not good as this means you not only lose light but it scatters around inside and you also lose contrast.

Looking at the exit pupils they should be surrounded by darkness not reflections from the barrel interiors. Having found a pair that seems to meet our need it's time to look through them. Remember the binocular is two telescopes, one for each eye and you need to focus them differently for each eye. Adjust them to a comfortable interocular distance so you comfortably look through both sides. Picking a distant object, focus your left eye using the main focus mechanism. The right hand eyepiece is individually adjustable so now adjust that until the right eye is focused. The instrument is now focused for you.

1) Make sure you can focus both eyes through infinity. That is, on some distant object, you can make the unit go out of focus on either side of the focus point. Some units have pre-set stops at infinity that may not be properly set.

2) Looking at the edge of a building, look for double images. This means the two barrels are not aligned and believe me there is nothing worst than a headache from

Comet Hyakutake viewed North from Frankston at Prime Focus in a 15cm f/5 Newtonian telescope. Note the spike issuing from the coma. The tail extended to upper left in this view. Photo by P.Skilton, 1996 March 22 1800 UT. 3 minute guided exposure on 400 ASA Ektachrome P1600 Professional slide film push processed to 1600 ASA. North is down, East to the right. Comet 1996B2 was North bound at the time of the photograph. Coma was approximately magnitude 1.

mis-aligned binoculars. This would have to be the most common problem with cheap binoculars.

3) Again looking at the edge of a building or telephone wire, look for distortion. Is the field of view distortion free across the whole field? Also check for colour fringes. No instrument is free from chromatic aberration but if you can see it in normal daylight it will stand out at night.

4) Is the binocular fully focused across the field of view? Curvature of field is also a common problem and will render the binocular useless.

5) Look for an artificial star such as a glint off a distant car bumper bar. Is the star focused, and if you change the focus does the star stay circular or does it grow larger in one direction? This is known as astigmatism and can become annoying when looking at stars but is invisible for diffuse objects. A word of caution here. Remember your own eyes can be astigmatic and you may be blaming the binoculars when it is your own eyes at fault.

Mechanical Stability

Obviously the instruments need to be rugged enough to keep the optical components properly aligned and handle the inevitable wear and tear.

Holding the two barrels try to twist them slightly. If there is any play or anything rattles put them aside. The hinges should be smooth with a steady resistance and the eyepiece mechanism shouldn't twist as you focus in and out.

Finally you don't have to pay a fortune for good binoculars but, by the same token, cheap binoculars are probably just that; cheap. It is probably better to save a few more pennies until you can afford a good pair than buy sub-standard ones and be reminded of it every time you look up at a star. Don't forget second hand units. If you know what you are looking for, bargains can be found. If you are not sure, ask for help from fellow Society members.

Peter Lowe

HOW MUCH DOES THE AVERAGE PERSON KNOW ABOUT THE SOLAR SYSTEM?

A survey, the results of which were presented at the recent NACAA, suggest many of the general public have a very limited understanding of the structure and scale of the Solar System.

Dr.M.Nooriafshar of the University of South Queensland surveyed the general public to determine both their level of interest and detailed knowledge of the Solar System. The results, while probably not a surprise to amateur Astronomers, show a glaring lack of understanding of the Sun and planets.

Some of the findings were:-

1) Over 95% of respondents regard Astronomy as an interesting subject with 85% capable of pointing out the Southern Cross or having observed the Milky Way. This indicates a high degree of interest in things Astronomical generally, however, when it comes to details:-

2) Over 40% believe Jupiter is not visible to the naked eye.

3) 44% believe the diameter of the Sun is unknown while a further 28% believe the Sun is larger than 1 million kilometres.

4) 63% believe the distance to the Moon is more than 500,000 kilometres from the Earth.

5) Nearly 50% believe Venus has two moons.

6) Over 40% believe Mars is bigger than Earth.

7) Over 90% believe the Earth is much larger than it actually is.

These results, while probably open to debate by the statisticians amongst us, indicate most people regard astronomy as mildly interesting and may even take a casual look at the night sky, but they do not seem to be very knowledgeable about our "backyard" of the universe.

With the problems of over-population, species extinction, pollution and overall diminishing world resources, people cannot make informed decisions without some broad understanding of what our planet is and where we fit in. It shows we still have a long way to go in getting these facts across to the public. Interestingly Dr.Nooriafshar did not ask the question "What is the difference between Astronomy and

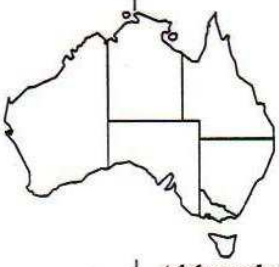
astrology?" The result from that question would have been highly enlightening, I'm sure.

Peter Lowe

SAY THAT AGAIN?

Student engineers at the California Institute of Technology recently learned a little about NASA. They had designed a compact instrument to fly onboard the Space Shuttle to study gamma ray bursters in the galaxy. The instrument was to be housed in a special canister. One lesson was that the windowed lid on the instrument itself was not a "lid" at all, but rather a *User-Designed Mounting Device*, or *UDMD* to the initiated. The canister itself also has a lid, called an *MDA*, or *Motorised Door Assembly*. The difference between the two is apparently quite important so that they cannot be called a lid. A NASA spokesperson indicated that the simple term is not used so as to avoid confusion!

FROM AROUND THE NATION



Astronomical Societies in Australia, as a rule, exchange each other's newsletters to assist in sharing items of interest. This column grabs some of the highlights of recent receipts. You can find out more in the library.

Astron. Soc. of Alice Springs (NT) - An overview is given of the Advanced Composition Explorer spacecraft mission which is to study the solar wind, providing solar "weather" reports. Various Internet news features are also given.

PROTECTOR in Clayton is currently selling blue insulated suits for use in industrial freezers for only $101 if you pick it up yourself. Prices have consistently fallen over the last 12 months. They are excellent cold weather gear if you require something for observing, say for the Leonids All-Nighter coming soon.

BACK ISSUES

Back copies of past journal editions are available for $3 from the editor.

FINAL PRONOUNCEMENT - MIRA

The constellation of Cetus, the whale, contains several variable stars. Undoubtedly the most famous is the red giant star Mira Ceti, also known as Omicron Ceti, or just Mira. The name Mira, which is Latin for "wonderful" is pronounced *"My-rer"*. It is a long period star that changes its brightness over a period of time due to intrinsic processes occurring within the star itself.

Although Mira was known to the ancients, its variable nature was only discovered in 1596. In fact it was the first ever variable star discovered. The Dutch Astronomer David Fabricius noted it in 1596 as being magnitude 3 in brightness, but found it to be invisible to the unaided eye some months later. In 1609 he again saw it as a naked eye magnitude 3 thereby confirming its variable nature.

Mira varies between about 2nd and 10th magnitudes over a period of 332 days, though the magnitude range and period vary from cycle to cycle.

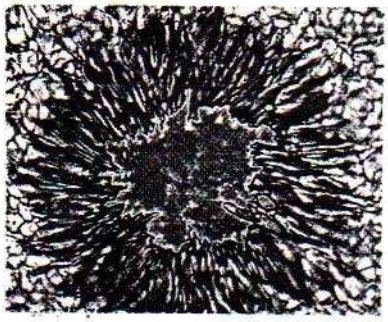
If you have any Astronomical query that has been niggling you for years, drop it in the question box at a General Meeting and let us look into it for you.

NEXT ISSUE
Is Jupiter a Brown Dwarf?

Comet Hyakutake pre-dawn on 1996 March 24 at 1550 UT just prior to its disappearance over our Northern horizon. North is down, East to the right. Photo by J. Blanksby taken at King Lake. 400 ASA Ektachrome P1600 Professional slide film push processed to 1600 ASA. 2 minute guided exposure using 50mm f1.7 lens. Approximate position was RA 14hr30m Dec +48d. Tail length was 20 degrees to the unaided eye.

BEHIND A SUNSPOT

Sunspots are regions on the surface of our Sun where the temperature is a few thousand degrees less than the surrounding solar areas. This temperature difference causes the spots to appear dark, though in fact they are thousands of degrees, and many times hotter than a domestic oven. The Sunspot image shown here is about twice the diameter of the Earth and consists of cooler gas having enhanced magnetic flux levels. Advanced Doppler shift techniques used in seismic sounding have now probed underneath a Sunspot and show there is considerable down flow of material beneath the spot to a depth of about 2,000 kilometres. This implies there is considerable radial flow of material into the spot region from the surrounding brighter areas. It is thought that this in-flow could account for the stability of Sunspots as it would tend to hold the magnetic flux lines together for protracted periods of time.



Left - ASF society dinner at the Dava Hotel on the 23rd August 1996

Photo - *By John Cleverdon*

☐ If this box is ticked then membership needs renewing and this may be your last edition of the newsletter, so please contact the Treasurer in this case. Newer members who join late in a calendar year will have this time taken fairly into account when renewing in January, and should remind the Treasurer of this.

The atmosphere surrounding the Earth is remarkably thin in comparison with the diameter of our planet. A typical family car, if able to travel vertically, would easily reach the vacuum of space within about an hour.