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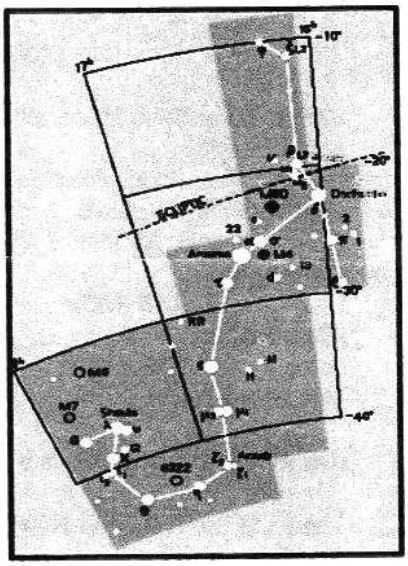


The Astronomical Society of Frankston was founded in 1969 with the aim of fostering the study of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general public. The Society holds a General Meeting each month for the exchange of ideas and information. Regular observing nights, both private and public, are arranged to observe currently available celestial objects. For decades the Society has provided *Astronomy on the Move* educational presentations and observing nights for schools and community groups exclusively in the Peninsula and surrounding regions to Moorabbin, Dandenong & Tooradin.

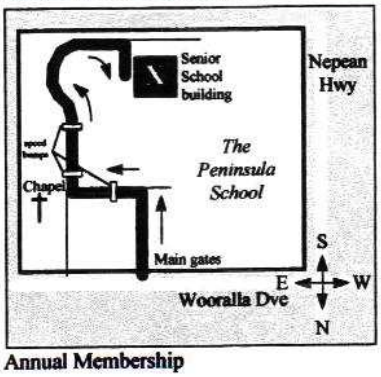
Meeting Venue: *Peninsula School*, Wooralla Drive, Mt. Eliza (Melways map 105/F5) in the Senior School at 8pm on the 3rd Wednesday of each month except December.

Phone: 0419 253 252 Mail: P.O. Box 596, Frankston 3199, Victoria, Australia

Internet: http://www.asfnet.20m.com

E-mail: skywatch@iprimus.com.au

Visitors are always welcome!



Annual Membership

Full Member	$35
Pensioner	$30
Student	$25
Family	$45
Family Pensioners	$40
Newsletter Only	$16
Organisation	$50

Due 1st Jan Each Year

Editor
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Committee of Management:
Roger Chandler, John Cleverdon, , Jane McConnell.

The public officer is Russell Thompson.

All calls after hours and pre- 8:30pm please.

Future Events

General Meetings:

WED 19 Nov 2003
ANNUAL GENERAL MEETING

Session 1: Speaker: Peter Lowe, on Observing the Penumbral Shadow.
Session 2: Video on Parallel Universes.
Session 3: Open Forum and Sky for the Month.
NOTE: There is NO meeting in December!

The Library will be open at General Meetings from 7:15pm to 7:55pm and again during the tea break.

Viewing Nights

Members Only:

NOTE: Members nights are also now held on Fridays!

FRI 14th/SAT 15th, FRI 21st/SAT 22nd, FRI 28th/SAT 29th November, FRI 12th/SAT 13th, FRI 19th/SAT 20th, FRI 26th/SAT 27th December, all at The Briars, Nepean Hwy, Mt. Martha.

New attendees must always confirm with **John Cleverdon on 5987 1535** before attending. Remember for security reasons you can only attend on planned Members' Nights, unless by prior arrangement with John who will liaise with *The Briars* accordingly. Last person out must switch on the shed security light. **All attendees must sign the visitors' book in the observatory for insurance reasons.**

Public, School & Community Groups Viewing/slide nights:

If you can assist, please contact the Secretary.

The once-a-month basic public viewing nights at *The Briars* will continue on the *first Friday of each month*. The next nights are **FRIDAY 7th November and FRIDAY 5th December**, both at 8pm. Assistants are required. New members are welcome to watch and participate if desired.

Welcome to the following new Society member(s):

Varna, Deepthika, Harini and Sonal Amarasinghe
Roma & Tom McCullough
Dianna & Paul Vickers
Trevor, Nicole, Michael & Soulla Sweetman.
Lou, Lisa, Staci & Angie Mitsopoulos
John, Helen & Nicholas Mitsopoulos.

Current number of members is 194.

Thanks to Ilse and Heinz Rummell for donating a Messier objects poster from a recent trip overseas.

Society News

Society Name Change

A decision has been made on the proposal to change the name of the Society, and the result will be announced at the Annual General Meeting on Wednesday 19 November.

Paul Taylor to begin Newbies Nights

Paul Taylor has taken the lead and decided to offer a Thursday evening a month to hold a regular monthly Newbies Night to give newcomers to the society a chance to observe the key jewels in the night sky through binoculars or the loan telescopes or their own telescopes if they have any, in a friendly atmosphere, helping them to feel more a part of the society and gain confidence in what is on offer.

The intention is to hold the first one on November 13th in the grounds of Frankston Heights Primary School in Heatherhill Road, Frankston Heights, near where Paul lives. Paul will shortly be contacting all fairly recent arrivals in the society personally to gauge their interest. Please give him your support for this great inititiave.

Using Nebula filters with Binoculars

Many of you have binoculars, and many also have at least one or more nebula filters for your telescope. But like most people, you probably didn't think to marry the two together, mistakenly thinking that you needed two filters to attach to each binocular eyepiece.

As it turns out, all one really needs is to stick one nebula filter over one binocular lens – and this is easily done with some Blutack or equivalent re-useable adhesive.

The general consensus on Internet discussion forums was that it was best to have the nebula filter on the binocular eyepiece that is looked through by the non-dominant eye.

I already had a pair of Celestron Binocular LPR filters, and used them to test out the new technique in my light polluted backyard, using 16X60 binoculars. I viewed the Lagoon and the Eta Carina nebulas in four ways, with

- No filters,
- With a filter over the non-dominant (left) eye,
- With both filters attached, and
- With one filter over the dominant (right) eye.

In my case, the result were:

1. With the filter over the non-dominant eye, a slightly better, but more annoying view, than that without any filters…

2. When using both filters on the binoculars, I got a better view of the individual nebulas, but lousier overall view of the sky, as the image was too dark. I actually preferred the view without the filters…

3. The best view was with the filter over the dominant eye - the now apparently brighter nebulas were superimposed over the brighter star images. It was just right.

So I got the opposite result from that of the forum discussions with respect to which eye to use the filter on.

Your binoculars' rubber eyecups may not let you stick your filter on. Or your binoculars may have too short eye relief to let you use the filter, without it going all gunky as your eyelashes sweep across it. But if you can stick your filter on to one binocular lens, I think you will have fun with this technique.

Renato Alessio

Astronomy 2004 orders

It's that time of year again when the excellent annual Australian publication, Astronomy 2004, is being published. The book shows what's in the night sky throughout 2004, and is aimed at all levels of amateur astronomer, from newcomer to expert. RRP is $22 to the public, though society members can get it at the discounted rate of $20. You can also order in additional copies for Christmas presents.

Orders and payments can be made in person at any ASF gathering, by cheque to P.O. Box 596, Frankston 3199, or by phone by leaving a message on 0419 253 252. As usual, proceeds from the sales go directly towards improving the content of your library by purchasing new books, videos, CD ROMs etc. If you have any requests for library titles, please pass them to any committee member.

These sky almanacs will be available at the November meeting for collection, and at any society gathering before or after this (i.e. meetings, viewing nights, school nights etc.).

Hurry. The society only orders in a specific quantity each year, and it's first come, first served.

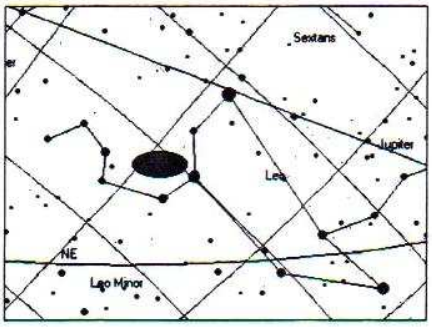
Ian Sullivans Astronomy Class

Ian Sullivans Astronomy Class at Mt Eliza Community Hall may continue over summer break depending on demand. Members pay $5 per session. Forthcoming dates - Nov 29, Dec 20. Contact Ph 9555 6913 if interested.

Meteor Watch

Two good southern hemisphere meteor showers are worth a look in the upcoming months. These being the Leonids and Gemini meteor showers.

Apart from the normal yearly meteor shower the Leonids will produce in the early hours of November 19th, the following dates have also been predicted to produce good meteor rates. The Nov 14th date best suits viewing for us here in Melbourne. The Leonids radiant rises approximately 3:20 am on November 14th and is situated in the head of Leo the lion (see picture).



Leonids 2003 Predictions

Stream: 1499 **Time:** Nov 13th 17:17 UT (Nov 14th 4:17 am AESST) **ZHR:** 120 **Duration:** Several hours

Stream: 533 **Time:** Nov 19th 07:28 UT (Nov 19th 6:28 pm AESST) **ZHR**:100? **Duration:** 1 hour

Stream: 726 **Time:** Nov 22nd 22:02 UT (Nov 22nd 9:02 am AESST) **ZHR:** <10 **Duration:** 1 hour

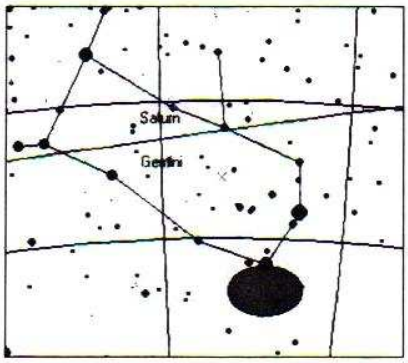
Stream: 636 **Time:** Nov 23rd 02:56 UT (Nov 23rd 1:56 pm AESST) **ZHR:**<10 **Duration:** several hours

Stream is the year the meteor particles were deposited by comet Temple-Tuttle.
Time of Maximum is the predicted time of peak meteor activity given in UT and East Australia daylight savings time.
ZHR is the predicted number of meteors per hour if the radiant was at the zenith and the sky was clear.
Duration is the predicted length of time for the peak meteor activity.

Geminids 2003

The Geminids meteor shower will peak on the morning of the 14th of December. This is a great shower to watch often with bright, medium paced meteors. The radiant is positioned just under Castor (see picture).

Marty Rudd



Recent Events

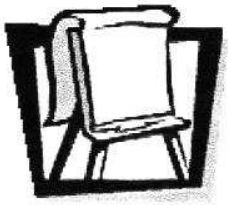
The September meeting was chaired by the President and saw 55 in attendance on a windy evening. An honours degree student at Latrobe University, Jason Batey, came down from near Bendigo to survey all members present for input into his thesis topic about use of national parks for nighttime activities (such as astronomy). Accompanying him was Julie Nelson from the Bendigo District Astronomical Society. The President reported on 7 school and public viewing nights, which had been held recently by the Society, and provided an advance warning about an anticipated spectacular grazing lunar occultation of Mars in October, which is near where several members live. This event is where the planet Mars will graze along the outer limb of the Moon's surface, crossing Port Phillip bay and reaching eastern landfall near Parkdale, before crossing to Springvale and into the hills. Predictions for eclipses of Jupiter's Galilean moons have been loaded into E-Scorpius, and are available in hard copy form upon request. The results of the Alkeste and Benjamina asteroidal occultations of bright stars nearby were then presented, showing the deduced profile and size of the minor planets involved. Some Mars photographs taken through their telescopes, were then shown for David Girling, Jason Batey and Paul Taylor, and Greg Walton brought along others he had taken with the 18 inch.

The main topic of the evening on WMAP and Cosmologies, was given by Peter Norman, which sparked many questions about the beginning of the Universe, and explained what the recent findings from the WMAP probe had shown in terms of which cosmologies can now be ruled out, and what the implications are for the amount of ordinary matter (which we're all made of), the amount of dark matter such as WIMP's and MACHO's, and of the new and extremely abundance dark energy (about 75% of everything in the Universe). The group then adjourned for tea, before reconvening in the theatrette. The scheduled parallel video session could not be shown due to difficulties with the school's TV system. Bob Heale presented his Sky for the Month, and handed out his photocopied sheets, then Ian Sullivan spoke on Mars and distances and proceeded to grill the President unexpectedly with 10 questions about the Red Planet. The proceedings were video taped and this will be available in the library. Meeting closed 10:25pm.

October's meeting was chaired by the President and saw 55 in attendance. The final Mars public night had been held and over a thousand people had visited our Mars telescope evenings over the previous few months. The President reported on Yang Liwei, the first Chinese astronaut in orbit (a so-called taikonaut), who had blasted off that day. It is also 12 months since we reported the discovery of Quaoua out beyond the orbit of Pluto. The main talk of the evening was given by Dr. Andrew Prentice from Monash University, who spoke on the formation of the solar system, particularly with reference to his modified Laplace theory of supersonic turbulence and nebula rings that he believes gave birth to the planets where we see them today. Andrew had been recently seen on national television because of his involvement with the recently-destroyed Galileo spacecraft at Jupiter, which had taken measurements that

well supported his theory's predictions to a fantastic level of detail. He was a most entertaining speaker, supported by 35mm slides, and there were many good questions from the audience to probe his ideas and accomplishments.

After the tea break, some watched the video in the library room about *The Challenger Disaster*, while the rest opted to return to the main theatrette where splendid slides from the Mars occultation were projected onto the wall from the efforts of several members, including Greg Walton, Peter Skilton, Ian Sullivan and Jakub Bukovsky. Bob Heale then presented Sky for the Month, and handed out his sky information sheets.



Marty Rudd presented on the latest NASA predictions for The Leonids meteor shower this year. Although not expected to be the storm levels of 2001, this year about 120 meteors per hour should be observable from our region on November 14th, around 4:17am local daylight savings time. This shower arises from the Earth impacting debris laid down from the tail of comet Tempel-Tuttle in the year 1499AD. A second peak of activity, due to a 1533AD debris cloud from the same comet, is expected on November 19th, however, from Victoria this will occur near 6:28pm daylight savings time, and so unfortunately will occur in daylight. From the Melbourne and metropolitan region, you need to look north-east for the familiar upside down sickle-shape (upside down question mark) of Leo, from where the meteors appear to emerge in the sky.

SCHOOL/PUBLIC NIGHTS

Fifty-five year 5 and 6 students and teachers from Seaford Primary School were visited at the Briars Camp on September 3rd, and all were brimming with questions. This is the first time the ASF has met this school. The talk was given by Peter Skilton, and thanks in the field with telescopes to Greg Walton and Paul Taylor. The almost cloudless skies gave a good look at Mars, which was sporting a dark feature resembling a "pig's nose", and of course the first quarter moon, as well as the usual other treasures such as 47 Tucanae, the Grus galaxies and others. A digital camera was also on hand to experiment with afocal photography.

The Mars public night on September 5th at the Briars was well attended with 100 present, mainly families. One person even drove for 2.5 hours to get there after hearing of us by word of mouth. Weather conditions around the Melbourne and metropolitan area were either completely clouded out, or rainy, yet the large number of people who optimistically showed up at the viewing night were rewarded for their faith with clear skies over the Briars that persisted all evening. Two talks were given by Richard Pollard and Peter Skilton. Thanks in the field to Simon Birch, Greg Walton, Don Leggett, John Cleverdon, Alois Dvornik and Jeremy Scott with his Schiffspiegler telescope.

Well, it happened once again at September 12th Mars night for the public. Despite the Melbourne and metro area being under rain and dreadful conditions, the weather at the Briars was fair to begin with (enabling some early views of Mars at lower altitude through breaks in the cloud), but after the talk Peter Skilton gave inside, the skies cleared perfectly to enable wonderful viewing until about midnight for those keen members and public who stayed on. Attendance was only about 20 people, the majority appearing to have come from near Melbourne for the evening, including a couple of overseas visitors. Those that came seem to have heard about us on radio 3MP, as very little appeared in the local papers mentioning this particular date. The view of Mars in the 18 inch was particularly crisp and contrasty even in the full moonlight, probably thanks to the earlier rain having cleansed the atmosphere. Thanks to Simon Birch and Greg Walton for coming along with telescopes, and to Rhonda Sawosz, Don Leggett and Sally Zetter for the practical aspects that make the evening go smoothly, and of course the dance to drive the rain away.

Thanks to Don Leggett, Paul Taylor, Bob Heale, John Cleverdon, Alois Dvornik, Bruce Tregaskis and later on Peter Lowe for helping out with scopes after Peter Skilton's talk on Friday 19th September at the Briars Mars public night. It was certainly a first for Peter - the first time he's ever had a young member of the audience get so excited at his talk that they relieved themselves where they sat ! What's more, the mother (who asked a lot of questions) was so enthralled with the talk that she said afterwards she didn't mind sitting there with her lap in the aromatic warmth of it all for over three quarters of an hour, so she wouldn't miss a minute. Now that's what I call focussed. The sky was clear most of the night (despite the raging gales and rain around Melbourne and even Frankston) as our "cloud force field" at the Briars held up as usual - amazingly of the now 36 nights we've done this year, not one has been ruined by weather. Some ok digital pics of Mars were obtained through Alois's LX50 and Peter's handheld digital cam at the eyepiece, and everyone got to see a tumbling Cosmos satellite.

On Friday 26th September, the favourable weather pattern repeated yet again for the public Mars night, with rain being widespread across the Port Phillip region for most of the day. Yet at the Briars, the weather was better, and the skies dutifully cleared totally about 9pm enabling horizon to horizon viewing by the 32 people present who showed regardless of the poor weather at their homes. One family travelled through rain from Melbourne, and another from Northcote and relayed that they had been to another night held nearer their home, but all they observed there was a telescopic blur of light for Mars, and wanted to try other telescopes to have a good long look and try to see some details. Needless to say, they obtained their wish at The Briars! The talk was given by Peter Skilton, and the only telescope present was kindly brought along by Bruce Tregaskis. Thanks for assistance in making the evening go smoothly goes to Jane McConnell, Sally Zetter and Roger Chandler.

And to close a perfect observing run of Mars nights this year for the public at The Briars, with no cancellations necessary due to weather, 145 people turned up for the final night on October 3rd, and were greeted with clear skies for most of the evening. The talks were

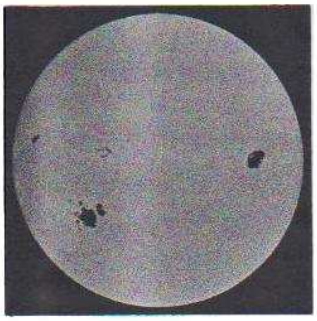
given by Richard Pollard and Peter Skilton. Thanks in the field with telescopes goes to Simon Birch, Greg Walton, Alois Dvornik, Ian Sullivan, Jakub Bukovsky, John Cleverdon, Bruce Tregaskis and Simon Judge, and thanks for other general help to Peter and Vivienne Lowe, Don Leggett and Jarrod Anderson. Some of the highlights of the evening included an iridium flash to begin with, obviously the red planet Mars, the first quarter Moon, and clear views of the tiny moon of Mars, Deimos, through Alois' 7 inch telescope fitted with an occulting bar.

Sunspot Activity High

On Friday night, October 24th, just before 2am local time, a spectacular aurora was witnessed about 160km south of Perth, lasting for about half an hour. It included green vertical beams, and pink curtaining up to 45 degrees above the southern horizon. The location is several degrees north of ours near Melbourne, so almost certainly we would have seen a similar sight and perhaps more impressive due to our more southerly latitude. However, our southern aurora network was silent as thick cloud and drizzle hung over Victoria and NSW.

The outburst was caused by the arrival of the first wave of solar material ejected from the two new large sunspot regions near the Sun's equator. Both of these are several times the size of the Earth, and about the same size as Jupiter. The second wave was due to arrive around lunchtime on Saturday (during daylight) and caused excellent displays on the USA and Europe. There is a good chance of more aurorae occurring during November, so be vigilant. Daylight savings will make it more difficult, by delaying darkness by an hour. Aurorae are known commonly to repeat one solar rotation later as the same active region of the sun points Earthwards again. Therefore, keep an eye out about 26 days later on November 17th, plus or minus a day or so.

Aurorae at our latitude can be seen as slowly moving beams or curtains of light, and can be seen from the south-eastern skies to the south-western skies, but most likely due south. Let you eyes dark adapt if trying to spot them, unless you have particularly good colour vision.



...We didn't have to wait long!

The ABC reported the following on October 30:

"A shockwave from the Sun has hit the Earth, causing a rare phenomenon in the southern skies near Perth. Perth Observatory director James Biggs says he observed an aurora, seen as whitish milky light in the sky.

"From about 2:30 to about 3:40 [this morning AWST] there was a bit of a glow towards the south in the sky, reasonably high up," he said. "Until about 3:30 there was definitely a glow with some dark stripes in it. That was the aurora."

Dr Biggs says the aurora is very rare. Dr Fred Watson from the Anglo-Australian Observatory at Coonabarabran in north-west New South Wales says auroras may be visible elsewhere over Australia over the next few nights.

"If you've got a dark sky, by all means go out and have a look. It's well worth it because if you see an aurora, it's really something to remember," he said.

"They can show brilliant colours and look just like search light beams going right down from the point of your head to the horizon. They're quite spectacular."

The flare is the final burst from a solar hurricane that has hampered some space satellite transmissions and led electric grid operators to curb power transmissions as a precaution.

Scientists say the cloud of charged particles unleashed at high speeds by a hyperactive Sun and known as a coronal mass ejection (CME) was travelling at more than 8 million kilometres per hour.

It took just 19 hours to reach Earth from the Sun.

"It ... was going much faster than people thought," Dr Mike Hapgood, a space expert at the Appleton Laboratory in England, said.

"There were some problems starting yesterday because of the effects that precede the arrival of this shockwave from the sun."

The flare, thought to be the biggest in 30 years, caused a Japanese satellite to be shut down.

Power plants from Sweden to New Jersey cut production to limit how much electricity was flowing over transmission grids, preparing to absorb any sudden surge in energy that might result in coming days from lingering effects of the storm.

"We expect this storm to continue through the day and tomorrow," said Larry Combs, a space weather forecaster at the National Oceanographic and Atmospheric Administration's Space Environment Centre in the US.

The centre, which acts as the official US space weather watching agency advising power utility, airline and communications network operators of potential threats from space, issued its first warning of the storm a week ago.

The gaseous cloud that dumps energy into the magnetic field that surrounds the Earth, creating a geomagnetic storm, is the final wave in a three-stage solar storm that first began peppering the Earth with X-rays on Tuesday.

These X-rays, which were traveling at the speed of light, forced air traffic controllers to scramble to find alternative communications channels and affected satellite transmissions of images back to Earth.

In the second wave, a pulse of solar radiation hit the Earth.

The Southern Aurora network also swung into action with sightings across Victoria.

This network of 31 people worked flawlessly, triggering off other contact networks as well.

Richard Pollard, who works nights, initially triggered the real-time network. Shown below is the list in North to South order.

Observer - Kerry Needs, Mildura, Victoria (34d10m South, 142d09m East)
Many, many thanks to the communication network!! I witnessed my first aurora last night.
First observation:
1120 UTC on 2003 October 29 - approx 140 degrees azimuth (Just to the left of the Southern Cross), up to 20 degrees in altitude, some a little higher. Within half an hour a strong aurora could be seen to the right of Alpha Centauri. The total area of aurora activity was probably more than 20 degrees azimuth.
Colour - a little disappointing, as there was very little colouring, possibly because of light pollution interference and my choice of viewing position.
Aurora subsided around 1155 UTC and I headed for home due to the extreme cold. Hopefully didn't miss too much after this time. Once again, thanks everyone.

Observer - Michelle Hickman, The Basin, Victoria (37d51m South, 145d19m East)
I got to my viewing spot about 1130 UTC on 2003 October 29. Clouds with a possible slight glow, waited awhile and then tried the sky high, I don't believe you can see far enough south from there as of the trees. Back to my spot, which I do get a good view, south, left there at 1315 UTC then viewed from heated room till about 1445 UTC. Still nothing, except a dirty car from Dirt roads. All worth it though.

Observer - Richard Pollard, Cranbourne, Victoria (38d05m South, 145m18s East)
I Observed a definite red glow low in the southern sky around 1015 UTC and 1130 UTC on 2003 October 29, extending from horizon 25 or more degrees up to the southern cross. The glow was visible even over nearby car park lighting, and clearly behind a bank of cloud on the horizon. Being at work, I was fortunate to be driving to Mornington but activity had all but ceased by the time I got to darker skies.

Observer - Peter and Rosalind Skilton, Frankston, Victoria (38d09m South, 145d09m East)
Observed from 0945 UTC to 1340 UTC 2003 October 29. A faint pink glow up to about 30 degrees in the south-south-eastern sky grew, then faded away, replaced by bright red patches surging upwards and dancing to 45 degrees above the horizon between 1210 UTC to 1250 UTC on 2003 October 29, with the red patches joining together to form a large red area about 30 degrees wide in azimuth. The aurora affected the apparent colours of the stars within it, causing them to appear orangeier. Photographs with 28mm and 50mm lenses were taken. A clear view of the horizon was not possible at this location, being obscured from about 15 degrees downwards.

Observer - Bruce Tregaskis, Mount Eliza, Victoria (38d11m South, 145d06m East)

I received auroral alerts around 1100 UTC on 2003 October 29. Initially, I was unable to confirm the sighting due to buildings, trees, clouds and moonlight. Eventually, at 1114 UTC, most of the sky was cloudy, but it was clearer in the south and I noted that there could have been a white glow low down in the south, in the region of Crux, but moonlight was interfering. By 1124 UTC, Alpha and Beta Crucis and Alpha and Beta Centauri could be clearly seen and there was a greenish-white glow around Crux. This was about the best time that I could see the aurora, because cloud worsened and by 1132 UTC I ceased observing. I looked out briefly at 1548 UTC, when the sky was clear and there was no moonlight, but there was no sign of the aurora.

Observer - Phil Holt, Mornington, Victoria (38d16m South, 145d02m East)
Observations from Mornington (near racecourse). 1045 UTC on 2003 October 29, clouds observed silhouetted against a bright southern horizon. Could see stars through the bright zone so it was unlikely to be moon illuminated cloud. 1120 UTC, area brightened substantially along southern horizon and up to about 25 degrees. Sharp rays were then observed that reached at least 45 degrees above horizon. Intermittent pulses of red colour also observed. 1131pm UTC, cloud finally ruined the show.
I took some photos with a wide 28mm lens and with my "all sky hubcap" setup.

Observer - John Cleverdon and John Goodall, Dromana, Victoria (38d20m South, 144d57m East)

Going outside, I could faintly see the aurora between the cloud and the horizon. However, where we live in Dromana is not good for watching aurorae, due to Arthurs Seat (a nearby hill). With heavy cloud coming across, I decided to get back to bed :-/ I also gave local fellow astronomer John Goodall a ring; he had just got home from giving night classes at TAFE, and reported seeing the aurora while driving home south. He mentioned that it was white rather than red.

(124) Alkeste and (976) Benjamina Occultation results

On June 24 and July 19 this year, a rare bright star occultation of the asteroids Alkeste and Benjamina, respectively, occurred in the Victoria region. In the former case, the bright naked eye star beta Virginis was blocked from view as the minor planet silently swept in front of it, blocking its starlight briefly. In the later case, a dimmer star within reach of binoculars was occulted by asteroid number 976. Such bright star occultations occur at best every couple of decades.

For observers on the ground who monitoring the star, by timing when the star disappeared from view and then returned, a series of chords across the asteroid's shadow can be deduced, and then the size and shape of the asteroid itself can be worked out.

Both events were well observed from South Australia, Victoria, ACT, NSW and New Zealand, despite cloud and fog interfering in the southern regions of Australia. With Alkeste, Dr. David Dunham from IOTA in the USA travelled to Australia specifically to record the phenomenon on video tape.

In the case of Alkeste, 105 observers attempted the event (mostly in southern Victoria) and many were thwarted by weather conditions in the early evening. This was the largest such co-ordinated observation of a minor planet ever attempted in the southern hemisphere, and the ASF took a leading role, with scores of local observers involved. Alkeste was found to be nearly

elliptical and is a lump of rock about 73.9 kilometres across, by 57.8 kilometres wide.

With Benjamina, 25 observers attempted the event even though the weather conditions were much better. Benjamina was determined to be a rock 84.4 kilometres across and 43.4 kilometres wide. For context, both minor planets are larger than Port Phillip bay.

Thanks to all society members who attempted to observe these two occultations, and to characterise well the profile and size of these minor planets. By timing the events with respect to WWVH time signal station in Hawaii, minor refinements in the orbital paths of these bodies can also be made. The results have been published in the Royal Astronomical Society of New Zealand's Occultation Section bulletin, and all those who participated have been duly credited.

MARTIAN GRAZING LUNAR OCCULTATION WAS SPECTACULAR

In the wee small hours of the morning of October 7th around 2:36am, the planet Mars slipped silently behind the northern limb of the Moon (the lower edge of the Moon as seen by eye in the sky) – an extremely rare astronomical event. The prediction map showing the path over which the event could be seen was prepared by cartographic member John Cleverdon, and was distributed across Victoria for those who live near to the prediction line enabling people in other astro societies to witness the event that would otherwise have missed out.

This grazing occultation was visible across a narrow band over the Port Phillip Bay region, and a contingent of ASF members went up to Parkdale to observe the Moon hanging just 20 degrees above the western horizon over the foreshore. This view over the bay gave quite steady seeing conditions. Others observed from elsewhere as circumstances permitted and some even lived close to the ground path.

At the event time, the longitude of the central meridian of Mars was 221 degrees, meaning that the dark rocky desert region of Syrtis Major would be visible for further dramatic effect. Mars was truly magnificent on the bay and very orange in comparison with the white of the lunar surface right next to it! The skies were clear and the weather quite mild. As it turned out, quite a number of people (including in other astro societies) were able to witness the event and record it as a result of John's clear ground map based on the Melways with permission.

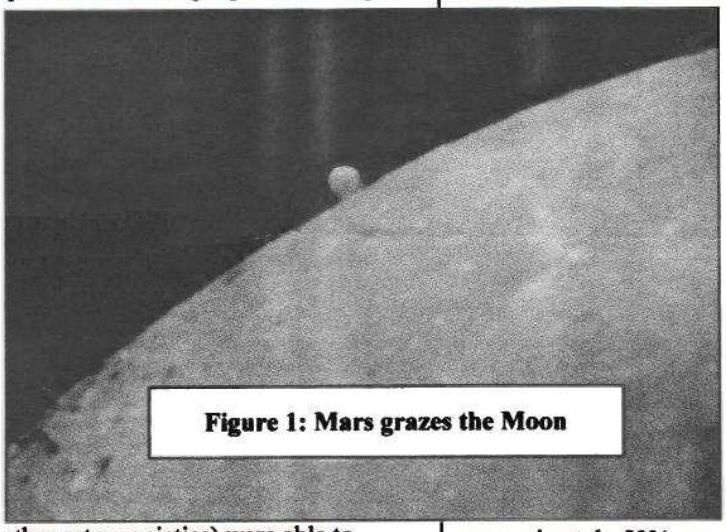


Figure 1: Mars grazes the Moon

Greg Walton, Jakub Bukovsky, Ian Sullivan and Peter Skilton observed the graze in the Beach Road carpark about 500 metres south of Parkers Rd in Parkdale. This was just under a kilometre south of the graze prediction line, corresponding to one, and potentially two, lunar mountains passing across the red planet's face. At least a dozen other ASF people also scattered themselves around the path as circumstances permitted, and the two members of the local constabulary who dropped in to see what all the disturbing of the peace was in the Parkdale foreshore carpark at 2:36am were incredibly impressed - and then were further impressed when we showed them Saturn to send them on their way. Greg just about had to prize them from the 18 inch with a crowbar and send them back to work.

Figure 2: Security was tight at the Mars Graze.

Others who travelled and reported in later, included Sally Zetter near Mordialloc, and those who reportedly observed from home included Renato Alessio, Phillip Holt, and Bruce Tregaskis.

As expected from that location, Mars was approximately 50% emersed behind the northern lunar limb, with the Moon's craters looking large in comparison with the much more distant red planet, and the event arrived right on cue with the predicted track being pretty much right on target. The prediction times were for the centre of the planet, not the edge, but that would have become obvious a few minutes beforehand for those who didn't realise it beforehand. Those who were positioned further south along the peninsula witnessed a deeper occultation with more of Mars hidden behind the lunar mountains and valleys. Those positioned further north witnessed less of Mars obscured, and those even further north would have seen Mars just miss the Moon altogether.

Many images were taken afocally and at prime focus via video camera, digital camera and wet film camera through the assembled telescopes. Some of these were shown at the October meeting and were impressive for portable instruments.

Until the next once in a lifetime event ..

AstroNews

China Puts Man Into Orbit and Joins Elite Space Club

JIUQUAN, China (AFP) Oct 15, 2003
On Wednesday October 15, China launched an astronaut into space aboard the Shenzhou V craft in a historic mission which catapults the country into an elite club alongside Russia and the United States.

The Long March II F rocket carrying the capsule blasted into clear skies from the Gobi desert in north China's Inner Mongolia at 9:00 a.m.for a 21-hour flight that saw the craft orbit the Earth 14 times.

Shenzhou V went into preset orbit 10 minutes after take-off as China became just the third country after the United States and the former Soviet Union to put a man in space 42 years after Cosmonaut Yuri Gagarin's epic first flight.

Russian Gagarin was the first human in space on April 12, 1961 in a flight lasting 108 minutes. Days later on May 5 American Alan Shepard spent just 15 minutes on a suborbital flight.

People's Liberation Army Lieutenant Colonel Yang Liwei, 38, was at the controls Wednesday and reported 34 minutes into the flight that he "feels good" and that the craft was operating normally.

"I feel good, see you tomorrow," Yang, a fighter pilot with more than 1,300 hours flight time, was quoted as saying from the re-entry module in China's first words from space.

Described as a "warrior" by President Hu Jintao, he was shown three hours into the mission lying on his back resting after a traditional Chinese lunch of diced chicken meat and rice cooked with nuts and dates.

Hu watched the blast-off at the Jiuquan Launch Centre and hailed the launch as "the glory of our great motherland".

Former president and military chief Jiang Zemin, who named the Shenzhou program and was expected to be at the launch, was not mentioned by any official media as attending.

Hu said the culmination of the 11-year space program was a "historic step of the Chinese people in the advance of climbing over the peak of the world's science and technology".

The Xinhua news agency quoted Chinese space officials as saying the maiden manned flight was a "success".

"Today, our long-held manned space flight dream has finally come true," said Hu Shixiang, vice director-general of China's manned space program.

The mission was tracked from 13 monitoring stations dotted across China, Pakistan, Namibia and Kenya with the craft landing safely just 4.8km off target in central Inner Mongolia at 6:23 a.m. Thursday (2223 GMT Wednesday).

The launch caps a highly secretive decade-long manned space program codenamed Project 921 that has cost billions of dollars and comes as the United States agonises over its own manned space flights following the loss of its second shuttle Columbia in February this year.

The secrecy continued up to the launch with the government pulling the plug without explanation on a live broadcast. Analysts said fear of disappointment and criticism if the mission failed was likely behind the decision.

The Communist Party had much riding on a successful mission, hoping it will promote patriotism, national cohesion and legitimacy for its rule, and with millions potentially watching, failure would have been a publicity disaster.

The Shenzhou, or "Divine Vessel," is based on the three-seat Russian Soyuz capsule, which the Soviets first launched some 36 years ago, albeit updated in key areas such as the life-support and computer systems.

Beijing however insists everything sent into space is developed and made in China.

While prestige is a key component of China's desire to compete in space with other world powers, Chinese officials have said there are military connotations. However Beijing has played this down in recent days and the United States has indicated it is willing to accept this version of events.

Several US experts have speculated that China is aiming to catch up with the United States and Russia, which already have numerous military spy satellites in orbit.

China's successful quest to join the exclusive club also comes as the United States struggles with its own space program following the Columbia disaster.

NASA has yet to give a date for the resumption of its shuttle flights.

The Chinese launch is also seen as significant because the country has now achieved something other leading satellite launchers, such as the European Union, Japan and India, have not.

Galileo: Mission Accomplished

September 17, 2003

The Galileo spacecraft's 14-year odyssey came to an end on Sunday, Sept. 21, when the spacecraft passed into Jupiter's shadow then disintegrated in the planet's dense atmosphere at 11:57 a.m. Pacific Daylight Time. The Deep Space Network tracking station in Goldstone, California, received the last signal at 12:43:14 PDT. The delay is due to the time it takes for the signal to travel to Earth.

Hundreds of former Galileo project members and their families were present at NASA's Jet Propulsion Laboratory in Pasadena for a celebration to bid the spacecraft goodbye.

"We learned mind-boggling things. This mission was worth its weight in gold," said Dr. Claudia Alexander, Galileo project manager.

Having travelled approximately 4.6 billion kilometres (about 2.8 billion miles), the hardy spacecraft endured more than four times the cumulative dose of harmful jovian radiation it was designed to withstand. During a previous flyby of the moon Amalthea in November 2002, flashes of light were seen by the star scanner that indicated the presence of rocky debris circling

Jupiter in the vicinity of the small moon. Another measurement of this area was taken today during Galileo's final pass. Further analysis may help confirm or constrain the existence of a ring at Amalthea's orbit.

"We haven't lost a spacecraft, we've gained a steppingstone into the future of space exploration," said Dr. Torrance Johnson, Galileo project scientist.

Figure 3: Europa's chaotic surface from Galileo

The spacecraft was purposely put on a collision course with Jupiter because the onboard propellant was nearly depleted and to eliminate any chance of an unwanted impact between the spacecraft and Jupiter's moon Europa, which Galileo discovered is likely to have a subsurface ocean. Without propellant, the spacecraft would not be able to point its antenna toward Earth or adjust its trajectory, so controlling the spacecraft would no longer be possible. The possibility of life existing on Europa is so compelling and has raised so many unanswered questions that it is prompting plans for future spacecraft to return to the icy moon.

Galileo was launched from the cargo bay of Space Shuttle Atlantis in 1989. The exciting list of discoveries started even before Galileo got a glimpse of Jupiter. As it crossed the asteroid belt in October 1991, Galileo snapped images of Gaspra, returning the first ever close-up image of an asteroid. Less then a year later, the spacecraft got up close to yet another asteroid, Ida, revealing it had its own little "moon," Dactyl, the first known moon of an asteroid. In 1994 the spacecraft made the only direct observation of a comet impacting a planet-- comet Shoemaker-Levy 9's collision with Jupiter.

The descent probe made the first in-place studies of the planet's clouds and winds, and it furthered scientists' understanding of how Jupiter evolved. The probe also made composition measurements designed to assess the degree of evolution of Jupiter compared to the Sun.

Galileo made the first observation of ammonia clouds in another planet's atmosphere. It also observed numerous large thunderstorms on Jupiter many times larger than those on Earth, with lightning strikes up to 1,000 times more powerful than on Earth. It was the first spacecraft to dwell in a giant planet's magnetosphere long enough to identify its global structure and to investigate the dynamics of Jupiter's magnetic field. Galileo determined that Jupiter's ring system is formed by dust kicked up as interplanetary meteoroids smash into the planet's four small inner moons. Galileo data showed that Jupiter's outermost ring is actually two rings, one embedded within the other.

Galileo extensively investigated the geologic diversity of Jupiter's four largest moons: Ganymede, Callisto, Io and Europa. Galileo found that Io's extensive volcanic activity is 100 times greater than that found on Earth. The moon Europa, Galileo unveiled, could be hiding a salty ocean up to 100 kilometres (62 miles) deep underneath its frozen surface containing about twice as much water as all the Earth's oceans. Data also showed Ganymede and Callisto may have a liquid-saltwater layer. The biggest discovery surrounding Ganymede was the presence of a magnetic field. No other moon of any planet is known to have one.

The prime mission ended six years ago, after two years of orbiting Jupiter. NASA extended the mission three times to continue taking advantage of Galileo's unique capabilities for accomplishing valuable science. The mission was possible because it drew its power from two long-lasting radioisotope thermoelectric generators provided by the Department of Energy.

"The mission was a testimonial to the persistence of NASA even through tremendous challenges. It was a phenomenal mission," said Sean O'Keefe, NASA administrator.

JPL, a division of the California Institute of Technology in Pasadena, manages the Galileo mission for NASA's Office of Space Science, Washington, D.C. JPL designed and built the Galileo orbiter, and operated the mission.

Additional information about the Galileo mission and its discoveries is available online at: http://www.jpl.nasa.gov/galileo-legacy and http://galileo.jpl.nasa.gov . For information about NASA, visit: http://www.nasa.gov

...and finally,

"Twinkle, twinkle, Little Star"

Jane McConnell has her own words for the question in the last edition regarding the children's poem:

"Scintillate, scintillate, globule vivific,
Fain would I fathom thy nature specific,
Loftily poised in the ether capacious,
Strongly resembling
A gem carbonaceous."

Congratulations to TANYA HILL

Melbourne Planetarium astronomer Tanya Hill, who has spoken with us a couple of times over the years, recently had a baby boy, Dylan John, on October 6 at 7:49pm. Congratulations are in order, but this probably means she and Alex didn't try observing the grazing occultation of Mars that same night. Dylan, assembled of starstuff as are we all, weighed in at 0.000000000000000000000000000001976 solar masses.

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If you have something you'd like published in Scorpius, simply e-mail it to me, either in a document file or as part of an email to: rlpollard@iprimus.com.au or, post it to **9 Genista Rd, Cranbourne 3977.**
Thanks, Richard Pollard (Editor)

ASF Inc. Annual General Meeting *(AGM)* Elections

Nominee: _____

Proposer: _____ } must be current financial members

Seconder: _____

Position (tick 1 or more***):

Office Bearers: ❑ President ❑ Vice President ❑ Treasurer ❑ Secretary

Ordinaries: ❑ Public Officer ❑ Ordinary Committee Member (5 of these)

Acceptance Signature of Nominee: _____ **Return to Secretary prior to 7 days before AGM.**

****Note that one person cannot nominate for multiple Office Bearer positions.*

Above - see page 7

Photos - *By Greg Walton*

Left - Xmas BBQ at the ASF Briars site on 13th December 2003

Both Photos - *By John Cleverdon*

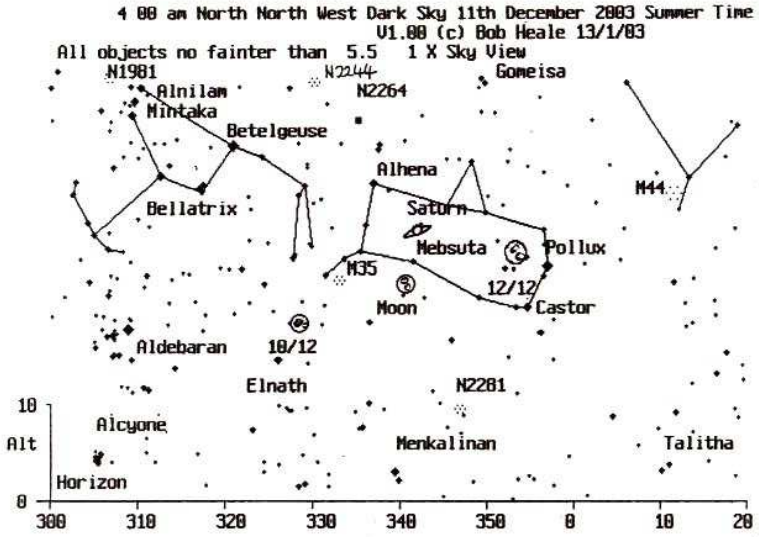
Below - Working Bee at the ASF Briars site on 7th December 2003

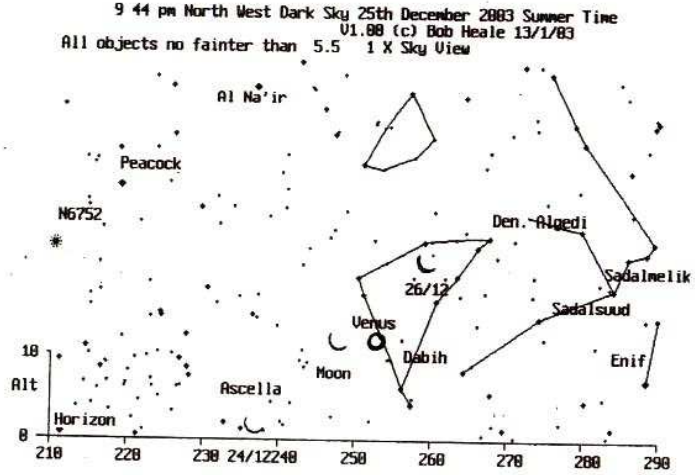
Photos - *By John Cleverdon*

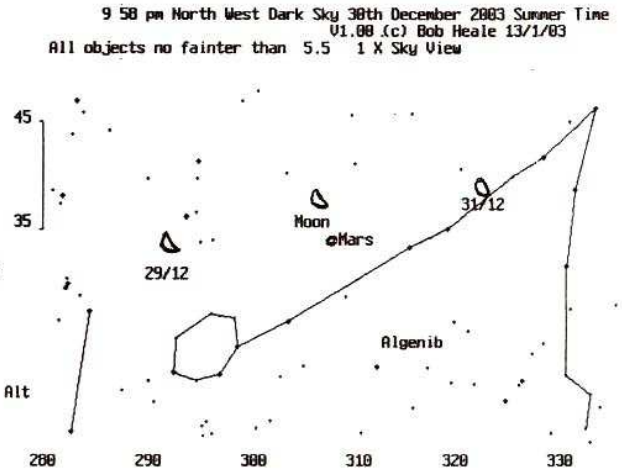
Kindly reproduced by Jane McConnell and collated/posted by Mary Westaway

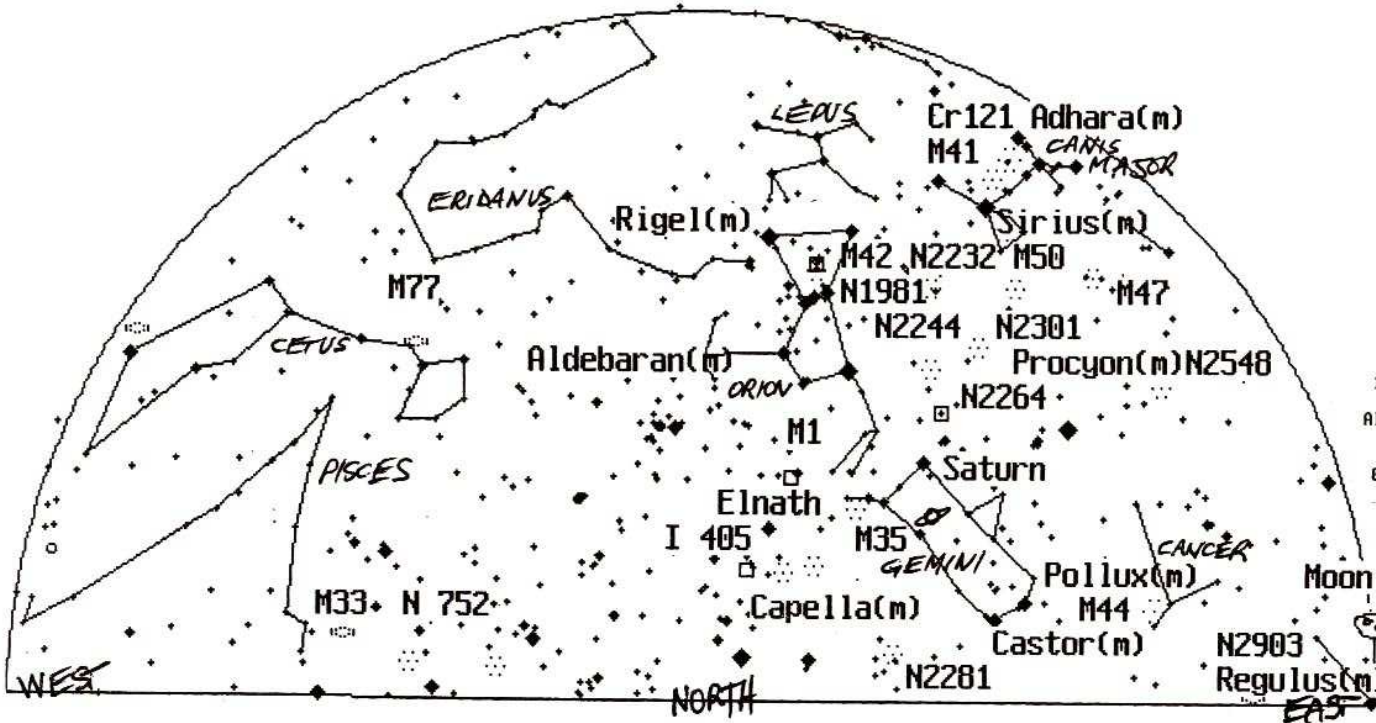
SKY FOR THE MONTHS 19 NOVEMBER 2003 THROUGH 20 JANUARY 2004 MORNINGTON PENINSULA

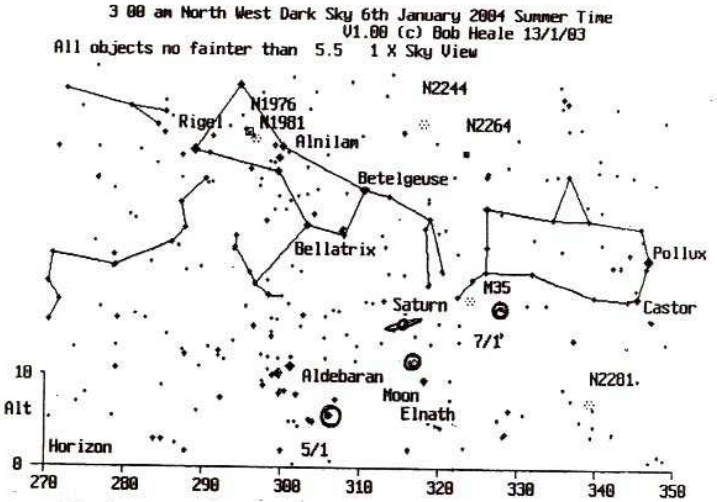
(produced and paid for by Bob Heale)











12 30 am 16th December North Dark Sky 2003 Summer Time

and, 1 30am 16th November (not Saturn or Moon) and 11 30pm 20th January 2004 (not Saturn or Moon)

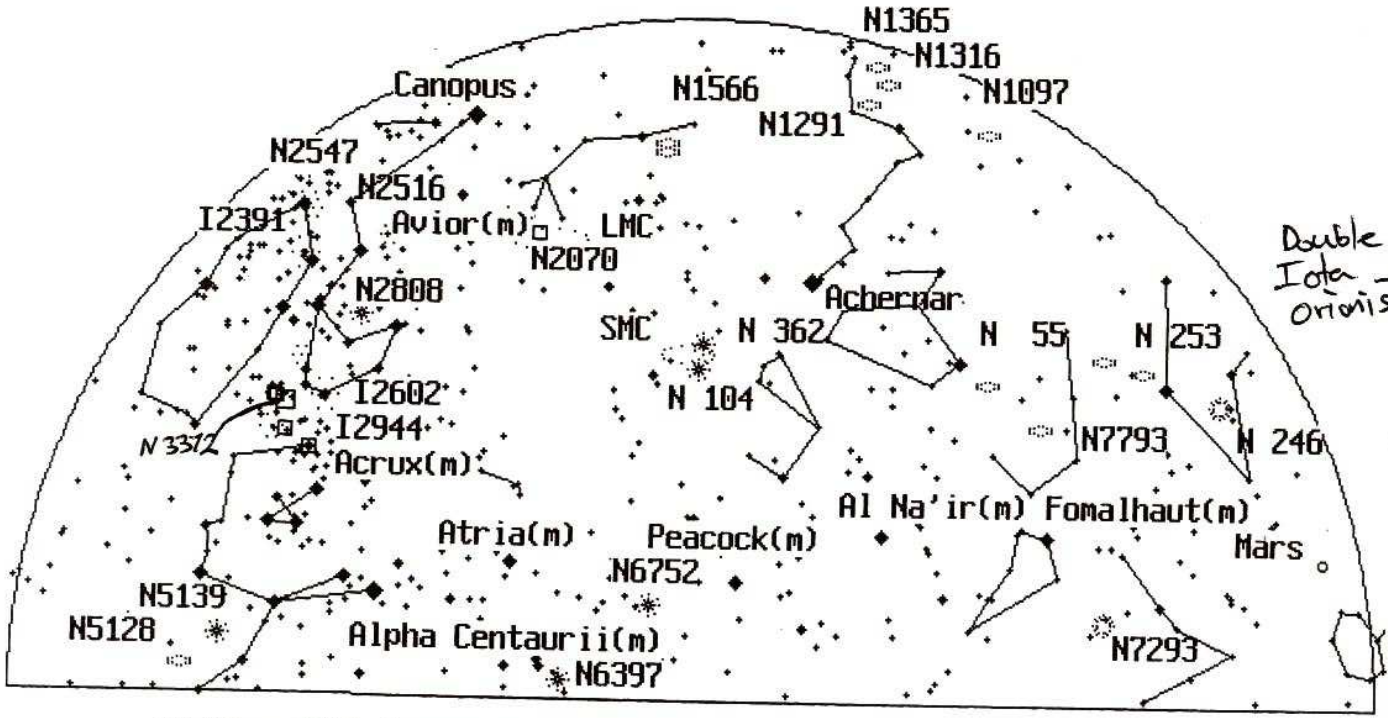
Saturn is at opposition late December on a low path (high path for Northern Hemisphere observers) with ring tilted our way 26°S Don't miss it.

Mars is now waning gibbous & by Christmas Day, much less brighter.

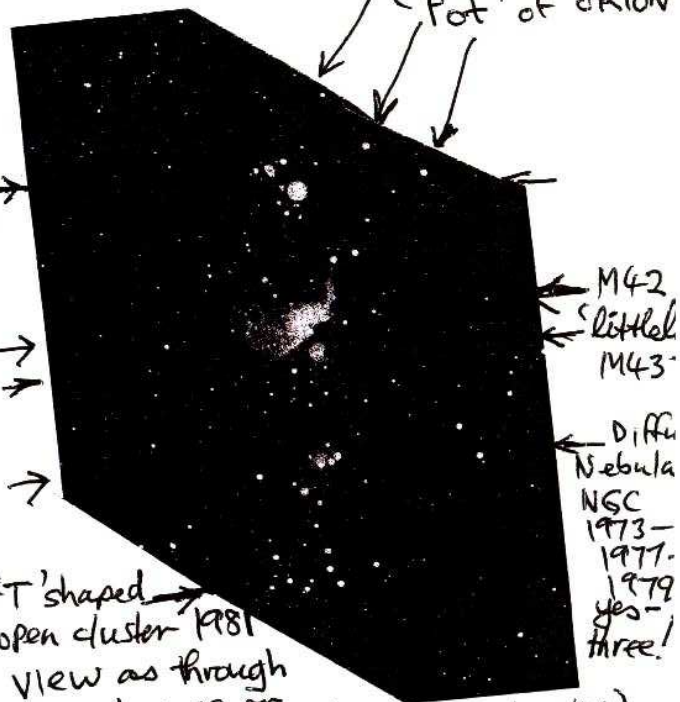
Bob Heale, MPAS

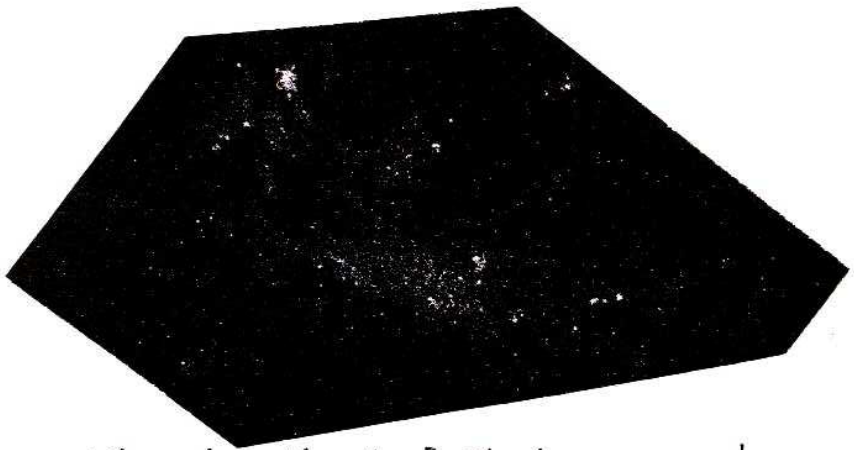
18/11/'03

Mornington Peninsula Astronomical Society

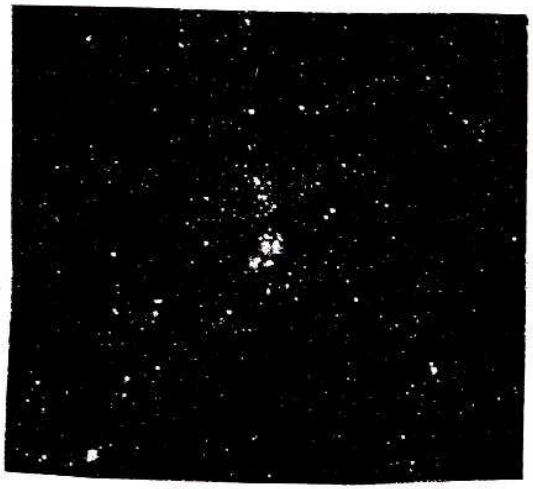


12 30am 16th December South South West Dark Sky 2003 Summer Time





LMC - Large Magellanic Cloud, an irregular galaxy! Note NSC2010 Tarantula Nebula on eastern edge. Large Binocs View!



Eta Carina Nebulae Complex NGC 3372

Bob Heale, MPAS
18/11/'03

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