



SCORPIUS



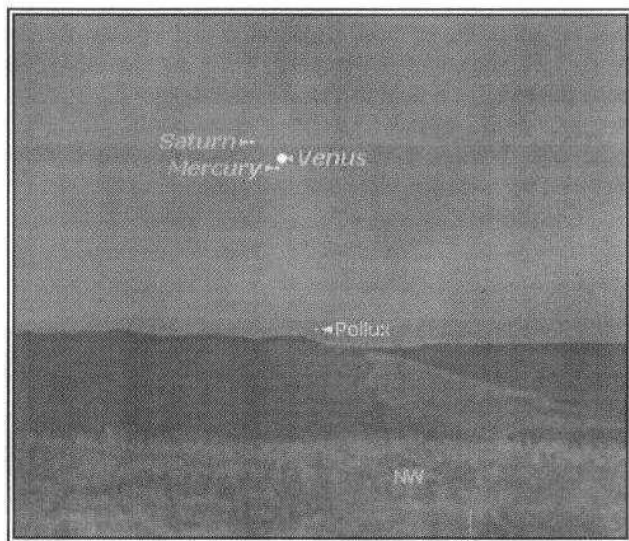
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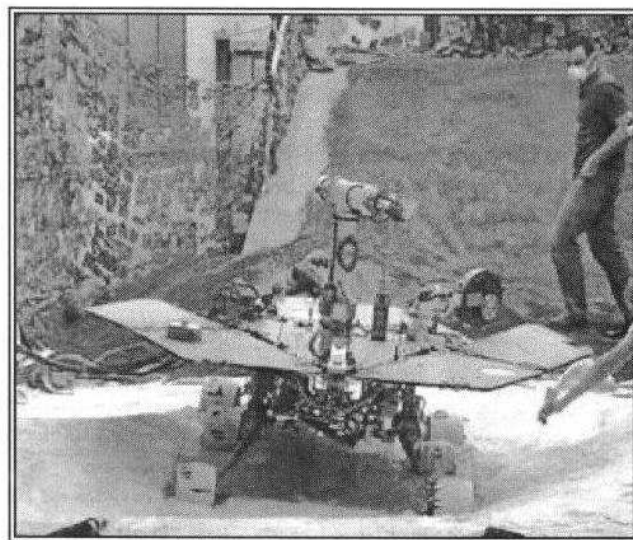
Volume XIV, No. 3 (May 2005)

The Morningside Peninsula Astronomical Society (formerly 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.

Planetary grouping on June 26th



Getting Opportunity Unbogged



Plus :

New Moon discovered within Saturn's rings.

Astrologer to sue NASA.

Titan's complex atmosphere.

A new type of star cluster.

Lagrange Points explained.

May / June field nights and events

6th May – Public viewing night at the Briars

14th May – Messier Night at the Briars

18th May – General Meeting

22nd May – Working Bee at Briars

3rd June - Public viewing night at the Briars

15th June – General Meeting

Society News

General Meetings

The March general meeting at the Peninsula School was held in the common room as the theatrette had been double booked by the school for a school function. Forty five attended, with the President chairing the meeting, reporting that the demonstration meteorite used for the viewing evening had shattered under constant use.

The speaker for the evening was Dr. Russell Cockman, a fellow of the Royal Astronomical Society who had recently returned to Australia in August after 20 years in Scotland, and who spoke about Astrophotography, which had been his passion for many years since his interest was first kindled at about the age of 9. Russell has been a member of the Southern Australasia Aurora Alert Network for some time. During the talk, his simple 1 revolution per day equatorial camera mount was shown (commercially available), together with the photos it produced. These were normally 400ASA slide film, with Provia 400 or Elitechrome 200 being his preferred medium. These were covered in the slides and included, the aurorae Borealis via a 16mm fisheye lens (his favourite subject), transits, conjunctions, the Milky Way, the solar eclipses from Egypt, Melbourne and Zimbabwe, comet Hale-Bopp and Macholtz, the 2002 Leonids, and atmospheric effects such as noctilucent clouds. There was a particularly impressive image he had captured of a coronal angel, being the central region of an auroral corona and bearing a striking resemblance to an angelic form in the skies overhead.



L to R : Peter Skilton, Dr. Russell Cockman, and Marty Rudd of the Southern Australasia Aurora Alert Network.

After numerous questions, the gathering broke for tea, then reassembled to hear Bob Heale deliver Sky for the Month, featuring a true triple star in the False Cross. Peter Skilton showed images of the recent grazing occultation of the Moon by Jupiter, visible across southern Victoria and which had been featured in an article in The Age newspaper.

The membership renewal prize draw was also held, with the prize being a DVD player. Congratulations to Greg Walton who won draw and was present at the meeting and so able to collect it. Meeting closed at 10:25pm.
(Peter Skilton)

VASTROC



VASTROC was held in the central Victorian town of Heathcote on the weekend of 9th April. MPAS members Ian Sullivan and Peter Skilton both attended. Ian spoke about Black Holes whilst Peter spoke about the Cranbourne meteorites.

Left : Ian Sullivan giving his talk on Black Holes.

Right : Coronado Hydrogen Alpha solar filter of the ASV being used to show attendees the prominences on the Sun during the weekend before the storms hit.

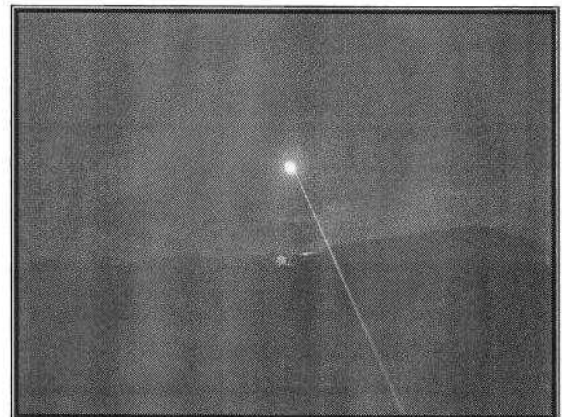


New astronomical laser pointer

The MPAS has purchased a 20mW green laser to be used at public, school and club viewing nights. The laser will be used to point out different objects in the night sky. The laser is a class IIIb and produces a beautiful green beam at a wavelength of 530-532 nm that seems to continue on forever.

The pointer was purchased using grant money that was recently awarded to the MPAS, and was purchased from Sirius Optics in Queensland. If you wish to purchase anything from Sirius Optics, mention that you are an M.P.A.S. member to receive a 10% discount of your purchase.

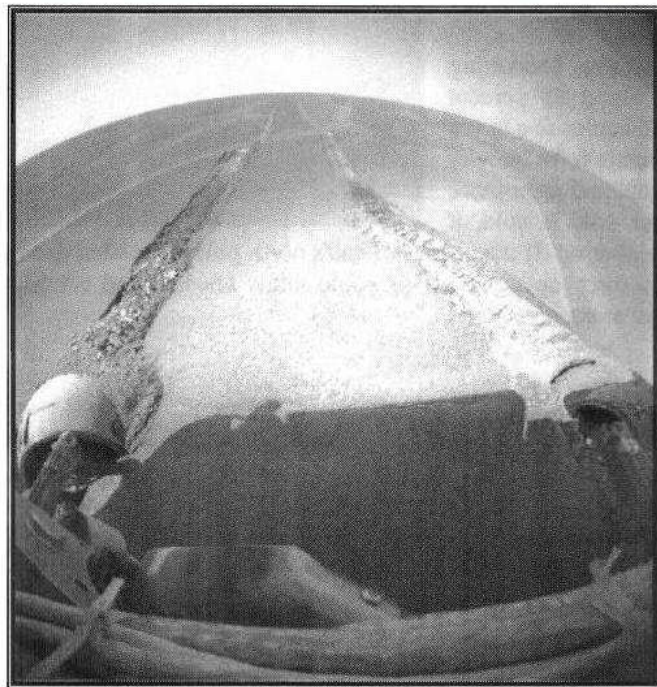
Right : Photo by Marty Rudd using the laser pointer to point to the Moon.



Astro News

Getting Opportunity Unbogged

"Get used to the current scenery, because we're going to be here a while," Mars rover lead scientist Steve Squyres with Cornell University in New York, wrote in his rover Weblog. Soon after discovering a pair of tiny craters dotting the open terrain of Meridiani Plunum, the Mars rover Opportunity drove into a ripple of sand and was stopped dead in its tracks, unable



to free its six wheels. Opportunity was on its way to Erebus crater, which sits inside an even larger crater called Terra Nova, when it got stuck.

Opportunity had driven 40m of a planned 90m during its 446th Martian day when its wheels began to slip. It was driving backwards at the time. The rovers are driven forwards and backwards alternatively to keep wheel lubrication well distributed.

The wheels had turned enough to reach its 90 meter destination but the rover itself had barely moved forward. Opportunity is now stuck on top of an elongated dune that is about 30cm tall and 2.5m wide.

NASA engineers have created a simulated dune out of a mixture of sand that they believe closest represents what Opportunity is stuck in at its rover testing facility, and have positioned a test rover into a comparable position as Opportunity is now. They are now testing ways at manoeuvring Opportunity so as to get it out safely from its current situation.

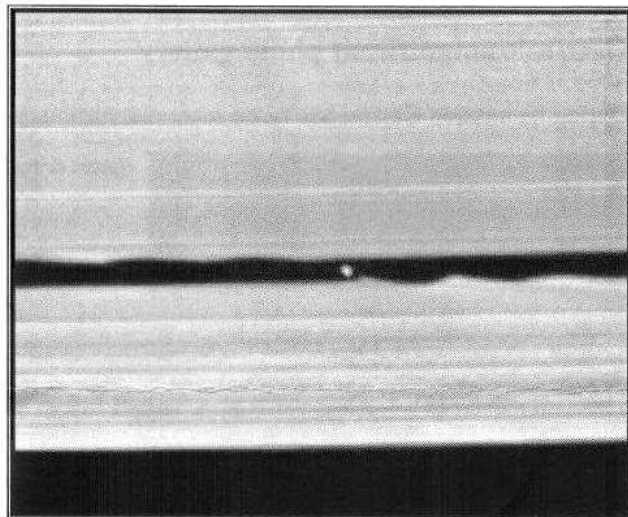
Opportunity has now travelled a total of 5.35 kilometers whilst Spirit has driven a total of 4.31 kilometers. Spirit has been recently studying a rocky outcrop named "Methuselah" as well as taking short movies of dust devils, or whirlwinds crossing the plains.

New Moon discovered around Saturn

A small moon just, 7km across, has been confirmed by Cassini to be orbiting Saturn within Saturn's A ring. Only the second moon to be discovered to be orbiting Saturn within the rings themselves, moon S/2005 S1 orbits within an area known as the Keeler Gap. The other moon is Pan (25km across) which orbits in the Encke Gap.

The moon was first seen in a time-lapse sequence of images taken on May 1, 2005, as Cassini began its climb to higher inclinations in orbit around Saturn. The images show the tiny object in the centre of the Keeler gap and the wavy patterns in the gap edges that are generated by the moon's gravitational influence. The Keeler gap is located about 250 kilometers (155 miles) inside the outer edge of the A ring.

Imaging scientists had predicted the new moon's presence and its orbital distance from Saturn after last July's sighting of a set of peculiar spiky and wispy features in the Keeler gap's outer edge. The similarities of the Keeler gap features to those noted in Saturn's F ring and the Encke gap led imaging scientists to conclude that a small body, a few kilometers across, was lurking in the centre of the Keeler gap, awaiting discovery. Additional closer observations of the new body may take place in the next several months, as Cassini continues its intensive survey of Saturn's beautiful and mysterious rings.



Astrologer to sue NASA

Marina Bai plans to proceed with a lawsuit against NASA for its plans to bombard Comet Temple 1. The Russian astrologer is claiming that NASA's Deep Impact project will 'disrupt the natural balance of the universe' as well as 'infringe upon her spiritual and life values'. Also the comet, Temple 1, has sentimental value to Ms Bai as apparently her grandparents met when her grandfather pointed the comet out to his future wife.

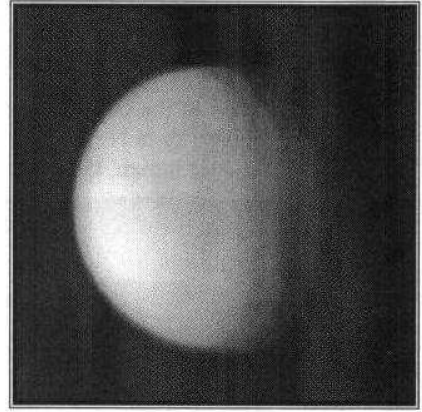
The case was originally thrown out of court as Russia has no jurisdiction over NASA, but the ruling was overturned when Ms Bai's lawyer was able to show that NASA's office in the US embassy in Moscow does fall under Russian jurisdiction. In an attempt to 'maintain' the balance of the Universe, Ms Bai will seek a ruling that will restrict NASA from proceeding with the experiment. The \$US300 million dollars in punitive damages that she is also going to sue NASA for must be to help her keep her spiritual and life values.

Titan's atmosphere

Scientists have had an opportunity to study the atmospheric data sent back by Cassini about the composition of Titan's atmosphere. It now seems that Titan's thick atmosphere is rich in organic compounds, which are similar to conditions that might have been found early in the Earth's history.

The Cassini science team also found a vortex above Titan's north pole, which is very similar to the situation on Earth that leads to the ozone hole. Titan has no ozone, but this polar vortex isolates gas during winter and could allow complex chemistry to occur.

Heavy organic molecules form naturally in Titan's atmosphere, blanketing the moon with an orange haze. Titan's atmosphere consists of about 98 percent nitrogen with most of the remainder being methane. When these molecules rise to the upper atmosphere, they are broken apart by sunlight and the fragments form heavier organic molecules like propane, ethane, acetylene, hydrogen cyanide, and even more complex molecules. Because the stratospheric air over the winter pole is cold, it sinks and brings down the heavy organic compounds that formed higher up. If the air over Titan's north pole is isolated during the winter, the heavy organics should build up in the stratosphere over the season. This could allow unusual and complex chemistry to occur. *Titan & its thick atmosphere harbour complex molecules*

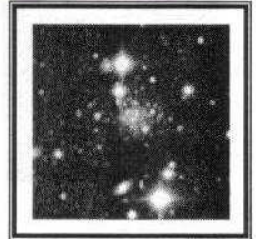


New type of star cluster discovered around M31

Data from a survey of the Andromeda Galaxy that was acquired using the 2.5 m Isaac Newton Telescope in La Palma, Canary Islands, and the 3.6 m Canada-France-Hawaii Telescope in Hawaii, has led a UK-led team of astronomers to discover a completely new type of star cluster around a neighbouring galaxy.

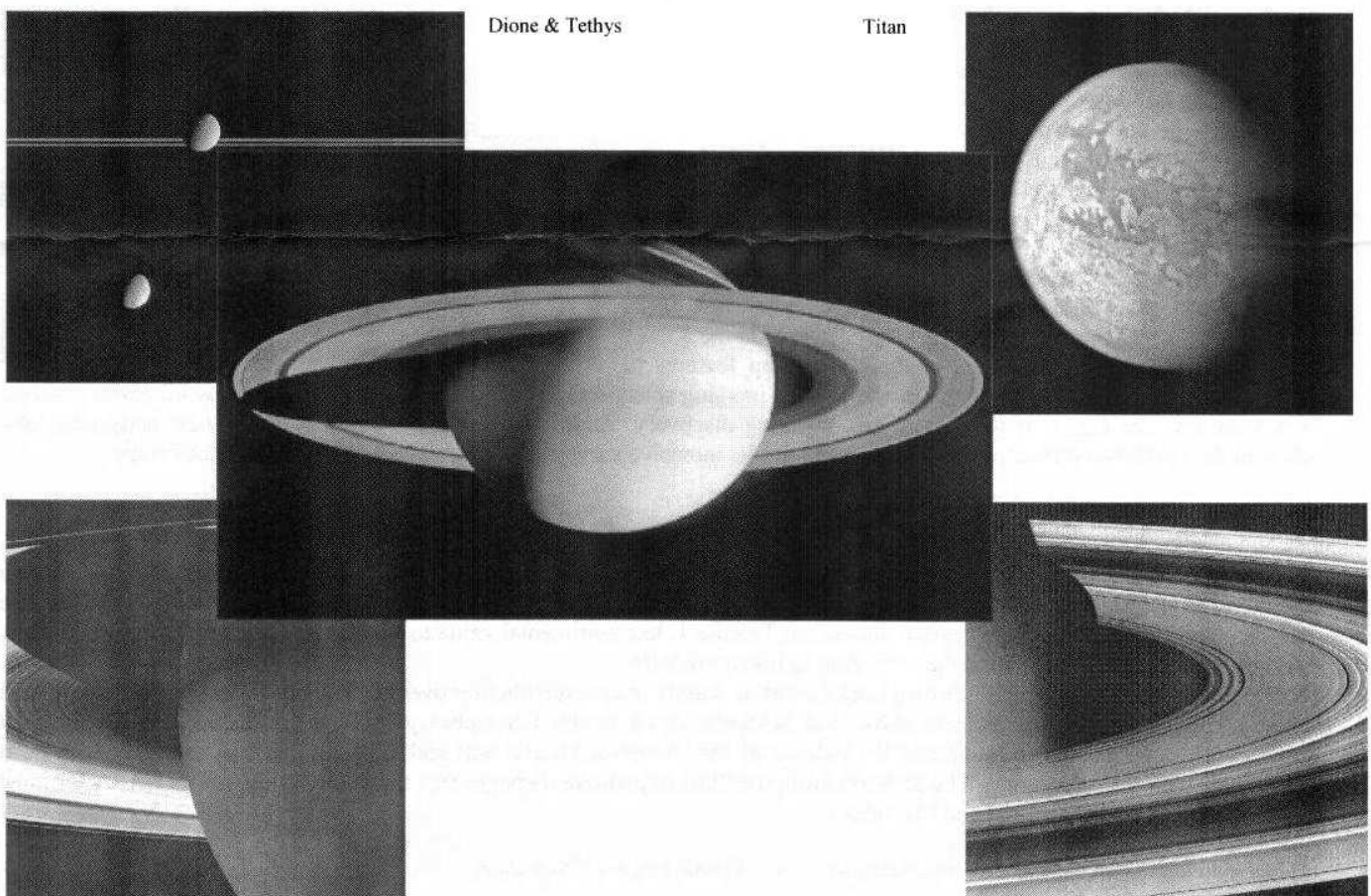
The discovery was made during the course of an unprecedentedly broad and detailed survey of the Milky Way's nearby sister, the Andromeda Galaxy (often referred to by the catalogue number, M31). The survey has so far covered more than 50 square degrees of sky, compared with only a few degrees covered by all previous CCD surveys.

What distinguishes them from the usual globular cluster is that they are much larger - several hundred light years across - and hundreds of times less dense. The distances between the stars are, therefore, much greater within the newly discovered "extended clusters." How these clusters formed is currently a mystery and to date there have been none discovered around our own Milky Way Galaxy; but what is certain is that they are billions of years old and possibly among the first objects to be formed in the Universe.



Cassini's magnificent photo gallery

During its mission Cassini has taken some extraordinary photographs of Saturn & its moon system. Here are a few of the best.



Dione & Tethys

Titan

Lagrange Points Explained

Lagrange points were discovered in 1772 by French mathematician, Joseph Louis Lagrange (1736-1813), during his gravitational studies of the so called 'Three Body Problem' : how a third small body would orbit around two orbiting larger ones. They are points in space where gravitational forces and the orbital motion of a body balance each other out. The Sun-Earth system has five Lagrangian points.

L1

If a spacecraft were to orbit the Sun inside the Earth's orbit it would eventually overtake and move away. However, if a spacecraft were placed between the Earth and Sun, the Earth's gravity pulls in the opposite direction and cancels some of the Sun's pull. If the spacecraft is placed at just the right position, about a one hundredth the distance to the Sun (1.5 million kilometres from the Earth), we find L1, where the spacecraft will keep its position between the Earth and Sun and will take one year to orbit the Sun.

L1 is a great position to monitor the sun and is currently home of the Solar and Heliospheric Observatory Satellite (SOHO).

L2

L2 is found 1.5 million kilometers directly 'behind the Earth as viewed from the Sun but it has a similar effect as L1. A spacecraft placed there has the extra pull of the Earth, allowing it to move faster and keep up with the Earth. L2 is a great place to observe the larger universe. The L1 and L2 points are unstable on a time scale of approximately 23 days, which requires satellites parked at these positions to undergo regular course and attitude corrections.

L3

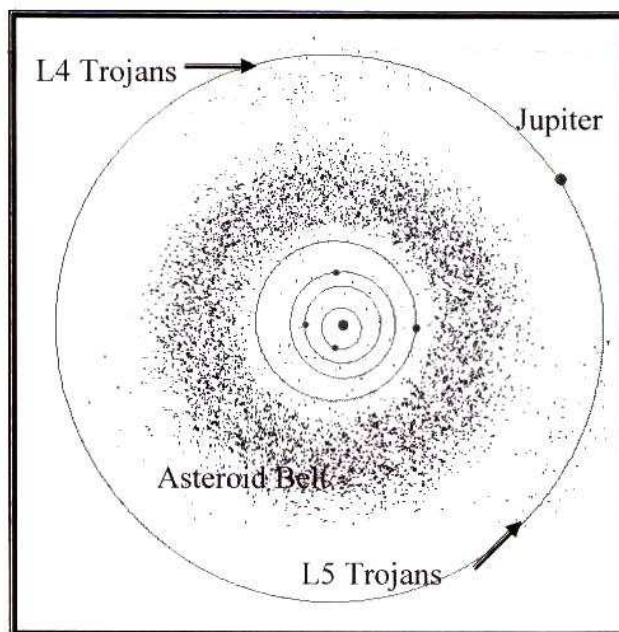
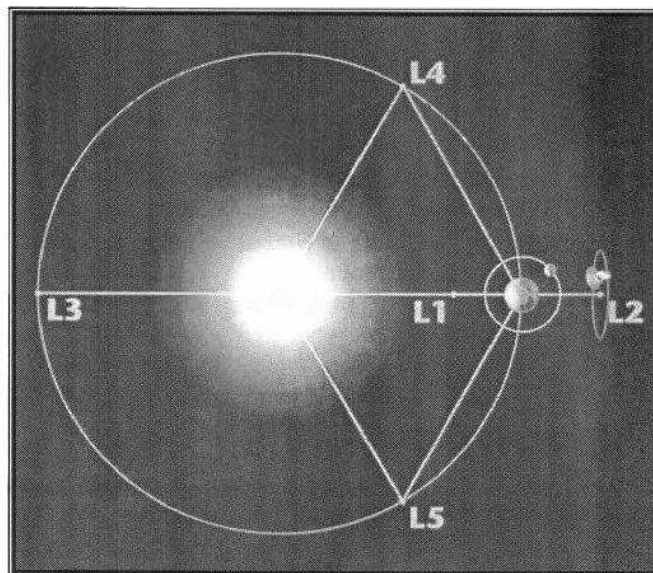
L3 lies on the opposite side of the Sun, just outside the Earth's orbit. The combination of the Sun's and Earth's gravity would cause a spacecraft's orbital period to equal that of the Earth but since the position of this Lagrange Point is permanently behind the Sun, any use for it is unlikely. L3 was thought also to be the position of the mysterious "Planet X".

L4 and L5

The L4 and L5 points lie at 60 degrees ahead of and behind the Earth in its orbit as seen from the Sun. These points are gravitationally stable and objects tend to collect in these points such as dust and asteroid type objects. Actually they are not exactly points but are bowl-shaped valleys in which a body displaced in any direction returns to the centre and are therefore known as points of **stable** equilibrium. They are located in the Moon's orbit, equidistant from both the Earth and the Moon, with which form congruent equilateral triangles. Because of the inclination of the moon's orbit around the earth and the influence of the sun's gravity field, L4 and L5 are not therefore stable points. The good news is that there is a stable orbit around those points. The orbit is shaped like a kidney bean and about half a million miles long. Objects in these orbits would circulate around once every 89 days. A spacecraft here does not need frequent rocket firings to stabilise its orbit and these points have been studied as possible sites for permanent space stations.

Trojan Asteroids

The L4 and L5 points are home to stable orbits so long as the mass ratio between the two large masses exceeds 24.96. This condition is satisfied for both the Earth-Sun and Earth-Moon systems, and for many other pairs of bodies in the solar system. Objects found orbiting at the L4 and L5 points are often called Trojans after the three large asteroids Agamemnon, Achilles and Hector that orbit in the L4 and L5 points of the Jupiter-Sun system. (According to Homer, Hector was the Trojan champion slain by Achilles during King Agamemnon's siege of Troy). There are hundreds of Trojan Asteroids in the solar system. Most orbit with Jupiter, but others orbit with Mars. In addition, several of Saturn's moons have Trojan companions. No large asteroids have been found at the Trojan points of the Earth-Moon or Earth-Sun systems. However, in 1956 the Polish astronomer Kordylewski discovered large concentrations of dust at the Trojan points of the Earth-Moon system. Recently, the DIRBE instrument on the COBE satellite confirmed earlier IRAS observations of a dust ring following the Earth's orbit around the Sun. The existence of this ring is closely related to the Trojan points, but the story is complicated by the effects of radiation pressure on the dust grains.



Skywatchers Events

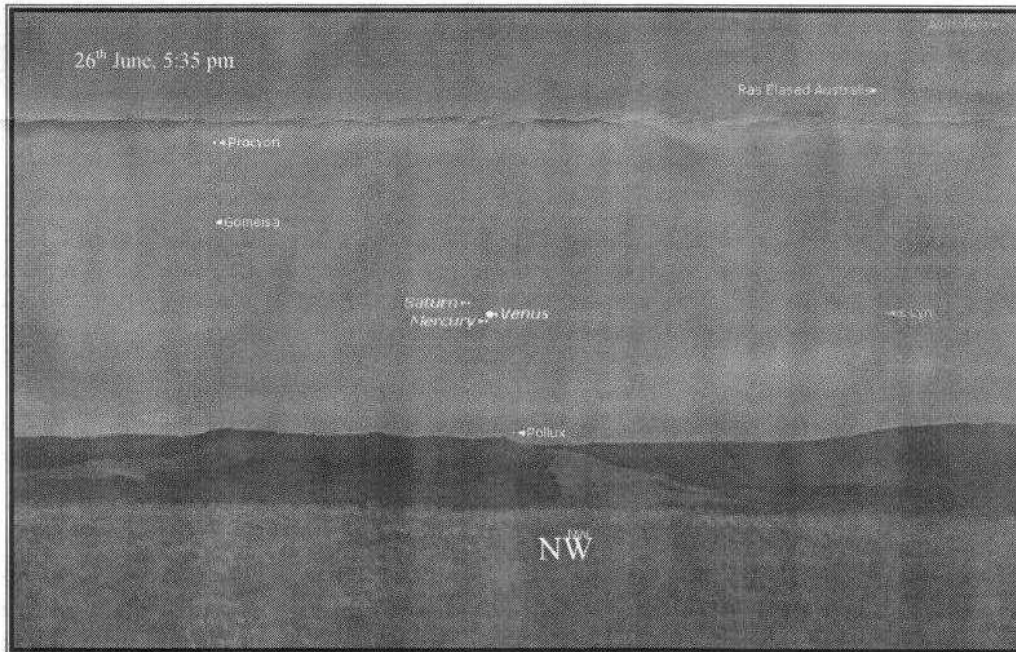
May

- 1st Moon last quarter
- 5th eta-Aquarids meteor shower peaks
- 8th New Moon
- 15th Mars 1.2° South of Uranus
- 16th First quarter Moon
- 23rd Comet C/2003 T4 at 7th mag, 3° from M2
- 24th Full Moon
- 30th Last quarter Moon

June

- 7th New Moon
- 15th First quarter Moon
- 16th Jupiter 0.4° north of the Moon
- 21st Winter Solstice 14:30 hrs
- 22nd Full Moon
- 26th Mercury, Venus, Saturn form a planetary grouping

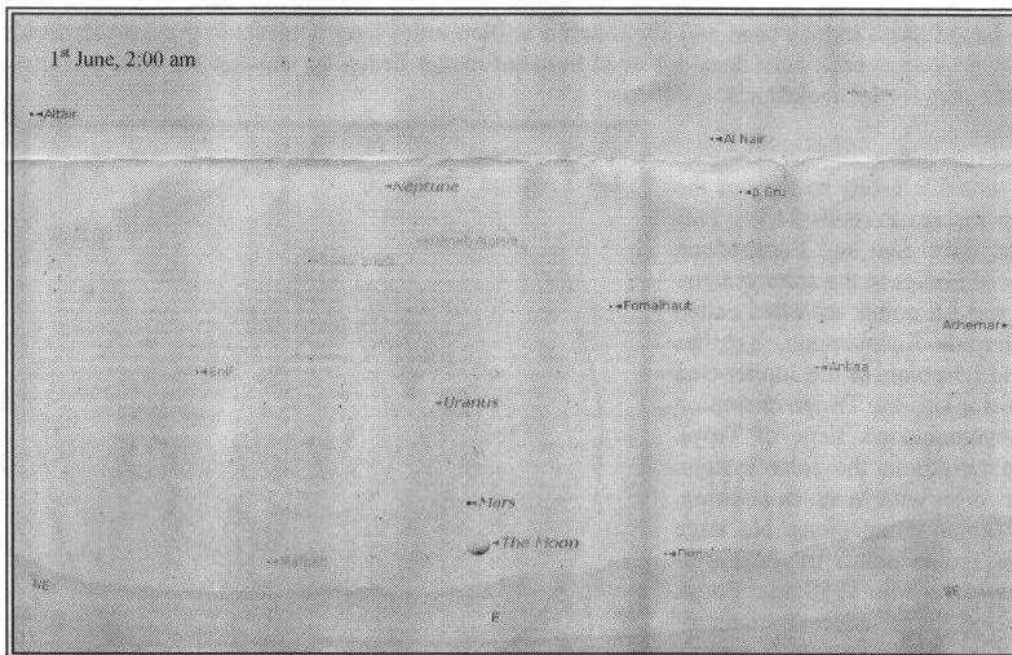
Planetary Conjunctions



On June 26th, Mercury, Venus and Saturn will form a lovely planetary conjunction where all three planets will be within a span of just 1.3°. This event can be seen approximately 30 minutes after sunset just above the north western horizon.

Venus will be brightest glowing at mag -3.9 with Mercury only 0.2° away glowing at -0.2. Saturn is a slightly fainter mag. 0.22.

Although this closest conjunction occurs on the 26th, for a number of days either side of this date, the planets are within a 5° area of sky.



On the morning of June 1st, Mars (magnitude 0.3) and the Moon will also be in close proximity to one another, making for a nice photo opportunity.

Get the scope or binoculars out as well because Neptune (magnitude 8) and Uranus (magnitude 6) are also in the sky above Mars.

The Moon rises at approximately 1:45 am.

WEB SITES

Further information on some of the stories in this edition of *Scorpius* can be found at the following addresses :

- Mars rovers and their images : <http://marsrovers.jpl.nasa.gov/home/index.html>
http://www.nasa.gov/vision/universe/solarsystem/mer_main.html
- Cassini and the Huygens Probe : <http://www.esa.int/SPECIALS/Cassini-Huygens/index.html>
<http://saturn.jpl.nasa.gov/home/index.cfm>
- Astronomy in general : <http://www.astronomy.com/>
<http://www.space.com/>
<http://skyandtelescope.com/>
<http://www.sky-watch.com/>

ASTRONOMY CLASSES

Astronomy Classes at Mornington Library. These classes, run by Ian Sullivan, will be held at the library in Vancouver St, (Melways 104 D10), from 1.00-4.00 pm. Ian will make provision for new students each session, as well as continuing work for those returning. The cost is \$5 for members and \$8 for non-members (payable on the day). If you wish to attend, please contact Ian at the meeting, or by phone (03 9555 6913).

Astronomy 2005

It's May already and we've already had some fantastic astronomical events. To help plan for future astronomical events the excellent annual Australian publication, **Astronomy 2005**, is still available. The book shows what's in the night sky throughout 2005, and is aimed at all levels of amateur astronomer, from newcomer to expert.

Astronomy 2005 is now available at a discounted price of only \$15.00 each.

Orders and payments can be made in person at any MPAS gathering, by cheque to P.O. Box 596, Frankston 3199, or by phone by leaving a message on 0419 253 252.

These sky almanacs will be available at any society gathering.

Astro Crossword

Clues	1	2	3	4	5	6	7
ACROSS							
1. Variable star type							
8. 0 charge elementary particle	8					9	
9. Greek alphabet letter							
10. Uranus 9th closest moon							
12. the Lion							
14. NGC 7293				10		11	
15. Albert . . . (Physicist)							
16. Asteroid 7 (disc. 1847)							
17. Flattening of planet by spin	12	13	14				
19. Brightest planet in sky							
21. Huygens landed here							
DOWN							
1. 88 in the night sky							
2. Smallest planet							
3. Dark part of moon glowing			15				
4. Beta Leonis							
5. Cool very large bright star						16	
6. now disintegrated comet	17			18			
7. May meteor shower							
11. Type of Newtonian telescope							
13. Comet nuclei reside here							
18. Variable that has outbursts				19		20	
20. Standard Time (Abbr)							
						21	

(Answers on back page)

Office bearers of the Mornington Peninsula Astronomical Society

President	: Peter Lowe – 0419 355 819	Secretary	: Don Leggett
Vice President	: Ian Sullivan	Treasurer	: Marty Rudd – 5977 8863
Editor	: Marty Rudd	Public Officer	: Rhonda Sawosz
Committee	: Peter Skilton Terry Ryan		
Librarian	: Andrew Thornton	Web Master	: Richard Pollard
Phone Contact	: Peter Skilton		

Meetings

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

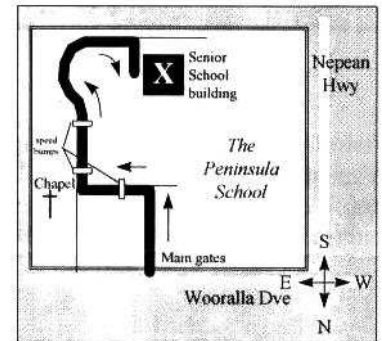
Mail: P.O. Box 596, Frankston 3199, Victoria, Australia

Internet: <http://www.mpas.websyte.com.au>

E-mail: quasar3671@aol.com

Subscriptions

Full Member	\$50.00	Family	\$65.00
Pensioner	\$45.00	Family Pensioner	\$60.00
Student	\$35.00	Newsletter Only	\$22.00



Loan Equipment

The Society has an 8-inch reflector, 80mm refractor and binoculars available for loan.

Contact a committee member to arrange the loan of equipment.

The Society also has books and videos for loan from its library, made available during General Meetings.

Viewing Nights

Members only: Any night, at The Briars, Nepean Hwy, Mt. Martha, starting at dusk. If you would like to know if others are observing at the site, then call the society's site mobile on (0408) 127 443. Members visiting The Briars for the first time must contact John Cleverdon on 5987 1535 if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building and verify that the mobile is turned on.

Future Events

6 th May, Friday	- Briars Public Viewing Night
14 th May, Saturday	- Messier Night at the Briars
18 th March, Wednesday	- General Meeting at The Peninsula School
	- Session 1 : Speaker
	Session 2 : Video : Apollo 15 and 16
	Session 3 : Open forum and <i>Sky for the Month</i>
22 nd May, Sunday	- Working Bee at the Briars
3 rd June, Friday	- Briars Public Viewing Night
15 th June, Wednesday	- General Meeting at The Peninsula School
	- Session 1 : Peter Litwiniuk (ASV) speaks on "Asteroid Belts in the Solar System"
	Session 2 : Video : 'John Harrison and his time keepers at Greenwich Observatory'
	Session 3 : Open forum and <i>Sky for the Month</i>

Crossword Answers :

Across : 1. Cepheid variable, 8. Neutrino, 9. Beta, 10. Belinda, 12. Leo, 14. Helix Nebula, 15. Einstein, 16. Iris, 17. Oblateness, 19. Venus, 21. Titan

Down : 1. Constellation, 2. Pluto, 3. Earthshine, 4. Denebola, 5. Red Giant, 6. Biela, 7. Eta Aquarids, 11. Dobsonian, 13. Oort Cloud, 18. Nova, 20. ST

Scorpius Extra!!!!

Right - John Dobson talking at Vastroc 2005 hosted by ASV in Heathcote
Photo - By Greg Walton



Above - Solar viewing at Vastroc 2005 hosted by ASV in Heathcote
Photo - By Kevin Rossiter



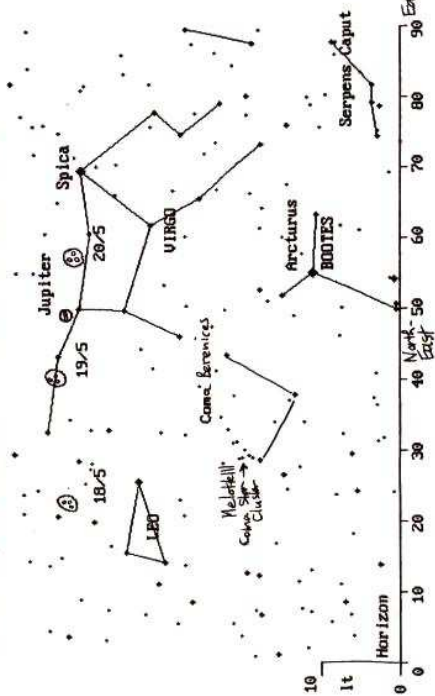
Right - MPAS members at Vastroc 2005 hosted by ASV in Heathcote
Photo - By Kevin Rossiter



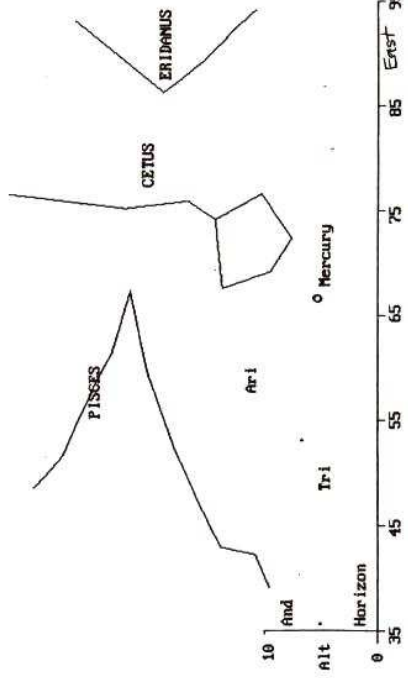
Right - Working Bee at the MPAS Briars site on 22nd May 2005
Photo - By John Cleverdon

SKY FOR THE MONTH 18th MAY TO 14th JUNE (INCLUSIVE) MORNINGTON PENINSULA 2005

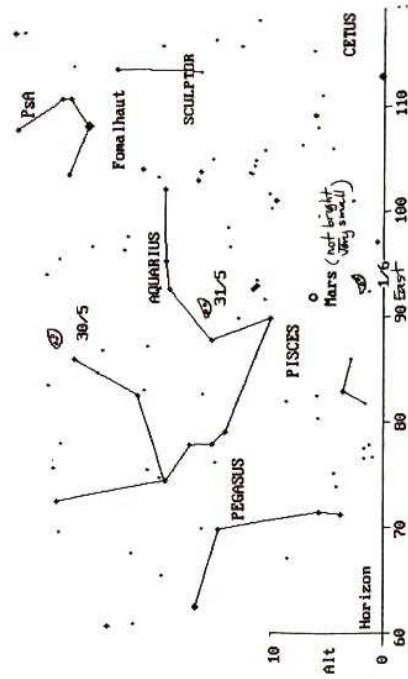
6:53pm Dark Sky 19th May 2005 Standard Time
Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



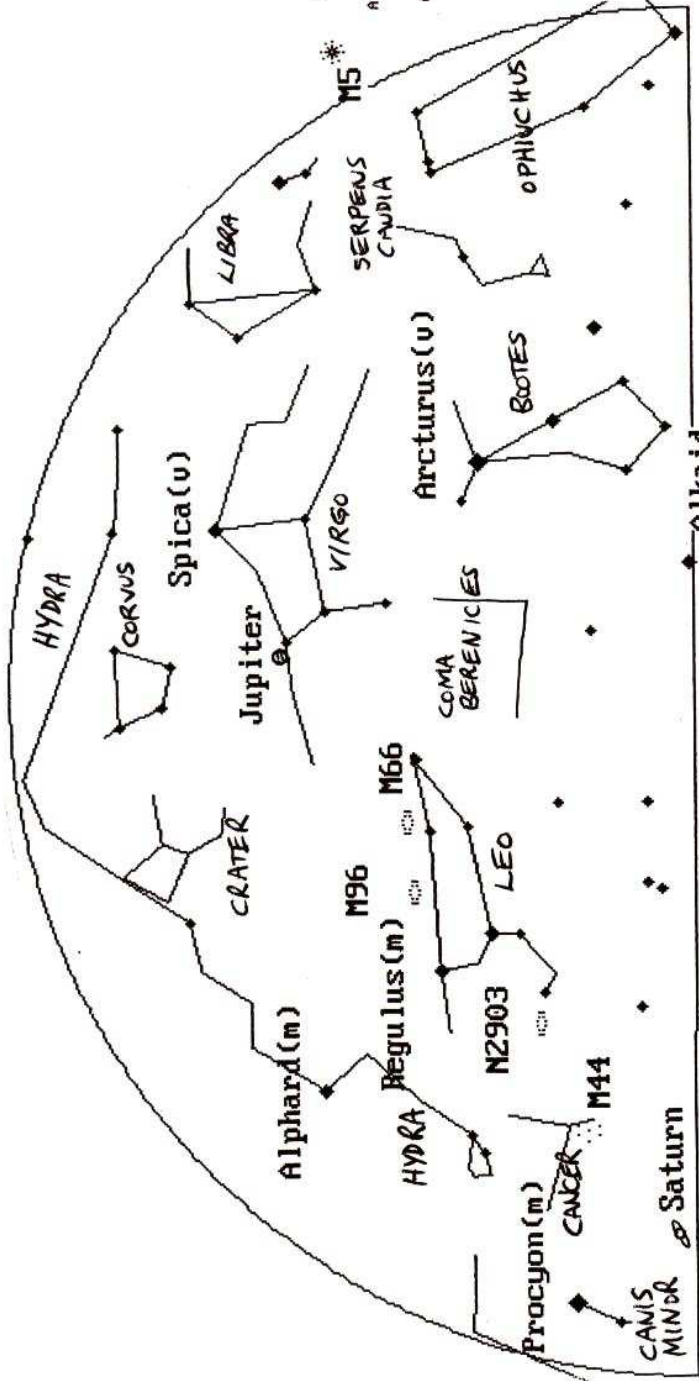
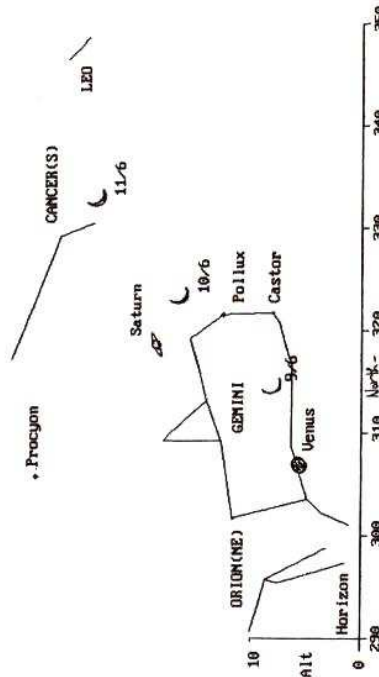
6:30 am 1/2 Dark Sky 21st May 2005 Standard Time
Faintest object is mag 2.5 U1.00 (c) Bob Heale 13/1/03



1:31 am Dark Sky 31st May 2005 Standard Time
Faintest object is mag 5.5 U1.00 (c) Bob Heale 13/1/03



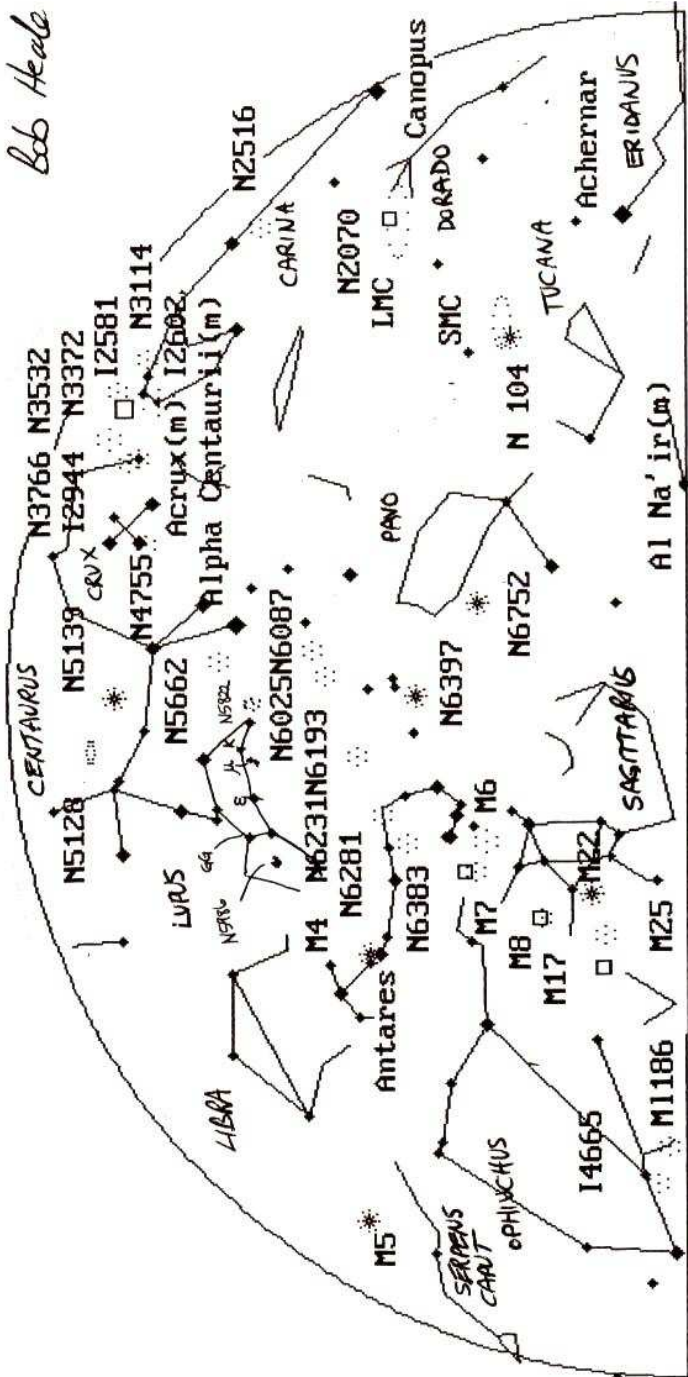
5:43pm 2/3 Bright Sky 10th June 2005 Standard Time
Faintest object is mag 2.5 U1.00 (c) Bob Heale 13/1/03



8:00 pm 1st June North Dark Sky 2005 Standard Time, also 18th May
9:00pm and 15th June 7:00pm Standard Time (not planets)

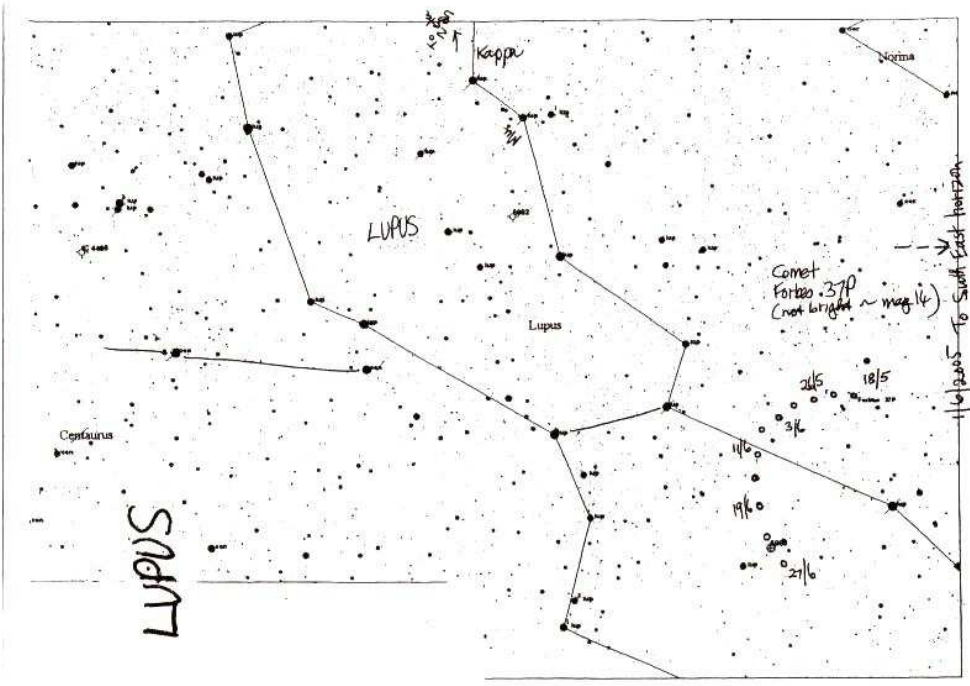
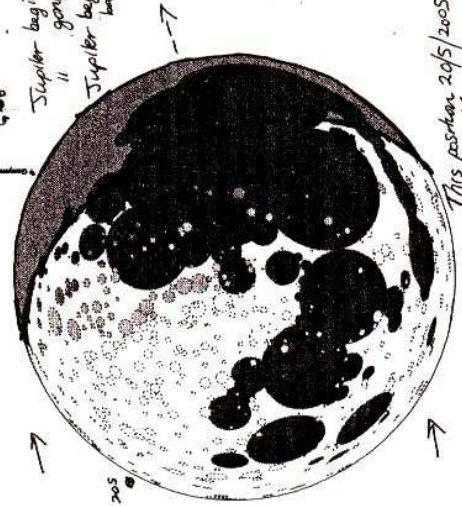
Bob Heale MPAS 17/5/2005

Bob Heale MPAS 17/5/2005



pm 18th May and 15th June 1st June South-East Dark Sky 2005 Standard Time, and 9:00 Standard Time

~ 8:20am
 Jupiter and Moon
 over stars
 Jupiter begins disappearance 8:25am
 " gone 8:27am
 Jupiter begins appearance 8:56am
 back 8:57m 20s
 ~ 8:20am
 At left refer over sheet at top left
 Yes, the eclipse is ~ 8:20am even the computer scopes should be able to find Moon (and Jupiter)
 ~ 8:20am
 This position 29/5/2005 8:17am



For above, refer this side at top left, some good easy LUPUS objects - easy doubles and multiples along south west edge Kappa, Epsilon, Mu, and, Forbes Comet 37P.

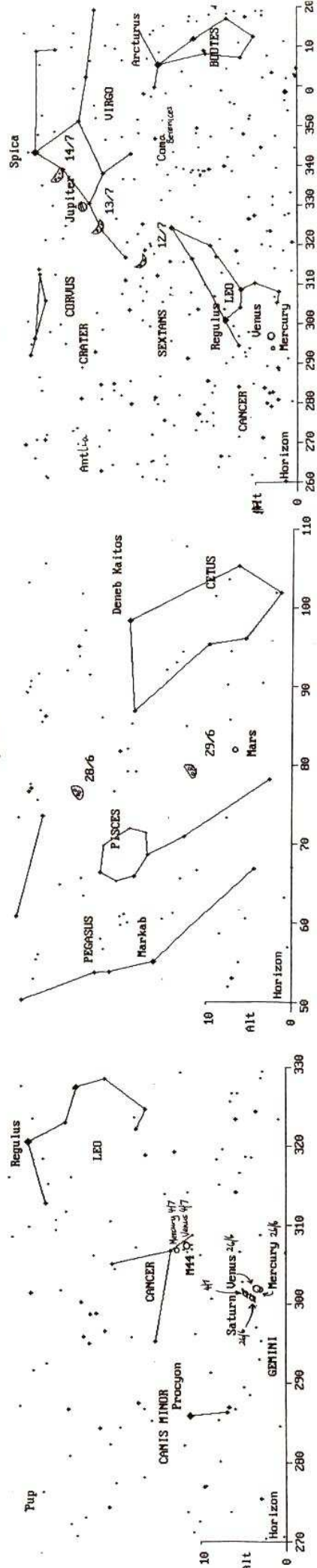
SKY FOR THE MONTH 15TH JUNE 2005 - 19TH JULY 2005 MORNINGTON PENINSULA

6 25 pm 5/6 Dark Sky 26th June 2005 Standard Time
 Faintest object is mag 5

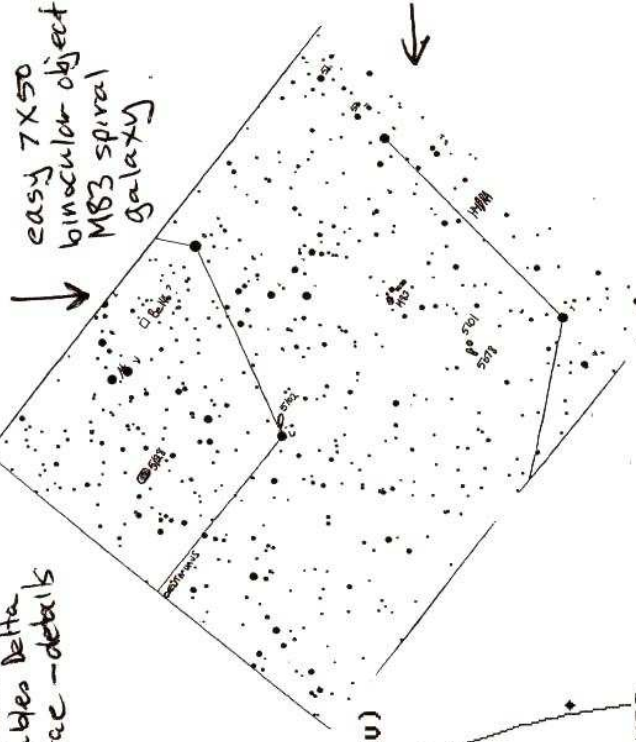
1 17 am Dark Sky 29th June 2005 Standard Time
 Faintest object is mag 5.5

1 17 am Dark Sky 29th June 2005 Standard Time
 Faintest object is mag 5.5

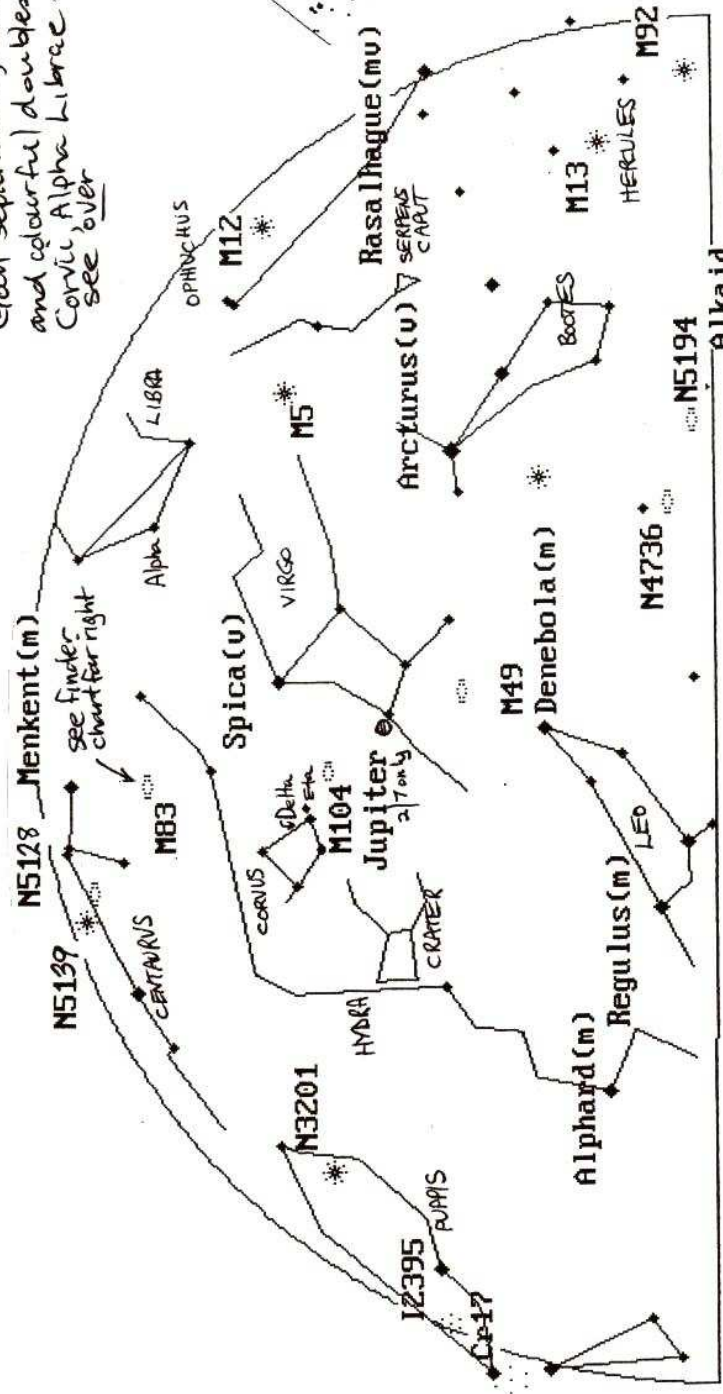
6 50 pm Dark Sky 13th July 2005 Standard Time
 Faintest object is mag 5.5



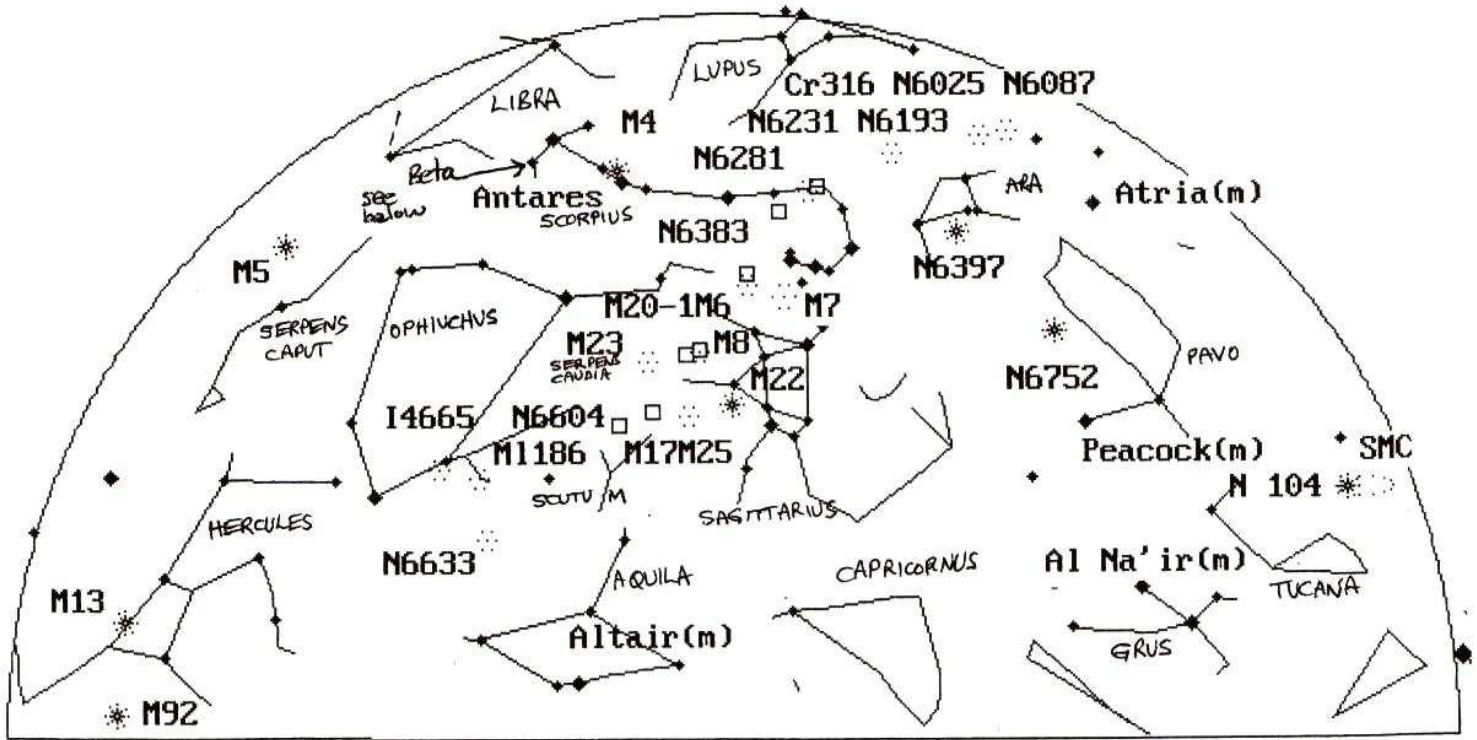
Good separation, contrast and colourful doubles Delta Corvii, Alpha Librae - details see over



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 13/6/2005



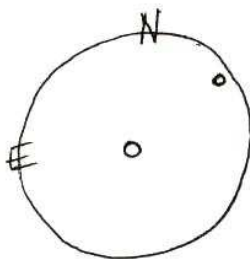
8 30 pm 2nd July NW Dark Sky 2005 Standard Time, also 18th June
 9 30pm - 7 30 pm 16 July Standard Time



18th June 8 30 pm 2nd July East Dark Sky 2005 Standard Time, also 9 30
 and 16th July 7 30 pm Standard Times

July doubles with good separation, contrast and colour

Delta Corvici 12^h 29.9^m -16° 31'
 Algorab yellow lilac
 mag 3 mag 9-2



refer
 NW hemisphere
 chart

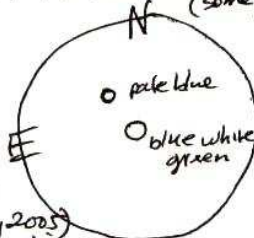


4" newtonian reflector

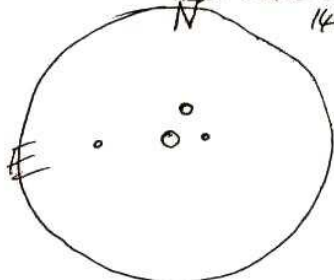
Alpha Librae 14^h 50.9^m -16° 02'
 white mag 2.8 yellow mag 5.2

East hemisphere chart

Beta Scorpii 16^h 05.4^m -19° 48' brilliant blue white
 (some green?)
 mag 2.6, pale blue 4.9



Well - this one not easy!
 Unusual multiple star
 h 46 38 (June Astronomy 2005)
 near zeta Centauri



14^h 00.0^m -47° 14'
 mags 8.9/10.8/12/12
 - 3/4/11/10/25/11
 - 8.0/9.3/9.4

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