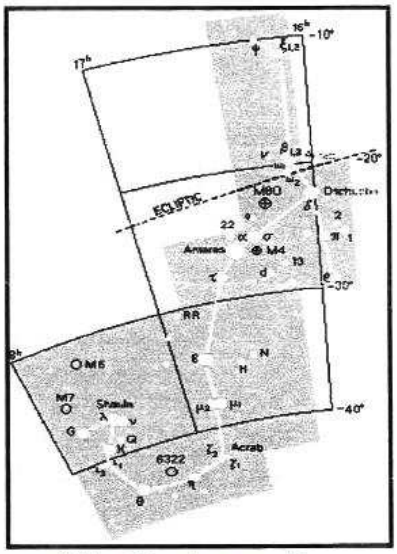
SCORPIUS

The Journal of the Astronomical Society of Frankston Inc.

RegNo: A268 *ABN: 34569548751* *ISSN: 1445-7032*

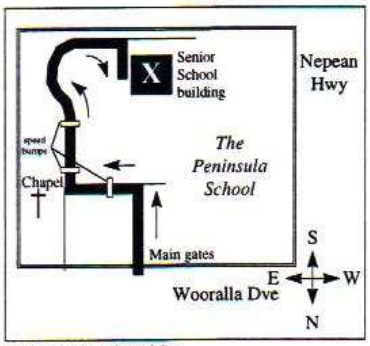
Volume XII, No. 4 (July 2003)



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: aggro@peninsula.starway.net.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

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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:

JULY 16, 2003

Session 1: Barry Adcock from BAS, ASV on "**Opposition of Mars**".
Session 2: video on "Mars - Pioneering the Planet, Part 2"

AUGUST 20, 2003 - Mars opposition this month

Session 1: Peter Norman on WMAP and Cosmology.
Session 2: video on "John Harrison and his Timekeepers"

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!

July 25th/26th, August 8th/9th, 22nd/23rd and 28th/29th, 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.

Tuesday 26th August
Briars Education Camp, 50 children from Black Rock Primary, Melways 151/E1 (next to observatory site).
We have no volunteer for speaker as yet, and no volunteers for telescopes as yet. Lots of help needed.

The once-a-month basic public viewing nights at *The Briars* will continue on the first Friday of each month. The next nights are 4th July, and 1st August, both at 8pm. Assistants are required. New members are welcome to watch and participate if desired.

Welcome to the following new Society member(s):

Brenda and Alan Saunders
Rod Brackenridge
Caroline Allen

Current number of members is 165, 42% are female, 58% male.

Planetarium Lectures

The Melbourne Planetarium has a number of upcoming events that may be of interest to members of the ASF.

During July and August the Planetarium is hosting two public lectures by visiting international astronomers:

Singing Stars on 3 July 2003. Professor Don Kurtz from the University of Central Lancashire, UK, has discovered the strangest stars in the sky and will demonstrate how stars actually sing, ringing from sound waves that cause them to vibrate and change shape. To be followed by a screening of the planetarium show Out of Darkness.

Black Hole Revealed on 21 August 2003. Professor Fulvio Melia from the University of Arizona, USA, is an expert on the supermassive black hole located at the centre of our Milky Way Galaxy. To be followed by a screening of the planetarium show Escape from Andraxus.

The lectures will begin at 6:30pm and the admission charge is $12.50 per lecture. Bookings are essential and can be made by calling Scienceworks on 9392 4819. See the website: http://www.museum.vic.gov.au/planetarium/planonews/lectures.html

Eclipse Posters

The solar eclipse posters from the event in outback South Australia last December have arrived for those people who ordered them ($12). Ian Sullivan currently has them, but if you missed out and are interested, please see Peter Skilton.

Renewal Dates Innovation

I would like to explore the level of interest in moving the annual membership date when subscriptions fall due. In the past, before the advent of computers, this was administered by hand so that it was easiest if everyone falls due on the one calendar date of January 1st. Unfortunately, this time of the year is usually the most expensive for most people because of Christmas, New Year or the starting school year, and birthdays, mortgage and other immovable costs also arise at predictable times during the year. As a result, membership renewals sometimes slip by months due to personal financial hardship, and this requires administrative efforts that are avoidable for our volunteers. In some cases, we potentially lose valuable members simply because they have difficulty paying at this time of year and are uncomfortable in asking for alternative arrangements. Also new members arrive throughout the year, and usually (but not always) their initial subscription is prorata'd so that it ends at the end of the calendar year.

It would come as no surprise to members that the membership database these days is held on computer, so that renewal dates are trivially easy to calculate by the computer. You would have noticed that your mailing label on each Scorpius that is sent out indicates how many months membership you have to go before renewal is due. Invoices and reminders for renewal are not sent out by the society as the mailing label should be sufficient reminder each edition throughout the year, and it avoids unnecessary admin work by a small number of volunteers.

Therefore I seek to find out the level of interest in the membership in moving the renewal month to be whatever month best suits each individual member's financial circumstances.

For example, if September is the best time of year for you personally to pay the membership renewal, then the proposal is to move your renewal anniversary once-off to be September by adjusting your next membership renewal by one-twelfth the annual rate per month being adjusted.

If you are interested in Committee putting this innovation into place, please let me know at your earliest opportunity.

Cheers, Peter

Library News

The library has just received some impressive new titles.

First is an impressive hardback book for telescope makers by David Kriege and Richard Berry, titled "*The Dobsonian Telescope – A Practical Manual for Building Large Aperture Telescopes*". It tells in detail how to build a state-of-the-art Dobsonian telescope of aperture between 14 inches and 40 inches diameter using readily

available materials and supplies, with every step explained clearly and supported with numerous photographs. This book is squarely aimed at average amateur astronomers who wish to build a very impressive instrument to be proud of with their own hands.

For the deep sky observers who like the personal challenge of finding and observing the glorious ring-shaped remnants of dying star systems is the hardback "*Planetary Nebulae – A Practical Guide and Handbook for Amateur Astronomers*" by Steven Hynes, which includes 253 finder charts and 1340 planetary nebulae included (which is all the planetary nebulae known up until about 1995). Coordinates, magnitude and other notes on each object are given for finding from your backyard within the limitations of whatever instrument you have available, and within your observing experience. The book also explains the history of the discovery of planetary nebulae.

For the mathematically intrigued is the sumptuous hardback "*Mathematical Astronomy Morsels*" by Jean Meeus. This world-famous Belgian astronomer looks at some of the extremely rare time-related phenomena and changes that occur that you can observe, and has investigated them thousands of years into the past and into the future. Covered in this volume are the Moon, eclipses and occultations, planetary motions and phenomena, the celestial sphere, Easter, the equation of time and statistics of sunspots and weather. Did you realise that the most common date for Easter is April 19th, or that Christmas Day most commonly falls on a Sunday, Tuesday or Friday, or that the next time 3 shadows of Jupiter's moons fall on the planet together will be on 2004 March 28th (that would make an interesting photo), or that Jupiter will not have any visible moons from Earth on 2008 May 22nd?

For the aspiring radio astronomers amongst us (and there are some because this emerged during the survey last year), we have "*An Introduction to Radio Astronomy*" by Bernard Burke and Francis Graham-Smith. No excuses now – we want to see a working radio dish at The Briars in the medium future if you care to take the initiative, and perhaps liaise with sister amateur radio societies to make it happen! You can then observe during the daytime and under complete cloud cover.

REVIEW OF APOGEE 25X100 BINOCULARS

by Renato Alessio

These binoculars are advertised at the Apogee home page (www.apogeeinc.com) for US$299. They charged me an extra US$84 for express postage. So that all up they cost me around A$590. This is obviously a lot cheaper than the two to four thousand dollar pairs that are around.

The binoculars come in a big shoulder carry case, have a tripod adaptor attached to their central shaft, and have Bak4 prisms. Field of View (FOV) is given as 3.5°.

They are very heavy, weighing in at 4.4kg (9lbs). They require a real heavy-duty tripod for safe usage. There are good cheap Chinese heavy-duty tripods around that cost under $200. I bought mine from AstroOptical, but they no longer stock them.

I decided to compare the Apogees to my next most similar pair binoculars - my Pentax 16X60s. These have a listed FOV of 2.8°, and I observed that the FOV of the Apogee ones was slightly smaller than this. So that it's probably around 2.7°.

My opinion

The Apogee binoculars are fabulous for observing stars and deep sky objects. The image isn't sharp across the entire field, as it distorts at the edges. It's the same sort of optical image one would see in say a $150 pair of 10X50 binoculars. It's definitely better than the image in a sub $100 pair of 10X50s.

In a side by side comparison, in terms of what could be seen, the Apogee binoculars blew away the Pentax binoculars, in much the same manner that the Pentaxs had blown away the various 10X50 pairs of binoculars I'd tested it against. Omega Centauri wasn't a fuzz patch anymore, with very fine stars on the verge of resolution.

However, observing the moon showed lots of blue on one side, and yellow on the other, with a very sharp image elsewhere. Then I noticed that by moving each eye around individually, I could eliminate all the blue, and all but a trace of the yellow. But I couldn't do it with both eyes open. Then I checked the Pentax binoculars, and found that they did a similar thing. So I'm unsure what to make of it. Is this an artifact of the high magnification, of the long eye relief that they both have, or of my eyesight? I don't know. I know it can't be chromatic aberration, because it doesn't disappear no matter how much one moves one's eye around the eyepiece. And alternately opening and closing each eye didn't reveal any collimation problem, either.

Contrary Opinion

I had my friend over to evaluate the optics. He is into fluorite refractors and owns a pair of Doctor 10X50 binoculars that he paid $1200 for. His opinion was that the Apogee binoculars had very ordinary optics. He then stated that contrast is everything, and that a pair of 10X50s with very good optics will give a better view of deep sky objects and stars than would my pair. To which I replied "Utter Nonsense". (Note, in the ensuing discussion, I asked what telescope he recommends to a beginner, as I usually recommend a cheapish 80mm short tube refractor. He said he recommends a Televue Ranger – which kind of explains where we're both coming from).

Anyhow, I know some of you would share my friend's view of optics, which is why I've included his comments.

Summary

If you are into binocular observing, and aren't a nit-picking perfectionist, then these binoculars are an absolute bargain. But you will require a heavy-duty tripod.

Recent Meetings

Public Nights

The public night at The Briars on May 2nd saw 45 attendees in total, with Richard Pollard giving a new talk based on slides prepared by Ian Sullivan. This night was run in conjunction with the National Starfest 2003 programme. Thanks in the field to everyone who ventured out on a less than ideal evening, i.e. rain wind, etc. Due to the conditions, it was not surprising that no telescopes were on hand. Imagine the surprise when the skies magically cleared and an emergency dash to bring down the Peter Norman 12" was required.

The public night at the Briars on June 6th saw 60 booked in, but only 15 turned up given the gale force winds and rain present in the early evening. The usual constellation of telescopes was not present as most members didn't bother to turn up (i.e. zero telescopes!). The talk was given by Peter Skilton and, following many questions from the young children present, the audience went outside to find the skies almost perfectly clear, with wonderful (but cold) views of the Milky Way, Moon etc. Thanks in the field for turning up, despite the weather, to John Cleverdon, Roger Chandler and Don Leggett who hastily drove up to the observatory to bring down the Peter Norman telescope. This weather behaviour has happened many times before over the years at Mt.Martha and appears to be characteristic – it might be raining, lightning and hailing a few kilometres down the road, but amazing the skies will be perfectly clear at The Briars – we are clearly blessed.

One hundred and ten students at Langwarrin Park Primary school were visited on May 5th, to hear Don Leggett give a talk on the solar system.

Caulfield South Primary School visited Camp Manyung for the first time on 11th June, and received some Astronomy on the Move. One hundred year 5/6 pupils and teachers heard Peter Skilton give the talk, before moving out under perfectly clear skies in chilly conditions to enjoy the skies. Unfortunately, no planets were visible at that hour, but good views were had of the gibbous Moon. Thanks in the field for help with telescopes and binoculars to Rhonda Sawosz, Ian Sullivan, Bruce Tregaskis, Roger Chandler, Greg Walton and Simon Birch.

May's meeting was chaired by Peter Skilton, assuming the Presidency from David Girling who has unavoidably had to stand aside for health reasons, and saw 47 in attendance on a wet and cold evening.

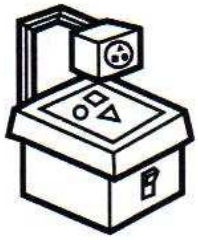
A run down of society events in the last month was given by John Cleverdon, together with advance notice of the Messier night, and Peter Skilton provided advance notice of an extremely rare naked eye minor planet occultation on the evening of June 24th on the star beta Virginis, and for which a major observing effort of as many members as possible is planned. Bruce Tregaskis reported an old nova in Sagittarius that had flared up again.

Dr. Tanya Hill from the Melbourne Planetarium at ScienceWorks then gave a computer-illustrated talk on all aspects of Black Holes, which was punctuated frequently by numerous questions from the audience.

Following the presentation, the group broke for social interaction and tea for half an hour, then reconvened in two parallel sessions. The video session in the library room saw "*Catastrophe: the Day the Sun Went Out*", while in the main theatrette the raffle was drawn then three quarters saw slides of the May 7th afternoon transit of Mercury across the face of the Sun by Ian Sullivan and Jim Blanksby from northern Victoria, and Peter Skilton from adjacent to Frankston pier, with the skies in both locations being clear until later in the transit. These were taken at prime focus and with eyepiece projection techniques.

Bob Heale then presented *Sky for the Month* on his laptop and passed around his traditional handout sheet. Meeting closed at 10:25pm. This meeting was video taped, and is available in the library.

On Friday evening of May 23rd, twenty members attended Swinburne University's Hawthorn campus to visit the 3D Virtual Reality Theatre on the 4th floor of the Applied Sciences building in Hawthorn. The evening, organised by Roger Chandler, saw everyone donning the polarised glasses to view Eros (inside and out), care of the NEAR spacecraft data; views of the Sun and Mars; pulsar jets; the Milky Way and interactions with the neighbouring Magellanic clouds; and formation of galaxy clusters in the early Universe. At the time it was commissioned, the supercomputer at Swinburne that created these virtual reality movies was purportedly the most powerful in Australia. It now ranks number 3 in Australia, and 180th in the world, and this is needed to crunch the mind-bogglingly large number of calculations for a N-body gravitational interaction problem, where N is typically 100,000 stars, and which consume 3 months of its dedicated time. Several members were seen to be groping the air in front of them in an attempt to touch the screen about 5 metres away due to the impressive 3D effects generated.



Junes meeting was held on the 18th, and had about 35 attendees. Ian Sullivan chaired it in the absence of the President. Ian welcomed everyone and reminded members he has slides of two eclipses for purchase. Anyone interested, please contact him.

Don Leggett spoke on the urgent need for more members to be involved with viewing nights for schools etc. Don pointed out that the funding from these nights is considerable, and without this source of revenue the society would not be able to subsidize membership fees. Being involved only necessitates being there – and helping out with the students. So please, can we all make an effort to try and attend these nights?

John Cleverdon spoke on the recent Messier night but due to the poor weather on the night it was thought appropriate to declare it a non-event. However, in typical peninsula weather fashion, of course, it later cleared.

Guest speaker was Tony Schaltken who talked at length about like on Europa,

one of the Galilean moons of Jupiter. His talk was accompanied by slides and was followed by a robust and interesting question and answer time. Tony reiterated Dons call for help with viewing nights and endorsed the need to interest school children in star-gazing at an early age.

The raffle was then drawn before a break for a much needed cuppa and chat. Afterwards, Bob presented his Sky for the Month segment and the video shown was 'Mars, Pioneering the Planet, Pt. 1'.

Meeting closed 10:30.

Occultation of Beta Virginis by asteroid Alkeste

This much anticipated event was marred by bad weather in most areas, with dense high cloud preventing many from witnessing it.

Peter Skilton traveled north to Avenel, north of Seymour where clearer skies prevailed and observed the star but saw no occultation, due to the shadow traveling some 25km south of the predicted path, along a line from Warracknabeal to Lakes Entrance. Reports indicate that some records were taken by observers along this path and also in New Zealand, where the skies were much more cooperative.

If you observed this event, even if you saw no change in the star, please report it to Peter as this is still valuable information.

VASTROC '03 WRAP-UP

VASTROC, the Victorian Astronomy Convention, which is a get together of amateur astronomers from across the state once every two years, went ahead as planned on May 3rd and 4th at the Ballarat Municipal Observatory, just near Sovereign Hill in Ballarat. The host this time was the Ballaarat Astronomical Society, and a fine job their many volunteers indeed did, making great social use of a newly donated and commissioned house on the site. Judith Bailey, President of the BAS, opened the proceedings on Saturday morning in the observatory building, and was followed by Bill Fiddian speaking about the interesting historic telescopic connections between the BAS and Mount Stromlo. Alfred Kruijshoop of the ASV then gave advance notice of some upcoming asteroidal occultations in central Victoria, and Graham Hardy spoke about his experiences behind the counter of an astronomical commercial supplier in Melbourne.

Following a break, Peter Skilton of the ASF then gave the latest on his long-term project to hunt for more Cranbourne meteorites (and threw polystyrene balls at the audience to simulate a meteorite fall, and make sure they were listening), then Cris Ellis, President of the Astronomical Society of Melbourne, introduced this primarily amateur telescope making society to the others gathered. Peter Lowe of the ASF reported on his observations of the penumbral lunar eclipse of 2002 in which he attempted to detect unambiguously from Langwarrin the elusive penumbral shadow using equipment within reach of most amateurs. After lunch, Ian Sullivan of the ASF spoke on the history and mechanisms of transits of Mercury and Venus, then Barry Adcock of the ASV reported on the upcoming close approach of Mars and what to expect. Prior to dinner, Karenza Burk of the BAS showed some glass photographic plates, and Ian Sullivan gave some detailed predictions for the current Mercury transit, while Jim Blanksby of the ASV presented a poster on minor planet occultations.

On the Sunday morning, Peter Norman of the ASF talked about 380,000 years after the Big Bang, followed by Perry Vlahos, President of the ASV, speaking on the life of William Herschel, then Barry Clark of the ASV reported on research he was undertaking on Light Pollution, and Alfred Kruijshoop spoke about what options were available for accurate time signals now that VNG was closed by the federal government. Peter Skilton then spoke on the Planet Walk at Uetliberg in Switzerland that he had visited in July 2002, followed by Bill Fiddian outlining the BAS plans for Stage 3 of their society's development plan, being for a Science Park on the site, and which would incorporate a small model of the solar system across the site (about 100 metres) and various other educational exhibits and hands-on activities. Barry Clark then demonstrated a homemade shoebox spectroscope that he used to show the Fraunhoffer lines of the Sun, before another very friendly VASTROC closed following lunch. Congratulations to the BAS and her hardworking volunteers for a most comfortable and enjoyable gathering.

Mars: The Best View Yet

By Richard Pollard, Editor

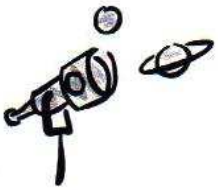
At the General Meeting in July, the ASF will be treated to a talk by Barry Adcock from the Ballarat Astronomical Society and the Astronomical Society of Victoria on this years opposition of Mars.

Here's a little background to this event you may find useful while we wait for Barry's visit.

On August 27, Mars will be at opposition, i.e. directly in a line with the Earth and the Sun, with us being in the middle (see picture). This means the planet will rise at sunset, placing it in the best position for viewing. What makes this event better is that one day later Mars reaches perihelion; it's closest point in its orbit to the Sun, and therefore, us. The result of all this is that Mars will be at it's closest to Earth (55.76 million km) at the best viewing position. The next time it will be as favourable is in 2287, although the opposition of 2208 is almost as good. The orbit of Mars is more elliptical than that of the Earth, on average some 228 million km from the Sun, but at opposition to Earth it varies by some 42 million km. For example, in this 2003 opposition the planet is 55.76 million km; the opposition of 1997 saw Mars at 98.64 million km.

Mars has always been a keen target for observers. Due to its orbit it appears in the night sky for a period of a few months every two years or so, so there is plenty of time for anticipation to build. Of course there's the folklore

surrounding the Red Planet and it's possible life (some say *im*possible life!) and how it's stirred our imaginations for millennia. It's also dynamic: the surface features are always changing: dust storms can obliterate features and uncover new ones, or simply shroud the entire planet making no feature visible (fingers crossed this doesn't happen!).



What will I need to see all this? Almost any telescope should allow the observer to make out surface patterns on Mars, but as with most astronomy, bigger is almost always better. Top-end refractors and relectors will obtain the best views with suitable filters to enhance details. I'd recommend a few designated nights at The Briars to look through the various telescopes owned by our members, who would be happy to allow you a look-see. The ASF calendar has Friday 29th August as a Mars Viewing Night but any member night from now on will include Martian observations.

When will it happen and how long will it take?
You can start observing Mars now. Each night the planet grows larger and will do so until opposition when it will shrink again, in November, to the size it was in June. That's six months of viewing time. To find Mars, just look in the eastern sky about 10pm (it actually rises around 9pm, allow an hour for it to clear the horizon. It's unmistakeable as a bright, distinctly red point of light.

Make the most of your 2003 Mars experience; the memories will last a lifetime.

AstroNews

A New Home for the Cranbourne Meteorites?

The famous Cranbourne meteorites, currently spread throughout the globe in museums and council offices, may find a new home if a residents lobby group gets its way.

The current display site on the corner of South Gippsland Highway and Camms Road could be developed into a 'mini Scienceworks' with static and interactive displays, a café, shop and other tourist facilities. Under the plan, tourist buses that currently pass through Cranbourne on the way to the Seal Rocks and Penguin Parade would include the display on their itineraries. The group has already prevented the high profile site from becoming a Hungry Jacks as well as a block of takeaway shops.

Support has also been won from two leading candidates in the upcoming Strathard by-election. The first step however, is to convince The Casey council to buy a small block at the site that was once a car yard.

The Cranbourne Meteorites caused a stir in astronomical circles when they were discovered in the 1850's: at the time they were the largest of their type and as a result, the biggest of them was promptly shipped back to Mother England and lies to this day in the London Natural History Museum. The Second largest is in the Museum of Victoria and another chunk is in the Casey offices at Narre Warren (this may be the fragment that has reportedly been used as a door stop!).

Editors Note: The Cranbourne Independent, who published this story, is producing a special article on the meteorites that will include some input from the ASF, but details were not available at time if printing.

Japan Approves Mercury Mission

A key committee of the Japanese government has given its approval for a space mission to the planet Mercury. The mission, scheduled for launch in about seven years' time, will be a joint venture between the Japanese and European Space Agencies and will be the first to attempt a landing on the planet. Only one probe has so far visited Mercury, the innermost planet of the solar system. NASA sent the Mariner Ten probe in mid-1970s and received a series of tantalising photographs.

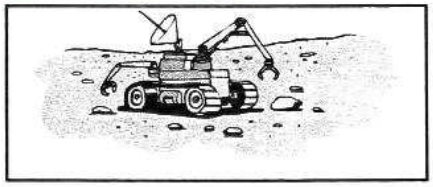
Mercury is a rocky planet and appears very dense but beyond that, little is known about it. Scientists believe it could hold the key to understanding how the solar system formed - hence the proposed Japanese-European mission.

The mission is named BepiColombo after the late Italian mathematician whose calculations were vital in sending Mariner Ten to Mercury. BepiColombo will consist of two orbiting probes and a lander, which will penetrate through the planet's surface.

The European Space Agency approved the project and budget three years ago, but the Japanese Government has yet to commit its share of the funds. Following approval by its space activities committee, Japan is expected to include the cost in its budget for next year, meaning that BepiColombo should be able to meet its target of launching in 2010.

Earth Invades Mars!

The invasion has begun!



As you read this, a small armada of spacecraft are speeding their way to the Red Planet. They are all taking advantage of Mars's close proximity and therefore shorter flight times to add to our knowledge of this planet.

Among them is the European Space Agency's ***Mars Express*** spacecraft, launched on June 3 by a Soyuz-Fregat launcher from the Baikonur Cosmodrome in Kazakhstan.

Mars Express is designed to take a payload of seven state-of-the-art scientific instruments and one lander to the red planet and allow them to record data for at least one Martian year, or 687 Earth days. The spacecraft will also carry a data relay system for communicating with Earth. Weight is being kept to an absolute minimum: 116 kg is allowed for the seven instruments and 60 kg for the lander. And off-the-shelf technology, or technology developed for the Rosetta mission to a comet, is being used wherever possible.

Beagle 2 Lander

The lander on this spacecraft is a primarily British venture, the **Beagle 2** (Beagle 1 being the ship that carried Charles Darwin on his epic voyages that led to his famous publication '*On the Origin of Species*'). When folded up, the Beagle 2 lander resembles a very large pocket watch. This is the state in which it will pass the long journey to Mars, attached to one side of the Mars Express spacecraft underneath the umbrella of its heat resistant shield.

Five days before reaching Mars in December 2003, a spring mechanism on board Mars Express will eject Beagle 2. The mothercraft will leave the little lander to make its own descent to the surface, powered only by the pull of the planet's gravity. The heat resistant shield will protect it as friction with the upper atmosphere slows it down. When its speed has fallen to about 1600 km/hr, parachutes will deploy to slow it further. Finally, large gas-filled bags will inflate to protect it as it bounces to a halt on Isidis Planitia, the selected landing site. As soon as the lander has come to a halt, the gas-filled bags will be released and the outer casing will open to reveal the inner workings. First, solar panels will unfold: they will catch sunlight to charge the batteries, which will power the lander and its experiments throughout the mission. Next, a robotic arm will spring to life. Attached to the end of the arm will be Beagle's PAW (Position Adjustable Workbench) where most of the experiments are situated. The PAW's first job will be to move around so that the cameras attached to it can take in the view.

Another spacecraft, a Japanese probe named ***Nozomi***, is also on its way, but that was launched way back in July 1998. What's taking it so long? It was originally scheduled to reach its destination in October 1998, but an earlier swing past Earth failed to give it sufficient speed, and adjustments to make up for that burned more fuel than forecast, forcing a drastic retooling of its flight plan. In April last year, a burst of solar flares damaged Nozomi's heating system and cut off most communication with the probe. The computer control systems on the probe were intact, however, allowing engineers on Earth to repair the spacecraft. The probe, who's name means Hope, passed within 6,800 miles of the Earth on June 20 in a slingshot maneuver designed to use the planet's gravity to fling the probe toward Mars.

What would a fleet of spacecraft be without something from NASA?

Despite being plagued with problems in recent Mars missions, The US agency is throwing their hat into the ring. The **MER** or '**Mars Exploration Rover**' missions consist of two independent craft: MER-A, launched on June 10 and MER-B was scheduled for launch on June 28, although delays due to weather prevented this launch window from being utilized. These rovers were later re-named 'Spirit' and 'Opportunity'. While 'Opportunity' sits in its Delta launch vehicle waiting for the weather to clear, 'Spirit' is some 18 million km from Earth and well on it's way. Both spacecraft consist of rovers similar in appearance to the Sojourner vehicle that was part of the highly successful Mars Pathfinder mission of 1997, although these are larger, about the size of a ride-on mower.

Of all the craft, *Mars Express* will reach the planet first, around Christmas Eve this year, with the NASA probes arriving about two weeks later. An exact time of arrival for the Japanese spacecraft is not available, but it should be at the Red Planet in early January.

All the agencies involved in these missions claim this is not a new space race, but it's hard not to see some competition between them. I mean, who will remember the second team to discover water on Mars?

SOHO on the Blink... Again

An antenna glitch has forced NASA engineers to put the sun-watching SOHO spacecraft to sleep for at least two weeks, causing a data outage that will temporarily suspend its use as a space weather forecasting tool. The move comes about a week after SOHO engineers realized the spacecraft's high gain antenna was not working properly. It also comes the day after the fifth anniversary of SOHO's first brush with death, when software changes almost resulted in loss of the spacecraft in 1998. "Not only did we get [SOHO] back then, but we got it back with 98 percent of the instruments undamaged," said Joe Gurman, U.S. project scientist for the Solar and Heliospheric Observatory (SOHO).

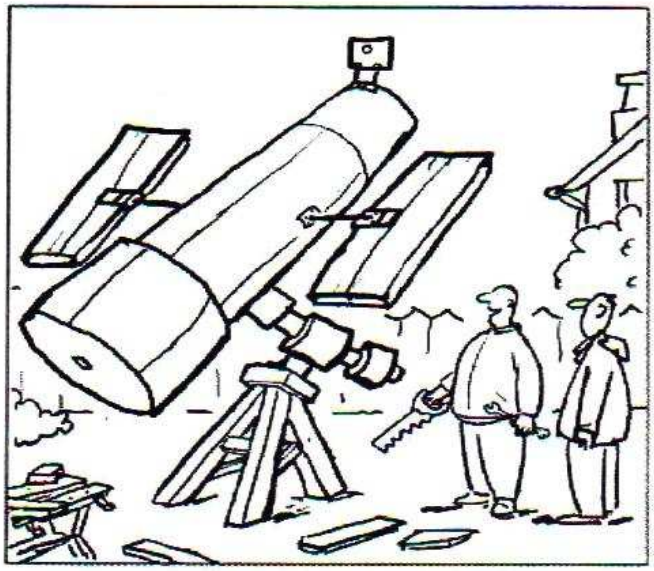
Launched in 1995, SOHO is a fundamental tool in space weather forecasting because of its constant eye on the Sun. Space weather scientists use the craft to detect coronal mass ejections, solar phenomena that can knock out satellites and interfere with communications. The mission is the result of collaboration between NASA and the European Space Agency (ESA). **Space.com**

For Sale

Vixen VC200L.8 Inch Catadioptric. Comes with EQ5 Equatorial Mount. Manual controls. Wooden Tripod. Wooden Case for Telescope Tube. 2 eyepieces 25 & 10 mm Plossls. Easy to Transport. In very good condition. Worth over $3000. Sell to ASF member for $1550. ONO. **Celestron Nexstar 13mm Plossl** 1.25 Inch. Perfect Condition. $120.ONO. **Full Aperture Solar Filter,** JMB Class A. Glass Filter. Suit 8 inch SCT.$150. **Meade Anniversary Set of Super Plossl's**, 7 Eyepieces plus case. $500. **1.25 inch 3x Barlow**, made in Japan. Excellent quality. $150. **Epic ED-2 5.1mm Eyepiece,** 1.25 inch. $50.

If you're interested in any of the above items, **Phone Dave A/H 59756506.**

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)



'It's based on the Hubble Space Telescope.'

Left - Telescope Learning 7 June 2003

Photo - *By John Cleverdon*

Left - Working Bee at the ASF Briars site on 3 August 2003

Photo - *By John Cleverdon*

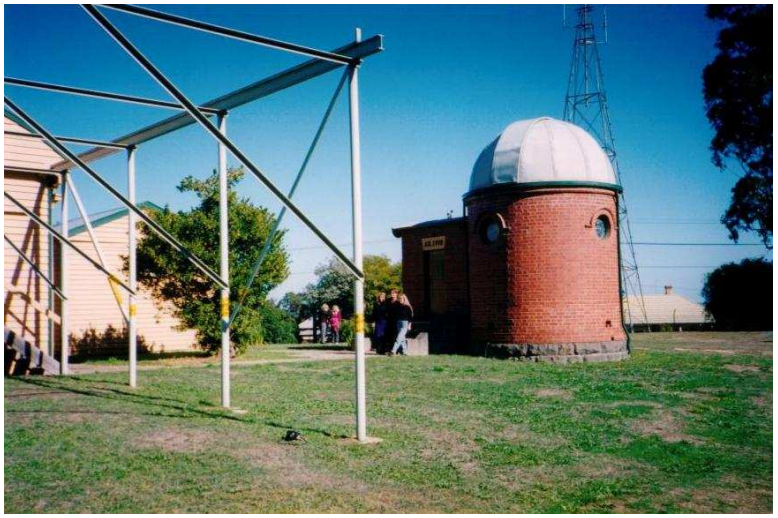
Kindly reproduced by Jane McConnell and collated/posted by Mary Westaway

Scorpius Extra!!!!!

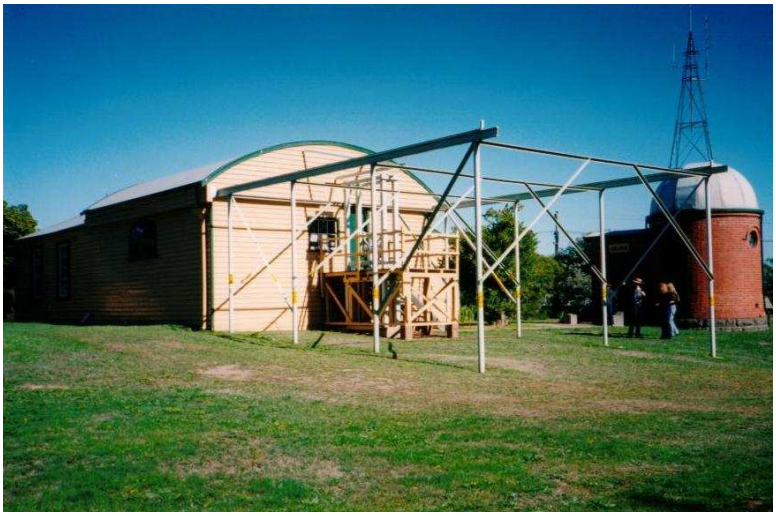
MPAS at Vastroc 2003

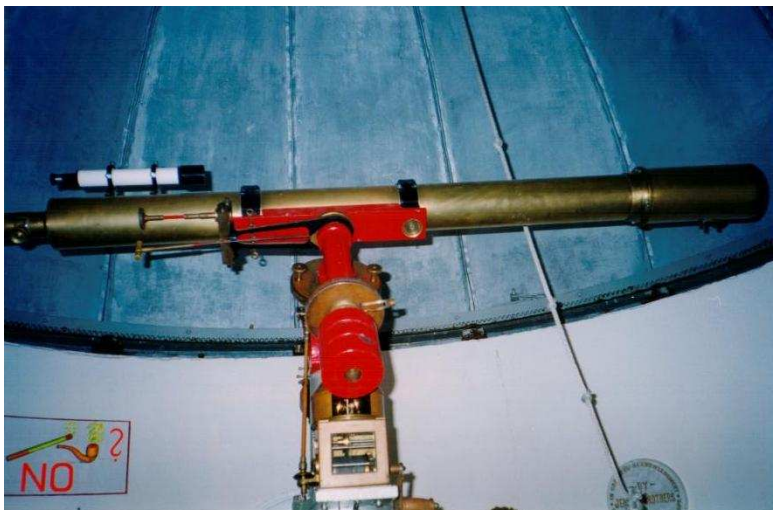
Hosted by - Ballarat Astronomical Society
All Photos - *By Greg Walton*

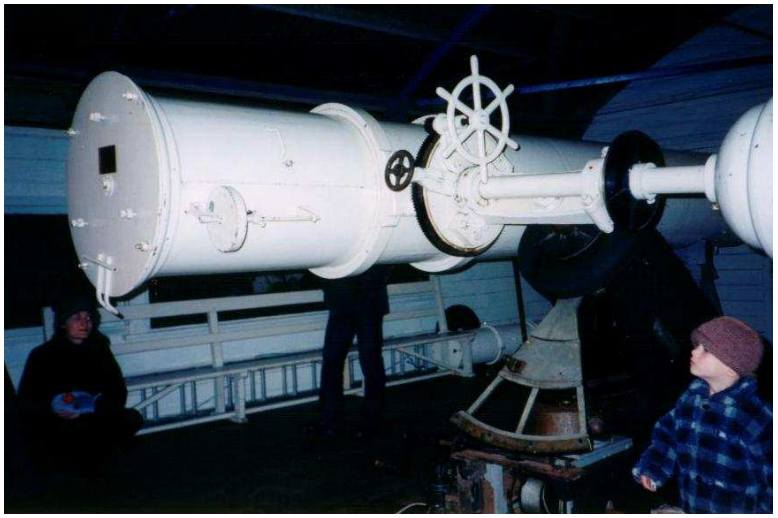
Right - 5 inch Brass refractor telescope & Domed observatory.

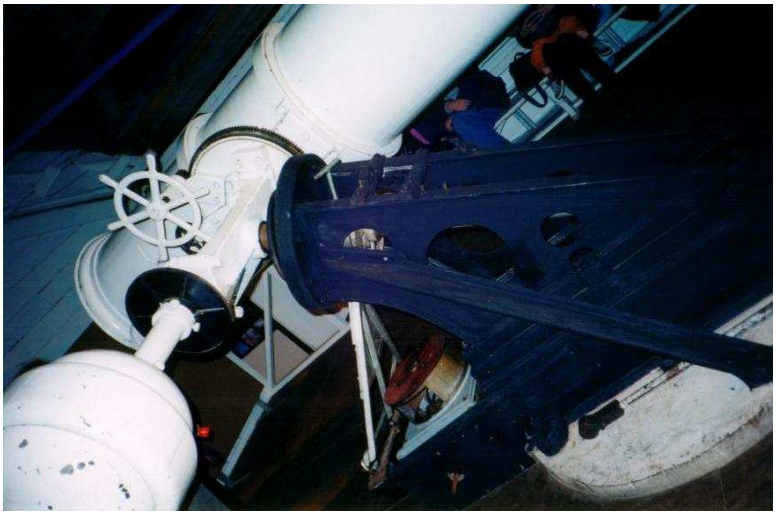


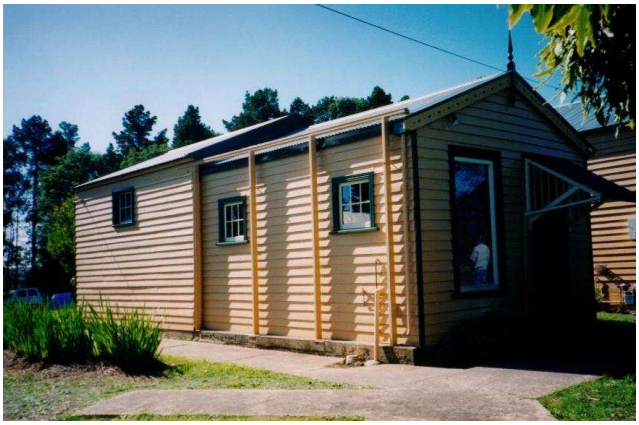
Below - The Baker 26 inch telescope & Roll off roof observatory.









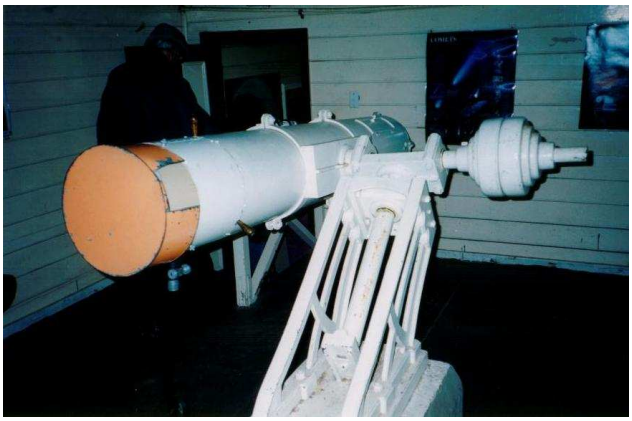


More Photos from Vastroc 2003

By Greg Walton

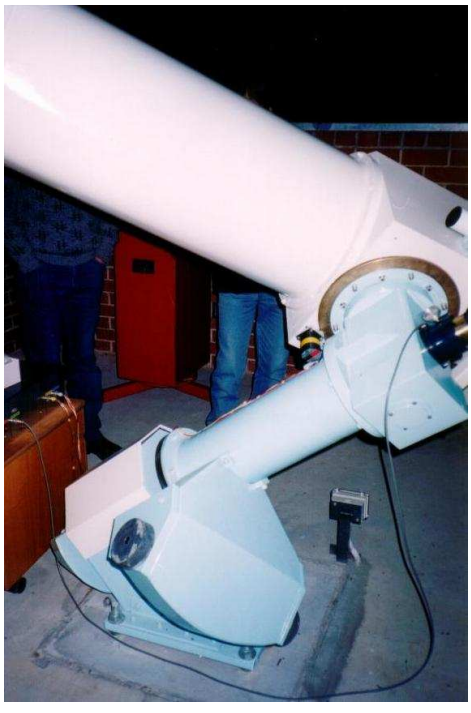
Left & Below Left - 8 inch telescope on cast iron mount & Roll off roof observatory.

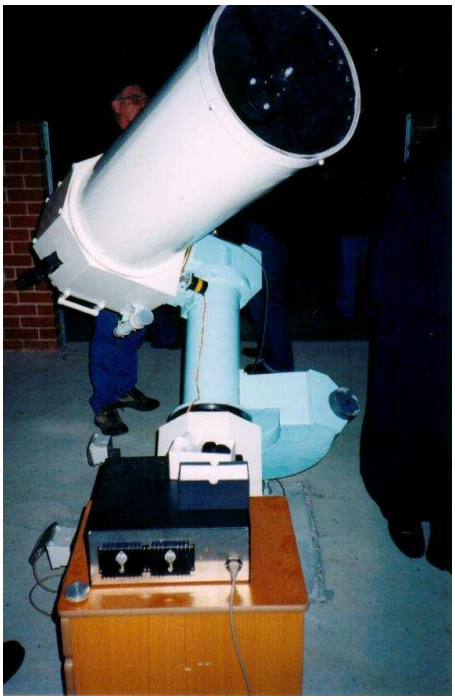
Right - Darren Bellingham looking through a Quest star telescope.

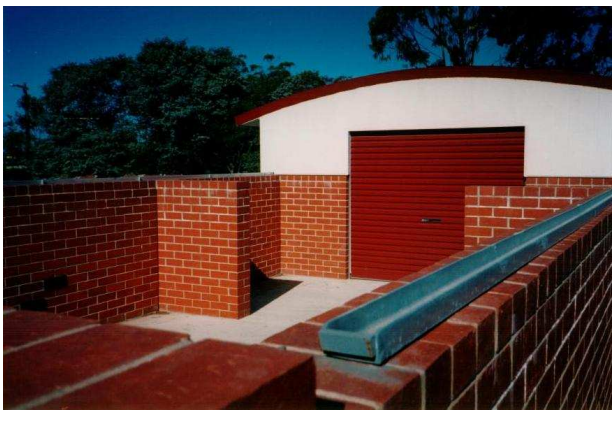


Below - New clubrooms & Library, this weather board house was recently move to the site.

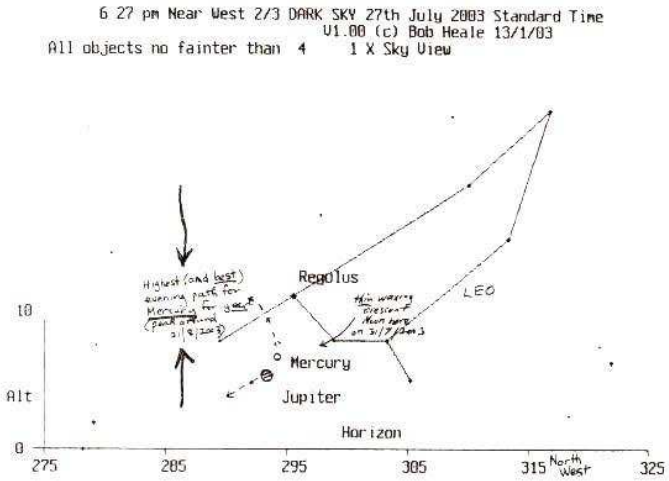
Below - Federation telescope built by Barry Adcock
Left - Roll off roof observatory for Federation telescope

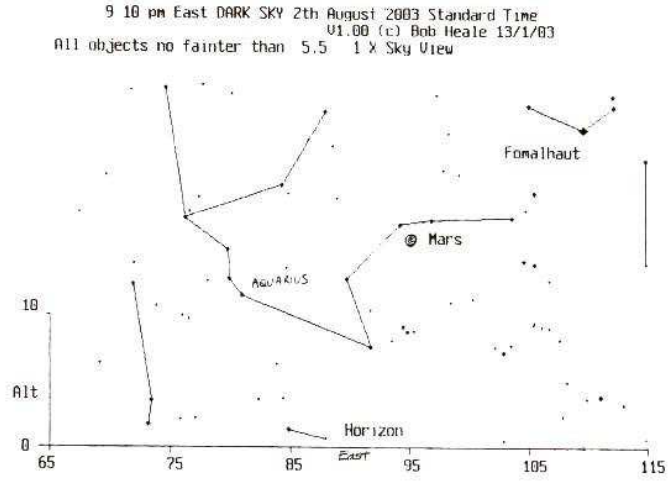




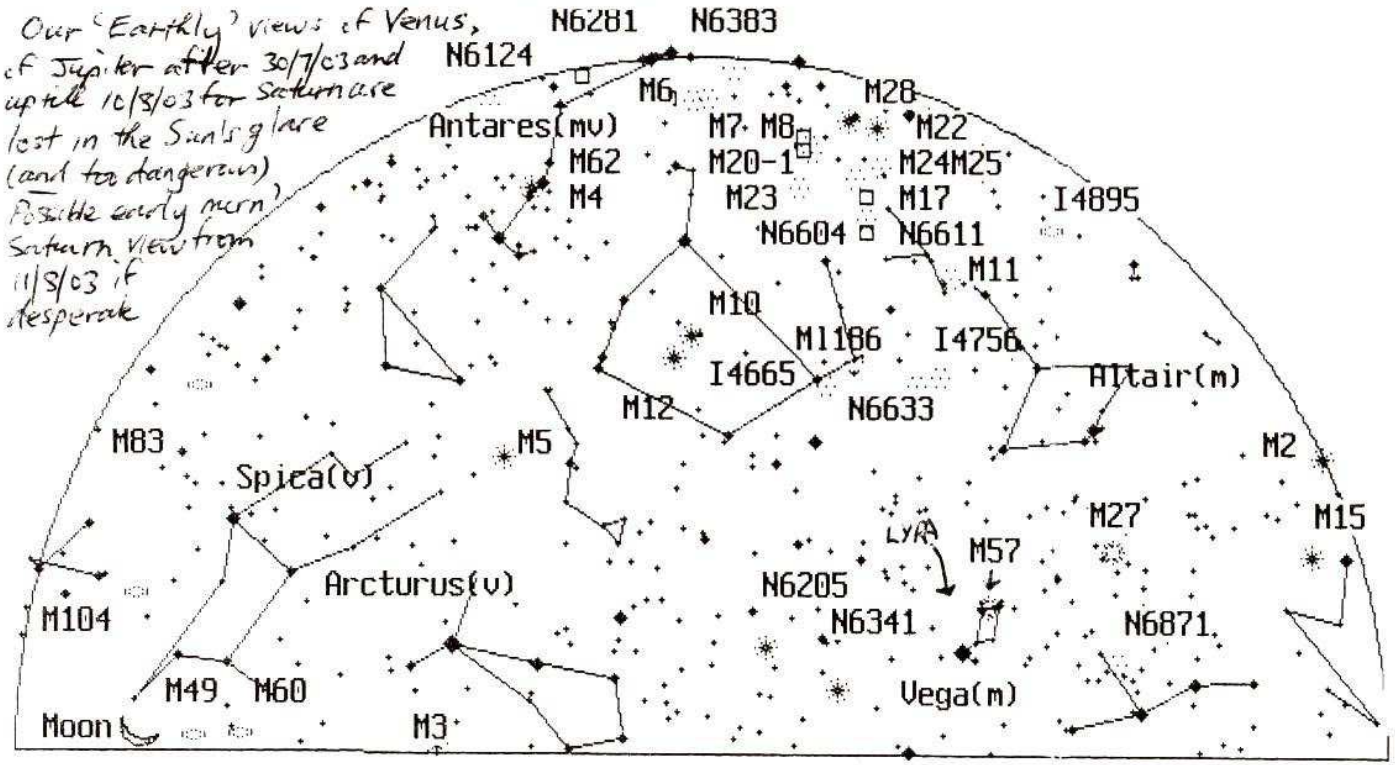


SKY FOR THE MONTH 16 JULY TO 19 AUGUST 2003 MORNINGTON PENINSULA



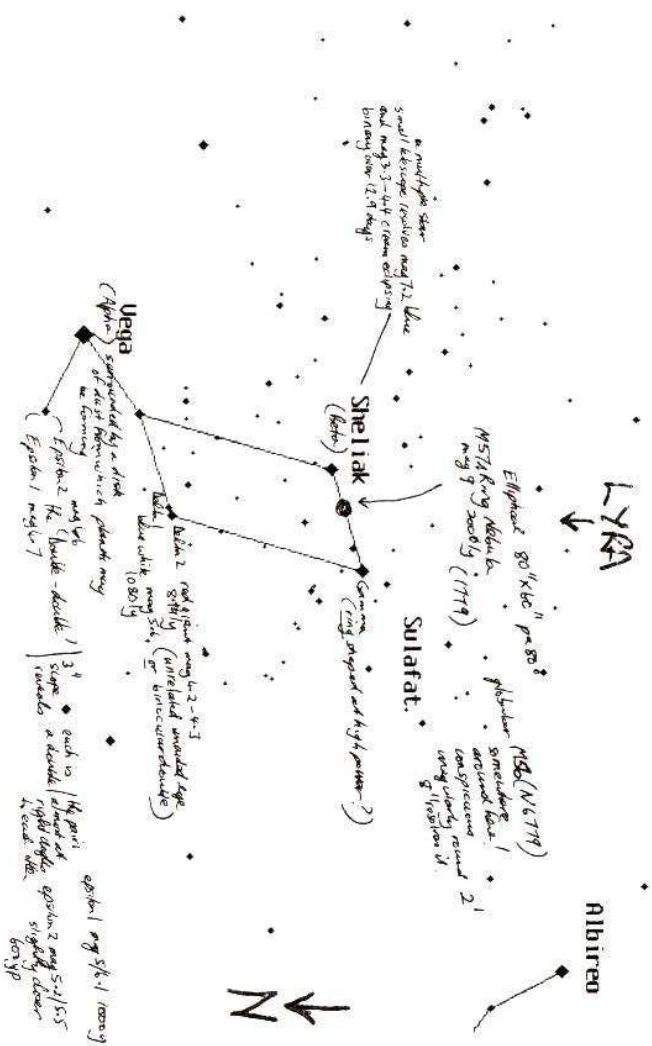


Our 'Earthly' views of Venus, of Jupiter after 30/7/03 and up till 10/8/03 for Saturn are lost in the Suns glare (and too dangerous) Possible early morn Saturn view from 11/8/03 if desperate



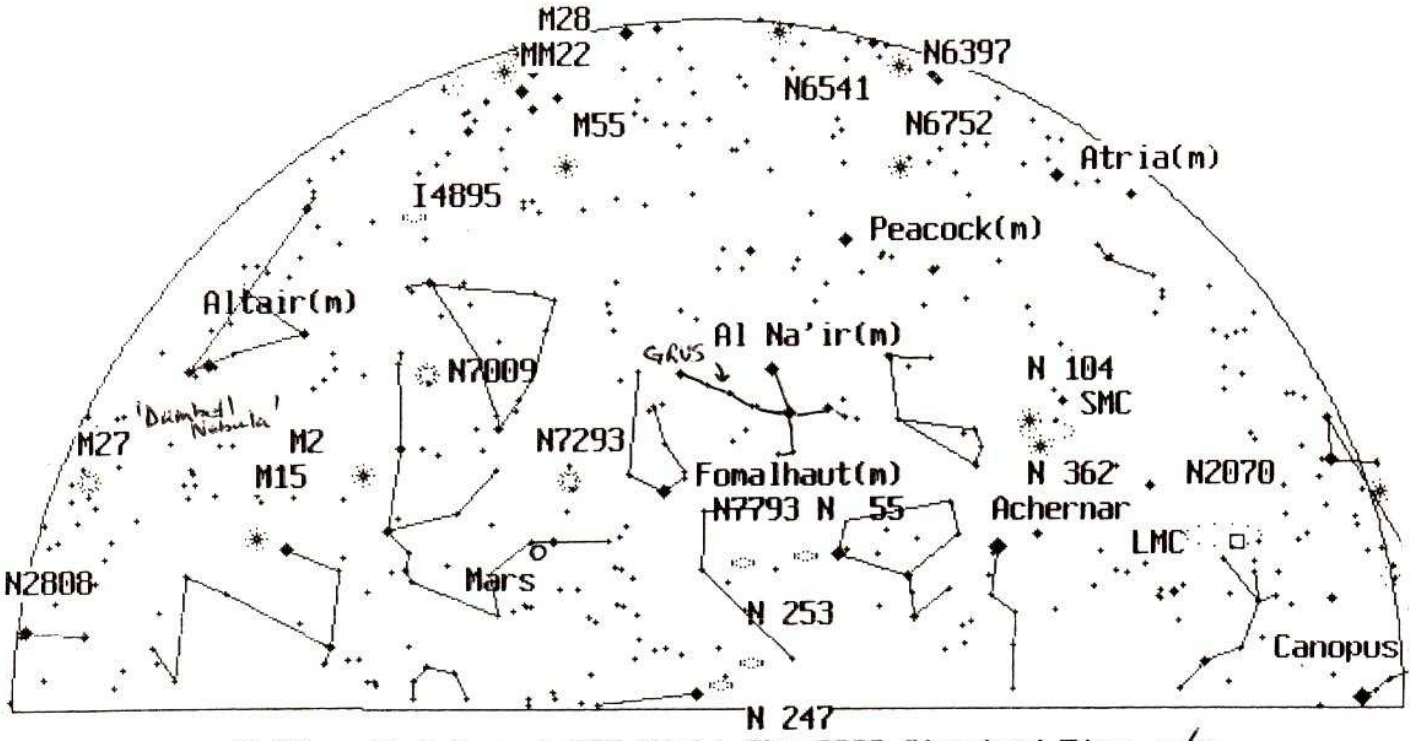
9 30 pm 2nd August NNW Night Sky 2003 Standard Time, a/sc

10 30pm 19 July and 16 August 8 30pm



Bob Heale, ASF
16/7/03

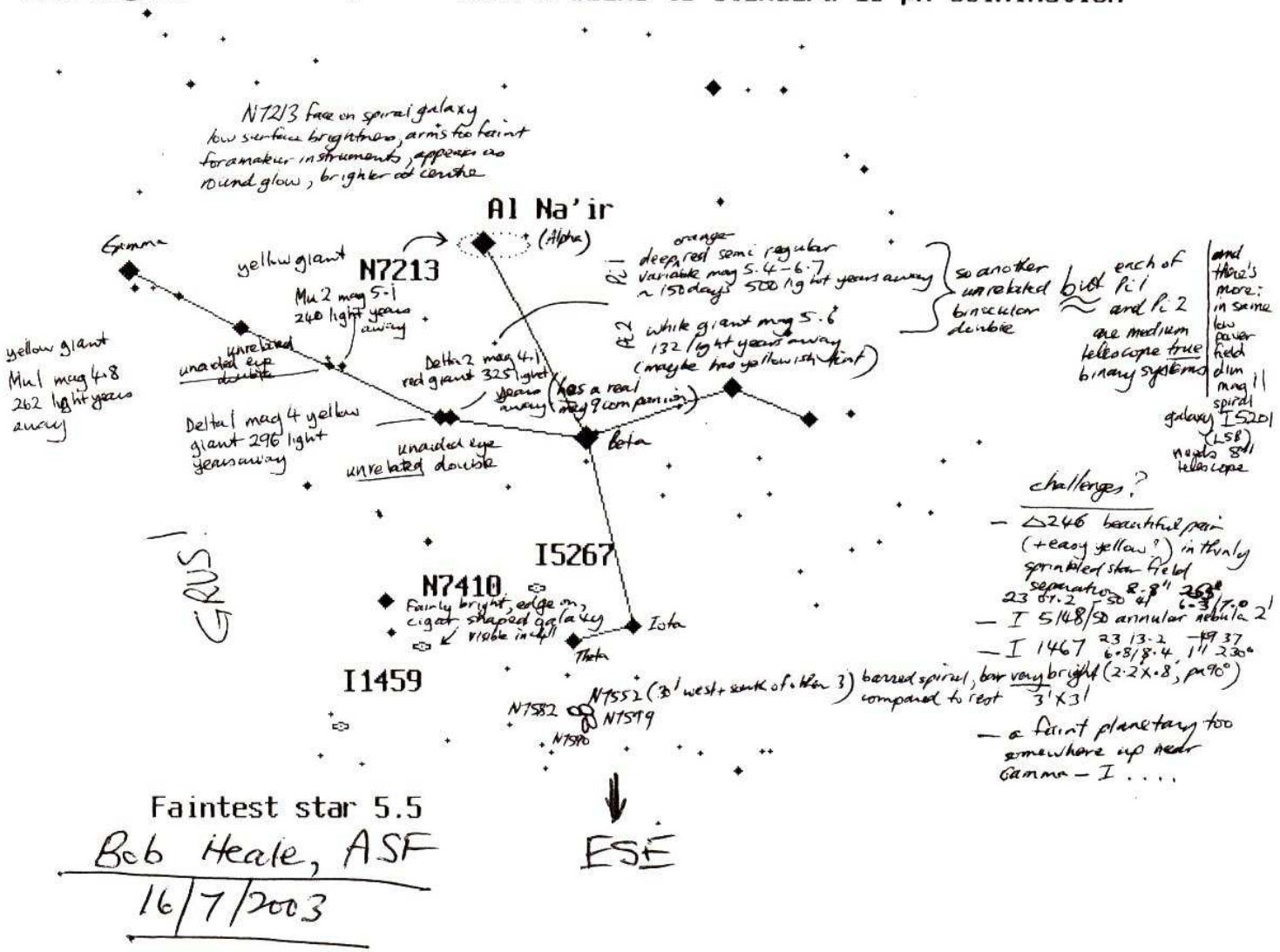
Mornington Peninsula Astronomical Society



9 30 pm 2nd August ESE Night Sky 2003 Standard Time, also
10 30pm 19 July and 16 August 8 30 pm — not Mars

2nd August

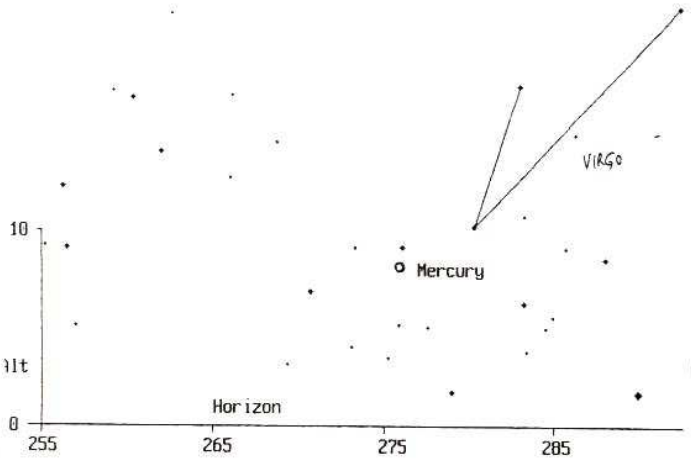
GRUS 6 weeks to standard 10 pm culmination



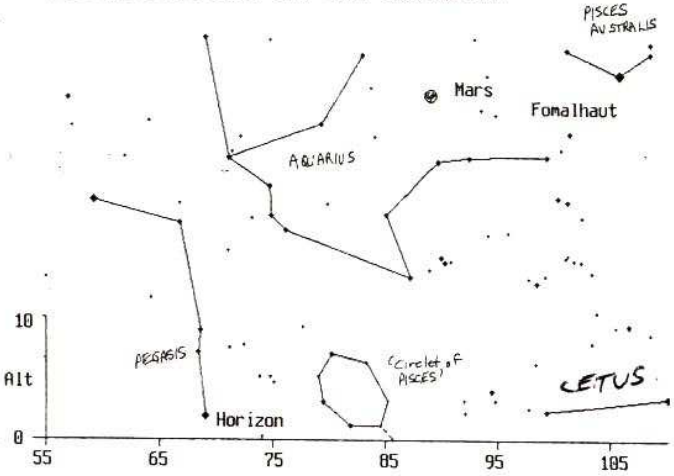
Bob Heale, ASF
16/7/2003

SKY FOR THE MONTH 20 AUGUST — 16 SEPTEMBER 2003 MORNINGTON PENINSULA

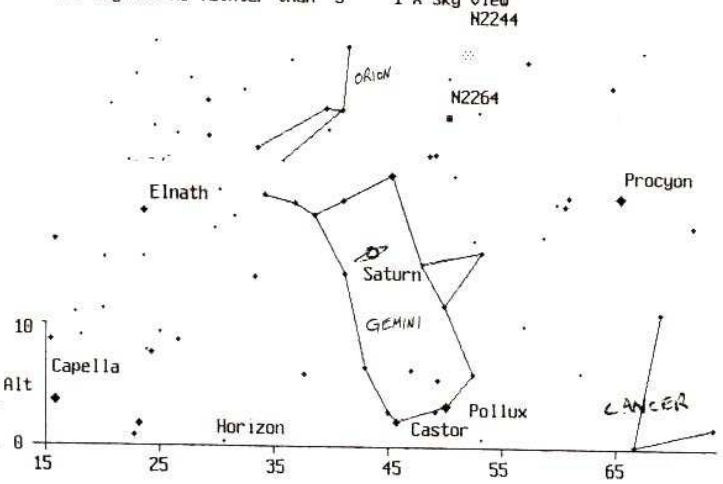
7 15 pm West DARK SKY 21st August 2003 Standard Time
V1.00 (c) Bob Heale 13/1/03
All objects no fainter than 5.5 1 X Sky View

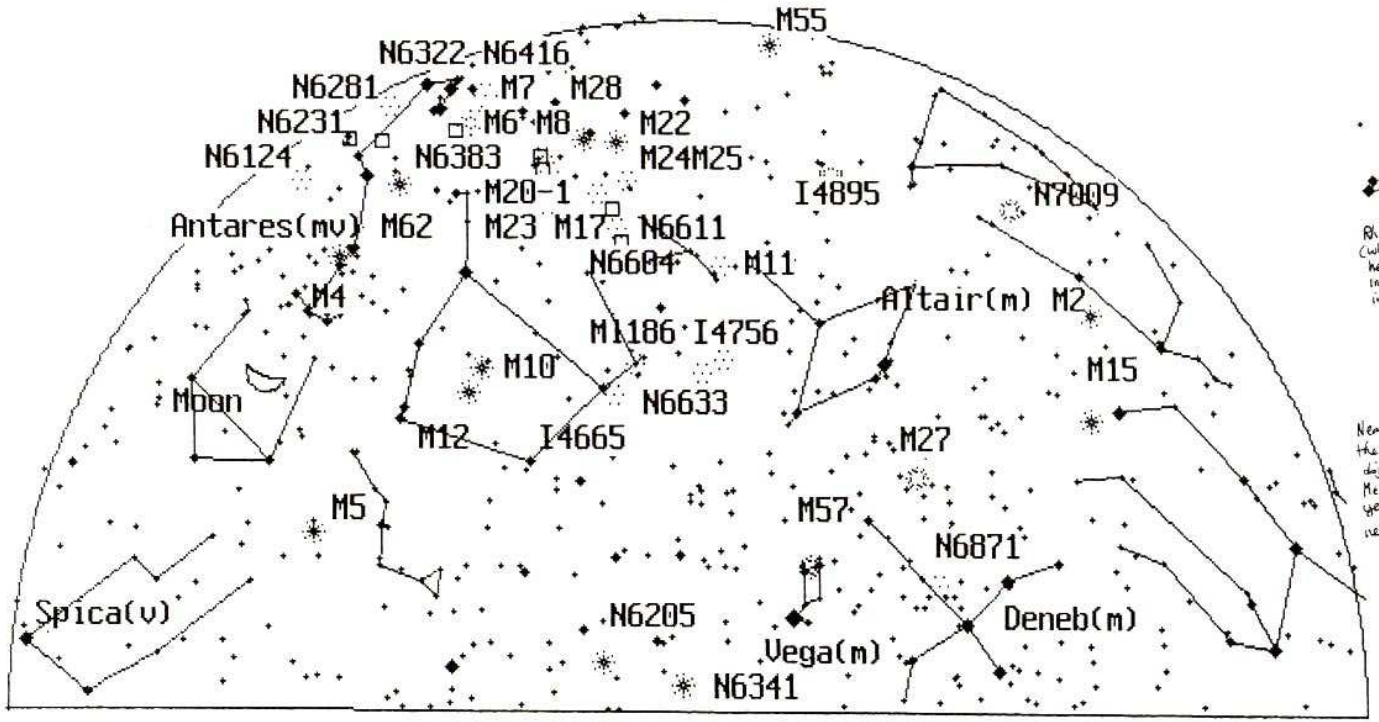


7 30 pm East Dark Sky 4th September 2003 Standard Time
V1.00 (c) Bob Heale 13/1/03
All objects no fainter than 5.35 1 X Sky View

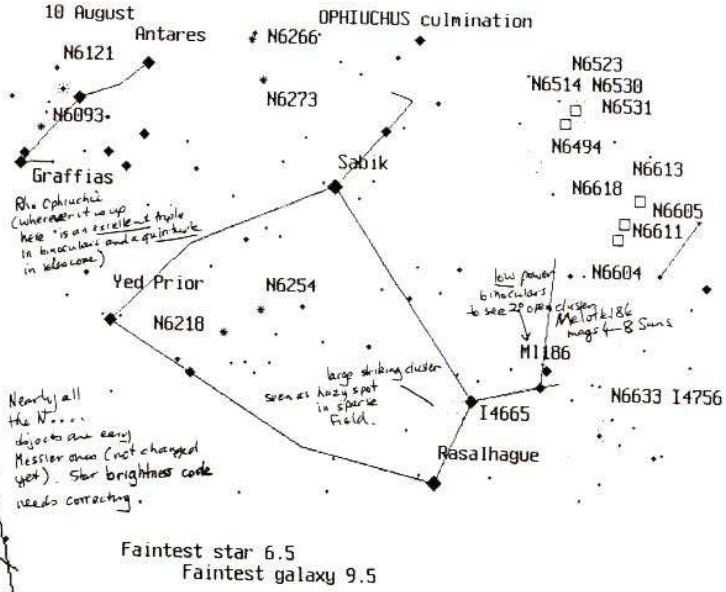


5 00 am North-East DARK SKY 7th September 2003 Standard Time
V1.00 (c) Bob Heale 13/1/03
All objects no fainter than 5 1 X Sky View





9 00 pm 2nd September NNW Night Sky 2003 Standard Time

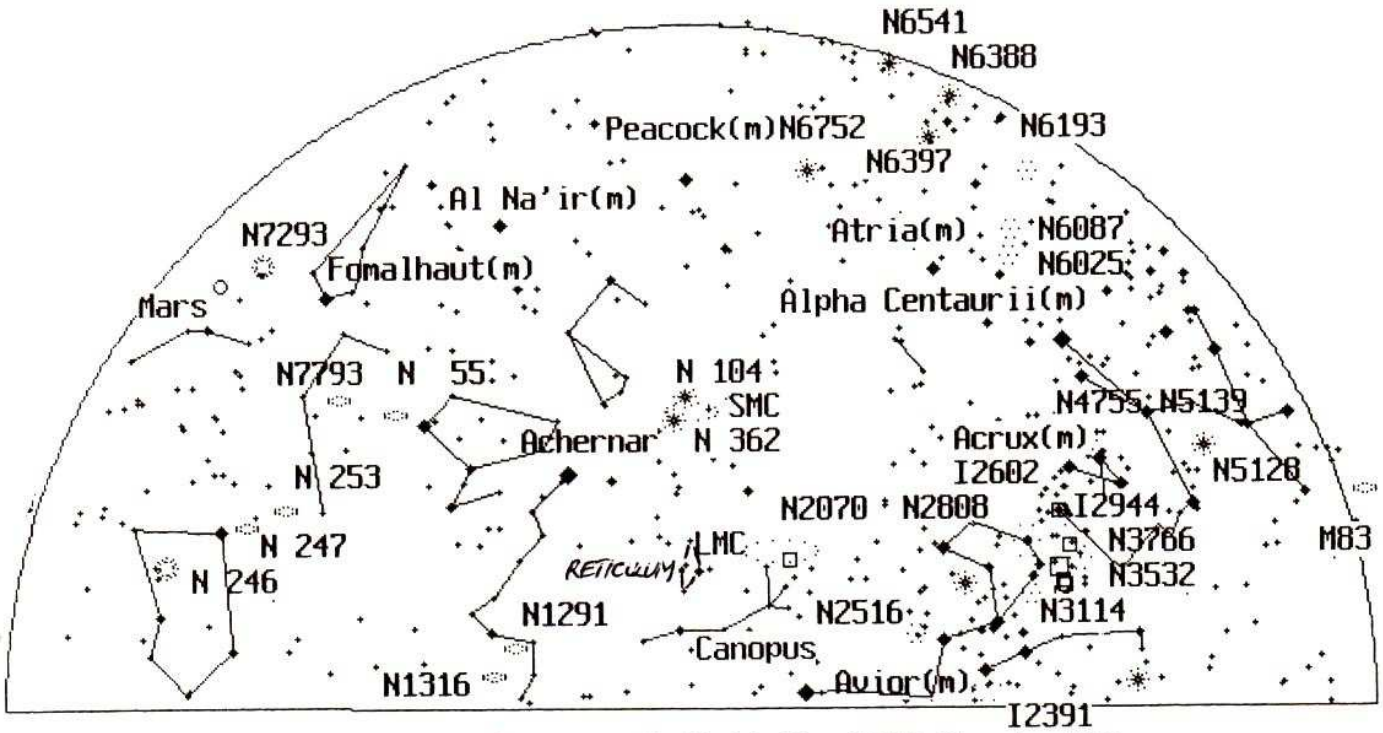


Faintest star 6.5
Faintest galaxy 9.5

Bob Heale, ASF

This handout, 20/8/2003 for years, produced and paid by Bob Heale.

Mornington Peninsula Astronomical Society



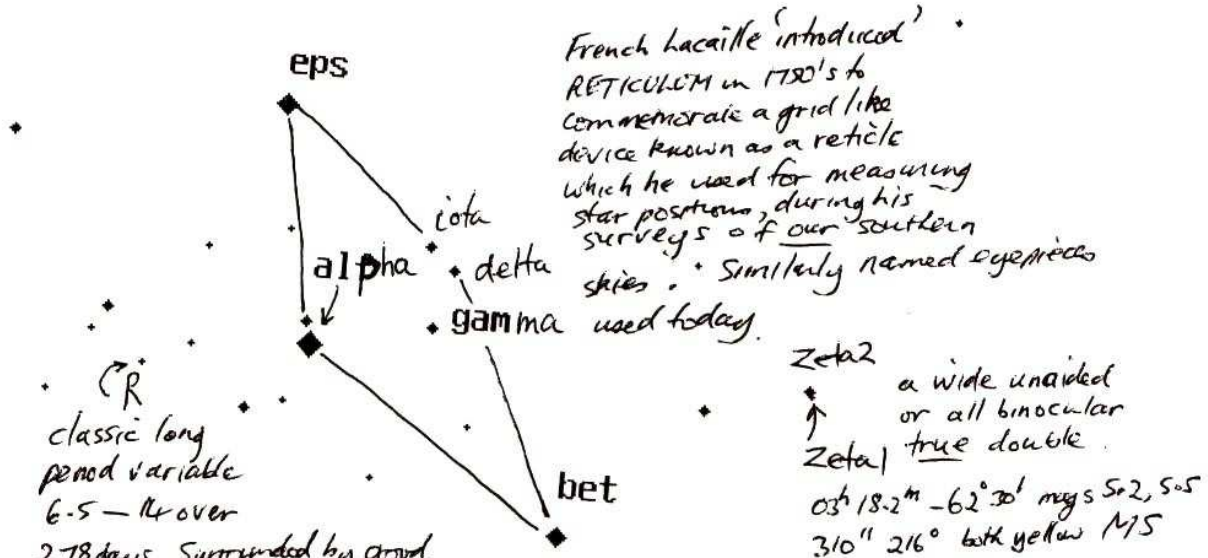
9 00 pm 2nd September SSE Night Sky 2003 Standard Time

15 October

RETICULUM at culmination

alf (DORADO)

N1566 (spiral)
N1553
} ~ magnitude 9.5 galaxies



French Lacaille 'introduced' RETICULUM in 1750's to commemorate a grid like device known as a reticle which he used for measuring star positions, during his surveys of our southern skies. Similarly named eyepieces used today.

R
classic long period variable 6.5 — 14 over 278 days. Surrounded by good stars of fixed brightness for comparison checks

Zeta2
↑
Zeta1
a wide unaided or all binocular true double
03h 18.2m -62° 30' mags 5.2, 5.5
310" 216° both yellow M5

Faintest star 6.5
Faintest galaxy 10.5

Bob Heale, ASF
20/8/2003