



SCORPIUS

The Journal of the
Astronomical Society of Frankston Inc.
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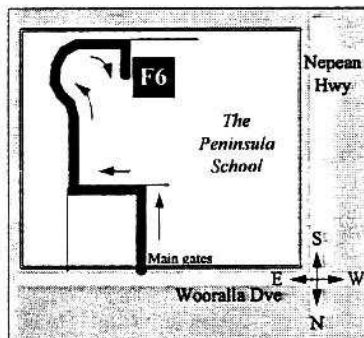
(Jul - Aug)

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. For decades the Society has provided *Astronomy on the Move* educational presentations or observing nights for schools and community groups exclusively in the area bounded by Moorabbin, Dandenong and Tooradin.

Meeting Venue: Peninsula School, Wooralla Drive, Mt Eliza (Melways map 105/F5) in room F6 at 8pm on the 3rd Wednesday of each month except December.

Internet: <http://www.peninsula.starway.net.au/~aggro>

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

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Vice President & Briars Viewing
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Committee
Ken Bryant, Roger Giller, Bob Heale,
Peter Lowe, Richard Pollard

All phone calls before 8:30pm please.

FUTURE EVENTS

General Meetings:

Wed 16th July '97

Session 1: Ian Porter will speak on *Spacestations*.

Session 2: An informal *Show and Tell* session of members' interesting Astronomical gadgets and equipment.

Wed 20th August '97

Session 1: Bruce Tregaskis will speak on *Eclipses: Chasing the Shadow*. Note this meeting precedes the 2nd Sep Solar eclipse and the 17th Sep Lunar eclipse we will experience locally.

Session 2: Peter Lowe will give a run down on *Using CCD's in the 21st Century*.

Wed 17th September '97

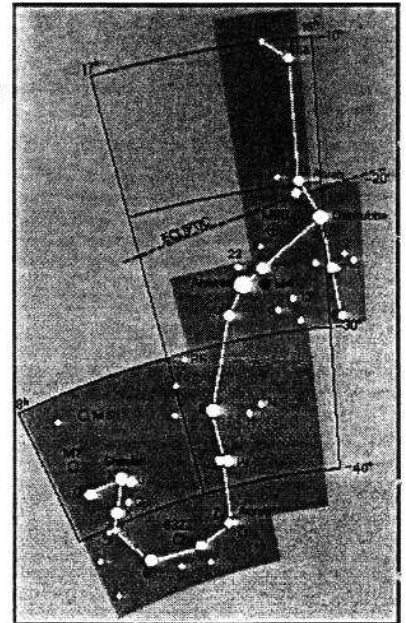
Session 1: Peter Skilton will talk on the *Meteorites of Cranbourne: A Tale of Sex, Lies & Cannibalism*.

Session 2: Informal chat over coffee.

Wed 15th October '97

Session 1: Renato Alessio will talk on *Towards 2000: A Personal Quest to View 2000 Night Sky Objects Before the Turn of Millenium*.

Session 2: Informal chat over coffee.



Viewing Nights:

Members Only:

Sat Jul 26, Aug 2 & 9 & 30, Sep 6 & 27, Oct 4 & 25, Nov 1 & 22 & 29, Dec 6 & 27 all at *The Briars*, Nepean Hwy, Mt. Martha (Melways 145/E12).

Wednesday nights were trialed during June, though low attendance numbers mean this will not be continued.

If weather forecast for the Saturday looks bad, the Friday before may be used instead. New attendees must always confirm with David Girling on the phone number above 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:

If you can assist, please contact the Secretary.

- The Society will be holding a repeating public night at *The Briars* on the first Friday of every month from August onwards at 8pm. These nights will be advertised in the press and involve interested people booking, much as in our Summer

programme. Assistance may be required at short notice with telescopes and with rostered speakers for the slide show on Solar System basics.

Social Events:

- About 25 members and family observed the ritual of meeting on the Winter Solstice this year. Bev and Roger Giller kindly provided their fairy light-lit home as venue, with the auspicious moment occurring at 6pm on Jun 21. Though no standing stones were evident in the front yard, large, flat surfaces were noted inside, around which everyone gathered to partake of the offerings. A Christmas trivia quiz was won by the Tregaskis's.

Phenomenal Events:

- A Pluto planet hunt near opposition, planned for *The Briars* on Sat May 31, was totally clouded out. We'll try again next year.
- The Swanston St Museum and Planetarium finally closes its doors on July 13. A new \$6 million digital Planetarium is planned to open at Science Works in Spotswood towards the end of next year.
- The 4th O'Reilly's Stargazers' Week is being held from 3rd-8th Aug at Lamington National Park, Brisbane. The organisers promise to show you every planet in the Solar System, and a mobile Planetarium will be on site. Other day activities are also planned. Enquiries can be made by phoning (07) 5544 0644.
- The 18th National Australian Convention of Amateur

Astronomers is being held by the Sutherland Astronomical Society on the Easter weekend 10th-13th April, 1998 in Sydney. The theme is *New Generation Amateur Astronomy*.

- The hard-working bunch at the Ballarat Astronomical Society have arranged for professional astro-photographer David Malin to hold a weekend seminar at Ballarat Observatory near Sovereign Hill on 9th-10th May, 1998.
- Predictions for seeing the Russian space station *Mir* are available at meetings, provided no further damage occurs to the craft as happened during a docking attempt in June, with the occupants being left in the dark due to power problems.

Talk, Talk, Talk:

- The annual four free public July lectures in physics and Astronomy topics will be held at the Laby Theatre, School of Physics, Uni of Melbourne at 8pm on Fridays. Exact dates and topics were not available at time of going to press, but can be obtained by phoning the School of Physics on (03) 9344 4000.
- Frankston TAFE college is offering an Astronomy and Scientific Photography course for \$245, covering 10 Thursday evenings from Aug 21, 6:30pm-9:30pm. Taken by Dromana-based teacher John Goodall, this course is in basic Astronomy and Photography. It includes observational Astronomy at the telescope, basic film processing techniques, black and white special processing,

colour and push processing, construction and use of an SLR camera, films, emulsions and speeds, telescopes, lenses, sky and meteor photos, astrophotography, long exposures, solar, Moon, comet and planetary photos, microscope and macro photography, photoetching and PC boards, and holography. More from TAFE on (03) 9238 8236.

YOUR SOCIETY

NEW MEMBERS

Welcome to the following new Society members:

Hugh Carman
 Ian Cuthbertson
 Liz Drinan (newsletter only)
 Karen Helweg
 F. Karn
 Ronnie May

The ASF is one of the largest in Australasia. Membership is currently at 98. Please feel free to say hello at general meetings. Specialised badges, windcheaters, T-shirts, planispheres, books & posters are available at meetings. Society name tags are free to new members who attend meetings. Members are able to borrow library books and are entitled to attend special viewing nights at *The Briars* where you can find out "what is what" in the night sky.

HELP NEEDED

Transport is urgently required to the Society meeting every month by our hard working librarian, Kathy Stabb. If you come near Kathy's direction near the R.S.L. on Cranbourne Rd, Frankston, please give her a phone call on (03) 9789 6126 now.



Articles, features, book reviews, member observations and points of general interest for this journal are always welcome. New contributors are encouraged. For example do a bit of reading and pass on some information. Hand written material is fine, though computer text files are perfect.

Different people to help in the 2nd sessions are requested, to give Bob and David a chance sometimes to sit in on the main talk. Please phone Don Leggett if you can assist in any way.

SECRETARY'S JOTTINGS

The committee's pre-occupation with preparations for VASTROC has paid off with the event being regarded widely as extremely successful, with a small profit also being made by the Society. This was the first time a VASTROC had been held in a venue other than a University lecture theatre. The lateral thinking concept of holding it in a reception house worked brilliantly, with catering and accommodation being taken care of, and with ample room for posters and sponsors. Clearly this is the way to go in the future as well. Attempts to obtain the No.12 Cranbourne meteorite from Casey Shire council proved fruitless. Nevertheless, one VASTROC attendee, Hugh Carman, did bring a polished section of one of the meteorites, probably No.9, for inspection. Peter Lowe kindly built a lecturn, complete with orbital motion, but it wasn't needed on the day. The Education Centre at *The Briars* is proceeding, and the army huts will unfortunately therefore be moved shortly. We

will therefore have neighbours in the near future.

Don Leggett

RECENT MEETINGS

May's meeting was chaired by the President, and saw 50 venture through drizzly conditions. A leaky school roof did not deter the gathering. Peter Lowe reported on a call he had received reporting unusual lights beneath the cloud layer recently, and David Girling indicated these were apparently an aircraft jokingly releasing fireworks in order to simulate comet Hale-Bopp. Bob Heale gave *Sky for the Month*, showing the comet's movements. Half those in attendance had seen the comet since the last meeting, though none reported being able to see a tail with the naked eye. Ian Porter then presented on space vehicle activity for the month, pointing out recent Russian and Chinese failures, and relating about the scattering of deceased's ashes by re-entry on a vehicle launched this month. Closed at 10:20pm.

June's meeting was chaired by the President and attended by 45 on a clear, starlit evening, which saw a few new faces and others not seen for a while. The meeting began with the Secretary ably jemmying open one of our cupboards after school children, sometime in the last week or two, had wedged an object inside the lock, rendering it unable to receive a key! After the President related the Society's activities for the preceding month, members were told of two recent local talks that some had attended, by astrophotographer David Malin and comet co-discoverer Alan

Hale. Unfortunately these were not advertised prior to VASTROC by the organisers, and so those who did not attend this gathering missed out. Bob Heale then presented *Sky for the Month*, and Ian Porter presented the *What Goes Up* segment on space vehicle status and launches. The audience was forewarned of the impending NEAR mission to flyby the asteroid Mathilde, and the Mars Pathfinder probe, both of which will shortly rendezvous with their targets. Kathy Stabb kindly donated the raffle prize of bone china. Attendees were then able to enjoy a warm coffee from the urn, kept in the recalcitrant cupboard above, though the cupboard is now duly restored to full operational status. No second session was presented this month, with Peter Skilton giving a slide show of the proceedings at the recent 6th Victorian Astronomy Conference we hosted in June at Mt.Eliza. Peter Lowe also brought along photographs he took during the weekend. Meeting closed at 10:10pm.

LIBRARY MATTERS

There are some new arrivals in the Library:

The Cambridge Illustrated History of Astronomy - by Michael Hoskin.

Proceedings of the 15th NACAA in Adelaide, 1992.

Proceedings of the 16th NACAA in Canberra, 1994.

Members with Library books outstanding (e.g. Burnhams) are reminded to return them ASAP for the enjoyment of others who are on the waiting list.

Kathy Stabb

NEWISH ARRIVAL

Congratulations on the lately arrived news of Allison Gurney's baby late last year. Daughter Isobel is now 9 months old and doing well. Allison will no doubt have difficulty getting to monthly meetings for a while.

RECENT VIEWING NIGHTS

About 70 St.Kilda Primary Year 5 & 6 Pupils had a great time at Camp Manyung on May 7. After seeing comet Hale-Bopp beforehand, they were well primed for our talk, and for general night sky viewing. Several fast eta-Aquarid meteors were seen during the evening, and Mars presented a good image on the night. The evening concluded with many thanks and a rousing three cheers for our members.

Seawinds National Park atop the mount of Arthurs' Seat saw a very good turn out of members and telescopes on May 10 to show the public comet Hale-Bopp. The vista to the North and North West were magnificent over the bay. Braving blustery, and icy conditions, about 30 people experienced comet viewing under very dark skies, though somewhat cloudy initially. The celestial visitor displayed a broad, tenuous tail about half a degree long, and was first spotted about 6pm. All thoroughly enjoyed the viewing, and the satellite spotting, including a bright pass over of Mir that evening.

The grade 4, 5 and 6's and their parents and teachers of Toorak College Junior School had a clouded out night on May

16. Nevertheless, the 100 in attendance enjoyed the talk.

Thanks to those members who assisted me on the above nights, including Russell Thompson, Ed Barber, Ian Porter, Rene Skilton, John and Roger Cleverdon, Ken Bryant, Don Leggett, Bob Heale, Richard Pollard, Sharron Fletcher, David Girling and Peter Lowe.

GRAZE AT SEAFORD

Members from the ASV joined with Bruce Tregaskis and Ken Bryant to try and observe a local graze off Ballarto Rd in Seaford. Cloud interfered, and there was apparently some doubt as to whether the star was identified, or whether a bright mountain had been mistaken for it.

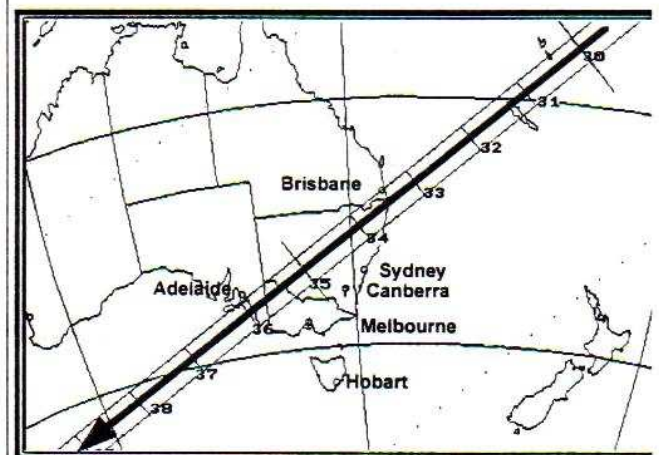
SYLVIA SUCCUMBS TO JIM

In the wee small hours of Tuesday 1st July local time (1997 Jun 30, 1535 UTC), ASV observer Jim Blanksby, using a 6 inch Newtonian telescope in his backyard at Wandin, observed an approximately 2 second disappearance of a magnitude 9.3 background star by the asteroid named 87 Sylvia. Under very good seeing conditions, Jim was also able to see the very dim magnitude 12 asteroid, in the constellation of Microscopium, during the 2 seconds of occultation.

Infrared studies suggest that

Sylvia is a large lump of rock about 270km across, and the time for its shadow (a very, very weak one cast by the distant star) to pass over an observer at its midpoint was predicted to be about 26 seconds. Being beneath the shadow only for 2 seconds, indicated that Jim was either on the Northern edge of it, or on the Southern edge of the shadow. ASV observers, Patricia Larkin and Alfred Kruijshoop attempted to observe this event, but were unable to find the correct starfield in time. Moving South, ASF observers Ed Barber (Chelsea) and Roger Giller (Berwick) report that the star definitely did not disappear (hence the shadow did not pass over *their* sites). Other ASF observers Bruce Tregaskis and Peter Skilton were thwarted by fog, and Ken Bryant enjoyed some beauty sleep on the night.

The fact that the shadow was not



Flight path of the shadow of minor planet 87 Sylvia over Australia. Note that Melbourne is well South of the predicted path. The shadow was at least 270 km wide.

seen by observers to the South of Jim's position indicates that he just clipped the Southern edge of the shadow. The shadow was predicted to pass across Australia in about 2 minutes in a NE to SW direction, and was

considerably Southward shifted relative to the original prediction. Curiously, Robert Price, observing near Albury-Wodonga, did not notice the shadow pass over his site (he may have blinked at the wrong moment).

While Jim's single observation will not allow the shape of the minor planet's shadow (and hence also that of the asteroid itself) to be determined, it will nevertheless enable the orbit to be calculated more accurately than was formerly known. It is possible that further observations may emerge from interstate.

NEW NOVA DISCOVERED

Bill Liller, an amateur observer in Chile has discovered a Nova (or "new star") in a rich star field in the constellation Scorpius. Shining around magnitude 8, this variable star was discovered on Jun 5 at position RA 17h54m11s Dec -30°02'21". Bruce Tregaskis reports it being very dim around mag 11 in early July.

JUST FOR STARTERS

AS THE WORLD TURNS

In 1996, a famous experiment was reconstructed in Munich to prove that the Earth spins about an axis once every 24 hours. First performed in 1851 by Leon Foucault in Paris at the Pantheon, the demonstration involved suspending a 45 metre long pendulum, now known as a *Foucault Pendulum*.

In Cologne Cathedral, a lead-filled brass bowl replica was suspended beneath a long steel wire and allowed to swing freely

in the Cathedral. Being of large mass, the pendulum swings for a long time....so long in fact that the Earth spins around under it. Therefore by drawing the line of the initial back-and-forth swinging direction upon first release, it is possible to watch the line rotate with time due to Earth's rotation (24 hours to turn around one full circle, or one hour to swing 1/24th of a circle i.e. 15 degrees).

In 1852, the construction costs of the Cathedral were partly met by charging an entrance fee to visitors to the experiment. A working replica of a Foucault pendulum used to adorn our Science Museum stairways in Swanston St. several years ago.

IN THE NEWS

ICE COMETS ON COLLISION COURSE

NASA's Polar satellite has photographed chunks of ice the size of a house colliding with Earth's atmosphere. This is most appropriate considering the attention given to asteroid impacts with Earth on the television recently. Although they disintegrate from the heat of re-entry before they get within about 100km of Earth's surface, these icebergs pelt the planet at a rate of up to 20 a minute! The impacts were detected from the water cloud remaining upon their disintegration, since this cloud temporarily blocks out ultraviolet light from being reflected from the atmosphere. This could therefore be a significant mechanism in the formation of Earth's water reserves and oceans in the past. Astronauts beware!

COMET HALE-BOPP

In July, this well observed celestial visitor dims to magnitude 4, but should still be visible to the naked eye in the glare of twilight. In the first fortnight of the month, it is conceivable to see it both in the morning and evening twilight, then viewing will become a strictly morning affair. On July 19, with it rising higher above the horizon, comet Hale-Bopp comes to within less than a Moon diameter of the open cluster M50 in Monoceros.

For those who preferred a warmer pastime, Alan Hale, co-discoverer of this comet, visited Melbourne on Jun 17 and talked to the public at Melbourne Uni. About 45 people attended, with many being unaware of the talk due to its last minute advertising and a venue change on the night! Those who did attend enjoyed a basic lecture on the comet and its discovery from Hale's back garden. It was found by accident in fact.

Also in the news, is the discovery of a 3rd tail to comet Hale-Bopp. Normally, comets show two tails. One is a yellowish dust tail, formed from dust-size pieces of silicate material being released from the head of the comet. The other is a bluish charged ion tail of smaller atomic and molecular-sized material being boiled off the comet by the Sun, and pushed away by the solar wind. This is the first time a 3rd tail has been observed. The third yellowish tail (the same colour as yellow street lights) is made of neutral atomic Sodium and so should not be affected by the solar wind of charged particles.

It is believed the Sodium atoms absorb the sunlight then re-emit it as fluorescence, pushing them by light pressure alone.

HUMBLE SPACE TELESCOPE

The *Humble* Space Telescope (no, that's not a spelling mistake) is on the drawing board for launch by the UK. It will see an 8 inch telescope put into orbit for use by Britain's school children, students and amateur Astronomers. Being funded by the Millenium Project, this project was initiated by a keen amateur, and has won a grant to develop a mockup to put through vibration and heating tests needed as a prerequisite for spaceflight. It is intended to piggyback *Humble* on another satellite payload launch to keep costs to a minimum.

NEW DEEP SKY JOURNAL

Serge Wadhwa, editor of the *Astronomical Society of New South Wales*' journal, has recently ventured out with a pilot quarterly publication called *Southern Deep Sky* for \$8 p.a. If he can get 50 subscriptions, he will continue producing it. Feel free to browse a sample copy in the Library. Any enquiries can be directed to David Girling.

FEATURE

EXPOSING A BURSTER

In July last year, a simple 35 millimetre camera flew aboard the Space Shuttle Endeavour as part of an experiment being conducted by undergraduate students in the USA. Its aim was to solve a fundamental problem in Astronomy. Each day, somewhere in the sky about

three bursts on average of gamma rays occur, however, it has not been possible to reliably tell if they are associated with any visible companion.

Gamma ray bursters were detected by accident in the 1960's by military satellites looking for illicit nuclear test plumes on or near the Earth. Had it not been for the Test Ban Treaty of 1963, the *Vela* set of satellites would never have been built. These were designed to be able to monitor in all directions for x-rays and gamma rays. Although no manmade nuclear detonations in space were ever detected, strange high energy flashes of gamma rays became immediately apparent after the first launch into orbit.

No Astronomer would have suggested building an orbiting telescope to work at these wavelengths, and consequently they may never have been discovered until well into the next century otherwise. Because several such satellites were in orbit, a time difference for arrival of the bursts was detected at different locations enabling scientists to work out that they originated outside our Solar System.

The outbursts of high energy gamma rays last between a fraction of a second, and several minutes, and seem to occur at random in the sky. This latter feature is puzzling since our galaxy has more stars in certain directions than in others (hence we see a Milky Way) and hence if the bursts are associated with visible stars, then it is reasonable to expect they would be distributed similarly. However, they are not.

Gamma Ray telescopes have notoriously poor resolution so are unable to pinpoint their source exactly. By sending a simple camera into space, it was hoped to be able to associate a taken photograph with any registered detection of gamma rays at that instant. The gamma rays would be monitored by two other instruments that would trigger the camera to take five pictures over a period of a minute if a burst were detected anywhere in the sky. The field of view of the camera was 70 degrees of sky. With a bit of luck, the pictures might have captured an optical burst as well.

The instrument sat in a canister about the size of an oil drum and is totally self sufficient. It has to be as it is simply stowed in a corner of the Shuttle's cargo bay, and has to do its stuff unattended. Consequently it was powered by nearly 200 "D" size batteries of the type put in radios and cassette players, and viewed the sky through a transparent quartz glass window.

The chances of success for the project during the 10 day flight in orbit were put at 90%, which is quite remarkable that it hasn't been done before. This, of course, assumes that gamma ray bursters really do cause a flash at visible wavelengths. To put it in the words of one of the students at the time: "*I think the professionals could be seriously annoyed if a bunch of students finally nails the gamma burster problem*".

Gamma ray bursts are thought to originate from a special class of solar system involving two neutron stars in orbit around a common centre of mass.

Neutron stars are ultra-high density stars nearing the end of their life-cycle. Over a period of several million years, the two stars dancing around each other radiate energy away into space in the form of gravity waves. This causes the orbits to decay, until eventually the two stars merge violently, forming (it is thought) a black hole. During the annihilation process, copious quantities of neutrinos are emitted (much like in a supernova explosion but with considerably higher energies being involved) and a small proportion of this energy is released as gamma rays which we eventually can observe from Earth. Early annihilation can occur as large chunks of neutron matter are torn off each star by the other, and this could account for any repeat performances observed by the one source of gamma rays. The results of the experiment are yet to be published.

VASTROC 6 WAS A HIT!

In Victoria, aficionados of matters astronomical cannot wait the two years between national NACAA gatherings of astronomers, so a State-wide VASTROC is traditionally run in the intermediate years. Over the Queen's Birthday weekend this year, we (one of Australia's largest and most active societies) hosted the 6th Victorian Astronomy Conference. For two days, 62 astronomers from around Victoria and interstate converged at the seaside town of Mt.Eliza on the viticultural Mornington Peninsula.

With a guiding theme of *Adventures in Visual Astronomy*, this 10th anniversary VASTROC

promised an unprecedented variety of lively subjects, together with poster displays and sponsor exhibits. It did not disappoint.

The topics included comets, occultations and eclipses, deep sky marathons and local observing feats of prodigious proportions, telescope and optical design, the history of the Williamstown Observatory, UK Schmidt star plates, observing Earth's satellites, scales and position in the Universe, Mars, meteor shower observing in pyjamas, and the famed nearby Cranbourne meteorite. This local fall is well known to ASF members. Actual sizeable specimens of several meteorites were on display and could be handled by registrants, including fragments of the Murchison carbonaceous chondrite fall, one of the Cranbourne irons, and several others. Inter-Society information sharing occurred in a special forum, and a diabolical, yet fun, competition was run by renowned quiz illuminato, Jim Trainor. Prize winners were Ken Bryant, Ian Sullivan and Fay Hancock. Unusually for Victoria, weather conditions precluded viewing through the visiting 20 inch Dobsonian, though no-one seemed to mind.

The adventure of VASTROC 6 finished all too soon, with many praises received for its content, organisation and above all friendliness. Thanks naturally go to the many presenters for their excellent efforts, the sponsors for their support (Sky and Space, Cambridge University Press, Binocular and Telescope Service Centre and UltraView Optics), and to the organising committee consisting

of Peter Skilton, David Girling, Don Leggett, Peter Brown, Ken Bryant, Bob Heale, Roger Giller, Peter Lowe and Richard Pollard. The next gathering is eagerly awaited.

Photographs (5" x 7" size) of the VASTROC group are available from the editor for \$15. Larger sizes can be ordered if requested.

FRANK BATESON RELEASES NEXT EDITION

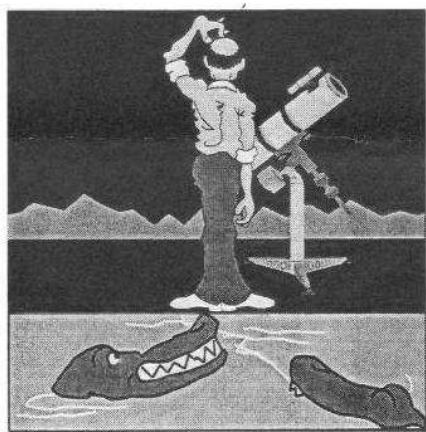
The 5th edition of the popular book *The Observation of Variable Stars* has been published by its octogenarian author, Frank Bateson, of the Royal Astronomical Society of New Zealand. It contains up-to-date charts to find Southern sky variable stars, and details of how to observe them correctly, and record your observations so that professional Astronomers can use them....and they do. Indeed, you might be responsible for turning the Hubble Space Telescope around to look at an object you monitor. The new edition can be ordered for \$40 from the editor.

A MEMORABLE GRAZE

Only a few lunar grazes occur in a given area each year. If you observe these phenomena, where a background star skims, or grazes, along the Moon's edge so that it passes behind the valleys and mountain peaks of the Moon, you have one choice; stay close to home and hope for clear skies for these few events, or travel out into the country where the many other grazes are. Setting up your telescope on the side of the road in some forsaken place in the country in order to time a star "grazing" along the

extreme limb of the Moon is not without its moments apparently. In the December 1994 edition of the Occultation Newsletter, observer Harold Povenmire recalls:

"On early Sunday morning, September 6 1974, I had a favourable graze of 119 Tauri near Key Largo. I set up along the famous Route 1 with the Atlantic Ocean on the East and the Gulf of Mexico to my back. As I set up, I noticed a "log" about 150 yards out in the Gulf. I observed the graze intently and, when it was over, I stood up to stretch. I noticed that the approximately 13 foot "log" was gone, but, barely 40 feet from me, were two eyes and two nostrils coasting in towards me without causing even a ripple in the water. I also recognised this very clearly to be the largest alligator I had ever seen. My next memory was of bolting out through the traffic on Route 1 and being quite shaken. I never saw the alligator again, but I have sincere doubts that he had good intentions."



STAR+SITE: 1x FINDER

Some time ago, I attempted to get some more use out of my old 4.5 inch reflector that I keep at my parent's place. I added a Telrad base to it. The only

problem was that the Telrad and extra counterweight were too heavy for the flimsy mount, and the latitude setting kept slipping. Accordingly, I went and purchased the lightest and cheapest 1x magnification Finder I could find; *Star+Site*.

The *Star+Site* works by the phenomenon of phosphorescence in that you shine a light into it, which then makes a ring glow for around 5 minutes afterwards. Red light works, but not red light from LED's. One then places one's eye 14 inches from the tube and centres the object one wishes to see in the middle of the glowing ring. Using the *Star+Site*, one can get objects into the half degree field of a moderate/low power eyepiece. From my experience with it, the *Star+Site* has a number of advantages and disadvantages relative to the Telrad:

Advantages - it's cheap and light. It does not dew over.
Disadvantages - it's trickier to align. It's trickier to use than the Telrad, even though they both give the same results.

The *Star+Site* comes with a little base and two plastic straps. The straps are for attaching the base to a refractor or finder scope. Instructions are given for fitting it with one screw, without the base, to a reflector. With an SCT, one has to find a screw near the front of the scope, and use it to attach the base, hoping that the screw goes back down far enough to engage whatever it was holding (I wasn't game to try it).

Should you want to buy a *Star+Site*, they are about \$US27 from Bill Shubin, *Star+Site*,

PO Box 1014, Forestville, CA 94436, USA, though you ought to check first for any changes.

Renato Alessio

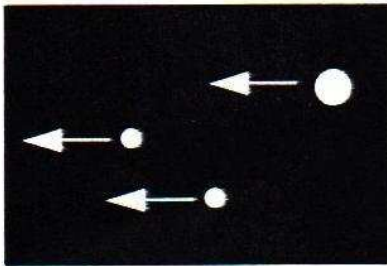
THE CROWDED SKY - WHITECLOUD PROJECT

A group of campers gaze at the early evening sky, marvelling at the spectacular sky they seldom see in the city. Suddenly a trio of lights appears, floating silently, seemingly flying in formation. Just as suddenly they disappear. Calls to the local airport report no aircraft in the vicinity and the air force denies knowledge. UFO mystery? Alien encounter? Cover up?

Well a far more likely scenario is a "close encounter" with a trio of *Navy Ocean Surveillance Satellites* or *NOSS* for short. Being part of a comprehensive programme under the code name "*Whitecloud*", these spysats travel in a formation of three and are a spectacular sight in binoculars. Occasionally reaching magnitude 1 or better, the trio consists of two objects in line and an "outlier", keeping pace with the lead object. The first trios were launched in the early 1970's. A second series of launches started in the early 1990's. Exact details of the *NOSS* satellites are, of course, classified, but a few educated guesses about their function can be made.

It is likely the satellites use both passive detection of radio signals and infrared detectors to monitor the ocean surface, with the formation of three satellites being able to accurately triangulate the positions of

hostile ships. The outlier object is a bit brighter than the other two, which might indicate that it is a larger object, used to relay the signals from the other two.



The *NOSS* trio's orbit is relatively high, around 1000 km, and their orbit takes them all over the world's oceans. It is unlikely any further trios will be launched, since the U.S. Navy now has no enemies that warrant such a sophisticated ocean tracking system. The existing objects will be around for some time, however, as it will take some 2,500 years for the orbit to decay!

Ian Porter

FROM AROUND THE PLANET!

Leading Astronomical Societies 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.



Sutherland Astron. Soc. (NSW) - Some high political intrigue over the publishing of last edition's review of telescope mounts, resulting in a resignation. Most of the Society funds have been used to buy a quality German mount. A phone has been installed at their observatory, enabling phone book listing, internet access and of course phone calls. They claim to be the only society that created a fashion trend by wearing freezer suits - [ed - any of our members care to comment?]. The NACAA theme for next Easter will be *New Generation Amateur Astronomy*. Membership is a healthy 163 with about a 1-in-6 turnover for the year.

Astron. Soc. New South Wales (NSW) - Discovery of a supernova in NGC4680. Stories of comet Hale-Bopp and pictures taken by members lucky enough to be in the Northern hemisphere recently. The comets of Caroline Herschel. Will soon hold their meetings at a new venue due to rent increases and an imposed curfew hour. Their successful May South Pacific Star Party was attended by 265, and a detailed rundown is given. This annual event is unquestionably Australia's premier Star Party. An info sheet is provided on sextants.

Astron. Soc. Vic. (Vic) - Celebrating 75th anniversary this year. Article on surveying by GPS methods, their Heathcote viewing site. Member subs have increased this year to cover venue costs and newsletter costs. Report given on David Malin's astrophotography exhibition at the Victorian Art Gallery recently. Construction of their 27 inch scope will commence shortly.

Astron. Soc. WA (WA) - Report given on the successful 1997 Dryandra Astrocamp held in March. Guidelines and hints for photographing comet Hale-Bopp. Article on the Dogon African tribes and their supposed connection with Sirius and alien visitors. Subs have increased this year.

Astron. Soc. South West (WA) - The Vodafone mobile phone tower has been erected next to their observatory, and members have installed wire mesh around their observatory walls and roof, acting as a Faraday shield against the microwave radiation. The society held their Wellington Mills Starcamp in March, and were visited by the Murdoch Astronomical Society. It must have been a good party as it involved one broken car windscreen, another car bogged in a drain, and roving kangaroos. The ASSW run 6 week courses for beginners and advertise to school and local media, turning away some applicants. The format is a video, question time, further information, followed by time on the telescopes outside.

Murdoch Astron. Soc. (WA) - Formed in 1978, the MAS is putting together a 5 year strategic plan. They use the observatory on the campus of

Murdoch University. Guidance notes are given on viewing comets Encke and Hale-Bopp, and binocular viewing highlights. The 1997 Darwin Award is given (a most incredible international honour to the person who did the human gene pool the biggest service by killing themselves in the most unbelievably stupid way). This one involved 15 helium filled weather balloons, a garden chair, a shotgun, and a frustrated US pilot.

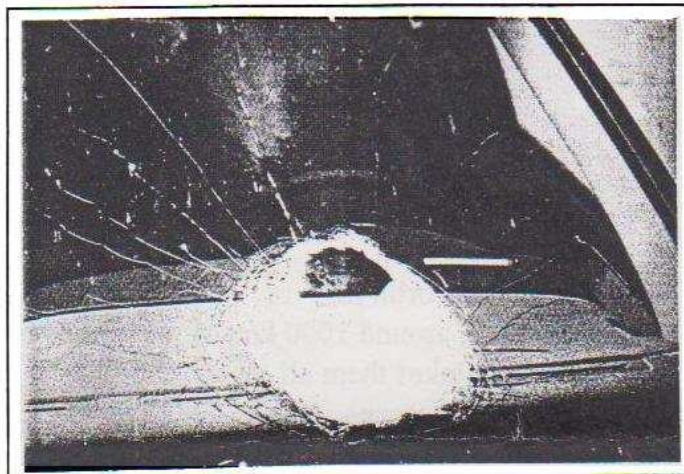
FINAL PRONOUNCEMENT - GIBBOUS

When a body in the Solar System, such as the Moon, or a planet, is illuminated by sunlight, it can appear to go through phases, depending on the position of the body relative to the Sun and the Earth in its orbit. If the amount of illumination is between 0 and 50%, then the phase is said to be a crescent. When the illumination is between half and full, it is said to be gibbous, pronounced "*Gibb-us*". Thus we see a gibbous Moon in the days leading up to each Full Moon when the Moon is waxing (increasing in brightness), and we also see a gibbous Moon in the days after a Full Moon when the Moon is waning (decreasing in brightness). In the case of the Moon, when it is exactly half lit, it is said to be in First Quarter if it is waxing, and it is in Third Quarter if it is waning. A New Moon occurs when the disc's illumination is zero.

Therefore in one orbit of our Moon about the Earth we see it go from New Moon to crescent to First Quarter to gibbous to Full Moon to gibbous to Third Quarter to crescent then back to New Moon for the next cycle.

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

Collisions can happen to anyone who drives a car. But what about collisions with extraterrestrial objects? You can be unlucky enough, or lucky enough (depending on your point of view), to have a meteorite fall from the blue sky and plough into your car's dashboard. On the afternoon of 21st June 1994, a 12 cm wide, 1.4 kilogram lump of solid stone did just that in Spain, injuring its driver who was on his way to play a game of golf. Travelling at supersonic speed, it mercilessly smashed through the driver's side windscreen, bounced off the dashboard, bent the steering wheel with the force of impact, smashed the little finger of the driver, then shot between the occupants' heads before coming to rest on the back seat. Despite a broken finger, the driver pulled over to the side of the road safely. Over 50 kilograms of further meteorites were found scattered within 200 meters of the point of impact. The driver has apparently maintained his sense of humour.



If **undeliverable**, return to

Astronomical Society of Frankston Inc.,
GPO Box 596, Frankston, Victoria 3199.



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.

Every day, over 1 million meteors visible only with telescopes, and over 500,000 visible to the naked eye, burn to dust in Earth's atmosphere. On average, 4 meteorites weighing about 4 kg each, land per day on Earth. One a month is 5 tonnes, though only about 450 kg reaches the ground intact after its rapid passage through the atmosphere. A 50 tonne meteorite arrives every 30 years, and a 250 tonne one comes every 150 years, while a 50,000 tonne "rock" falls every 100,000 years leaving a substantial hole. Small asteroids of diameter equal to a few kilometres, strike us every 50 million years.